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

REPORT OF QUARTERLY GROUNDWATER SAMPLING

(sampled June 28, 1994)

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

July 6, 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

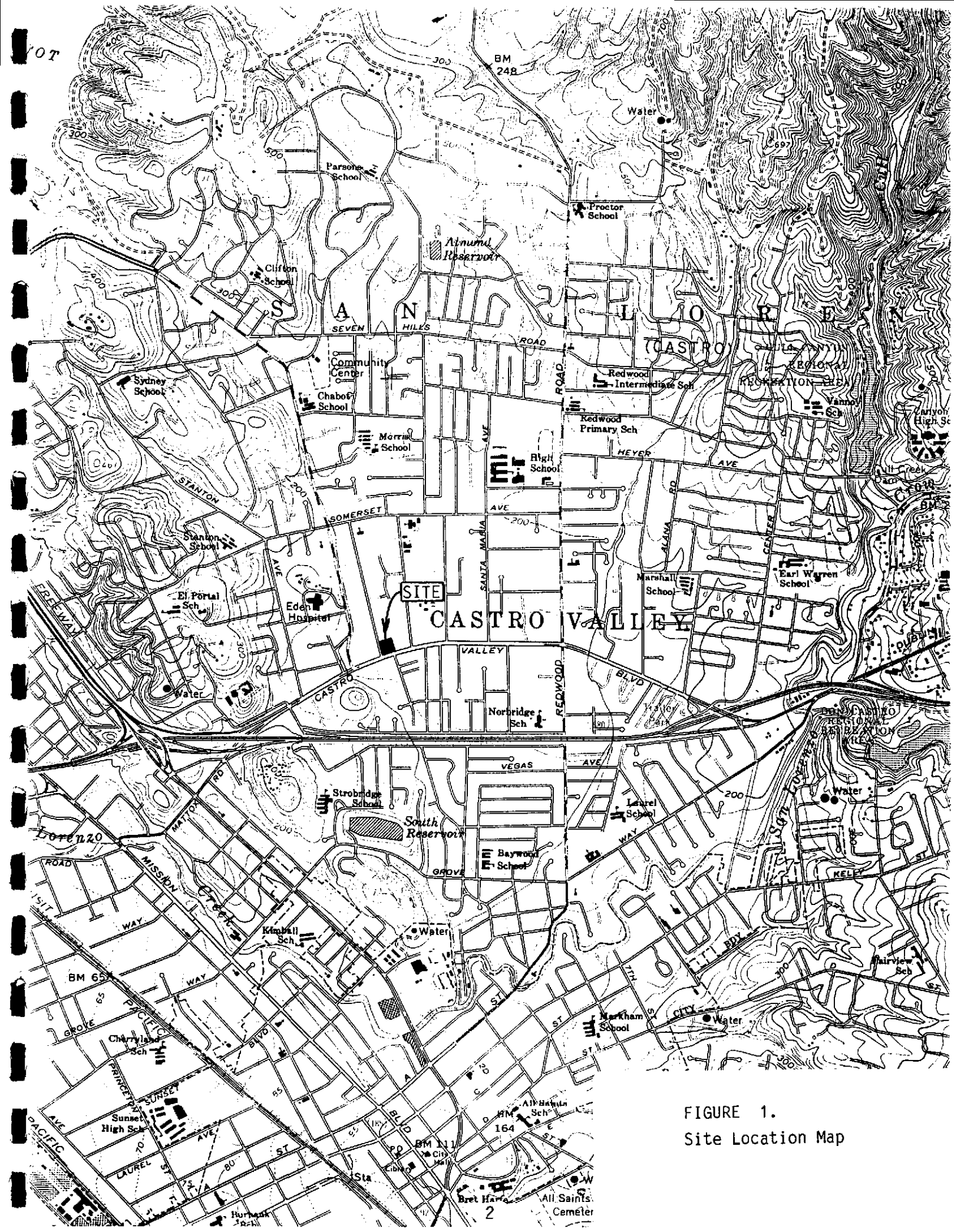


FIGURE 1.
Site Location Map

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 June 28, 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 fifth "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.

