aqua science engineers inc.

STID 319

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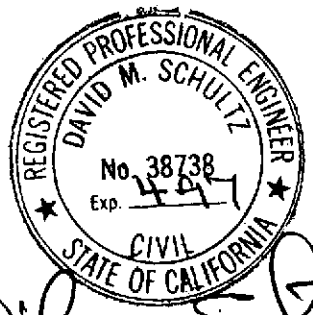
April 8, 1997

GROUNDWATER MONITORING REPORT
MARCH 21, 1997 SAMPLING

at

Emeryville Properties
1400 Park Avenue
Emeryville, California



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

1.0 INTRODUCTION

This report details the groundwater sampling event for the subject site, as required by the Alameda County Health Care Services Agency (ACHCSA) and the Regional Water Quality Control Board (RWQCB). Aqua Science Engineers, Inc. (ASE) has prepared this report on behalf of Emeryville Properties.

2.0 SITE BACKGROUND

2.1 Prior Consultants' Work

In 1992, a below grade concrete vault was removed outside the north side of the building. This vault was used for secondary containment for six former vats used for chrome-plating activities. A Final Closure Report issued by Excel Trans in 1992 indicated that the soil surrounding the vault contained elevated concentrations of chromium and approximately 40 tons of soil were removed from the site. In October 1992, Excel Trans drilled four soil borings in an attempt to delineate the chromium contamination in soil downgradient of the former vault. Total chromium concentrations in these borings ranged from 2.2 parts per million (ppm) to 88 ppm, far below the action level in the US EPA Region IX Preliminary Remediation Goals for industrial soil.

In December 1994, Alton Geoscience conducted assessment activities at the site related to the former vault which included the drilling of six (6) soil borings and the installation of monitoring wells MW-1, MW-2 and MW-3. Soil and groundwater samples from these borings and wells were analyzed for total and Hexavalent chromium, total lead, and halogenated volatile organic compounds (HVOCs).

The results of the Alton investigation indicated that there were low concentrations of total chromium (ranging from 19 ppm to 91 ppm) and Hexavalent chromium ranging from non-detectable (N.D.) to 27 ppm in the soil. Total chromium ranging from N.D. to 0.069 ppm, and Hexavalent chromium concentrations ranging from N.D. to 0.025 ppm were detected in water samples collected from monitoring wells MW-1, MW-2 and MW-3 at the site. Low concentrations of total lead were detected in all of the soil samples, but at concentrations below regulatory thresholds. No total lead was detected in the water samples collected from monitoring wells MW-1, MW-2 and MW-3 at the site. HVOC concentrations were identified in two soil samples collected on site. However, a source for HVOC compounds was not identified near

the former tank vault. HVOCs were detected in groundwater samples from all three monitoring wells. Since MW-3 was positioned upgradient of the former vault, and HVOCs were identified in the water sample from MW-3, an offsite source was considered. Alton performed a review of HVOC data for both the Del Monte plant and the ECI facility, each of which are located near and either upgradient or crossgradient of the subject site. Data shows the HVOC contamination in groundwater from these two site appear to be affecting at least a portion of the Emeryville Properties property. For further information regarding the afore-mentioned remedial and assessment activities, see the Alton Geoscience report dated May 17, 1995. A "No Further Action" letter was issued by the ACHCSA on December 13, 1995 related to the former vault closure activities mentioned above.

2.2 Aqua Science Engineers, Inc. (ASE) Work

On July 21, 1995, ASE excavated 112.36 tons of petroleum-hydrocarbon contaminated soil from below a truck dock that was fitted with a honing machine used by a previous building tenant. Analytical results of sidewall excavation soil samples collected 6-feet below ground surface (bgs) indicated the presence of hydrocarbons from C8 to C44 as high as 870 ppm and oil and grease concentrations as high as 1,600 ppm. Bottom of excavation soil samples collected from 10-feet bgs were non-detectable for hydrocarbons from C8 to C44 with only 20 ppm oil and grease. A grab groundwater sample collected from within the pit contained 7,000 parts per billion (ppb) total petroleum hydrocarbons and 11,000 ppb total oil and grease. Soil and water samples were also analyzed for HVOCs by EPA Method 8010. None of the soil samples contained HVOC concentrations above reporting limits. However, the grab groundwater sample contained tetrachloroethene (PCE) at 19 ppb, trichloroethene (TCE) at 100 ppb, vinyl chloride at 11 ppb, 1,2- dichlorobenzene at 1 ppb, cis 1,2-dichloroethene at 49 ppb, and trans 1,2-dichloroethene at 3 ppb. All these HVOCs are known to exist in the area's groundwater from contamination caused by others.

