



July 17, 2000

QUARTERLY GROUNDWATER MONITORING REPORT
MAY 2000 GROUNDWATER SAMPLING
ASE JOB NO. 3648

at
1310 Central Avenue
Alameda, California

Prepared for:
Mr. Nissan Saidian
5733 Medallion Court
Castro Valley, CA 94522

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

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PROFESSIONAL

1.0 INTRODUCTION

Site Location (Site), See Figure 1

1310 Central Avenue
Alameda, CA

Responsible Party

Mr. Pritpaul Sappal
c/o Mr. Nissan Saidian
5733 Medallion Court
Castro Valley, CA 94522

Environmental Consulting Firm

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

Agency Review

Mr. Larry Seto
Alameda County Health Care Services Agency (ACHCSA)
1131 Harbor Bay Parkway, Suite 250
Alameda, CA 94502

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

The following is a report detailing the methods and findings of the May 2000 quarterly groundwater sampling at the above-referenced site (*Figure 1*). This sampling was conducted as required by the ACHCSA and RWQCB. ASE has prepared this report on behalf of Mr. Nissan Saidian, owner of the property.

2.0 GROUNDWATER FLOW DIRECTION AND GRADIENT

On May 16, 2000, ASE associate geologist Ian Reed 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 with a product thickness bailer. 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 for May 16, 2000 is presented as *Figure 2*. Groundwater beneath the site flows to the west with a gradient of approximately 0.005-feet/foot.

3.0 GROUNDWATER SAMPLE COLLECTION AND ANALYSIS

Prior to sampling, all monitoring wells were purged of four well casing volumes of groundwater using dedicated polyethylene bailers. Petroleum hydrocarbon odors were present during the purging and sampling of monitoring well MW-1 and MW-3. 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.

All samples were decanted from the bailers into 40-ml volatile organic analysis (VOA) vials, pre-preserved with hydrochloric acid, and sealed without headspace. The samples were then labeled and placed in coolers with wet ice for transport to Kiff Analytical, LLC of Davis, California 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 collected from all three site monitoring wells were analyzed for total petroleum hydrocarbons as gasoline (TPH-G) by EPA Method 5030/8015M, total petroleum hydrocarbons as diesel (TPH-D) by EPA Method 3550/8015M, benzene, toluene, ethyl benzene, and total xylenes (collectively known as BTEX) and fuel oxygenates by EPA Method 8020. The analytical results are presented in *Table Two* and the certified analytical report and chain-of-custody documentation are included as *Appendix B*.

4.0 CONCLUSIONS

Groundwater samples collected from monitoring well MW-1 contained 20,000 parts per billion (ppb) TPH-G, 38 ppb benzene, 6.3 ppb toluene, 740 ethyl benzene, and 1,600 total xylenes. Groundwater samples collected from monitoring well MW-3 contained 17,000 ppb TPH-G, 2,800 ppb benzene, 60 ppb toluene, 380 ppb ethyl benzene, 190 ppb total xylenes, 990 ppb methyl tertiary butyl ether (MTBE), 9.1 tert-amyl methyl ether (TAME), and 350 ppb tert-butanol (TBA). No hydrocarbons were detected above the laboratory reporting limit in groundwater samples collected from monitoring well MW-2.

The benzene concentrations in groundwater samples collected from monitoring wells MW-1 and MW-3 exceeded the Department of Health Services (DHS) maximum contaminant level (MCL) for drinking water. The ethyl benzene concentration in monitoring well MW-1 and the MTBE concentration in groundwater samples collected from monitoring well MW-3 also exceeded DHS MCLs for drinking water.

These results are different from the previous sampling results, especially in respect to the hydrocarbon concentrations in monitoring well MW-2, and the MTBE concentrations throughout the site. The radically different MTBE concentrations this sampling period are probably related to the use of EPA Method 8260 this period which is a more reliable method for MTBE identification than EPA Method 8020, which was used during the November 1999 sampling. ASE believes that the elevated MTBE concentrations detected in November 1999 were a false positive and that the recent MTBE values are more accurate.

5.0 RECOMMENDATIONS

ASE is currently scheduled to complete further soil and groundwater assessment within the next 30 days. This additional assessment is outlined in the ASE workplan dated May 24, 2000.