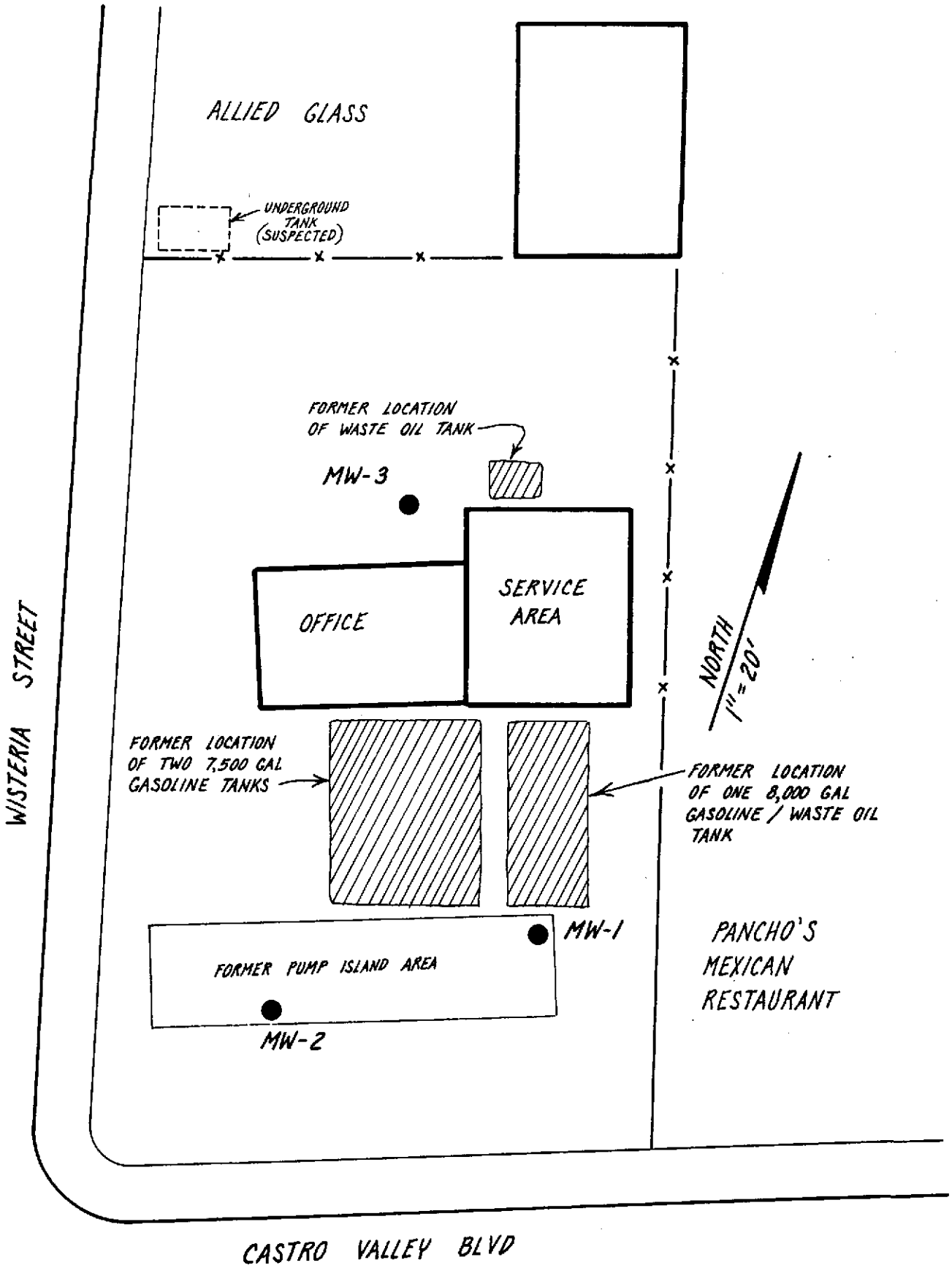


FIGURE 2.
Site Map.

II. FIELD WORK

Monitoring Well Sampling

On June 28, 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 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 June 28, 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 southeasterly 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 = 0.5'/20' = 0.025.

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
June 28, 1994

Well	Top of Casing Elevation (feet)	Depth to Water (feet)	Water Table Elevation (feet)
MW-1	163.70	10.61	153.09
MW-2	163.33	10.25	153.08
MW-3	163.35	8.70	154.65

