

HAGEMAN-AGUIAR, INC.

Underground Contamination Investigations, Groundwater Consultants, Environmental Engineering

REPORT OF
QUARTERLY GROUNDWATER SAMPLING

(sampled December 13, 1994)

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

December 20, 1994

20
1994
DEC
13
11
AM
11/13/94

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ATTACHMENT A -- Well Sampling Logs

ATTACHMENT B -- Analytical Results: Groundwater

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 $\mu\text{g/L}$ (ppb) of Benzene, 2,000 $\mu\text{g/L}$ (ppb) of Toluene and 9,400 $\mu\text{g/L}$ (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 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 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 December 13, 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 seventh "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.

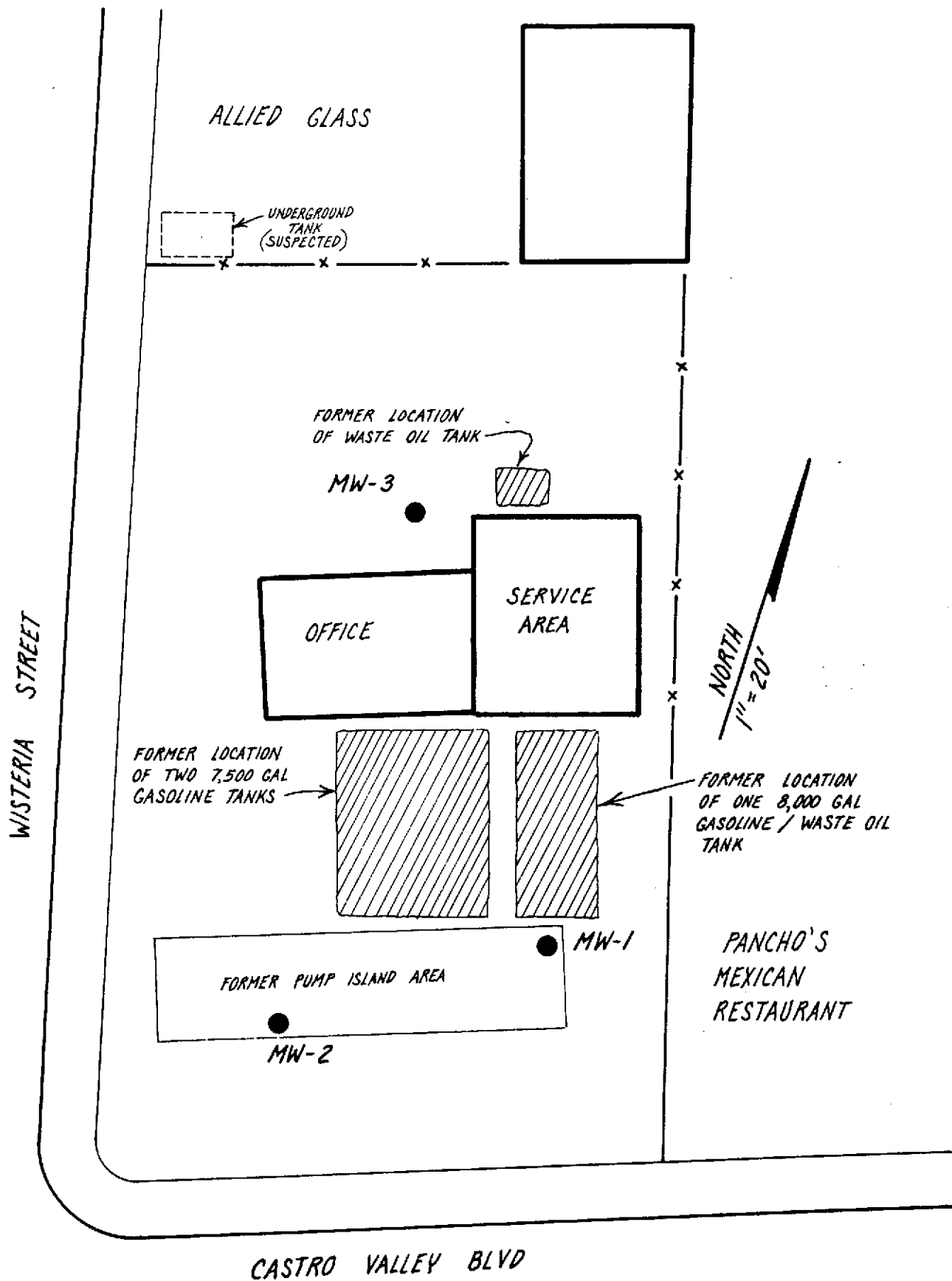


FIGURE 2.
Site Map.

II. FIELD WORK

Monitoring Well Sampling

On December 13, 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 and 1-liter amber bottles 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 December 13, 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 through the center of the site appears to have a calculated hydraulic gradient of $dH/dL = 1.0'/29.2' = 0.034$.

Historical Water Level Measurements

In addition to the most recent measurement of the shallow water table elevations prior to the groundwater sampling on June 28, 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
December 13, 1994**

Well	Top of Casing Elevation (feet)	Depth to Water (feet)	Water Table Elevation (feet)
MW-1	163.70	9.45	154.25
MW-2	163.33	9.82	153.51
MW-3	163.35	7.32	156.03