6.0 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 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 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,

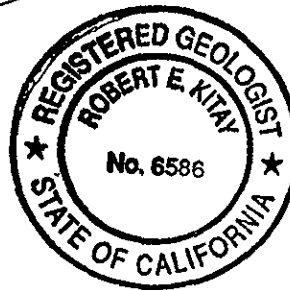
AQUA SCIENCE ENGINEERS, INC.



Ian T. Reed
Associate Geologist



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



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

cc: Mr. Nissan Saidian
Mr. Larry Seto, ACHCSA
Mr. Chuck Headlee, RWQCB, San Francisco Bay Region

TABLES

TABLE ONE
GROUNDWATER ELEVATION DATA

Well	Date of Measurement	Top of Casing Elevation (msl)	Depth to Water (feet)	Groundwater Elevation (msl)
MW-1	9/6/99	26.85	5.16	21.69
	5/16/00		3.24	23.61
MW-2	9/6/99	27.18	5.56	21.62
	5/16/00		3.52	23.66
MW-3	9/6/00	25.30	4.02	21.28
	5/16/00		2.06	23.24

TABLE TWO

Summary of Chemical Analysis of GROUNDWATER Samples

Petroleum Hydrocarbons

All results are in parts per billion

Well/ Date Sampled	TPH Gasoline	TPH Diesel	Benzene	Toluene	Ethyl Benzene	Total Xylenes	MTBE	TAME	TBA	Other Oxygenates
<u>MW-1</u>										
9/6/99	5,700	8,700	170	59	22	85	20,000	NA	NA	NA
5/16/00	20,000	<7,500	38	6.3	740	1,600	<5.0	<5.0	<50	<5.0
<u>MW-2</u>										
9/6/99	6,000	70	1,300	92	50	400	6,800	NA	NA	NA
5/16/00	<50	<50	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<50	<5.0
<u>MW-3</u>										
9/6/99	43,000	870	860	70	<0.5	65	120,000	NA	NA	NA
5/16/00	17,000	<5,000	2,800	60	380	190	990	9.1	350	<5.0
DHS MCL	NE	NE	1	150	700	1,750	13	NE	NE	VARIES

Notes:

MTBE = Methyl-t-butyl ether

TAME = Tert-amyl methyl ether

TBA = Tert-Butanol

DHS MCL is the California Department of Health Services maximum contaminant level for drinking water.

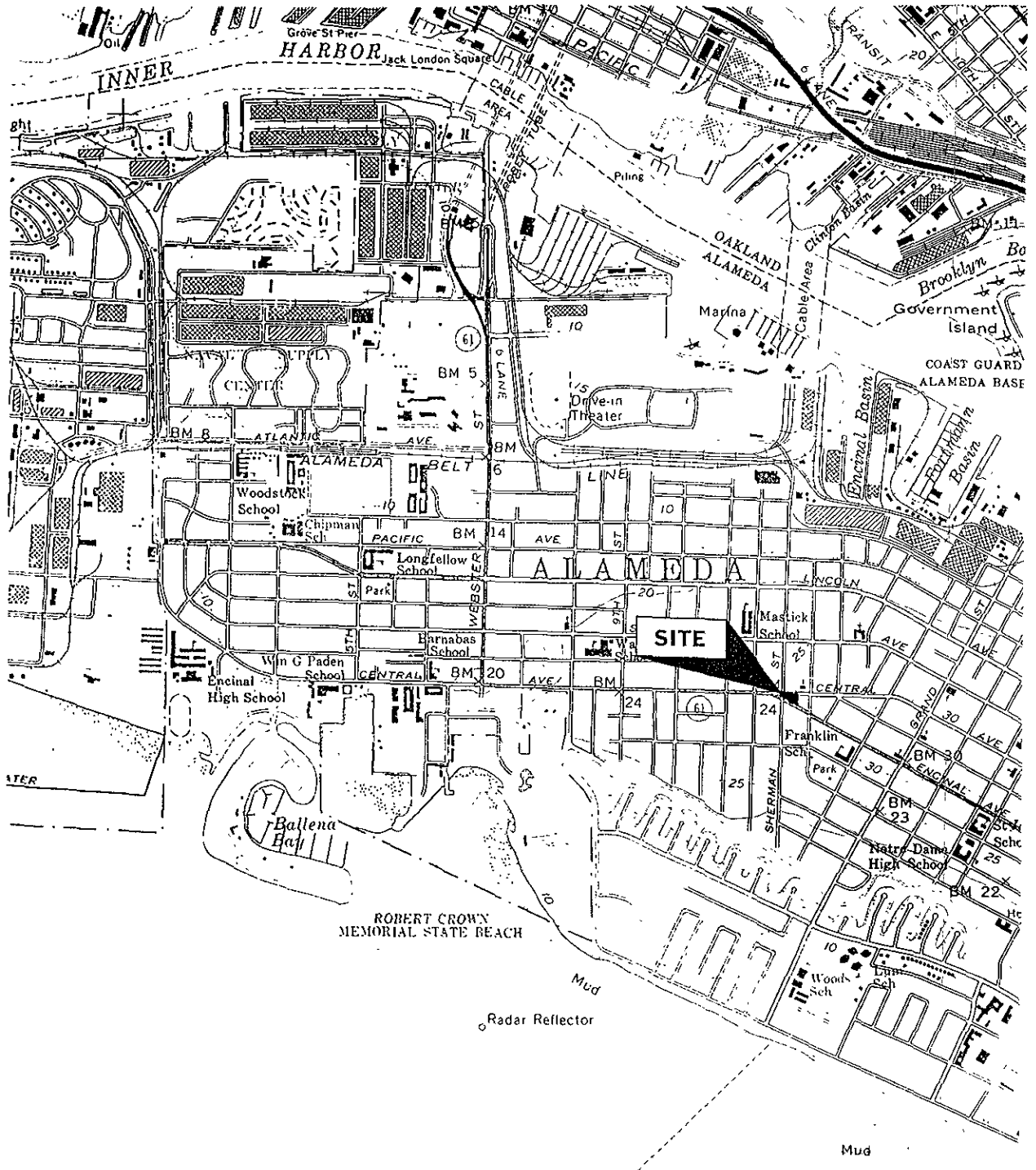
NA = Samples Not Analyzed for this compound.

