reviewed 12/11/92
SDS

HAGEMAN-AGUIAR, INC.

Underground Contamination Investigations, Groundwater Consultants, Environmental Engineering

QUARTERLY
GROUNDWATER SAMPLING REPORT

(sampled November 18, 1992)

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

December 1, 1992

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

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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 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

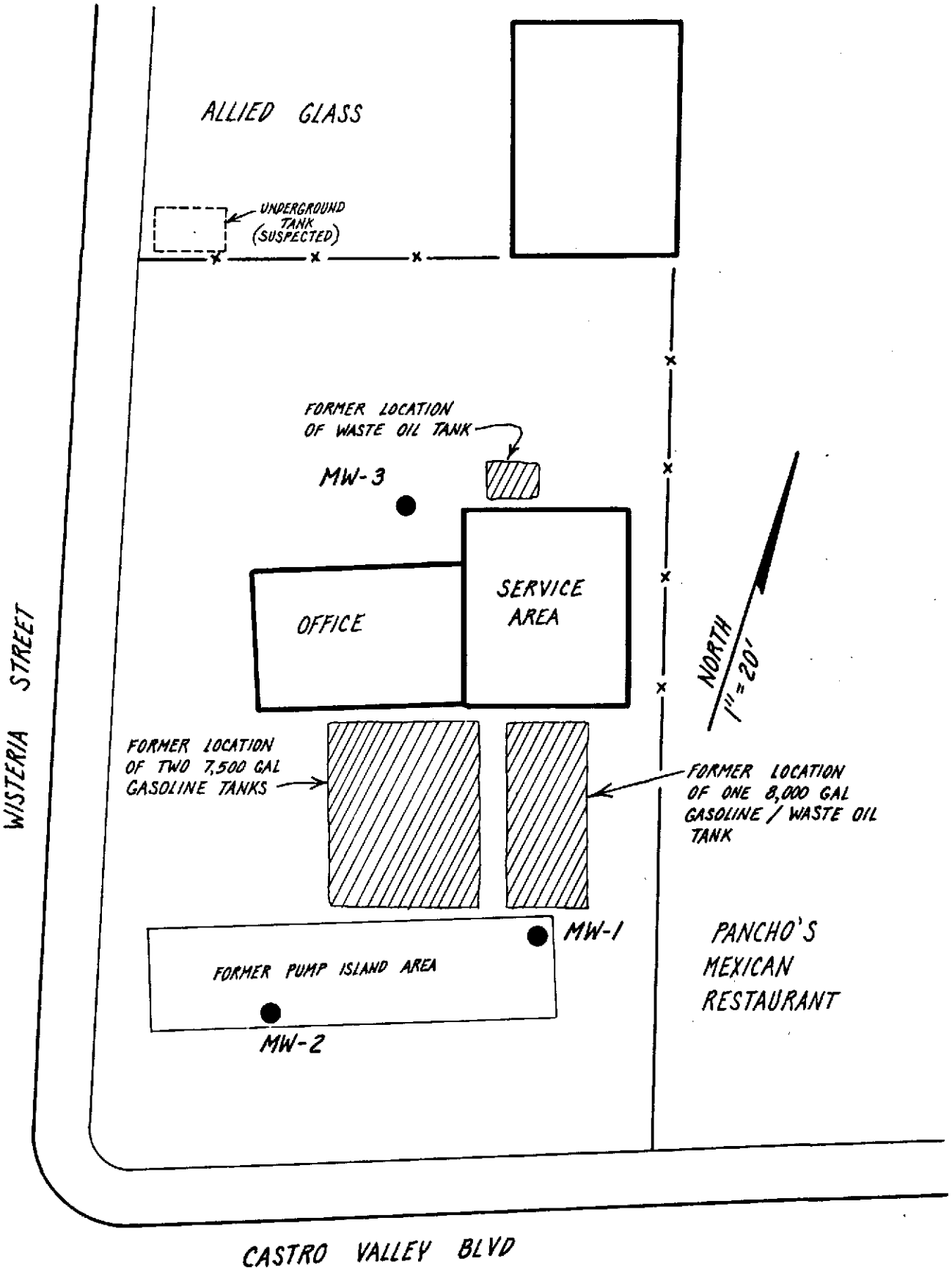


FIGURE 2.
Site Map.