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

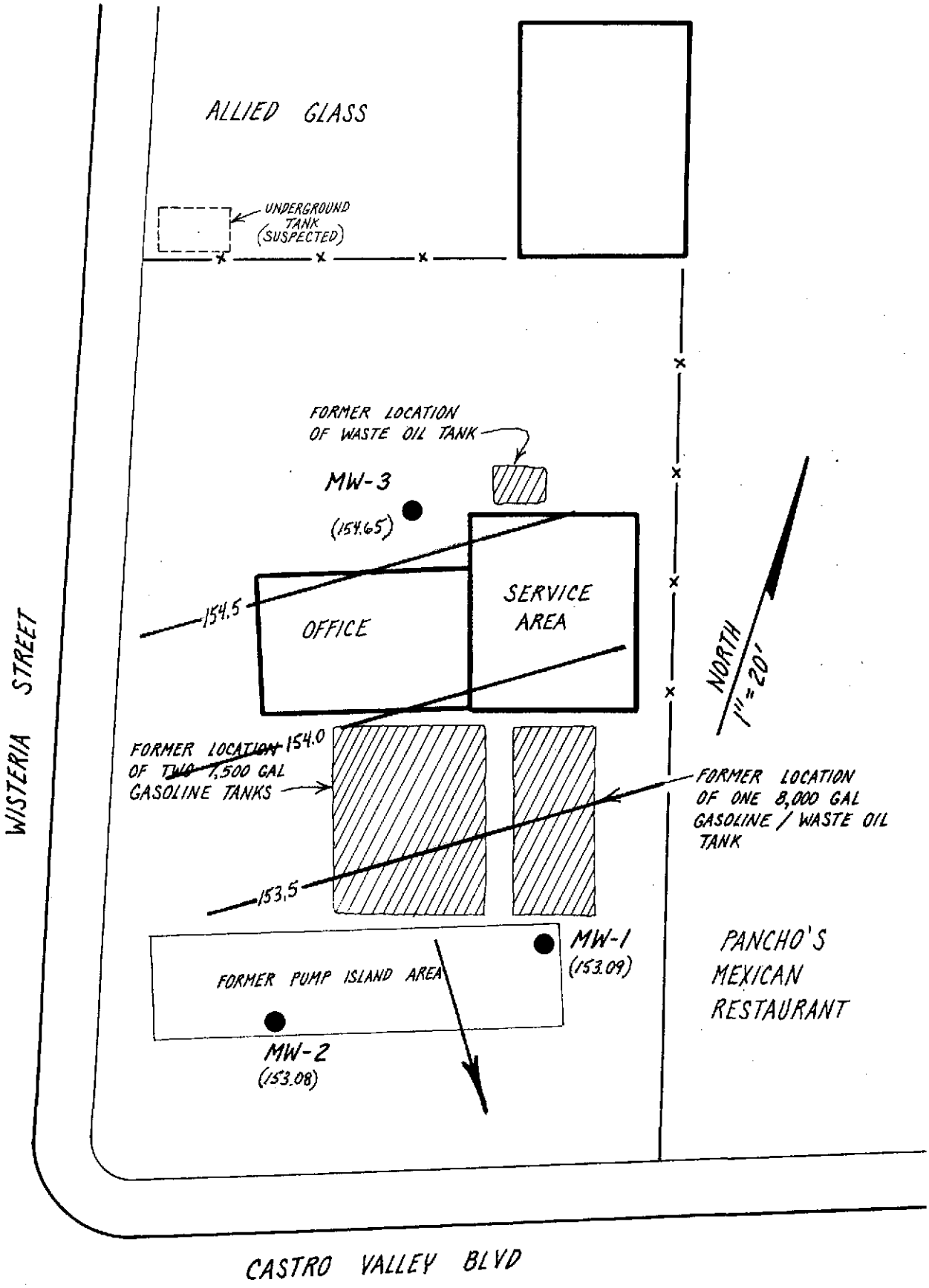


FIGURE 3. Shallow Groundwater Table Contour Map, measured June 28, 1994.

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

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).

In the past, shallow groundwater samples were analyzed for total extractable petroleum hydrocarbons (TEPH) using EPA method 8015, as originally required by the Alameda County Department of Environmental Health and the California Regional Water Quality Control Board (RWQCB), San Francisco Bay Region. In a meeting with Alameda County Health Department, Hageman-Aguiar learned TEPH analysis is no longer required for the samples.

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 and MW-3 at concentrations of 180 µg/L (ppb) and 230 µg/L (ppb), respectively. **No detectable concentrations of Benzene were present in samples collected from wells MW-1, MW-2 and MW-3 during this most recent groundwater sampling episode.**

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
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
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
Detection Limit		50	0.5	0.5	0.5	0.5

ND = Not Detected

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

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 data continue to suggest the possibility of migration of subsurface contamination from the adjoining Allied Glass property. Its location with respect to the concentration contours is consistent with the measured shallow groundwater flow direction beneath the subject site.

