HAGEMAN-AGUIAR, INC.
Underground Contamination Investigations, Groundwater Consultants, Environmental Engineering

REPORT OF
QUARTERLY GROUNDWATER SAMPLING

(sampled September 12, 1994)

QUALITY TUNE-UP
2780 Castro Valley Boulevard
Castro Valley, CA

September 27, 1994

3732 Mt. Diablo Blvd. Suite 372 Lafayette, California 94549 (510) 284-1661 FAX (510) 284-1664

TABLE OF CONTENTS

I. INTRODUCTION

The site location is the Quality Tune-up facility in Castro Valley, California. The location of the site is shown in Figure 1. In conjunction with a previous service station operation, the site has historically operated four underground fuel storage tanks for a number of years.

In February 1987 the two 7,500-gallon Gasoline tanks and one Waste Oil tank were removed by 4M Construction of Madera, California. Soil and groundwater samples were collected, and were subsequently analyzed by Trace Analysis Laboratory, Inc. Of the seven soil samples collected, only "Extractable Hydrocarbons" were detected in those soil samples collected in the vicinity of the Waste Oil tank location. Analysis of the groundwater sample indicated 26 mg/L (ppm) of Volatile Hydrocarbons, 420 µg/L (ppb) of Benzene, 2,000 µg/L (ppb) of Toluene and 9,400 µg/L (ppb) of Total Xylenes.

On June 11, 1991, the final 8,000-gallon underground storage tank was removed from the site by Minter & Fahy Construction, Inc, Pacheco, California. This underground tank was utilized for Gasoline storage until February 1987, at which time it was converted to Waste Oil storage. At the time of removal, the tank was apparently being utilized for storage of Waste Oil. Soil samples were collected from the tank excavation and were subsequently analyzed by Chromalab Laboratory, Inc., San Ramon, California. The results of laboratory analyses indicated no detectable of concentrations of Diesel, Gasoline, Benzene, Oil & Grease, Halogenated Volatile Organics (EPA 8010), or Semi-Volatile Organics (EPA 8270). A groundwater sample was collected from the tank excavation and was subsequently analyzed. The results of laboratory

FIGURE 1.
Site Location Map

analyses indicated no detectable of concentrations of Diesel, Gasoline, Benzene, Oil & Grease, Halogenated Volatile Organics (EPA 601), or Extractable Organics (EPA 625). Soil samples collected from the spoils pile indicated the presence of Gasoline at concentrations of up to 1.4 mg/kg (ppm), and Oil & Grease at concentrations of up to 24 mg/kg (ppm).

Following the underground tank removals, three on-site shallow groundwater monitoring wells were installed by Hageman-Aguiar, Inc., on May 20, 1992. The report of that soil and groundwater investigation was issued on July 17, 1992. The locations of the monitoring wells are shown in Figure 2.

On September 12 1994, all three (3) of the on-site monitoring wells were sampled for the laboratory analysis for dissolved petroleum constituents. In addition to the monitoring well sampling, other tasks included water level measurements for each monitoring well. This most recent "round" of groundwater sampling has been conducted as part of the quarterly groundwater monitoring program at the site, as required by the Alameda County Department of Environmental Health and the California Regional Water Quality Control Board (RWQCB), San Francisco Bay Region.