NE = DHS MCLs are not established.

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

Detectable concentrations are in bold.

FIGURES

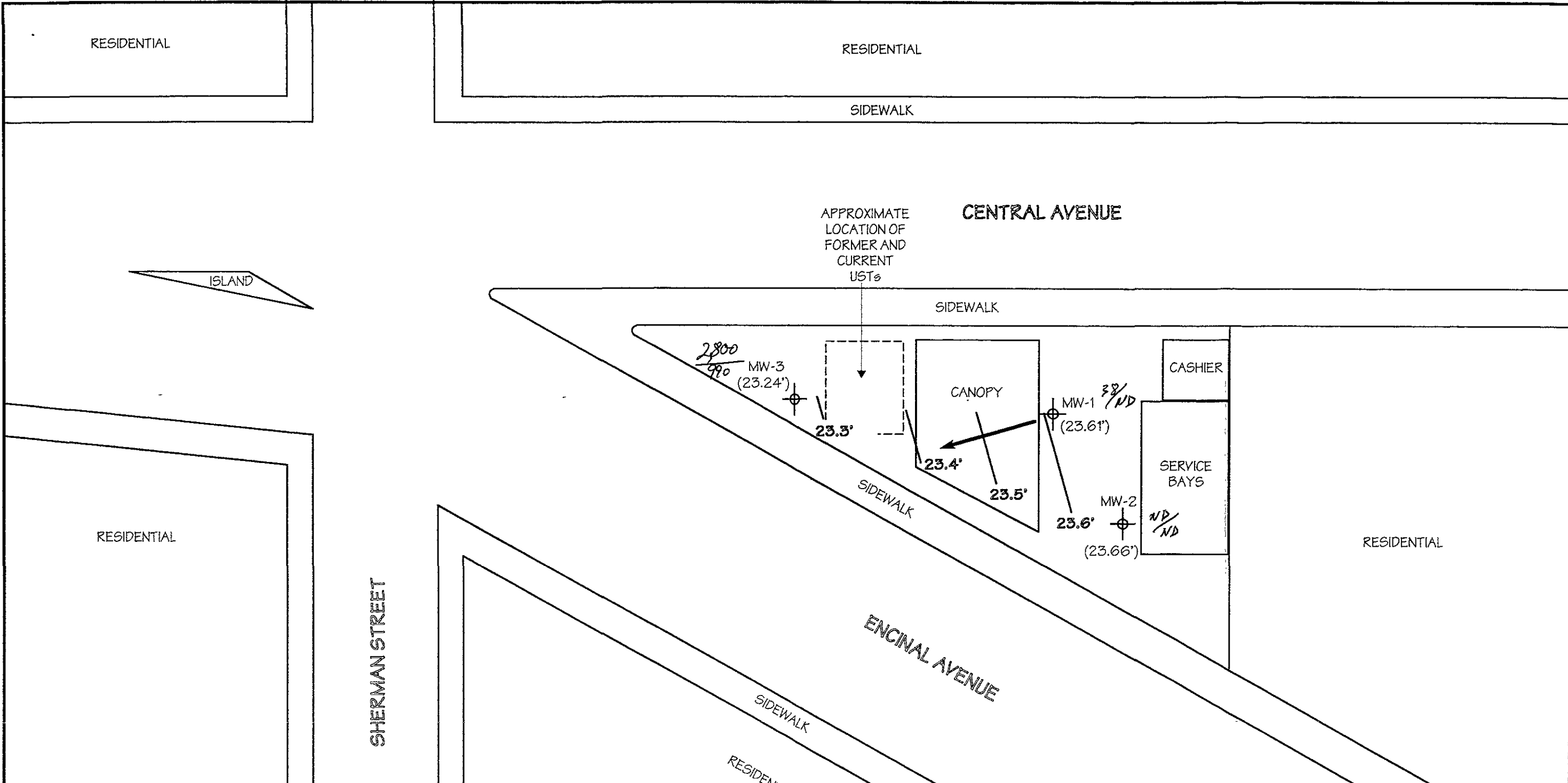


NORTH

LOCATION MAP

SAIDIAN PROPERTY
 1310 CENTRAL AVENUE
 ALAMEDA, CALIFORNIA

AQUA SCIENCE ENGINEERS, INC. Figure 1



RESIDENTIAL

RESIDENTIAL

SIDEWALK

CENTRAL AVENUE

APPROXIMATE
LOCATION OF
FORMER AND
CURRENT
USTs

ISLAND

SIDEWALK

2800
990
MW-3
(23.24')

23.3'

CANOPY

CASHIER

MW-1
ND/ND
(23.61')

23.4'

23.5'

SERVICE
BAYS

MW-2
ND/ND
(23.66')

23.6'

RESIDENTIAL

RESIDENTIAL

SHERMAN STREET

ENCINAL AVENUE

SIDEWALK

RESIDENTIAL

LEGEND

MW-3
⊕
(23.24')

MONITORING WELL WITH
GROUNDWATER ELEVATION IN FEET,
ABOVE MEAN SEA LEVEL

23.6'

POTENTIOMETRIC SURFACE
CONTOUR

←

GROUNDWATER FLOW
DIRECTION



NORTH



SCALE IN FEET

POTENTIOMETRIC
SURFACE CONTOUR MAP
MAY 5, 2000

SAIDIAN PROPERTY
1310 CENTRAL AVENUE
ALAMEDA, CALIFORNIA

APPENDIX A

Well Sampling Field Logs



WELL SAMPLING FIELD LOG

Project Name and Address: Alaska Gas Company - Alameda
 Job #: 3C48 Date of sampling: 5/16/00
