



June 21, 1995

QUARTERLY GROUNDWATER MONITORING REPORT
JUNE 6, 1995 GROUNDWATER SAMPLING
ASE JOB NO. 2545

at
Former Alameda Max's
1357 High Street
Alameda, California 94501

Prepared for:
Mr. James A. Phillipsen
3111 Marina Drive
Alameda, CA 94501

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



David M. Schultz

WE'VE MOVED TO
2411 OLD CROW CANYON RD #4
SAN RAMON, CA 94583
510-820-9391

1.0 INTRODUCTION

Site Location (Site), See Figure 1

Former Alameda Max's
1357 High Street
Alameda, CA 94501

Property Owner

Mr. James A. Phillipsen
3111 Marina Drive
Alameda, CA 94501

Environmental Consulting Firm

Aqua Science Engineers, Inc. (ASE)
2411 Old Crow Canyon Road, #4
San Ramon, CA 94583
Contact: Robert Kitay, Project Manager
(510) 820-9391

Agency Review

Alameda County Health Care Services Agency (ACHCSA)
1131 Harbor Bay Parkway
Alameda, CA 94502
Contact: Ms. Juliet Shin
(510) 567-6700

California Regional Water Quality Control Board (RWQCB),
San Francisco Bay Region
2101 Webster Street, Suite 500
Oakland, CA 94612
Contact: Mr. Kevin Graves
(510) 286-4359

The following is a report detailing the results of the June 6, 1995, quarterly groundwater sampling at the above referenced site.

2.0 GROUNDWATER FLOW DIRECTION AND GRADIENT

On June 6, 1995, ASE project engineer David Allen measured the depth to water in each site well using an electric water level sounder. The surface of the groundwater was also checked for the presence of free-floating hydrocarbons or sheen. 0.01-feet of what appeared to be free-floating unused motor oil was on the surface of the groundwater in monitoring well MW-2. No free-floating hydrocarbons or sheen was present on the surface of water from monitoring wells MW-1, MW-3 or MW-4. Depths to groundwater are presented in Table One.

Groundwater elevation contours are presented on Figure 3. On June 6, 1995, groundwater flowed to the southeast beneath the site at a gradient of 0.02-feet/foot, which is consistent with previous findings.

3.0 GROUNDWATER SAMPLE COLLECTION AND ANALYSIS

Prior to sampling, monitoring wells MW-1, MW-3 and MW-4 were purged of four well casing volumes of water using a 12 volt electric PVC pump. Monitoring well MW-2 was not sampled because it contained 0.01-feet of free-floating hydrocarbons. Groundwater samples were then collected from monitoring wells MW-1, MW-3 and MW-4 using dedicated polyethylene bailers. The samples were decanted from the bailers into 40-ml volatile organic analysis (VOA) vials and 1-liter amber glass bottles. The samples were preserved with hydrochloric acid, capped, labeled and placed into an ice chest containing wet ice for transport to American Environmental Network (AEN) of Pleasant Hill, California (DOHS #1172) under chain-of-custody.

The analytical results for this and previous quarters are presented below as Tables Two and Three, and the certified laboratory report and chain-of-custody form are included as Appendix A.

The well purge water was placed in 55-gallon steel DOT 17H drums, labeled, and left on-site for temporary storage.

The groundwater samples were analyzed for total petroleum hydrocarbons as gasoline (TPH-G) by modified EPA Method 5030/8015, total petroleum hydrocarbons as diesel (TPH-D) by modified EPA Method 3510/8015, total and hydrocarbon oil and grease (O&G) by EPA Method 5520B&F, benzene, toluene, ethylbenzene and total xylenes (BTEX) by EPA Method 8020 and volatile organic compounds (VOCs) by EPA Method 8010.

4.0 CONCLUSIONS

0.01-feet of what appeared to be free-floating unused motor oil was present on the groundwater surface in monitoring well MW-2. Hydrocarbon concentrations in groundwater samples collected from monitoring wells MW-1 and MW-3 decreased slightly this quarter, and groundwater samples from monitoring well MW-4 increased slightly this quarter. All results were, however, generally consistent with previous findings. Benzene concentrations in the groundwater samples collected from monitoring wells MW-3 and MW-4 exceeded the California Department of Toxic Substances Control (DTSC) maximum contaminant level (MCL) for drinking water. No VOCs were detected in groundwater samples from any monitoring well sampled.

5.0 RECOMMENDATIONS

As required by the Alameda County Health Care Services Agency, a workplan for additional assessment will be submitted for approval in the next few days. In addition, a skimmer to remove the free-floating hydrocarbons will be installed in monitoring well MW-2 this quarter. Following the removal of free-floating hydrocarbons, contaminated soil will be overexcavated in the vicinity of the former waste oil tank.

ASE recommends that sampling for VOCs (EPA Method 8010) be discontinued during future quarterly sampling periods since only 0.7 parts per billion TCE was detected in groundwater samples collected from monitoring well MW-2 over one year ago. This concentration is well below the DTSC MCL of 5 parts per billion.

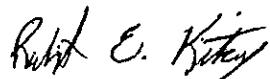
6.0 REPORT LIMITATIONS

The results of this report represent the conditions at the time of the groundwater sampling at the specific locations where the groundwater samples were collected, and for the specific parameters analyzed for by the laboratory. It does not fully characterize the site for contamination resulting from sources other than the former underground storage tanks and associated plumbing at the site, or for parameters not analyzed for by the laboratory. All of the laboratory work cited in this report was prepared under the direction of independent CSDHS 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 provide environmental consulting services to you, and trust that this report meets your needs. Please feel free to call us at (510) 820-9391 if you have any questions or comments.