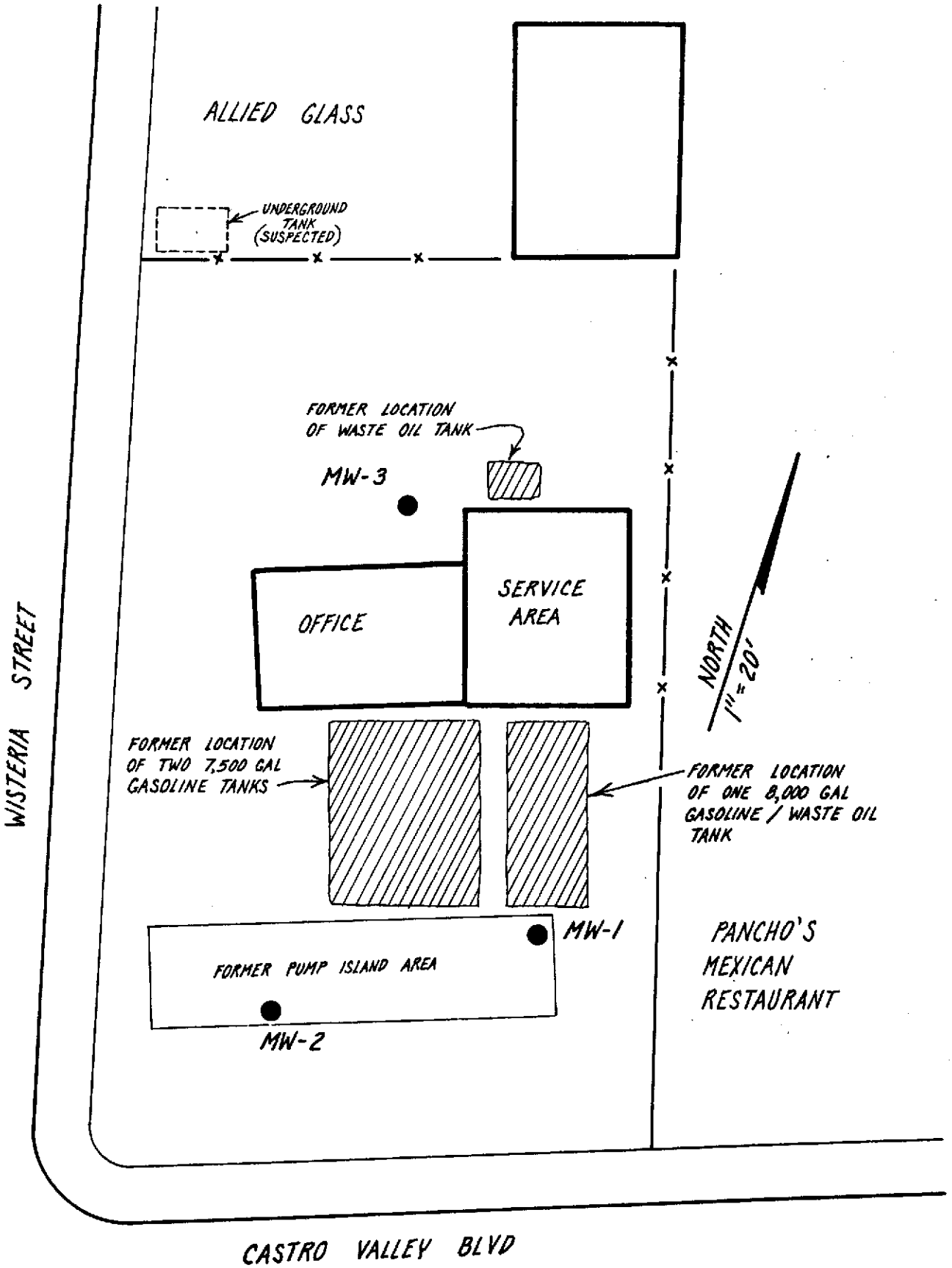

FIGURE 2.
Site Map.

II. FIELD WORK

Monitoring Well Sampling

On September 12, 1994, groundwater samples were collected from each of the three on-site monitoring wells (MW-1, MW-2 and MW-3). The locations of the monitoring wells are shown on Figure 2 (site map). Prior to groundwater sampling, each well was purged by bailing several casing volumes of water. Field conductivity, temperature, and pH meters were present on-site during the monitoring well sampling. As the purging process proceeded, the three parameters were monitored. Purging continued until readings appeared to have reasonably stabilized. After the water level in the well had attained 80% or more of the original static water level, a groundwater sample was collected using a clean teflon bailer. The water samples were placed inside appropriate 40 mL VOA vials free of any headspace. The samples were immediately placed on crushed ice, then transported under chain-of-custody to the laboratory at the end of the work day.

At the time each monitoring well was sampled, the following information was recorded in the field: 1) depth-to-water prior to purging, using an electrical well sounding tape, 2) identification of any floating product, sheen, or odor prior to purging, using a clear teflon bailer, 3) sample pH, 4) sample temperature, and 5) specific conductance of the sample.

Copies of the well sampling logs are included as Attachment A.

Wastewater Generation

All water removed from the wells during development and purging was drummed and stored on-site until the results of laboratory analyses were obtained. Based upon these results, the water should be transported as a hazardous liquid waste under proper manifest to an appropriate TSD facility for treatment and disposal. The disposal of wastewater is the responsibility of the property owner (waste generator), and is beyond the scope of work as described in this report.