 Well Name: MW-2 Sampled by: ITR
 Total depth of well (feet): 18' Well diameter (inches): 2"
 Depth to water before sampling (feet): 3.52
 Thickness of floating product if any: None
 Depth of well casing in water (feet): 14.48
 Number of gallons per well casing volume (gallons): 7.5
 Number of well casing volumes to be removed: 4
 Req'd volume of groundwater to be purged before sampling (gallons): 10
 Equipment used to purge the well: New bailer
 Time Evacuation Began: 0830 Time Evacuation Finished: 0845
 Approximate volume of groundwater purged: 10
 Did the well go dry?: NO After how many gallons: —
 Time samples were collected: 0850
 Depth to water at time of sampling: 3.58
 Percent recovery at time of sampling: 09%
 Samples collected with: New bailer
 Sample color: brown Odor: NO odor
 Description of sediment in sample: f. silt

CHEMICAL DATA

Volume Purged	Temp	pH	Conductivity
<u>1</u>	<u>70.4</u>	<u>6.01</u>	<u>780</u>
<u>2</u>	<u>71.4</u>	<u>6.02</u>	<u>750</u>
<u>3</u>	<u>71.9</u>	<u>6.02</u>	<u>790</u>
<u>4</u>	<u>71.5</u>	<u>6.02</u>	<u>780</u>