Respectfully submitted,

AQUA SCIENCE ENGINEERS, INC.



Robert E. Kitay, R.E.A.
Project Geologist



Attachments: Figures 1, 2 and 3
Tables 1, 2 and 3
Appendices A and B

cc: Ms. Juliet Shin, Alameda County Health Care Services Agency
Mr. Kevin Graves, RWQCB, San Francisco Bay Region

TABLES

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	04-06-94	15.00	3.92	11.08
	08-02-94		4.10	10.90
	10-04-94		4.42	10.58
	12-14-94		3.42	11.58
	03-16-95		3.21	11.79
	06-06-95		3.84	11.16
MW-2	04-06-94	14.37	3.02	11.35
	08-02-94		3.32	11.18*
	12-14-94		2.90	11.52*
	03-16-95		Unknown	Unknown
	06-06-95		Unknown	Unknown
MW-3	04-06-94	14.56	3.51	11.05
	08-02-94		3.68	10.88
	10-04-94		3.97	10.59
	12-14-94		3.04	11.52
	03-16-95		2.84	11.72
	06-06-95		3.44	11.12
MW-4	10-04-94	14.70	4.31	10.39
	12-14-94		3.62	11.08
	03-16-95		3.48	11.22
	06-06-95		3.86	10.84

* = Adjusted for the presence of free-floating oil by the equation: Adjusted Groundwater Elevation = Top of Casing Elevation - Depth to Groundwater + (0.8 x Floating Hydrocarbon Thickness)

TABLE TWO
Summary of Chemical Analysis of GROUNDWATER Samples
All results are in parts per billion

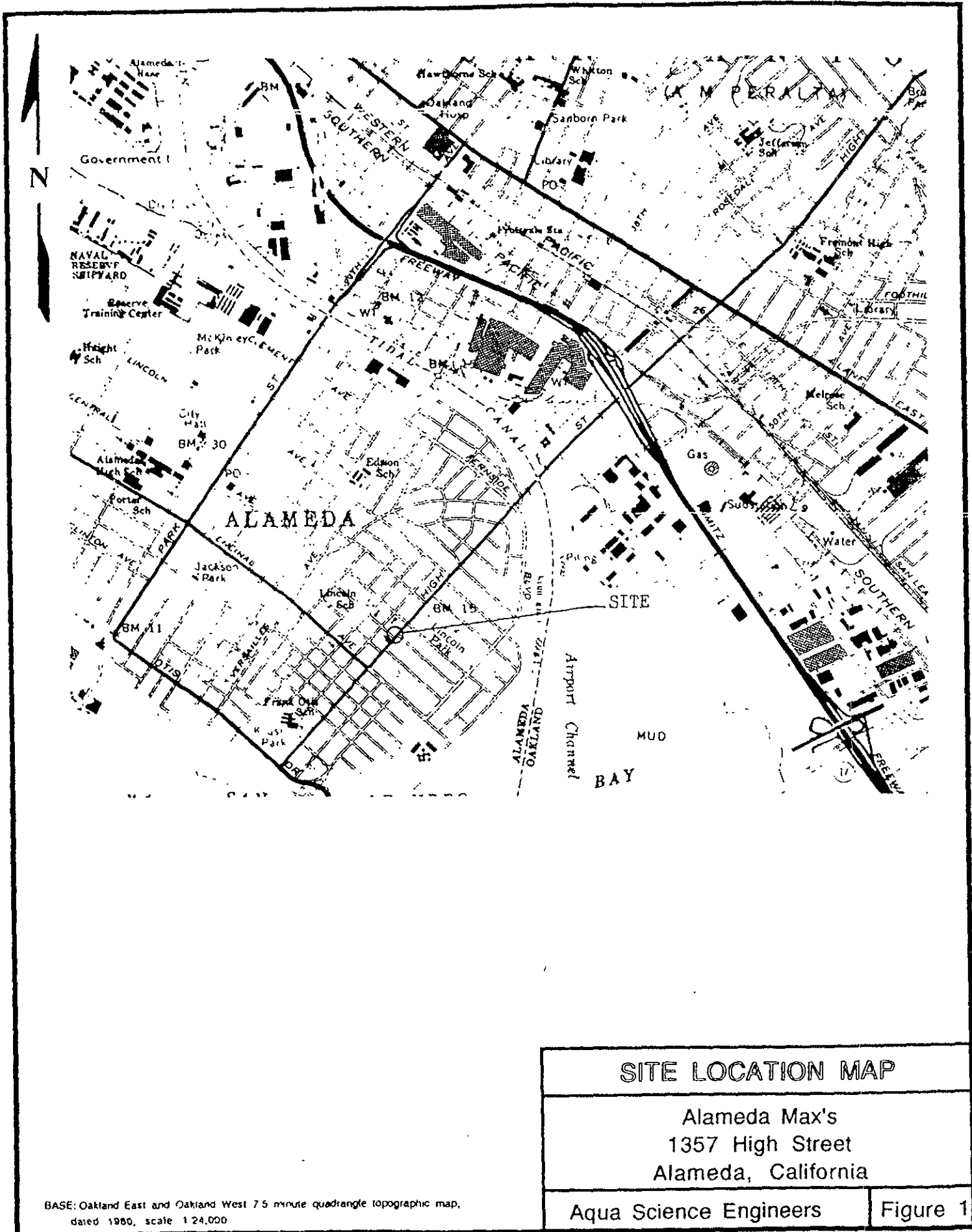
Sample I.D.	TPH Gasoline	TPH Diesel	Oil & Grease	Benzene	Toluene	Ethyl Benzene	Total Xylenes
<u>MW-1</u>							
04/04/94	80	<50	<500	<0.5	<0.5	0.5	2
08/02/94	60	500	<1,000	<0.5	<0.5	<0.5	<2
12/14/94	200	1,500	<1,000	<0.5	<0.5	6	<2
03/16/95	200	1,600	<500	<0.5	<0.5	3	<2
06/06/95	<50	680	<500	<0.5	<0.5	<0.5	<2
<u>MW-2</u>							
04/04/94	150	<50	6,200	0.6	1	2	6
08/02/94	NOT SAMPLED DUE TO FREE-FLOATING HYDROCARBONS						
12/14/94	NOT SAMPLED DUE TO FREE-FLOATING HYDROCARBONS						
03/16/95	NOT SAMPLED DUE TO FREE-FLOATING HYDROCARBONS						
06/06/95	NOT SAMPLED DUE TO FREE-FLOATING HYDROCARBONS						
<u>MW-3</u>							
04/04/94	1,200	180	<500	3	27	44	230
08/02/94	2,700	<50	<1,000	6	16	70	470
12/14/94	2,600	80	<1,000	9	30	78	430
03/16/95	1,200	300	<500	4	16	38	270
06/06/95	500	300	<500	2	1	13	61
<u>MW-4</u>							
10/04/94	500	200	<1,000	2	19	14	70
12/14/94	1,500	200	<1,000	8	37	68	190
03/16/95	500	300	<500	3	5	23	41
06/06/95	1,600	620	<500	5.9	48	83	240
EPA METHOD	5030/8015	3510/8015	5520 B&F	8020	8020	8020	8020