II. FIELD WORK

Monitoring Well Sampling

On November 18, 1992, 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-litre amber bottles free of any headspace. The samples were immediately placed on 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 sewered (if possible) as a non-hazardous liquid waste in accordance with local sewering agency permit requirements, or else it 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 November 18, 1992. 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 = 2'/67' = 0.030.

Historical Water Level Measurements

In addition to the most recent measurement of the shallow water table elevations prior to the groundwater sampling on November 18, 1992, 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
November 18, 1992

Well	Top of Casing Elevation (feet)	Depth to Water (feet)	Water Table Elevation (feet)
MW-1	163.70	11.30	152.40
MW-2	163.33	11.49	151.84
MW-3	163.35	9.30	154.05

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

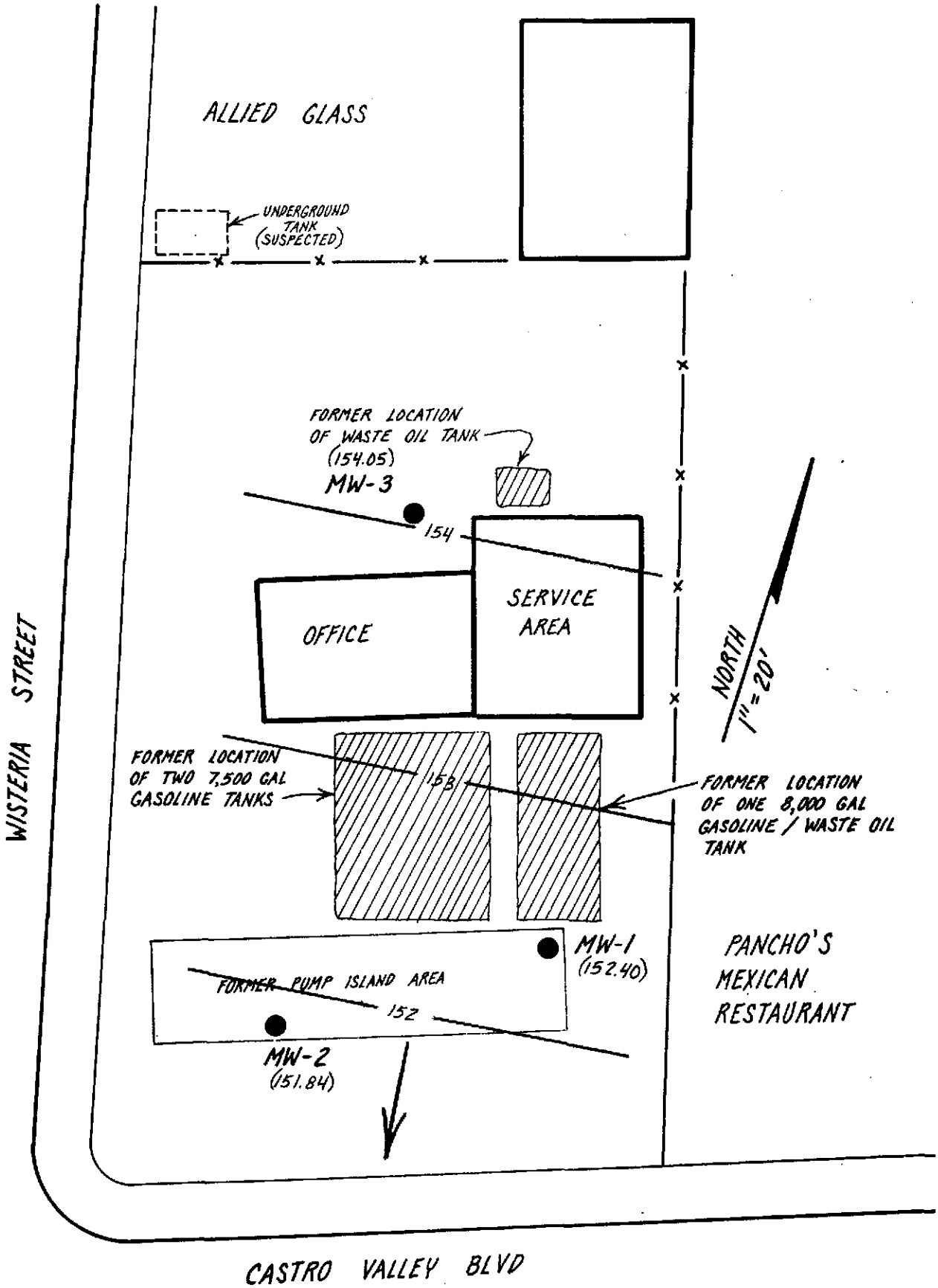


FIGURE 3. Shallow Groundwater Table Contour Map (measured November 18, 1992

TABLE 2.
Historical Water Table Elevations
(feet)