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

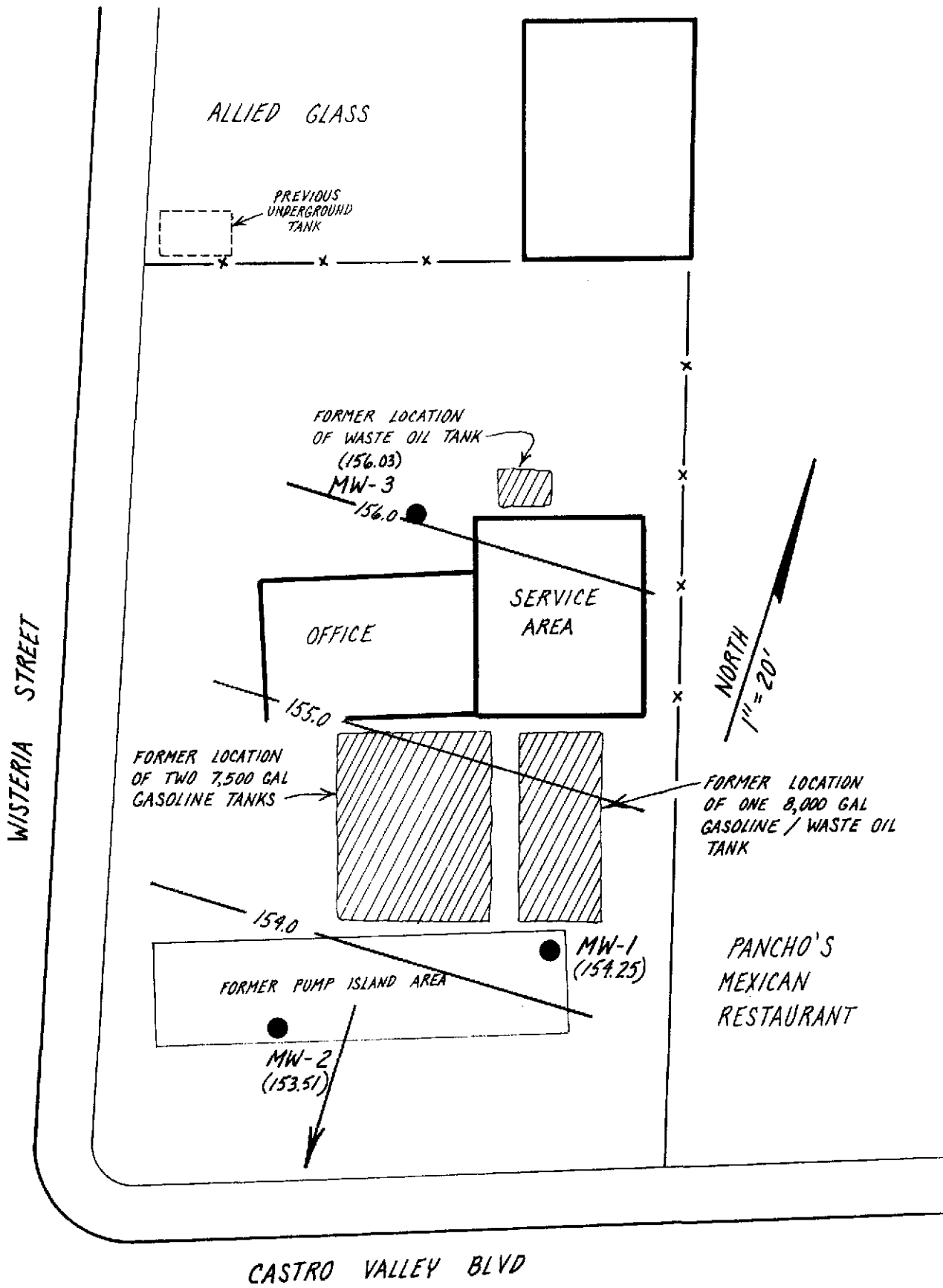


TABLE 2.

**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	12-13-94							
MW-1	152.97	154.25							
MW-2	152.76	153.51							
MW-3	154.34	156.03							
Flow Direction	S	S							
Hydraulic Gradient	0.022	0.034							

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 wells MW-1, MW-2 and MW-3 at concentrations of 580 $\mu\text{g/L}$ (ppb), 120 $\mu\text{g/L}$ (ppb) and 1,400 $\mu\text{g/L}$ (ppb), respectively.

In addition, Benzene was present in the shallow groundwater sample collected from well MW-3 at a concentration of 1.1 $\mu\text{g/L}$ (ppb) during this most recent groundwater sampling episode.

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

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
	12-13-94	1,400	1.1	2.1	5.4	9.5
Detection Limit		50	0.5	0.5	0.5	0.5

ND = Not Detected

V. DATA ANALYSIS

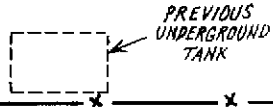
Chemical Concentration Contours