TABLE THREE
Summary of Chemical Analysis of GROUNDWATER Samples
Volatile Organic Compounds
All results in parts per billion

Sample I.D. -----	Date of Sampling -----	TCE -----	Other VOCs -----
MW-1	08-02-94	<0.5	<0.5
	12-14-94	<0.5	<0.5
	03-16-95	<0.5	<0.5
	06-06-95	<0.5	<0.5
MW-2	04-04-94	0.7	<0.5
	08-02-94	NOT SAMPLED DUE TO FLOATING HYDROCARBONS	
	12-14-94	NOT SAMPLED DUE TO FLOATING HYDROCARBONS	
	03-16-95	NOT SAMPLED DUE TO FLOATING HYDROCARBONS	
	06-06-95	NOT SAMPLED DUE TO FLOATING HYDROCARBONS	
MW-3	08-02-94	<0.5	<0.5
	12-14-94	<0.5	<0.5
	03-16-95	<0.5	<0.5
	06-06-95	<0.5	<0.5
MW-4	10-04-94	<0.5	<0.5
	12-14-94	<0.5	<0.5
	03-16-95	<0.5	<0.5
	06-06-95	<0.5	<0.5
EPA METHOD		8010	8010

TCE = Trichloroethene
VOCs = volatile organic compounds

FIGURES



SITE LOCATION MAP

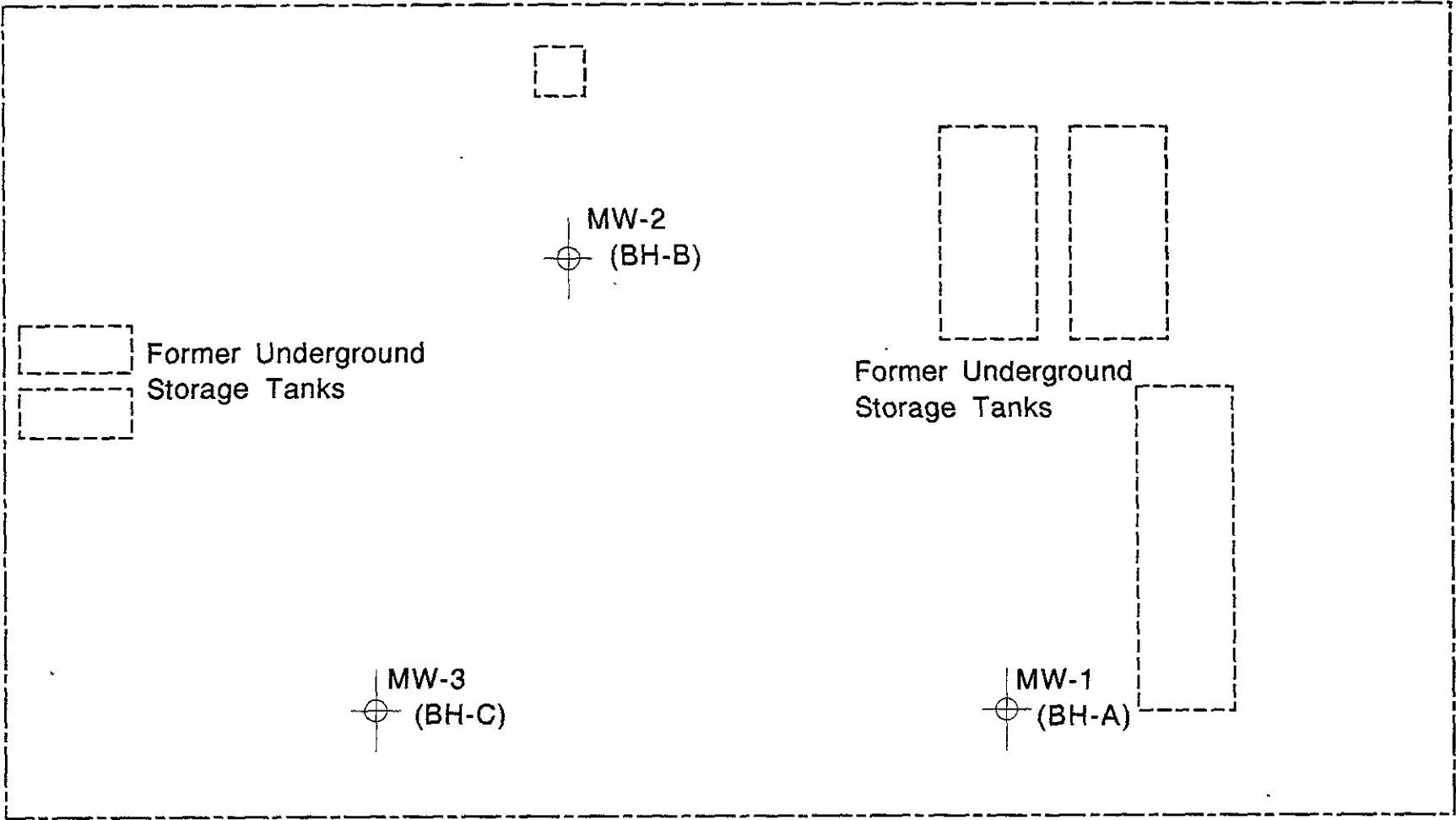
Alameda Max's
 1357 High Street
 Alameda, California