Well	Date of Measurement								
	5-20-92	8-19-92	11-18-92						
MW-1	152.67	152.64	152.40						
MW-2	152.65	152.47	151.84						
MW-3	154.28	154.48	154.05						
Flow Direction	SE	SE	S						
Hydraulic Gradient	0.025	0.029	0.030						

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 extractable petroleum hydrocarbons (EPA method 8015), 2) total petroleum hydrocarbons as Gasoline (EPA method 8015) and 3) 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 4,800 µg/L (ppb)**. In addition, samples collected from well MW-3 indicated the presence of **Benzene at a concentration of 26 µg/L (ppb)**.

For this round of shallow groundwater sampling, **Gasoline was detected in wells MW-1 and MW-2 at concentrations of 160 µg/L (ppb) and 70 µg/L (ppb), respectively. Benzene was detected in well MW-1 at a concentration of 0.9 µg/L (ppb)**.

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)	TPH as Kerosene (ug/L)	TPH as Diesel (ug/L)	Benzene (ug/L)	Toluene (ug/L)	Ethyl-benzene (ug/L)	Total Xylenes (ug/L)	Motor Oil (mg/L)
MW-1	05-20-92	260	ND	ND	ND	ND	4.4	9.0	ND
	08-19-92	ND	ND	ND	ND	ND	ND	ND	ND
	11-18-92	160	ND	ND	0.9	4.0	2.6	9.4	ND
MW-2	05-20-92	ND	ND	ND	ND	ND	ND	ND	ND
	08-19-92	ND	ND	ND	ND	ND	ND	ND	ND
	11-18-92	70	ND	ND	ND	ND	0.9	6.7	ND
MW-3	05-20-92	4,200	ND	ND	4.5	1.2	13	43	ND
	08-19-92	280	ND	ND	5.3	16	25	61	ND
	11-18-92	4,800	ND	ND	26	27	35	98	ND
Detection Limit		50	50	50	0.5	0.5	0.5	0.5	0.5

ND = Not Detected

Chemical Concentration Contours.

Figures 4 and 5 show lines of equal concentration for Gasoline and Benzene 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 most recent sampling data continue to suggest the possibility of migration of Gasoline contamination from the existing underground storage tank located on the adjoining Allied Glass. Its location with respect to the concentration contours is consistent with the measured shallow groundwater flow direction beneath the subject site. In terms of possible on-site sources of contamination (disregarding the Allied Glass property), the nearby presence of the former underground waste oil tank would be the most likely source for the Gasoline concentrations in the shallow groundwater.