Figure 4 shows lines of equal concentration for Gasoline in the shallow groundwater. Since these lines have been drawn based upon relatively limited data (three data points), the plot represents only a small portion of the respective concentration plume. The plot does continue to suggest, however, that the dissolved concentrations are centered somewhere around the rear of the service/office building (vicinity of well MW-3).

The water sample collected from shallow monitoring well MW-3 indicates the highest Gasoline contamination in the shallow groundwater on the Quality Tune-Up site. Well MW-3 is located immediately down-gradient of the previous Allied Glass underground tank, based on the measured shallow groundwater flow direction beneath the subject site. The most recent sampling data continue to suggest the possibility of migration of subsurface contamination from the adjoining Allied Glass property.

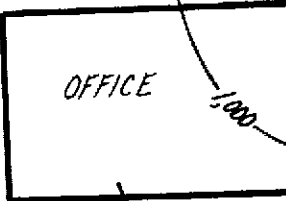
WISTERIA STREET

ALLIED GLASS



FORMER LOCATION OF WASTE OIL TANK

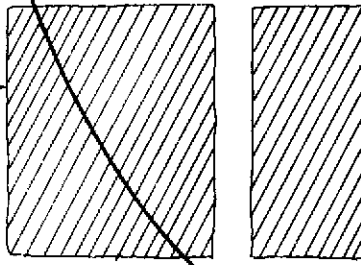
MW-3
(1,400)



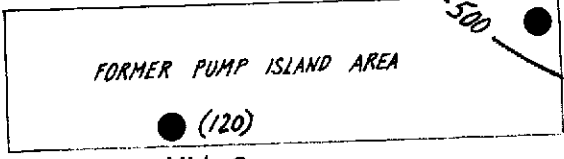
1,000



FORMER LOCATION OF TWO 7,500 GAL GASOLINE TANKS



FORMER LOCATION OF ONE 8,000 GAL GASOLINE / WASTE OIL TANK



MW-2
(120)