SAMPLES COLLECTED

Sample	# of containers	Volume & type container	Pres	Used?	Analysis
<u>MW-2</u>	<u>5</u>	<u>40ml VFA</u>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
-----	-----	-----	-----	-----	-----
-----	-----	-----	-----	-----	-----
-----	-----	-----	-----	-----	-----
-----	-----	-----	-----	-----	-----



WELL SAMPLING FIELD LOG

Project Name and Address: Alaska Gas Company, Alameda
 Job #: 3648 Date of sampling: 5/16/00
 Well Name: MW-3 Sampled by: ITR
 Total depth of well (feet): 18' Well diameter (inches): 2"
 Depth to water before sampling (feet): 2.06'
 Thickness of floating product if any: None
 Depth of well casing in water (feet): 15.94
 Number of gallons per well casing volume (gallons): 2.7
 Number of well casing volumes to be removed: 4
 Req'd volume of groundwater to be purged before sampling (gallons): 10.8
 Equipment used to purge the well: new bailer
 Time Evacuation Began: 0730 Time Evacuation Finished: 0745
 Approximate volume of groundwater purged: 11
 Did the well go dry?: NO After how many gallons: -
 Time samples were collected: 0750
 Depth to water at time of sampling: 2.42'
 Percent recovery at time of sampling: 85%
 Samples collected with: new bailer
 Sample color: gray Odor: slight HC odor
 Description of sediment in sample: f. silt

CHEMICAL DATA

Volume Purged	Temp	pH	Conductivity
<u>1</u>	<u>77.0</u>	<u>6.20</u>	<u>800</u>
<u>2</u>	<u>77.1</u>	<u>6.26</u>	<u>800</u>
<u>3</u>	<u>77.2</u>	<u>6.26</u>	<u>800</u>
<u>4</u>	<u>77.1</u>	<u>6.20</u>	<u>800</u>

SAMPLES COLLECTED

Sample	# of containers	Volume & type container	Pres	Iced?	Analysis
<u>MW-3</u>	<u>5</u>	<u>40 ml VOR</u>	<u>✓</u>	<u>✓</u>	

APPENDIX B

Certified Analytical Report
and
Chain of Custody Documentation



Report Number : 16680

Date : 5/26/00

Robert Kitay
Aqua Science Engineers, Inc.
208 West El Pintado Rd.
Danville, CA 94526

Subject : 3 Water Samples
Project Name : Alaska Gas
Project Number :

Dear Mr. Kitay,

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



Report Number : 16680

Date : 5/24/00

Subject : 3 Water Samples
Project Name : Alaska Gas
Project Number :

Case Narrative

The Method Reporting Limit for TPH as Diesel is increased due to interference from gasoline-range hydrocarbons for the following samples:

MW-1
MW-3

Approved By:  _____
Joel Kiff



Report Number : 16680

Date : 5/26/00

Project Name : Alaska Gas

Project Number :

Sample : MW-1

Matrix : Water

Sample Date :5/16/00

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	38	5.0	ug/L	EPA 8260B	5/23/00
Toluene	6.3	5.0	ug/L	EPA 8260B	5/23/00
Ethylbenzene	740	5.0	ug/L	EPA 8260B	5/23/00
Total Xylenes	1600	5.0	ug/L	EPA 8260B	5/23/00
TPH as Diesel	< 7500	7500	ug/L	M EPA 8015	5/19/00
Methyl-t-butyl ether (MTBE)	< 5.0	5.0	ug/L	EPA 8260B	5/23/00
Diisopropyl ether (DIPE)	< 5.0	5.0	ug/L	EPA 8260B	5/23/00
Ethyl-t-butyl ether (ETBE)	< 5.0	5.0	ug/L	EPA 8260B	5/23/00
Tert-amyl methyl ether (TAME)	< 5.0	5.0	ug/L	EPA 8260B	5/23/00
Tert-Butanol	< 50	50	ug/L	EPA 8260B	5/23/00
TPH as Gasoline	20000	500	ug/L	EPA 8260B	5/23/00
Toluene - d8 (Surr)	102		% Recovery	EPA 8260B	5/23/00
4-Bromofluorobenzene (Surr)	115		% Recovery	EPA 8260B	5/23/00