Aqua Science Engineers

Figure 1

BASE: Oakland East and Oakland West 7.5 minute quadrangle topographic map, dated 1980, scale 1:24,000

VAN BUREN STREET



Former Underground Storage Tanks

Former Underground Storage Tanks

MW-2
(BH-B)

MW-3
(BH-C)

MW-1
(BH-A)

MW-4
(BH-D)

HIGH STREET

NORTH

SCALE: 1" = 10'

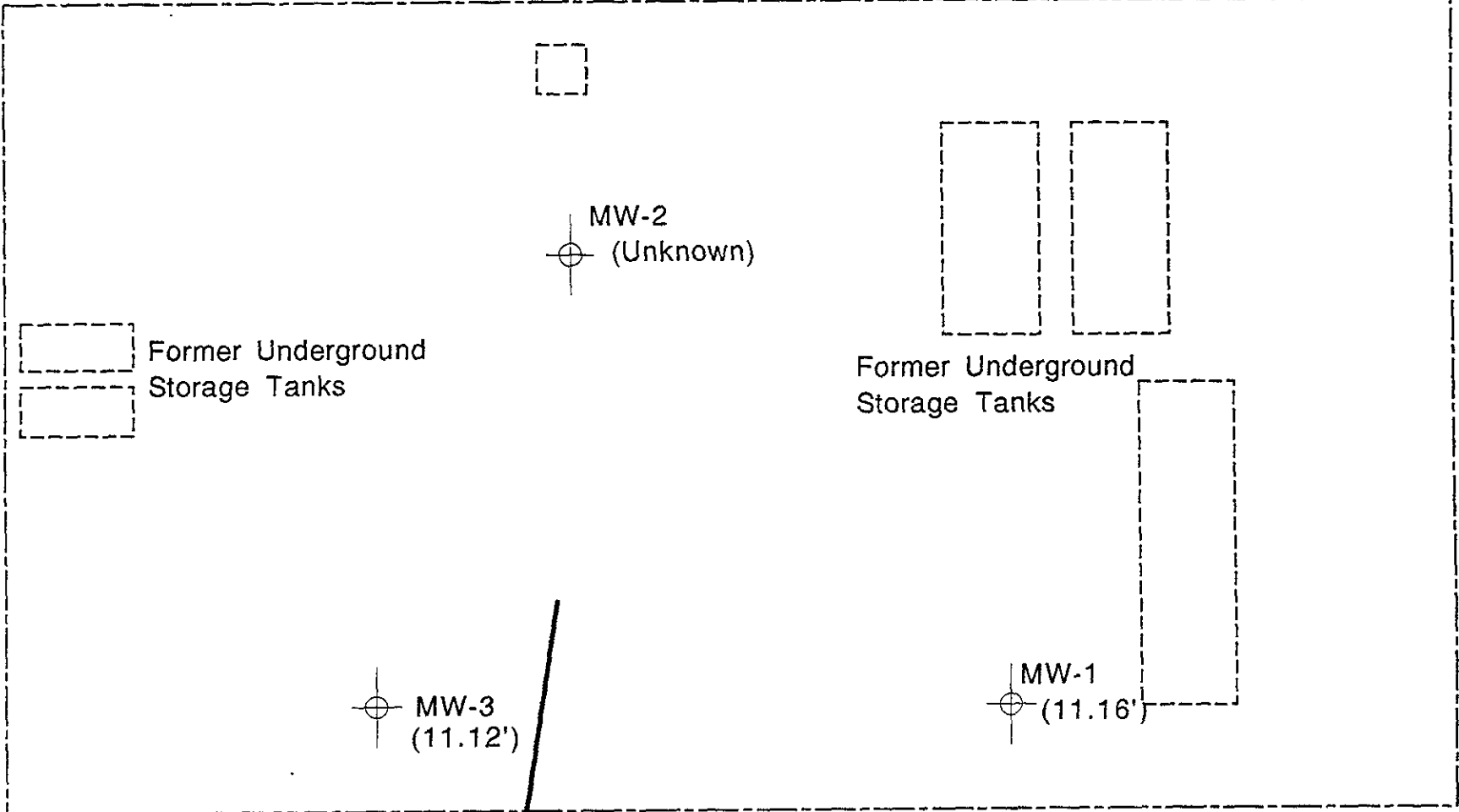
MONITORING WELL LOCATION MAP

Former Alameda Max's
1357 High Street
Alameda, California

AQUA SCIENCE ENGINEERS, INC.