MW-1
(580)

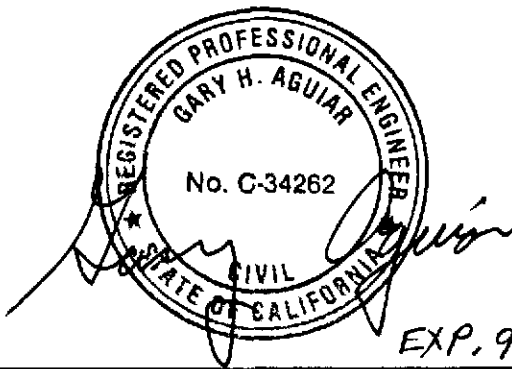
500

PANCHO'S MEXICAN RESTAURANT

CASTRO VALLEY BLVD

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

December 20, 1994



Gary Aguiar

RCE 34262

Gerard F. Aarons
Gerard Aarons

12-20-94
Geologist

WELL SAMPLING LOG

Project/No. QUALITY TUNE-UP Page 1 of 3
 Site Location CASTRO VALLEY Date 12/13/94
 Well No. MW 1 Time Began 1210
 Weather OVERCAST / 45°F Completed 1245

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 9.45 Diameter of Casing 2"
 = Water Column in Well 15.31
 Gallons in Casing 2.4 + Annular Space (x10) = Total Gallons 24
(30% porosity)
 Gallons Pumped Prior to Sampling 24
 Evacuation Method PVC BAILER

SAMPLING DATA / FIELD PARAMETERS

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

Time	<u>1210</u>	<u>1215</u>	<u>1230</u>	<u>1235</u>
Gals Removed	<u>0</u>	<u>8</u>	<u>16</u>	<u>24</u>
Temperature	<u>22.8</u>	<u>23.5</u>	<u>22.6</u>	<u>22.8</u>
Conductivity	<u>400</u>	<u>425</u>	<u>375</u>	<u>400</u>
pH	<u>6.9</u>	<u>6.8</u>	<u>6.8</u>	<u>6.8</u>
Color / Odor	<u>clear/ore</u>	<u>clear/ore</u>	<u>clear/ore</u>	<u>clear/ore</u>
Turbidity	<u>Low</u>	<u>Low</u>	<u>Low</u>	<u>Low</u>

Comments: NONE

WELL SAMPLING LOG

Project/No. QUALITY TUNE-UP Page 2 of 3
 Site Location CASTRO VALLEY, CA Date 12/13/94
 Well No. MIV 2 Time Began 1032
 Weather OVERCAST / 45°F Completed 1225

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 9.82 Diameter of Casing 2"
 = Water Column in Well 11.08
 Gallons in Casing 1.8 + Annular Space (x10) = Total Gallons 18
(30% porosity)
 Gallons Pumped Prior to Sampling 11
 Evacuation Method PVC BAILER

SAMPLING DATA / FIELD PARAMETERS

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

Time	<u>1032</u>	<u>1036</u>	<u>1135</u>
Gals Removed	<u>0</u>	<u>7</u>	<u>11</u>
Temperature	<u>22.2</u>	<u>22.9</u>	<u>24.2</u>
Conductivity	<u>600</u>	<u>600</u>	<u>600</u>
pH	<u>7.1</u>	<u>7.1</u>	<u>6.9</u>
Color / Odor	<u>CLR/ODR</u>	<u>BEN/ODR</u>	<u>BEN/ODR</u>
Turbidity	<u>LOW</u>	<u>MED</u>	<u>HIGH</u>

Comments: * DENATURED

JSP

WELL SAMPLING LOG

Project/No. QUALITY TUNE-LIP Page 3 of 3
 Site Location CASTRO VALLEY, CA Date 12/13/94
 Well No. MW 3 Time Began 1110
 Weather OVERCAST / 45°F Completed 1240