III. RESULTS OF WATER LEVEL MEASUREMENTS

Shallow Groundwater Flow Direction

Shallow water table elevations were measured on September 12, 1994. These measurements are shown in Table 1. Figure 3 presents a contour map for the shallow groundwater table beneath the site. As shown in this figure, the data from these monitoring wells indicate that the shallow groundwater flow beneath the site was in the **southerly direction** during this most recent round of groundwater sampling.

Shallow Water Table Hydraulic Gradient

Figure 3 presents the contour map for the shallow groundwater table beneath the site. As shown in this figure, the shallow groundwater table beneath the site appears to have a calculated **hydraulic gradient** of dH/dL = 1'/45' = 0.022.

Historical Water Level Measurements

In addition to the most recent measurement of the shallow water table elevations prior to the groundwater sampling on September 12, 1994, a tabulation of all historical water level measurements for the site has been completed. Table 2 presents the results of all water level measurements collected between May 20, 1992, and the present time.

TABLE 1.

Shallow Water Table Elevations
September 12, 1994

Well	Top of Casing Elevation (feet)	Depth to Water (feet)	Water Table Elevation (feet)
MW-1	163.70	10.73	152.97
MW-2	163.33	10.57	152.76
MW-3	163.35	9.01	154.34

Datum is Alameda County Benchmark Anita-CVB.
Standard surveyor brass disc on top-of-curb over drop inlet on Anita Avenue.
Elevation = 168.04 MSL