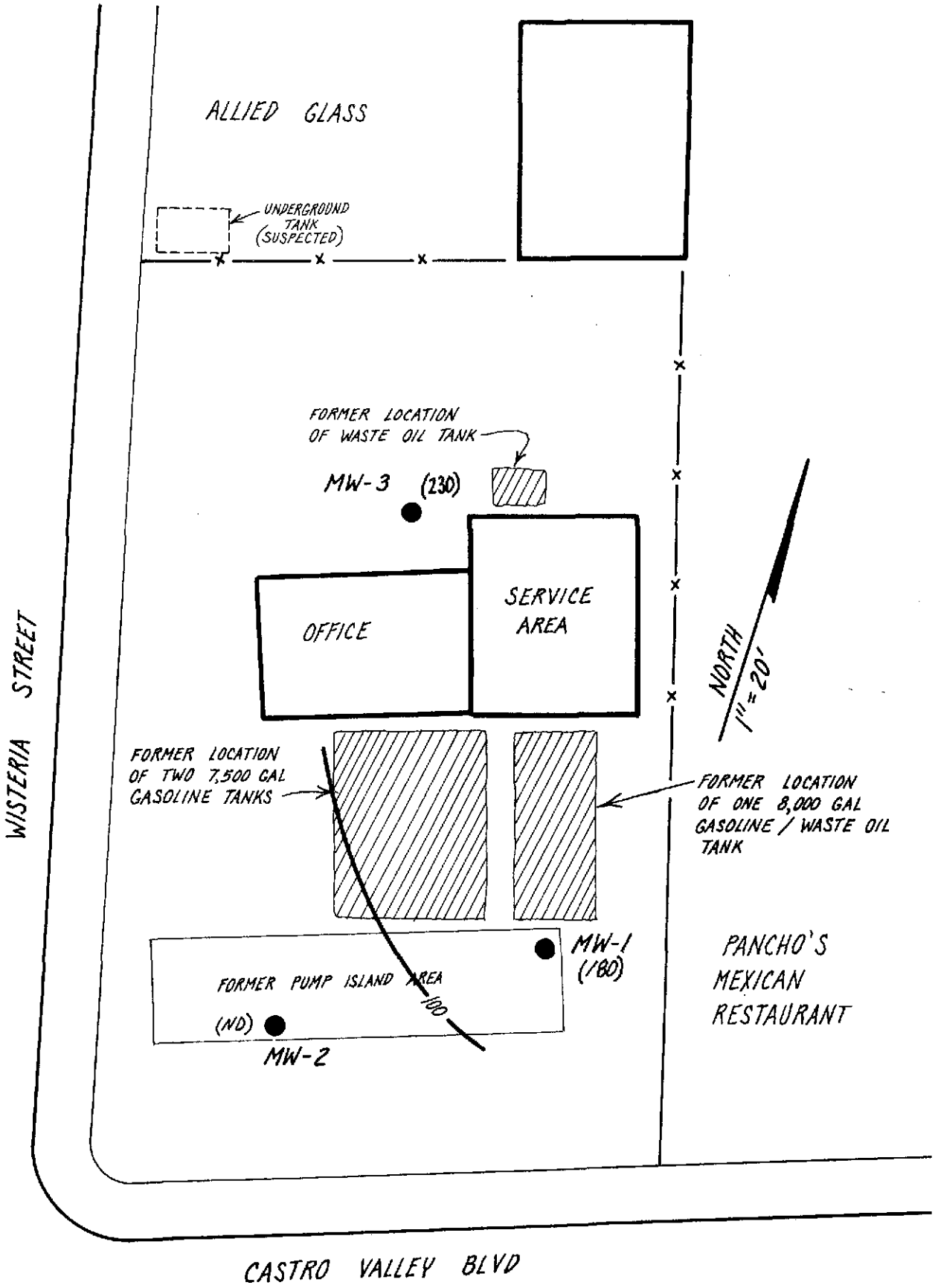
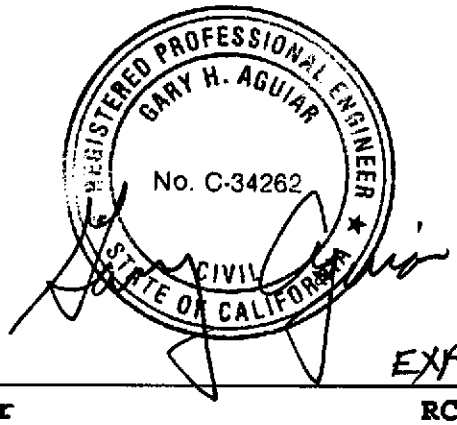


FIGURE 4. Lines of Equal Concentration of Gasoline in ug/L (ppb) in the Shallow Groundwater (June 28, 1994).