EVACUATION DATA

Description of Measuring Point (MP) WELL BOX AT GRADE
 Total Sounded Depth of Well Below MP 24.80
 - Depth to Water Below MP 7.32 Diameter of Casing 2"
 = Water Column in Well 17.48
 Gallons in Casing 2.8 + Annular Space (x10) = Total Gallons 28
(30% porosity)
 Gallons Pumped Prior to Sampling 28
 Evacuation Method PVC BAILER

SAMPLING DATA / FIELD PARAMETERS

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

Time	<u>1110</u>	<u>1117</u>	<u>1125</u>	<u>1155</u>
Gals Removed	<u>0</u>	<u>9</u>	<u>19</u>	<u>28</u>
Temperature	<u>21.7</u>	<u>22.6</u>	<u>23.1</u>	<u>22.8</u>
Conductivity	<u>650</u>	<u>700</u>	<u>750</u>	<u>700</u>
pH	<u>6.7</u>	<u>6.7</u>	<u>6.8</u>	<u>6.9</u>
Color / Odor	<u>CLR/HC</u>	<u>GRY/HC</u>	<u>GRY/HC</u>	<u>GRY/HC</u>
Turbidity	<u>MED</u>	<u>HIGH</u>	<u>HIGH</u>	<u>HIGH</u>

Comments: NONE



PRIORITY ENVIRONMENTAL LABS

Precision Environmental Analytical Laboratory

December 16, 1994

PEL # 9412046

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: Dec 13, 1994

Date submitted: Dec 13, 1994

Date extracted: Dec 14-15, 1994

Date analyzed: Dec 14-15, 1994

RESULTS:

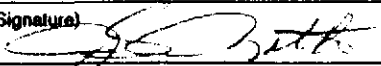
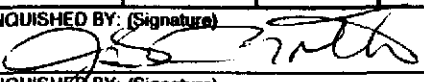
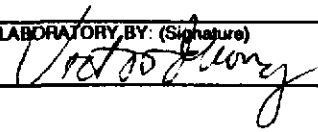
SAMPLE I.D.	Gasoline (ug/L)	Benzene (ug/L)	Toluene (ug/L)	Ethyl Benzene (ug/L)	Total Xylenes (ug/L)
MW 1	580	N.D.	N.D.	2.6	3.9
MW 2	120	N.D.	N.D.	N.D.	0.8
MW 3	1400	1.1	2.1	5.4	9.5
Blank	N.D.	N.D.	N.D.	N.D.	N.D.
Spiked Recovery	86.6%	88.3%	90.2%	91.0%	100.5%
Detection limit	50	0.5	0.5	0.5	0.5
Method of Analysis	5030 / 8015	602	602	602	602

David Duong
Laboratory Director

PEL # 9412046

CHAIN OF CUSTODY RECORD

INV # 25520

PROJECT NAME AND ADDRESS: <u>QUALITY TUNE-UP</u> <u>CASTRO VALLEY BLVD.</u> <u>CASTRO VALLEY, CA</u>					SAMPLER: (Signature) 		ANALYSIS REQUESTED <i>TPH GAs / BTEX</i>												
					HAGEMAN - AGUIAR, INC. 3732 Mt. Diablo Blvd., Suite 372 Lafayette, CA 94549 (415)284-1661 (415)284-1664 (FAX)														
CROSS REFERENCE NUMBER	DATE	TIME	SOIL	WATER	STATION LOCATION			REMARKS											
MW 1	12-13-94	1245		X	MONITOR WELL # 1			X											NORM TAT
MW 2	12-13-94	1225		X	↓ ↓ # 2			X											↓
MW 3	12-13-94	1240		X	↓ ↓ # 3			X											↓
RELINQUISHED BY: (Signature) 					DATE <u>12-13-94</u> TIME <u>1330</u>		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)  PEL								DATE <u>12/13/94</u> TIME <u>1330</u>				