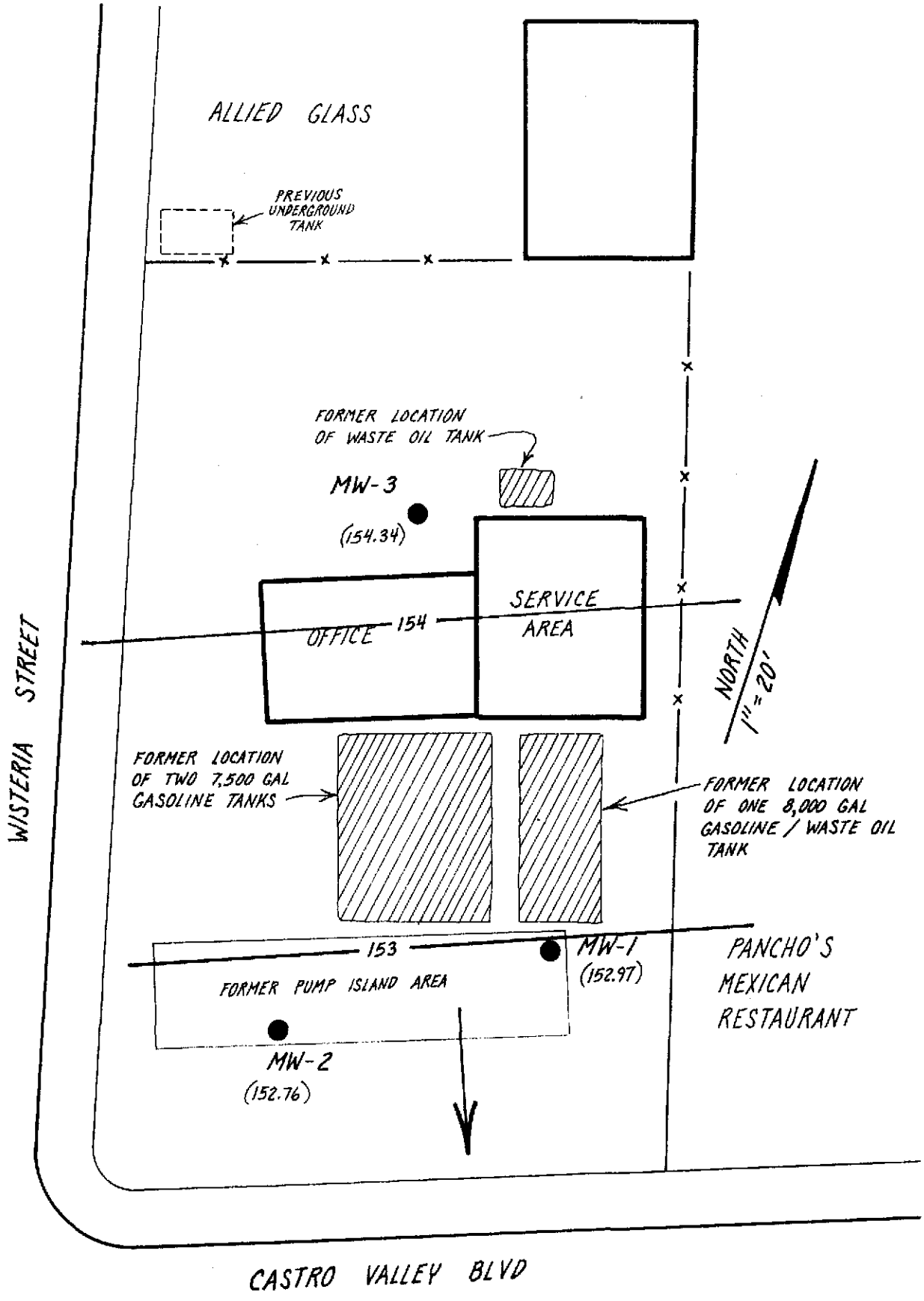

FIGURE 3. Shallow Groundwater Table Contour Map, measured on September 12, 1994.

TABLE 2.

Historical Water Table Elevations
(feet)

Well	Date of Measurement								
	5-20-92	8-19-92	11-18-92	3-1-93	5-24-93	8-16-93	11-15-93	2-11-94	6-28-94
MW-1	152.67	152.64	152.40	154.88	153.27	153.00	153.52	154.96	153.09
MW-2	152.65	152.47	151.84	154.23	153.01	152.69	153.01	154.15	153.08
MW-3	154.28	154.48	154.05	156.88	154.89	154.48	154.87	154.82	154.65
Flow Direction	SE	SE	S	S	S	S	S	SW	SE
Hydraulic Gradient	0.025	0.029	0.030	0.035	0.027	0.025	0.024	0.020	0.025

Well	Date of Measurement								
	9-12-94								
MW-1	152.97								
MW-2	152.76								
MW-3	154.34								
Flow Direction	S								
Hydraulic Gradient	0.022								

IV. SHALLOW GROUNDWATER SAMPLING RESULTS

Laboratory Analysis

All analyses were conducted by a California State DOHS certified laboratory in accordance with EPA recommended procedures (Priority Environmental Laboratory, Milpitas, CA).

All shallow groundwater samples were analyzed for 1) total petroleum hydrocarbons as Gasoline (EPA method 8015) and 2) Benzene, Toluene, Ethylbenzene, and Total Xylenes (EPA method 602).

Results of Laboratory Analysis

Table 3 presents the results of the laboratory analysis of the groundwater samples collected from monitoring wells MW-1, MW-2 and MW-3. For this most recent round of quarterly sampling, dissolved Gasoline was detected in well MW-3 at a concentration of 460 µg/L (ppb). In addition, analysis of the groundwater sample collected from well MW-3 indicated the presence of Benzene at a concentration of 0.7 µg/L (ppb).

For this round of shallow groundwater sampling, no detectable concentrations of either Gasoline, Benzene, Toluene, Ethyl Benzene or Total Xylenes was found in the any of the samples collected from wells MW-1 and MW-2.

A copy of the laboratory certificate for the water sample analyses is included as Attachment B.

TABLE 3.

Shallow groundwater Sampling Results

Well	Date	TPH as Gasoline (ug/L)	Benzene (ug/L)	Toluene (ug/L)	Ethyl-benzene (ug/L)	Total Xylenes (ug/L)
MW-1	05-20-92	**260**	ND	ND	**4.4**	**9.0**
	08-19-92	ND	ND	ND	ND	ND
	11-18-92	**160**	**0.9**	**4.0**	**2.6**	**9.4**
	02-22-93	**9,000**	**15**	**34**	**46**	**91**
	05-24-93	**540**	**0.5**	**0.9**	**2.0**	**4.5**
	08-16-93	**53**	ND	ND	**1.0**	**4.7**
	11-15-93	**780**	**0.6**	**0.9**	**1.1**	**5.2**
	02-11-94	**3,000**	**3.9**	**2.5**	**12**	**26**
	06-28-94	**180**	ND	ND	**4.2**	**9.0**
	09-12-94	ND	ND	ND	ND	ND
MW-2	05-20-92	ND	ND	ND	ND	ND
	08-19-92	ND	ND	ND	ND	ND
	11-18-92	**70**	ND	ND	**0.9**	**6.7**
	02-22-93	ND	ND	ND	ND	ND
	05-24-93	ND	ND	ND	ND	ND
	08-16-93	ND	ND	ND	ND	ND
	11-15-93	ND	ND	ND	ND	ND
	02-11-94	ND	ND	ND	ND	ND
	06-28-94	ND	ND	ND	ND	ND
	09-12-94	ND	ND	ND	ND	ND
Detection Limit		50	0.5	0.5	0.5	0.5