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

June 28, 1994



EXP. 9-30-95

Gary Aguiar **RCE 34262**

Gerard Aarons 6/28/94

Gerard Aarons **Geologist**

WELL SAMPLING LOG

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

Site Location CASTRO VALLEY, CA

Date 6/28/94

Well No. MW 1

Time Began 1030

Weather CLEAR / 95°F Completed 1130

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 10.61 Diameter of Casing 2"

= Water Column in Well 14.15

Gallons in Casing 2.3 + Annular Space (30% porosity) (X 10) = Total Gallons 23

Gallons Pumped Prior to Sampling 23

Evacuation Method PVC BAILER

SAMPLING DATA / FIELD PARAMETERS

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

Time	1030	1040	1105	1120
Gals Removed	0	8	16	23
Temperature	20.5	20.3	20.9	21.5
Conductivity	370	350	360	350
pH	6.8	6.7	7.1	7.0
Color / Odor	CLR/ORG	GRY/ORG	GRY/ORG	GRY/ORG
Turbidity	LOW	MED	HIGH	HIGH

Comments: NONE

WELL SAMPLING LOG

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

Site Location CASTRO VALLEY, CA

Date 6/20/94

Well No. MW 2

Time Began 0900

Weather CLEAR / 85°F Completed 1220

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 10.25 Diameter of Casing 2"

= Water Column in Well 10.65

Gallons in Casing 1.7 + Annular Space (30% porosity) (X10) = Total Gallons 1.7

Gallons Pumped Prior to Sampling 14

Evacuation Method PVC BAILER

SAMPLING DATA / FIELD PARAMETERS

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

			*	
Time	0900	0906	1000	1120
Gals Removed	0	5	10	14
Temperature	20.8	20.4	20.6	21.2
Conductivity	335	330	350	340
pH	6.4	6.3	6.4	6.6
Color / Odor	CLR/ORG	LT. GRY/ORG	GRY/ORG	GRY/ORG
Turbidity	LOW	MED	HIGH	HIGH

Comments: * SLOW RECHARGE RATE - DEWATERED

WELL SAMPLING LOG

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

Site Location CASTRO VALLEY, CA

Well No. MW 3 Date 6/28/94

Weather CLEAR / 85°F Time Began 0840
Completed 1235

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 8.70 Diameter of Casing 2"

= Water Column in Well 16.11

Gallons in Casing 2.6 + Annular Space (30% porosity) (x10) = Total Gallons 26

Gallons Pumped Prior to Sampling 26

Evacuation Method PVC BAILER

SAMPLING DATA / FIELD PARAMETERS

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

Time	0840	0850	1013	1132
Gals Removed	0	9	17	25
Temperature	21.2	20.5	20.3	20.4
Conductivity	360	360	400	415
pH	6.4	6.5	6.5	6.7
Color / Odor	CLR/ORG	GRY/ORG	GRY/ORG	GRY/ORG
Turbidity	LOW	MED	HIGH	HIGH

Comments: NONE

PRIORITY ENVIRONMENTAL LABS

Precision Environmental Analytical Laboratory

July 01, 1994 PEL # 9406115

HAGEMAN-AGUIAR, INC.

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

Project name: Quality Tune-up
Project location: Castro Valley - CA

Date sampled: Jun 28, 1994 Date submitted: Jun 28, 1994
Date extracted: Jun 29-Jul 01, 1994 Date analyzed: Jun 29-Jul 01, 1994

RESULTS:

SAMPLE I.D.	Gasoline (ug/L)	Benzene (ug/L)	Toluene (ug/L)	Ethyl Benzene (ug/L)	Total Xylenes (ug/L)
MW 1	180	N.D.	N.D.	4.2	9.0
MW 2	N.D.	N.D.	N.D.	N.D.	N.D.
MW 3	230	N.D.	4.0	8.5	19
Blank	N.D.	N.D.	N.D.	N.D.	N.D.
Spiked Recovery	83.7%	90.2%	92.6%	87.0%	83.2%
Duplicate Spiked Recovery	96.9%	82.1%	105.3%	99.2%	112.7%
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

CHAIN OF CUSTODY RECORD

PEL # 9406115

INV # 24947

PROJECT NAME AND ADDRESS:
Quality Tune-Up
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

CROSS REFERENCE NUMBER	DATE	TIME	SOIL	WATER	STATION LOCATION	TPH Gas/BTXE	REMARKS
MW 1	6-28-94	1130		X	Monitor Well # 1	X	Norm TAT
MW 2	6-28-94	1220		X	" # 2	X	"
MW 3	6-28-94	1235		X	" # 3	X	"

RELINQUISHED BY: (Signature)	DATE 6-28-94 TIME 1305	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 6-28-94 TIME 1305