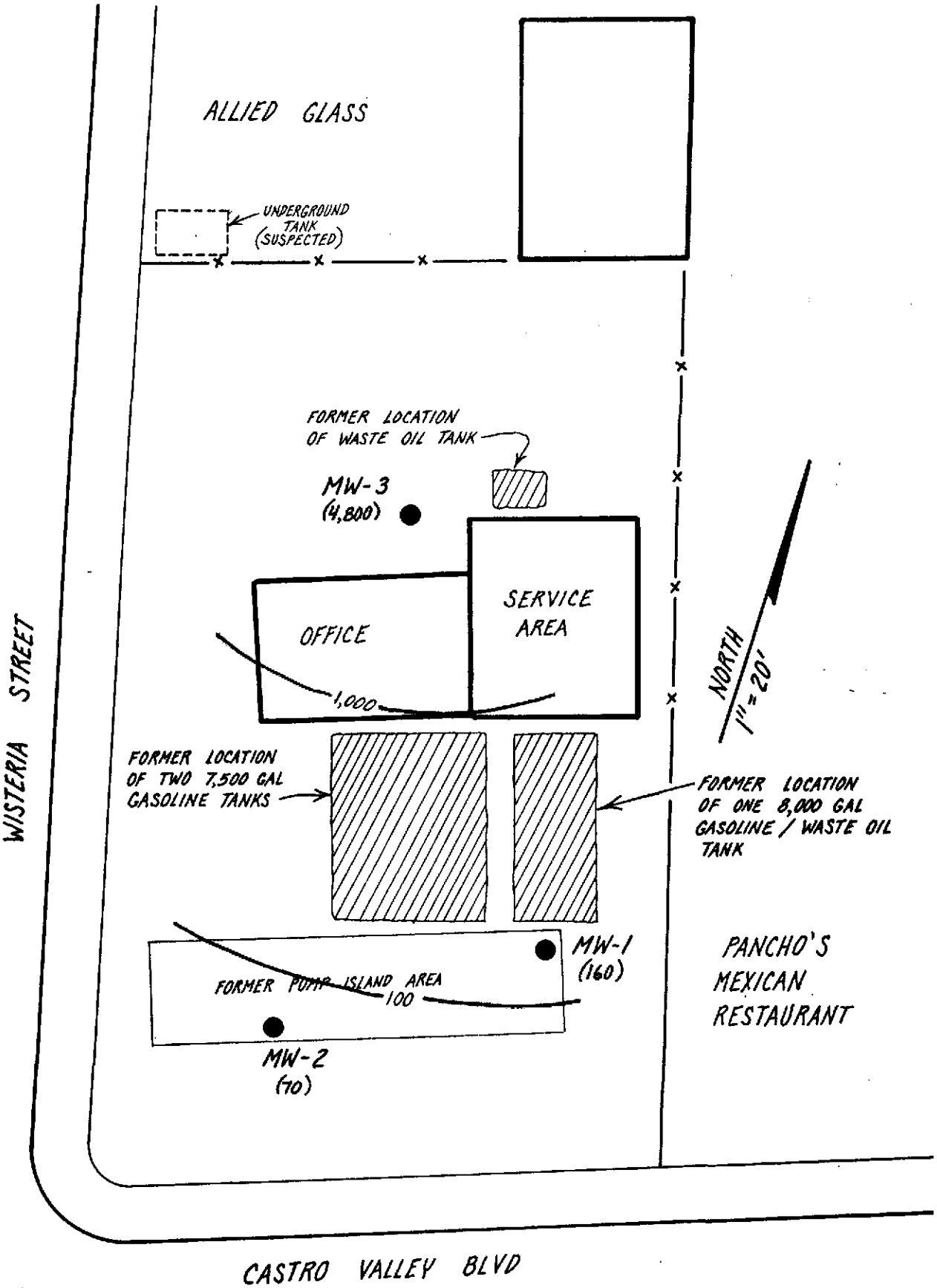


FIGURE 4. Lines of Equal Concentration of Gasoline in ug/L (ppb) in the Shallow Groundwater.