Further overexcavation of contaminated soil was not possible due to the position of the excavation in proximity to the building walls and the adjacent Horton Street and sidewalk.

The excavation was backfilled with clean, imported soil, and the contaminated soil was transported to and disposed of at Forward, Inc., a non-hazardous landfill in Manteca, California, on July 13, 1995. For

further information regarding these activities, please see the ASE report dated August 3, 1995.

On October 23, 1995, ASE removed three (3) underground fuel storage tanks (USTs) from the site (Figure 2). The existing monitoring wells at the site are were utilized for sampling related to the potential release from these former USTs. See ASE report dated January 12, 1996 for details regarding the UST removal activities.

On December 6, 1996, ASE conducted assessment activities at the site related to the former honing pit which included the drilling of one (1) soil boring and the installation of monitoring well MW-4. Soil samples were collected from this boring and groundwater samples were collected from this monitoring well and previously installed monitoring wells. See ASE report dated March 7, 1997 for details regarding the assessment activities.

3.0 GROUNDWATER GRADIENT AND DIRECTION

ASE surveyed the top of casing elevation of each well relative to a site datum on December 23, 1996. An assumed site datum elevation of 10-feet above mean sea level (msl) was interpolated from the USGS Oakland West, California 7.5 Minute Quadrangle (1980). The top of casing elevation of monitoring well MW-2 was set at 10-feet, and the top of casing elevations of monitoring wells MW-1, MW-3 and MW-4 were surveyed relative to monitoring well MW-2. The depth to groundwater was measured in each well prior to sampling on March 21, 1997 with an electric water level sounder. Depth to groundwater measurements are presented in Table One, and groundwater elevation contours are plotted on Figure 2. Groundwater appears to flow to the west beneath the site at a gradient of 0.0056-feet/foot.

4.0 GROUND WATER SAMPLE COLLECTION AND CHEMICAL ANALYSIS

On March 21, 1997, ASE environmental specialist Scott Ferriman arrived on-site. After measuring and recording the depths to groundwater in monitoring wells MW-1, MW-2, MW-3 and MW-4, ASE purged four well casing volumes of groundwater from monitoring well MW-1 using a pre-cleaned dedicated polyethylene bailer. Monitoring wells MW-2, MW-3 and MW-4 were not sampled during this sampling event; they will be sampled annually in the first quarter, beginning in 1998. No

free-floating hydrocarbons or sheen was encountered in any of the wells. The pH, temperature and conductivity of the purge water was monitored during evacuation, and samples were not collected until these parameters stabilized. Groundwater samples were collected from MW-1 using a dedicated polyethylene bailer. Groundwater samples were decanted from the bailers into 40-ml volatile organic analysis (VOA) vials and 1-liter amber glass bottles. All samples were preserved with hydrochloric acid, labeled, placed in protective foam sleeves and placed on ice for transport to Chromalab of Pleasanton, California (ELAP# 1094) under chain-of-custody. The analytical report and chain-of-custody are included in Appendix A. Well Sampling Field Logs are attached in Appendix B. Well purge water was placed in a 55-gallon steel DOT 17H drum and stored on-site pending analytical results.

The groundwater samples collected from monitoring well MW-1 were analyzed for total petroleum hydrocarbons as gasoline (TPH-G) by EPA Method 5030/8015M, total petroleum hydrocarbons as diesel (TPH-D) and motor oil (TPH-MO) by EPA Method 3510/8015M, benzene, toluene, ethylbenzene and xylenes (BTEX) and MTBE by EPA Method 8020. These results and previous results are tabulated below in Tables Two and Three.

5.0 CONCLUSIONS

No TPH-G, TPH-D, TPH-MO, BTEX and MTBE were detected in groundwater samples collected from monitoring well MW-1 this quarter.

6.0 RECOMMENDATIONS

ASE recommends the following:

* Since no concentrations of TPH-G, TPH-D, TPH-MO, BTEX and MTBE were detected above reporting limits in groundwater from monitoring well MW-1, ASE recommends no further sampling of groundwater from monitoring well MW-1. Monitoring well MW-1 will no longer be sampled as a part of quarterly or annual monitoring activities.

* Annual groundwater sampling of monitoring wells MW-2, MW-3 and MW-4 will be conducted in the first quarter of each year, beginning in 1998. These samples will be analyzed for volatile

organic compounds by EPA Method 8240 and total chromium by EPA Method 6010.