ND = Not Detected

TABLE 3. (continued)

Shallow groundwater Sampling Results

Well	Date	TPH as Gasoline (ug/L)	Benzene (ug/L)	Toluene (ug/L)	Ethyl-benzene (ug/L)	Total Xylenes (ug/L)
MW-3	05-20-92	4,200	4.5	1.2	13	43
	08-19-92	280	5.3	16	25	61
	11-18-92	4,800	26	27	35	98
	02-22-93	6,200	9.4	15	30	66
	05-24-93	1,100	1.5	3.4	4.1	9.9
	08-16-93	420	2.1	3.0	3.8	23
	11-15-93	3,000	2.4	3.1	4.4	20
	02-11-94	3,700	7.7	6.8	12	29
	06-28-94	230	ND	4.0	8.5	19
	09-12-94	460	0.7	1.4	3.5	4.7
Detection Limit		50	0.5	0.5	0.5	0.5

ND = Not Detected

Data Analysis

The most recent sampling data continue to suggest the possibility of migration of subsurface contamination from the adjoining Allied Glass property. Its location with respect to the detection of Gasoline in the groundwater sample collected from well MW-3 is consistent with the measured shallow groundwater flow direction beneath the subject site. Well MW-3 is located immediately down-gradient of the previous Allied Glass underground tank, and was the only on-site monitoring well to indicate the presence of Gasoline contamination in the shallow groundwater.

QUARTERLY GROUNDWATER SAMPLING REPORT
QUALITY TUNE-UP
2780 Castro Valley Blvd, Castro Valley, CA.

September 27, 1994

EXP. 9-30-95

Gary Aguiar **RCE 34262**

Gerard F. Aarons 9-27-94

Gerard Aarons **Geologist**

WELL SAMPLING LOG

Project/No. QUALITY TUNE-UP Page 1 of 3

Site Location CASTRO VALLEY

Date 9-12-94

Well No. MW 1

Weather CLEAR / 80°F

Time Began 1418
Completed 1530

EVACUATION DATA

Description of Measuring Point (MP) WELL BOX AT GRADE

Total Sounded Depth of Well Below MP 24.76

- Depth to Water Below MP 10.73

= Water Column in Well 14.03

Diameter of Casing 2"

Gallons in Casing 2.2 + Annular Space (30% porosity) (X10) = Total Gallons 22

Gallons Pumped Prior to Sampling 22

Evacuation Method PVC BAILER

SAMPLING DATA / FIELD PARAMETERS

Inspection for Free Product: NONE DETECTED
(thickness to 0.1 inch, if any)

Time	1418	1425	1500	1525
Gals Removed	0	10	16	22
Temperature	23.6	21.8	21.9	21.6
Conductivity	310	340	300	325
pH	6.9	6.8	6.7	6.7
Color / Odor	CLR/ORG	GRY/ORG	GRY/ORG	GRY/ORG
Turbidity	LOW	HIGH	HIGH	HIGH

Comments: NONE

WELL SAMPLING LOG

Project/No. QUALITY TUNE-UP Page 2 of 3

Site Location CASTRO VALLEY

Date 9-12-94

Well No. MW 2

Weather CLEAR / 80 °F

Time Began 1335
Completed 1605

EVACUATION DATA

Description of Measuring Point (MP) WELL BOX AT GRADE

Total Sounded Depth of Well Below MP 20.90

- Depth to Water Below MP 10.57

Diameter of Casing 2"

= Water Column in Well 10.33

Gallons in Casing 1.6 + Annular Space (30% porosity) (X10) = Total Gallons 16

Gallons Pumped Prior to Sampling 13

Evacuation Method PVC BAILER

SAMPLING DATA / FIELD PARAMETERS

Inspection for Free Product: NONE DETECTED
(thickness to 0.1 inch, if any)