Figure 2

VAN BUREN STREET



Former Underground Storage Tanks

Former Underground Storage Tanks

GROUNDWATER FLOW DIRECTION

HIGH STREET

11.0'

NORTH

SCALE: 1" = 10'

GROUNDWATER ELEVATION CONTOUR MAP - 6/06/95

Former Alameda Max's
1357 High Street
Alameda, California

AQUA SCIENCE ENGINEERS, INC.

Figure 3

MW-4
(10.84')



MW-3
(11.12')



MW-2
(Unknown)



MW-1
(11.16')



APPENDIX A

**California EPA Certified Laboratory
Report of Groundwater Samples**

American Environmental Network

Certificate of Analysis

DOHS Certification: 1172

AIHA Accreditation: 11134

PAGE 1

AQUA SCIENCE ENGINEERS, INC
2411 OLD CROW CANYON RD. #4
SAN RAMON, CA 94583

ATTN: DAVID ALLEN
CLIENT PROJ. ID: 2607
CLIENT PROJ. NAME: PHILLIPSEN

REPORT DATE: 06/21/95

DATE(S) SAMPLED: 06/06/95

DATE RECEIVED: 06/06/95

AEN WORK ORDER: 9506092

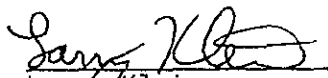
PROJECT SUMMARY:

On June 6, 1995, this laboratory received 3 water sample(s).

Client requested sample(s) be analyzed for organic parameters. Results of analysis are summarized on the following page(s). Please see quality control report for a summary of QC data pertaining to this project.

Samples will be stored for 30 days after completion of analysis, then disposed of in accordance with State and Federal regulations. Samples may be archived by prior arrangement.

If you have any questions, please contact Client Services at (510) 930-9090.


Larry Klein
Laboratory Director

AQUA SCIENCE ENGINEERS, INC.

AEN JOB NO: 9506092
 DATE SAMPLED: 06/06/95
 DATE RECEIVED: 06/06/95
 CLIENT PROJ. ID: 2607

Client Sample Id	AEN Lab Id	Purgeable Hydrocarbons as Gasoline (ug/L)	Extractable Hydrocarbons as Diesel (ug/L)	Oil & Grease (ug/L)	Hydrocarbons (ug/L)	Benzene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	Total Xylenes (ug/L)
MW-1	01	ND	680	ND	ND	ND	ND	ND	ND
MW-3	02	500	300	ND	ND	2	1	13	61
MW-4	03	1,600	620	ND	ND	5.9	48	83	240
Reporting Limit		50	50	500	500	0.5	0.5	0.5	2
EPA Method:		5030 GCFID	3510 GCFID	5520C	5520F	8020	8020	8020	8020
Date Extracted:		NA	06/12/95	06/13/95	06/13/95	NA	NA	NA	NA
Date Analyzed:		06/12/95	06/19/95	06/15/95	06/15/95	06/12/95	06/12/95	06/12/95	06/12/95

NA = Not Applicable
 ND = Not Detected

AQUA SCIENCE ENGINEERS, INC

SAMPLE ID: MW-1
 AEN LAB NO: 9506092-01
 AEN WORK ORDER: 9506092
 CLIENT PROJ. ID: 2607

DATE SAMPLED: 06/06/95
 DATE RECEIVED: 06/06/95
 REPORT DATE: 06/21/95

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
EPA 8010 - Water matrix	EPA 8010				
Bromodichloromethane	75-27-4	ND	0.5	ug/L	06/13/95
Bromoform	75-25-2	ND	0.5	ug/L	06/13/95
Bromomethane	74-83-9	ND	2	ug/L	06/13/95
Carbon Tetrachloride	56-23-5	ND	0.5	ug/L	06/13/95
Chlorobenzene	108-90-7	ND	0.5	ug/L	06/13/95
Chloroethane	75-00-3	ND	2	ug/L	06/13/95
2-Chloroethyl Vinyl Ether	110-75-8	ND	0.5	ug/L	06/13/95
Chloroform	67-66-3	ND	0.5	ug/L	06/13/95
Chloromethane	74-87-3	ND	2	ug/L	06/13/95
Dibromochloromethane	124-48-1	ND	0.5	ug/L	06/13/95
1,2-Dichlorobenzene	95-50-1	ND	0.5	ug/L	06/13/95
1,3-Dichlorobenzene	541-73-1	ND	0.5	ug/L	06/13/95
1,4-Dichlorobenzene	106-46-7	ND	0.5	ug/L	06/13/95
Dichlorodifluoromethane	75-71-8	ND	2	ug/L	06/13/95
1,1-Dichloroethane	75-34-3	ND	0.5	ug/L	06/13/95
1,2-Dichloroethane	107-06-2	ND	0.5	ug/L	06/13/95
1,1-Dichloroethene	75-35-4	ND	0.5	ug/L	06/13/95
cis-1,2-Dichloroethene	156-59-2	ND	0.5	ug/L	06/13/95
trans-1,2-Dichloroethene	156-60-5	ND	0.5	ug/L	06/13/95
1,2-Dichloropropane	78-87-5	ND	0.5	ug/L	06/13/95
cis-1,3-Dichloropropene	10061-01-5	ND	0.5	ug/L	06/13/95
trans-1,3-Dichloropropene	10061-02-6	ND	0.5	ug/L	06/13/95
Methylene Chloride	75-09-2	ND	2	ug/L	06/13/95
1,1,2,2-Tetrachloroethane	79-34-5	ND	0.5	ug/L	06/13/95
Tetrachloroethene	127-18-4	ND	0.5	ug/L	06/13/95
1,1,1-Trichloroethane	71-55-6	ND	0.5	ug/L	06/13/95
1,1,2-Trichloroethane	79-00-5	ND	0.5	ug/L	06/13/95
Trichloroethene	79-01-6	ND	0.5	ug/L	06/13/95
Trichlorofluoromethane	75-69-4	ND	2	ug/L	06/13/95
1,1,2Trichlorotrifluoroethane	76-13-1	ND	0.5	ug/L	06/13/95
Vinyl Chloride	75-01-4	ND	2	ug/L	06/13/95