7.0 REPORT LIMITATIONS

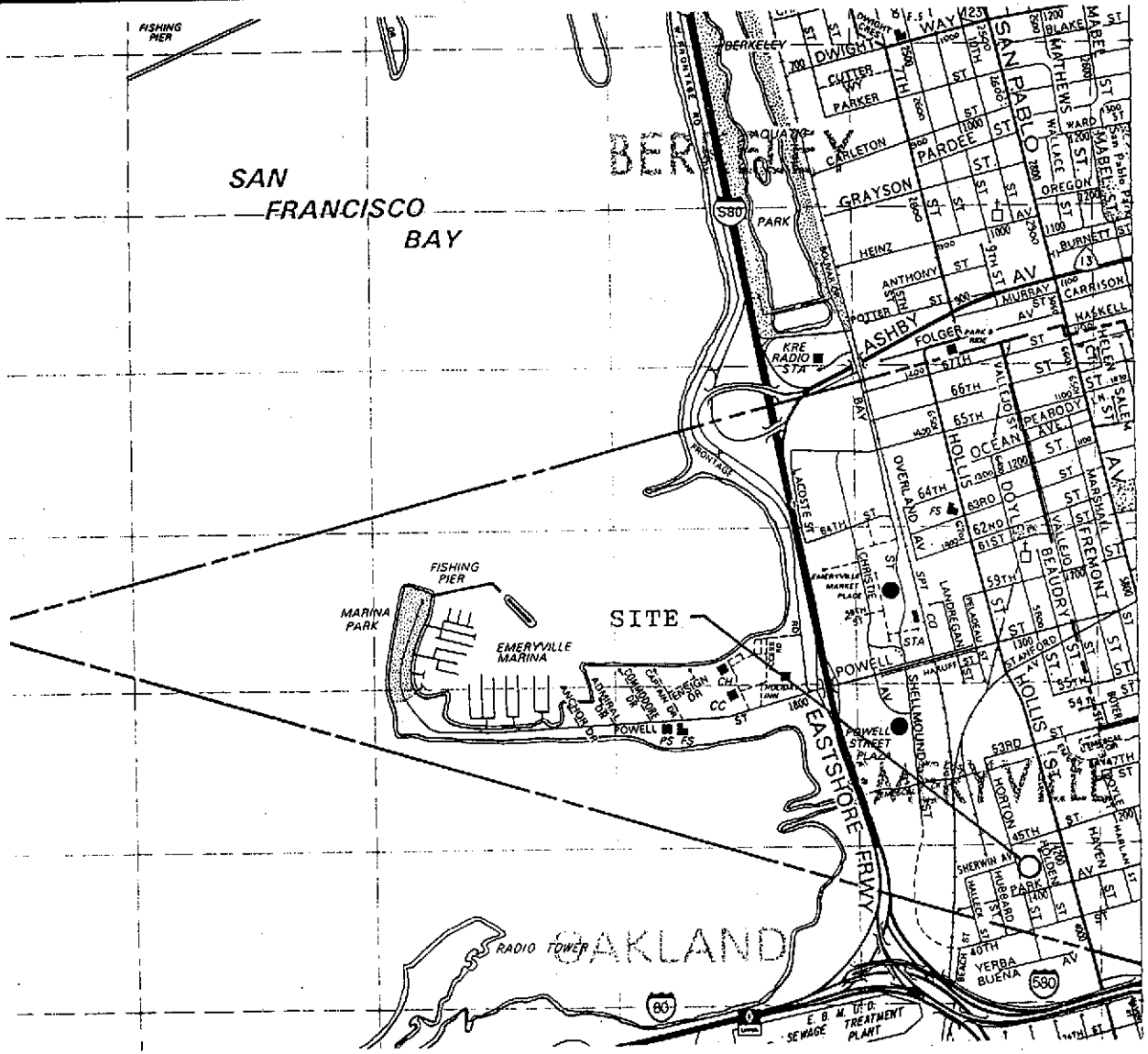
The results of this assessment represent conditions at the time of the groundwater sampling for the specific parameters analyzed by the laboratory. It does not fully characterize the site for parameters not analyzed by the laboratory. All of the laboratory work cited in this report was prepared under 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 continue providing environmental services for this project. Should you have any questions or comments, please feel free to call us at (510) 820-9391.

Respectfully submitted,

AQUA SCIENCE ENGINEERS, INC.