Time	1335	1345 *	1450	1555
Gals Removed	0	8	11	13
Temperature	24.5	22.9	22.0	22.2
Conductivity	355	340	325	330
pH	7.2	6.9	6.8	6.7
Color / Odor	CLR/ORG	GRY/ORG	GRY/ORG	GRY/ORG
Turbidity	LOW	HIGH	HIGH	HIGH

Comments: * DEWATERED

WELL SAMPLING LOG

Project/No. QUALITY TUNE - UP Page 3 of 3

Site Location CASTRO VALLEY

Date 9-12-94

Well No. MW 3

Weather CLEAR / 80°F Time Began 1355 Completed 1545

EVACUATION DATA

Description of Measuring Point (MP) WELL BOX AT GRADE

Total Sounded Depth of Well Below MP 24.81

- Depth to Water Below MP 9.01 Diameter of Casing 2"

= Water Column in Well 15.80

Gallons in Casing 2.5 + Annular Space (30% porosity) (X10) = Total Gallons 25

Gallons Pumped Prior to Sampling 25

Evacuation Method PVC BAILER

SAMPLING DATA / FIELD PARAMETERS

Inspection for Free Product: NONE DETECTED
(thickness to 0.1 inch, if any)

Time	1355	1405	1455	1543
Gals Removed	0	10	17	25
Temperature	21.5	20.8	20.6	20.2
Conductivity	350	370	385	350
pH	6.5	6.4	6.4	6.5
Color / Odor	CLR/LT. HC	GRY/LT. HC	GR/LT. HC	GRY/LT. HC
Turbidity	LOW	MED	HIGH	HIGH

Comments: NONE

PRIORITY ENVIRONMENTAL LABS

Precision Environmental Analytical Laboratory

September 15, 1994 PEL # 9409041

HAGEMAN - AGUIAR, INC.

Attn: Jeffrey Roth
Re: Three water samples for Gasoline/BTEX analysis.

Project name: Quality Tune-Up
Project location: Castro Valley Blvd., - Castro Valley, CA.

Date sampled: Sep 12, 1994 Date submitted: Sep 14, 1994
Date extracted: Sep 14-15, 1994 Date analyzed: Sep 14-15, 1994

RESULTS:

SAMPLE I.D.	Gasoline (ug/L)	Benzene (ug/L)	Toluene (ug/L)	Ethyl Benzene (ug/L)	Total Xylenes (ug/L)
MW-1	N.D.	N.D.	N.D.	N.D.	N.D.
MW-2	N.D.	N.D.	N.D.	N.D.	N.D.
MW-3	460	0.7	1.4	3.5	4.7
Blank	N.D.	N.D.	N.D.	N.D.	N.D.
Spiked Recovery	94.6%	93.8%	84.1%	94.0%	96.8%
Detection limit	50	0.5	0.5	0.5	0.5
Method of Analysis	5030 / 8015	602	602	602	602

David Duong
Laboratory Director

1764 Houret Court Milpitas, CA. 95035 Tel: 408-946-9636 Fax: 408-946-9663

PEL # 9409041

INV # 25222

CHAIN OF CUSTODY RECORD

PROJECT NAME AND ADDRESS:
QUALITY TUNE-UP
CASTRO VALLEY BLVD.
CASTRO VALLEY, CA

SAMPLER: (Signature) J. Smith

HAGEMAN - AGUIAR, INC.
3732 Mt. Diablo Blvd., Suite 372
Lafayette, CA 94549
(415)284-1661 (415)284-1664 (FAX)

ANALYSIS REQUESTED: TPH GAS/BTXE

CROSS REFERENCE NUMBER	DATE	TIME	SOIL	WATER	STATION LOCATION	TPH GAS/BTXE	REMARKS
MW 1	9-12-94			X	MONITOR WELL # 1	X	NORM TAT
MW 2	9-12-94			X	" " # 2	X	"
MW 3	9-12-94			X	" " # 3	X	"

RELINQUISHED BY: (Signature) J. Smith	DATE 9-14-94 TIME 1000	RECEIVED BY: (Signature)	DATE TIME
RELINQUISHED BY: (Signature)	DATE TIME	RECEIVED BY: (Signature)	DATE TIME
RELINQUISHED BY: (Signature)	DATE TIME	RECEIVED BY: (Signature)	DATE TIME
RELINQUISHED BY: (Signature)	DATE TIME	RECEIVED FOR LABORATORY BY: (Signature) Vicki Quong	DATE 9-14-94 TIME 1080