Approved By:  Joel Kiff



Report Number : 16680

Date : 5/26/00

Project Name : Alaska Gas

Project Number :

Sample : MW-2

Matrix : Water

Sample Date :5/16/00

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	< 0.50	0.50	ug/L	EPA 8260B	5/23/00
Toluene	< 0.50	0.50	ug/L	EPA 8260B	5/23/00
Ethylbenzene	< 0.50	0.50	ug/L	EPA 8260B	5/23/00
Total Xylenes	< 0.50	0.50	ug/L	EPA 8260B	5/23/00
TPH as Diesel	< 50	50	ug/L	M EPA 8015	5/19/00
Methyl-t-butyl ether (MTBE)	< 0.50	0.50	ug/L	EPA 8260B	5/23/00
Diisopropyl ether (DIPE)	< 0.50	0.50	ug/L	EPA 8260B	5/23/00
Ethyl-t-butyl ether (ETBE)	< 0.50	0.50	ug/L	EPA 8260B	5/23/00
Tert-amyl methyl ether (TAME)	< 0.50	0.50	ug/L	EPA 8260B	5/23/00
Tert-Butanol	< 5.0	5.0	ug/L	EPA 8260B	5/23/00
TPH as Gasoline	< 50	50	ug/L	EPA 8260B	5/23/00
Toluene - d8 (Surr)	102		% Recovery	EPA 8260B	5/23/00
4-Bromofluorobenzene (Surr)	114		% Recovery	EPA 8260B	5/23/00

Approved By:  Joel Kiff



Report Number : 16680

Date : 5/26/00

Project Name : Alaska Gas

Project Number :

Sample : MW-3

Matrix : Water

Sample Date :5/16/00

Parameter	Measured Value	Method Reporting Limit	Units	Analysis Method	Date Analyzed
Benzene	2800	25	ug/L	EPA 8260B	5/19/00
Toluene	60	5.0	ug/L	EPA 8260B	5/23/00
Ethylbenzene	380	5.0	ug/L	EPA 8260B	5/23/00
Total Xylenes	190	5.0	ug/L	EPA 8260B	5/23/00
TPH as Diesel	< 5000	5000	ug/L	M EPA 8015	5/19/00
Methyl-t-butyl ether (MTBE)	990	5.0	ug/L	EPA 8260B	5/23/00
Diisopropyl ether (DIPE)	< 5.0	5.0	ug/L	EPA 8260B	5/23/00
Ethyl-t-butyl ether (ETBE)	< 5.0	5.0	ug/L	EPA 8260B	5/23/00
Tert-amyl methyl ether (TAME)	9.1	5.0	ug/L	EPA 8260B	5/23/00
Tert-Butanol	350	50	ug/L	EPA 8260B	5/23/00
TPH as Gasoline	17000	500	ug/L	EPA 8260B	5/23/00
Toluene - d8 (Surr)	102		% Recovery	EPA 8260B	5/23/00
4-Bromofluorobenzene (Surr)	113		% Recovery	EPA 8260B	5/23/00

Approved By:  Joel Kiff

16680

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) Ian T. Reed (PHONE NO.) (925) 820-9391 PROJECT NAME Alaska Gas JOB NO. _____
 ADDRESS 1310 Central Avenue Alameda CA DATE 5/16/00

ANALYSIS REQUEST

SPECIAL INSTRUCTIONS:
5-day TAT.

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 6011/8010)	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)	TPH-GASOLINE/5 compounds by EPA 8260	COMPOSITE
-01 MW-1	5/16	0820	water	5			✓												x	
-02 MW-2	5/16	0850	water	5			✓												✓	
-03 MW-3	5/16	0750	water	5			x												✓	

RELINQUISHED BY: <u>Ian T. Reed</u> (signature) (time) 15:30	RECEIVED BY: _____ (signature) (time)	RELINQUISHED BY: _____ (signature) (time)	RECEIVED BY LABORATORY: <u>Mana Barajas</u> 05/16/00 (signature) (time) 1530	COMMENTS: <u>5-day TAT.</u>
<u>Ian T. Reed</u> (printed name) (date) 5-16-00	_____ (printed name) (date)	_____ (printed name) (date)	<u>Mana Barajas</u> 05/16/00 (printed name) (date) 1530	
Company: <u>A3E</u>	Company: _____	Company: _____	Company: <u>Kff Analytical</u>	