Scott Ferriman
Environmental Specialist



LOCATION MAP

Emeryville Properties Facility
1400 Park Avenue
Emeryville, California

Aqua Science Engineers | Figure 1

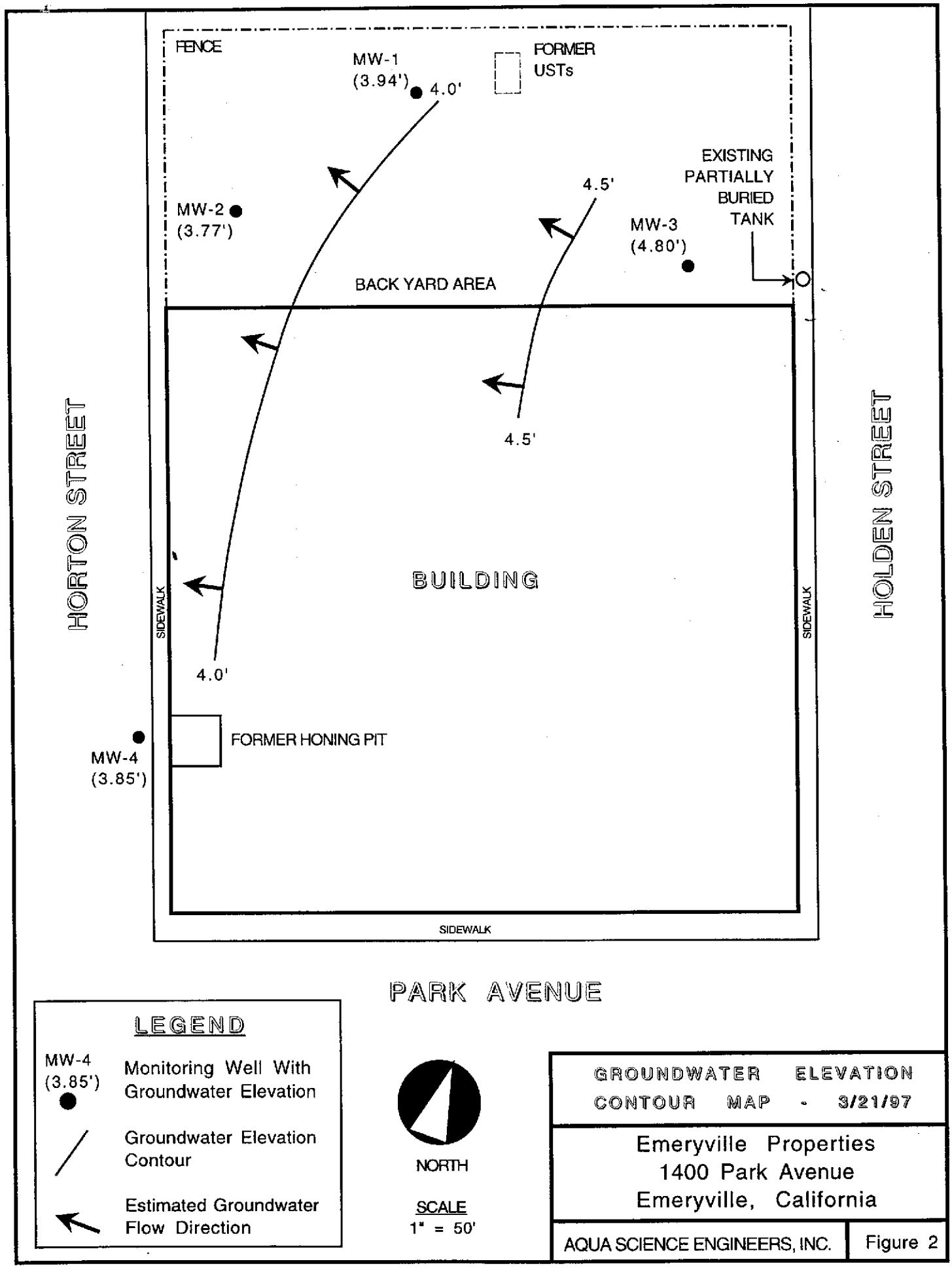

FENCE
MW-1
(3.94')
4.0'
FORMER
USTs
EXISTING
PARTIALLY
BURIED
TANK
MW-2
(3.77')
4.5'
MW-3
(4.80')
BACK YARD AREA
4.5'
HORTON STREET
HOLDEN STREET
BUILDING
SIDEWALK
SIDEWALK
4.0'
FORMER HONING PIT
MW-4
(3.85')
SIDEWALK
PARK AVENUE
LEGEND
MW-4
(3.85')
Monitoring Well With
Groundwater Elevation
Groundwater Elevation
Contour
Estimated Groundwater
Flow Direction
NORTH
SCALE
1" = 50'
GROUNDWATER ELEVATION
CONTOUR MAP - 3/21/97
Emeryville Properties
1400 Park Avenue
Emeryville, California
AQUA SCIENCE ENGINEERS, INC.
Figure 2