ND = Not detected at or above the reporting limit

* = Value at or above reporting limit

AQUA SCIENCE ENGINEERS, INC

SAMPLE ID: MW-3
 AEN LAB NO: 9506092-02
 AEN WORK ORDER: 9506092
 CLIENT PROJ. ID: 2607

DATE SAMPLED: 06/06/95
 DATE RECEIVED: 06/06/95
 REPORT DATE: 06/21/95

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
EPA 8010 - Water matrix	EPA 8010				
Bromodichloromethane	75-27-4	ND	0.5	ug/L	06/13/95
Bromoform	75-25-2	ND	0.5	ug/L	06/13/95
Bromomethane	74-83-9	ND	2	ug/L	06/13/95
Carbon Tetrachloride	56-23-5	ND	0.5	ug/L	06/13/95
Chlorobenzene	108-90-7	ND	0.5	ug/L	06/13/95
Chloroethane	75-00-3	ND	2	ug/L	06/13/95
2-Chloroethyl Vinyl Ether	110-75-8	ND	0.5	ug/L	06/13/95
Chloroform	67-66-3	ND	0.5	ug/L	06/13/95
Chloromethane	74-87-3	ND	2	ug/L	06/13/95
Dibromochloromethane	124-48-1	ND	0.5	ug/L	06/13/95
1,2-Dichlorobenzene	95-50-1	ND	0.5	ug/L	06/13/95
1,3-Dichlorobenzene	541-73-1	ND	0.5	ug/L	06/13/95
1,4-Dichlorobenzene	106-46-7	ND	0.5	ug/L	06/13/95
Dichlorodifluoromethane	75-71-8	ND	2	ug/L	06/13/95
1,1-Dichloroethane	75-34-3	ND	0.5	ug/L	06/13/95
1,2-Dichloroethane	107-06-2	ND	0.5	ug/L	06/13/95
1,1-Dichloroethene	75-35-4	ND	0.5	ug/L	06/13/95
cis-1,2-Dichloroethene	156-59-2	ND	0.5	ug/L	06/13/95
trans-1,2-Dichloroethene	156-60-5	ND	0.5	ug/L	06/13/95
1,2-Dichloropropane	78-87-5	ND	0.5	ug/L	06/13/95
cis-1,3-Dichloropropene	10061-01-5	ND	0.5	ug/L	06/13/95
trans-1,3-Dichloropropene	10061-02-6	ND	0.5	ug/L	06/13/95
Methylene Chloride	75-09-2	ND	2	ug/L	06/13/95
1,1,2,2-Tetrachloroethane	79-34-5	ND	0.5	ug/L	06/13/95
Tetrachloroethene	127-18-4	ND	0.5	ug/L	06/13/95
1,1,1-Trichloroethane	71-55-6	ND	0.5	ug/L	06/13/95
1,1,2-Trichloroethane	79-00-5	ND	0.5	ug/L	06/13/95
Trichloroethene	79-01-6	ND	0.5	ug/L	06/13/95
Trichlorofluoromethane	75-69-4	ND	2	ug/L	06/13/95
1,1,2Trichlorotrifluoroethane	76-13-1	ND	0.5	ug/L	06/13/95
Vinyl Chloride	75-01-4	ND	2	ug/L	06/13/95