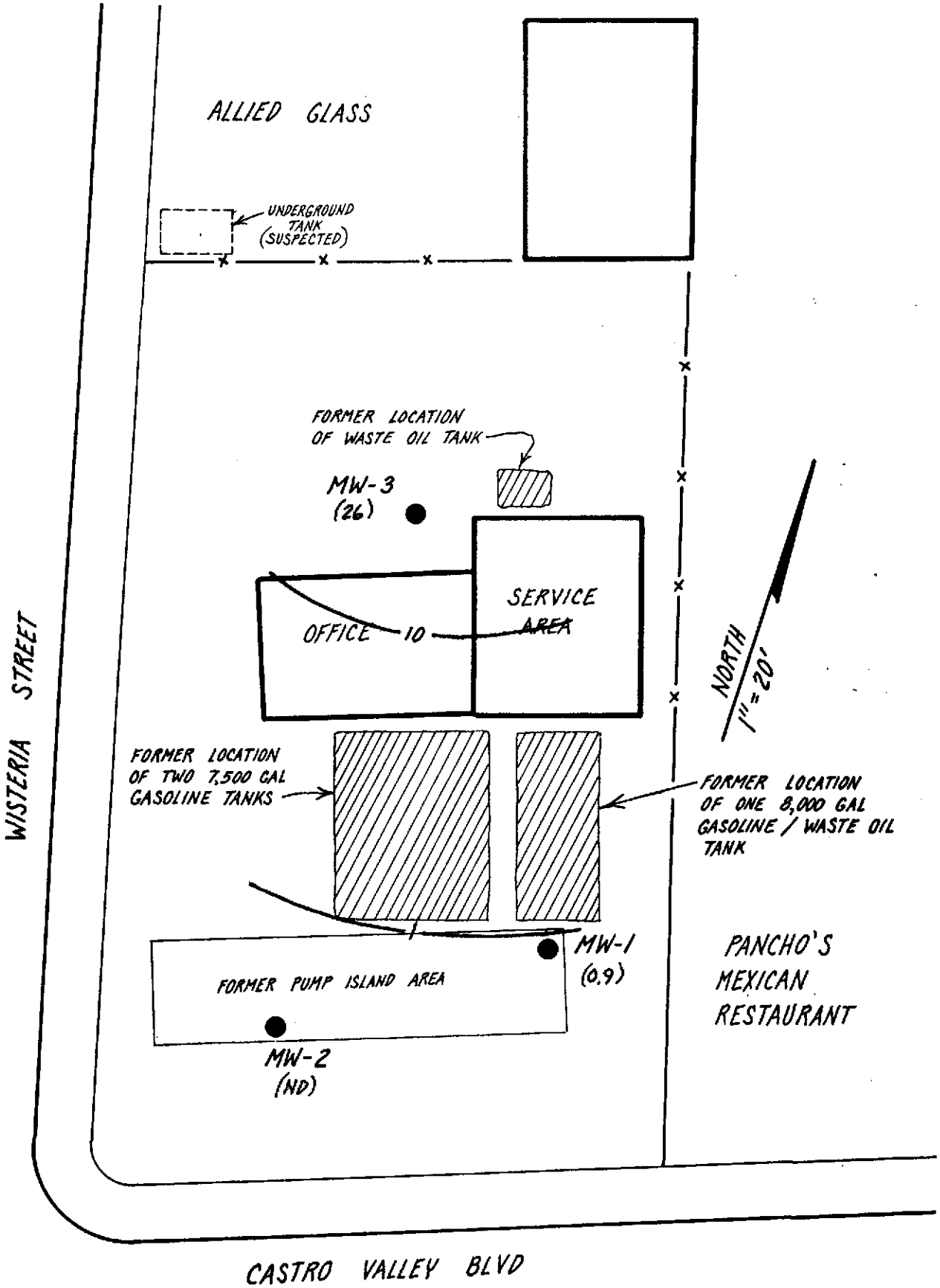
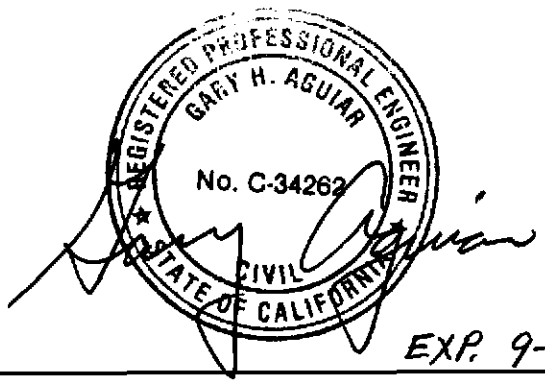


FIGURE 5. Lines of Equal Concentration of Benzene in ug/L (ppb) in the Shallow Groundwater.

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

December 1, 1992



EXP. 9-30-95

Gary Aguiar **RCE 34262**

Bruce Hageman

WELL SAMPLING LOG

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

Site Location CASTRO VALLEY

Date 11-18-92

Well No. MW 1

Time Began 942
Completed 1120

Weather CLEAR / 65°F

EVACUATION DATA

Description of Measuring Point (MP) WELL BOX AT GRADE

Total Sounded Depth of Well Below MP 24.52

Diameter of Casing 2"

- Depth to Water Below MP 11.30

= Water Column in Well 13.22

Gallons in Casing 2.1 + Annular Space (30% porosity) (x 10) = Total Gallons 21

Gallons Pumped Prior to Sampling 21

Evacuation Method TEFLON BAILER

SAMPLING DATA / FIELD PARAMETERS

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

Time	942	955	1036	1055
Gals Removed	0	10	15	21
Temperature	20.4	21.6	21.4	21.4
Conductivity	700	800	700	700
pH	7.6	7.5	7.3	7.3
Color / Odor	CLR/LT. HC	LT. GRY/NO	LT. GRY/NO	GRY/NO
Turbidity	LOW	MED	MED	HIGH