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	12-13-96	12.67	7.85	4.82
	03-21-97		8.73	3.94
MW-2	12-13-96	10.00	5.39	4.61
	03-21-97		6.23	3.77
MW-3	12-13-96	13.61	7.69	5.92
	03-21-97		8.81	4.80
MW-4	12-13-96	8.17	3.42	4.75
	03-21-97		4.32	3.85

TABLE TWO
Summary of Chemical Analysis of WATER Samples
TPH-G, TPH-D, TPH-MO, BTEX and MTBE
(All Results are in **parts per billion**)

Sample I.D.	TPH-G	TPH-D	TPH-MO	Benzene	Toluene	Ethyl Benzene	Total Xylenes	MTBE
MW-1								
12/13/96	<50	<50	<50	<0.5	<0.5	<0.5	<0.5	<5
03/21/97	<50	<50	<500	<0.5	<0.5	<0.5	<0.5	<5
MW-2								
12/13/96	NA	NA	NA	<2	<2	<2	<2	NA
03/21/97	Not sampled this quarter							
MW-3								
12/13/96	NA	NA	NA	<2	<2	<2	<2	NA
03/21/97	Not sampled this quarter							
MW-4								
12/13/96	<50	140*	<50	<2	<2	<2	<2	NA
03/21/97	Not sampled this quarter							
DTSC MCL	NE	NE	NE	1	100	680	1,750	NE

Notes:
* = Chromatogram pattern does not resemble diesel fuel standard.
DTSC MCL = California Department of Toxic Substances Control maximum contaminant level for drinking water.
NA = Not analyzed
NE = Not established

TABLE THREE

Summary of Chemical Analysis of WATER Samples
Metals, Volatile Organic Compounds and Semi-Volatile Organic Compounds
(All Results are in parts per billion)

Sample I.D.	Total Chromium	Lead	cis-1,2 DCE	PCE	TCE	VC	Other VOC's	SVOC's
MW-1								
12/13/96	NA	NA	NA	NA	NA	NA	NA	NA
03/21/97	NA	NA	NA	NA	NA	NA	NA	NA
MW-2								
12/13/96	57	<5	<2	<2	3.4	<5	< 2-20	NA
03/21/97	Not sampled this quarter							
MW-3								
12/13/96	<5	<5	14	4.7	13	<5	< 2-20	NA
03/21/97	Not sampled this quarter							
MW-4								
12/13/96	300	<5	31	18	110	8.2	< 2-20	< 2-5
03/21/97	Not sampled this quarter							
DTSC MCL	50	50	6	5	5	0.5	varies	varies

Notes:
DTSC MCL = California Department of Toxic Substances Control maximum contaminant level for drinking water.
NA = Not analyzed
cis 1,2-DCE = cis-1,2-dichloroethene
PCE = tetrachloroethene
TCE = trichloroethene
VC = vinyl chloride

APPENDIX A

California EPA Certified Laboratory
Report of Groundwater Samples
and
Chain of Custody Record

CHROMALAB, INC.

Environmental Services (SDB)

March 28, 1997 *Submission #:* 9703310

AQUA SCIENCE ENGINEERS INC

Atten: Scott Ferriman.

Project: EMERYVILLE PROPERTIES *Project#:* 2908
Received: March 21, 1997

re: 1 sample for TEPH analysis.
Method: *EPA 8015M*

Matrix: WATER *Extracted:* March 27, 1997
Sampled: March 21, 1997 *Run#:* 5976 *Analyzed:* March 28, 1997

Spl#	CLIENT SPL ID	Diesel (ug/L)	Motor Oil (ug/L)
122342	MW-1	N.D.	N.D.

Note: Surrogate recovery was outside QA/QC limits. See Surrogate Summary page.

Reporting Limits	50	500
Blank Result	N.D.	N.D.
Blank Spike Result (%)	90.0	--

Bruce Havlik for
Chemist

Alex Tam
Semivolatiles Supervisor

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

CHROMALAB, INC.