ND = Not detected at or above the reporting limit

* = Value at or above reporting limit

AQUA SCIENCE ENGINEERS, INC

SAMPLE ID: MW-4
 AEN LAB NO: 9506092-03
 AEN WORK ORDER: 9506092
 CLIENT PROJ. ID: 2607

DATE SAMPLED: 06/06/95
 DATE RECEIVED: 06/06/95
 REPORT DATE: 06/21/95

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
EPA 8010 - Water matrix	EPA 8010				
Bromodichloromethane	75-27-4	ND	0.5	ug/L	06/13/95
Bromoform	75-25-2	ND	0.5	ug/L	06/13/95
Bromomethane	74-83-9	ND	2	ug/L	06/13/95
Carbon Tetrachloride	56-23-5	ND	0.5	ug/L	06/13/95
Chlorobenzene	108-90-7	ND	0.5	ug/L	06/13/95
Chloroethane	75-00-3	ND	2	ug/L	06/13/95
2-Chloroethyl Vinyl Ether	110-75-8	ND	0.5	ug/L	06/13/95
Chloroform	67-66-3	ND	0.5	ug/L	06/13/95
Chloromethane	74-87-3	ND	2	ug/L	06/13/95
Dibromochloromethane	124-48-1	ND	0.5	ug/L	06/13/95
1,2-Dichlorobenzene	95-50-1	ND	0.5	ug/L	06/13/95
1,3-Dichlorobenzene	541-73-1	ND	0.5	ug/L	06/13/95
1,4-Dichlorobenzene	106-46-7	ND	0.5	ug/L	06/13/95
Dichlorodifluoromethane	75-71-8	ND	2	ug/L	06/13/95
1,1-Dichloroethane	75-34-3	ND	0.5	ug/L	06/13/95
1,2-Dichloroethane	107-06-2	ND	0.5	ug/L	06/13/95
1,1-Dichloroethene	75-35-4	ND	0.5	ug/L	06/13/95
cis-1,2-Dichloroethene	156-59-2	ND	0.5	ug/L	06/13/95
trans-1,2-Dichloroethene	156-60-5	ND	0.5	ug/L	06/13/95
1,2-Dichloropropane	78-87-5	ND	0.5	ug/L	06/13/95
cis-1,3-Dichloropropene	10061-01-5	ND	0.5	ug/L	06/13/95
trans-1,3-Dichloropropene	10061-02-6	ND	0.5	ug/L	06/13/95
Methylene Chloride	75-09-2	ND	2	ug/L	06/13/95
1,1,2,2-Tetrachloroethane	79-34-5	ND	0.5	ug/L	06/13/95
Tetrachloroethene	127-18-4	ND	0.5	ug/L	06/13/95
1,1,1-Trichloroethane	71-55-6	ND	0.5	ug/L	06/13/95
1,1,2-Trichloroethane	79-00-5	ND	0.5	ug/L	06/13/95
Trichloroethene	79-01-6	ND	0.5	ug/L	06/13/95
Trichlorofluoromethane	75-69-4	ND	2	ug/L	06/13/95
1,1,2Trichlorotrifluoroethane	76-13-1	ND	0.5	ug/L	06/13/95
Vinyl Chloride	75-01-4	ND	2	ug/L	06/13/95

ND = Not detected at or above the reporting limit

* = Value at or above reporting limit

AEN (CALIFORNIA)
QUALITY CONTROL REPORT

AEN JOB NUMBER: 9506092

CLIENT PROJECT ID: 2607

Quality Control and Project Summary

All laboratory quality control parameters were found to be within established limits.

Definitions

Laboratory Control Sample (LCS)/Method Spike(s): Control samples of known composition. LCS and Method Spike data are used to validate batch analytical results.

Matrix Spike(s): Aliquot of a sample (aqueous or solid) with added quantities of specific compounds and subjected to the entire analytical procedure. Matrix spike and matrix spike duplicate QC data are advisory.

Method Blank: An analytical control consisting of all reagents, internal standards, and surrogate standards carried through the entire analytical process. Used to monitor laboratory background and reagent contamination.

Not Detected (ND): Not detected at or above the reporting limit.

Relative Percent Difference (RPD): An indication of method precision based on duplicate analysis.

Reporting Limit (RL): The lowest concentration routinely determined during laboratory operations. The RL is generally 1 to 10 times the Method Detection Limit (MDL). Reporting limits are matrix, method, and analyte dependent and take into account any dilutions performed as part of the analysis.

Surrogates: Organic compounds which are similar to analytes of interest in chemical behavior, but are not found in environmental samples. Surrogates are added to all blanks, calibration and check standards, samples, and spiked samples. Surrogate recovery is monitored as an indication of acceptable sample preparation and instrumental performance.

0: Surrogates diluted out.

#: Indicates result outside of established laboratory QC limits.

QUALITY CONTROL DATA

METHOD: EPA 3510 GCFID

AEN JOB NO: 9506092
 DATE EXTRACTED: 06/12/95
 INSTRUMENT: C
 MATRIX: WATER

Surrogate Standard Recovery Summary

Date Analyzed	Client Id.	Lab Id.	Percent Recovery n-Pentacosane
06/19/95	MW-1	01	86
06/19/95	MW-3	02	80
06/19/95	MW-4	03	89
QC Limits:			59-118

DATE EXTRACTED: 06/10/95
 DATE ANALYZED: 06/11/95
 SAMPLE SPIKED: DI WATER
 INSTRUMENT: C

Method Spike Recovery Summary

Analyte	Spike Added (mg/L)	Average Percent Recovery	RPD	QC Limits	
				Percent Recovery	RPD
Diesel	1.82	89	5	65-103	12

Daily method blanks for all associated analytical runs showed no contamination over the reporting limit.

QUALITY CONTROL DATA

METHOD: SM 5520

AEN JOB NO: 9506092
DATE EXTRACTED: 06/13/95
DATE ANALYZED: 06/13/95
SAMPLE SPIKED: DI WATER
INSTRUMENT: IR
MATRIX: WATER

Method Spike Recovery Summary

Analyte	Spike Added (mg/L)	Average Percent Recovery	RPD	QC Limits	
				Percent Recovery	RPD
Oil	7.8	95	<1	80-109	5

Daily method blanks for all associated analytical runs showed no contamination over the reporting limit.