Comments: SLOW RECHARGE RATE

WELL SAMPLING LOG

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

Site Location CASTRO VALLEY

Date 11-18-92

Well No. MW 2

Time Began 1005
Completed 1145

Weather CLEAR / 65°F

EVACUATION DATA

Description of Measuring Point (MP) WELL BOX AT GRADE

Total Sounded Depth of Well Below MP 20.58

- Depth to Water Below MP 11.49

Diameter of Casing 2"

= Water Column in Well 9.09

Gallons in Casing 1.5 + Annular Space (30% porosity) (X10) = Total Gallons 15

Gallons Pumped Prior to Sampling 15

Evacuation Method TEFLON BAILER

SAMPLING DATA / FIELD PARAMETERS

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

Time	1005	1040	1100	1114
Gals Removed	0	5	10	15
Temperature	22.4	22.0	21.1	21.0
Conductivity	800	~~700~~ 800	800	800
pH	7.1	7.3	7.3	7.3
Color / Odor	CLR/NO	GRY/NO	GRY/NO	GRY/NO
Turbidity	LOW	HIGH	HIGH	HIGH

Comments: SLOW RECHARGE RATE

WELL SAMPLING LOG

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

Site Location CASTRO VALLEY

Date 11-18-92

Well No. MW 3

Time Began 1018

Weather CLEAR / 65°F Completed 1220

EVACUATION DATA

Description of Measuring Point (MP) WELL BOX AT GRADE

Total Sounded Depth of Well Below MP 24.44

Diameter of Casing 2"

- Depth to Water Below MP 9.30

= Water Column in Well 15.14

Gallons in Casing 2.4 + Annular Space (30% porosity) (X10) = Total Gallons 24

Gallons Pumped Prior to Sampling 25

Evacuation Method TEFLON BAILER

SAMPLING DATA / FIELD PARAMETERS

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

Time	1018	1030	1130	1205
Gals Removed	0	10	18	25
Temperature	20.8	20.4	20.3	20.9
Conductivity	800	900	900	900
pH	7.2	7.2	7.3	7.3
Color / Odor	CLR/HC	GRY/NO	GRY/NO	GRY/LT. HC
Turbidity	LOW	HIGH	HIGH	MED

Comments: SLOW RECHARGE RATE

PRIORITY ENVIRONMENTAL LABS

Precision Environmental Analytical Laboratory

November 21, 1992 PEL # 9211046

HAGEMAN - AGUIAR, INC.

Attn: Jeffrey Roth
Re: Three water samples for Gasoline/BTEX and TEPH analyses.

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

Date sampled: Nov 18, 1992 Date submitted: Nov 19, 1992
Date extracted: Nov 19-20, 1992 Date analyzed: Nov 19-20, 1992

RESULTS:

SAMPLE I.D.	Kerosene (ug/L)	Gasoline (ug/L)	Diesel (ug/L)	Benzene (ug/L)	Toluene (ug/L)	Ethyl Benzene (ug/L)	Total Xylenes (ug/L)	Motor Oil (mg/L)
MW-1	N.D.	160	N.D.	0.9	4.0	2.6	9.4	N.D.
MW-2	N.D.	70	N.D.	N.D.	N.D.	0.9	6.7	N.D.
MW-3	N.D.	4800	N.D.	26	27	35	98	N.D.
Blank	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Spiked Recovery	89.3%	92.4%	103.1%	97.2%	95.3%	104.6%	92.0%	---
Duplicate Spiked Recovery	---	87.8%	100.5%	88.4%	90.2%	98.6%	86.1%	---
Detection limit	50	50	50	0.5	0.5	0.5	0.5	0.5
Method of Analysis	3510 / 8015	5030 / 8015	3510 / 8015	602	602	602	602	3510/ 8015

David Duong
Laboratory Director

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

PEL # 9211046

INV # 23216

CHAIN OF CUSTODY RECORD

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

SAMPLER: (Signature)

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

ANALYSIS REQUESTED: TPH GAS / BTXE; TEPH

CROSS REFERENCE NUMBER	DATE	TIME	SOIL	WATER	STATION LOCATION	TPH GAS / BTXE	TEPH	REMARKS
MW 1	11-18-92	1145		X	MONITOR WELL # 1	X	X	NORM TAT
MW 2	11-18-92	1120		X	" " # 2	X	X	
MW 3	11-18-92	1220		X	" " # 3	X	X	

RELINQUISHED BY: (Signature)	DATE 11-19-92 TIME 0930	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)	DATE 11/19/92 TIME 9:30