Environmental Services (SDB)

March 28, 1997 *Submission #:* 9703310

AQUA SCIENCE ENGINEERS INC

Atten: Scott Ferriman.

Project: EMERYVILLE PROPERTIES *Project#:* 2908
Received: March 21, 1997

re: **Surrogate** report for 1 sample for TEPH analysis.
Method: EPA 8015M
Lab Run#: 5976
Matrix: WATER

Sample#	Client Sample ID	Surrogate	% Recovered	Recovery Limits
122342-1	MW-1	O-TERPHENYL	143	60-130
122342-1	MW-1	O-TERPHENYL	143	60-130

Sample#	QC Sample Type	Surrogate	% Recovered	Recovery Limits
123317-1	*Reagent blank (MDB)*	O-TERPHENYL	122	60-130
123318-1	*Spiked blank (BSP)*	O-TERPHENYL	125	60-130
123319-1	*Spiked blank duplicate (BSD)*	O-TERPHENYL	127	60-130

S010
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1220 Quarry Lane • Pleasanton, California 94566-4756
(510) 484-1919 • Facsimile (510) 484-1096
Federal ID #68-0140157

CHROMALAB, INC.

Environmental Services (SDB)

March 27, 1997 *Submission #:* 9703310

AQUA SCIENCE ENGINEERS INC

Atten: Scott Ferriman.

Project: EMERYVILLE PROPERTIES *Project#:* 2908
Received: March 21, 1997

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

Client Sample ID: MW-1
Spl#: 122342 *Matrix:* WATER
Sampled: March 21, 1997 *Run#:* 5955 *Analyzed:* March 25, 1997

ANALYTE	RESULT (ug/L)	REPORTING LIMIT (ug/L)	BLANK RESULT (ug/L)	BLANK SPIKE (%)	DILUTION FACTOR
MTBE	N.D.	5.0	N.D.	100	1
BENZENE	N.D.	0.50	N.D.	102	1
TOLUENE	N.D.	0.50	N.D.	101	1
ETHYL BENZENE	N.D.	0.50	N.D.	100	1
XYLENES	N.D.	0.50	N.D.	103	1
GASOLINE	N.D.	50	N.D.	103	1

Kayvan Kimyai
Chemist

Marianne Alexander
Gas/BTEX Supervisor

510-837-4853

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(510) 484-1919 • Facsimile (510) 484-1096
Federal ID #68-0140157

310/133342

32673

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 3-21-97 PAGE 1 OF 1

SAMPLERS (SIGNATURE) (PHONE NO.)
Scott T. 510-820-9391

PROJECT NAME Emeryville Properties NO. 2908
ADDRESS 1400 Park Ave, Emeryville CA

ANALYSIS REQUEST

SPECIAL INSTRUCTIONS:
5-Day

SAMPLE ID.	DATE	TIME	MATRIX	NO. OF SAMPLES	TPH- GASOLINE (EPA 5030/8015)	TPH- GASOLINE/BTEX (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/NUETRALS, ACIDS (EPA 625/8270)	OIL & GREASE (EPA 5520 E&F or B&F)	LUFT METALS (5) (EPA 6010+7000)	TITLE 22 (CAM 17) (EPA 6010+7000)	TCLP (EPA 1311/1310)	STLC- CAM WET (EPA 1311/1310)	REACTIVITY CORROSIVITY IGNITABILITY
MW-1	3 21 97	12:55	water	5		X	X										

SUBM #: 9703310 REP: MV
CLIENT: ASE
DUE: 03/28/97
REF #: 32673

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY LABORATORY:	COMMENTS:
Scott T. 14:25			C. Andretta 15:25	5 day
(signature) (time)	(signature) (time)	(signature) (time)	(signature) (time)	
Scott T. Fleming 3-21-97			C. Andretta 3/21/97	
(printed name) (date)	(printed name) (date)	(printed name) (date)	(printed name) (date)	
Company- ASE, Inc.	Company-	Company-	Chromalab	

aqua science engineers inc.

WELL SAMPLING FIELD LOG

Project Name and Address: Emeryville Properties, 1400 Park Ave, Emeryville, CA
Job #: 2908 Date of sampling: 3-21-97
Well Name: MW-4 Sampled by: SF
Total depth of well (feet): 19.55 Well diameter (inches): 2"
Depth to water before sampling (feet): 4.32
Thickness of floating product if any: none
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

Sampled 1st Quarter Only, beginning in 1998.

Volume Purged	Temp	pH	Conductivity

SAMPLES COLLECTED

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

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