QUALITY CONTROL DATA

METHOD: EPA 8010

AEN JOB NO: 9506092
 INSTRUMENT: G
 MATRIX: WATER

Surrogate Standard Recovery Summary

Date Analyzed	Client Id.	Lab Id.	Percent Recovery	
			Bromochloro-methane	1-Bromo-3-chloro-propane
06/13/95	MW-1	01	88	93
06/13/95	MW-3	02	83	91
06/13/95	MW-4	03	91	98
QC Limits:			70-130	70-130

DATE ANALYZED: 06/12/95
 SAMPLE SPIKED: 9506103-01
 INSTRUMENT: G

Matrix Spike Recovery Summary

Analyte	Spike Added (ug/L)	Average Percent Recovery	RPD	QC Limits	
				Percent Recovery	RPD
1,1-Dichloroethene	50	101	2	37-156	20
Trichloroethene	50	113	1	54-122	20
Chlorobenzene	50	103	<1	54-141	20

Daily method blanks for all associated analytical runs showed no contamination over the reporting limit.

QUALITY CONTROL DATA

METHOD: EPA 8020, 5030 GCFID

AEN JOB NO: 9506092
 INSTRUMENT: H
 MATRIX: WATER

Surrogate Standard Recovery Summary

Date Analyzed	Client Id.	Lab Id.	Percent Recovery	
			Fluorobenzene	
06/12/95	MW-1	01	100	
06/12/95	MW-3	02	98	
06/12/95	MW-4	03	97	
QC Limits:			92-109	

DATE ANALYZED: 06/11/95
 SAMPLE SPIKED: 9506062-01
 INSTRUMENT: H

Matrix Spike Recovery Summary

Analyte	Spike Added (ug/L)	Average Percent Recovery	RPD	QC Limits	
				Percent Recovery	RPD
Benzene	36.3	104	2	85-109	17
Toluene	103.0	103	<1	87-111	16
Hydrocarbons as Gasoline	1000	90	<1	66-117	19

Daily method blanks for all associated analytical runs showed no contamination over the reporting limit.

*** END OF REPORT ***

APPENDIX B

Well Sampling Field Logs



WELL SAMPLING FIELD LOG

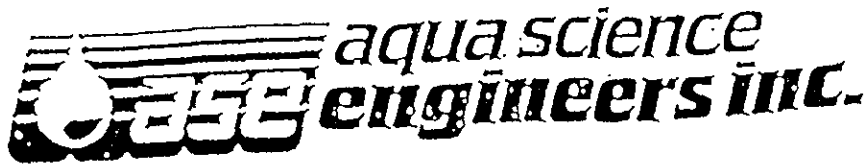
Project Name and Address: PHILIPSEN
 Job #: 2607 Date of sampling: 6-6-95
 Well Name: MW-1 Sampled by: DA
 Total depth of well (feet): 18.14 Well diameter (inches): 4
 Depth to water before sampling (feet): 3.84
 Thickness of floating product if any: 0
 Depth of well casing in water (feet): 14.3
 Number of gallons per well casing volume (gallons): 9.54
 Number of well casing volumes to be removed: 4
 Req'd volume of groundwater to be purged before sampling (gallons): 38
 Equipment used to purge the well: Pre-cleaned Electric Pump
 Time Evacuation Began: 12:55 Time Evacuation Finished: 13:25
 Approximate volume of groundwater purged: 38
 Did the well go dry?: No After how many gallons: -
 Time samples were collected: 13:30
 Depth to water at time of sampling: 3.92
 Percent recovery at time of sampling: 99
 Samples collected with: Dedicated Boiler
 Sample color: clear Odor: None
 Description of sediment in sample: fine silt

CHEMICAL DATA

Volume Purged	Temp	pH	Conductivity
<u>Initial</u>	<u>64.8</u>	<u>8.25</u>	<u>353</u>
<u>10 gal</u>	<u>64.8</u>	<u>8.26</u>	<u>340</u>
<u>20 gal</u>	<u>65.4</u>	<u>8.28</u>	<u>335</u>
<u>30 gal</u>	<u>65.2</u>	<u>8.30</u>	<u>336</u>
<u>38 gal</u>	<u>65.4</u>	<u>8.31</u>	<u>335</u>

SAMPLES COLLECTED

Sample	# of containers	Volume & type container	Pres	iced?	Analysis
<u>MW-1</u>	<u>2</u>	<u>40ml VOA glass</u>	<u>✓</u>	<u>✓</u>	<u>TPH-G/BTEX</u>
<u>↓</u>	<u>2</u>	<u>" "</u>	<u>✓</u>	<u>✓</u>	<u>8010</u>
<u>↓</u>	<u>2</u>	<u>1-liter amber</u>	<u>✓</u>	<u>✓</u>	<u>TPH-D</u>
<u>↓</u>	<u>1</u>	<u>" "</u>	<u>✓</u>	<u>✓</u>	<u>O+G</u>



WELL SAMPLING FIELD LOG

Project Name and Address: PHILLIPSEN
 Job #: 2607 Date of sampling: 6-6-95
 Well Name: MW-3 Sampled by: DA
 Total depth of well (feet): 16.84 Well diameter (inches): _____
 Depth to water before sampling (feet): 3.44
 Thickness of floating product if any: 0
 Depth of well casing in water (feet): 13.4
 Number of gallons per well casing volume (gallons): 8.9
 Number of well casing volumes to be removed: 4
 Req'd volume of groundwater to be purged before sampling (gallons): 35.6
 Equipment used to purge the well: Pre-cleaned Electric Pump
 Time Evacuation Began: 12:10 Time Evacuation Finished: 12:40
 Approximate volume of groundwater purged: 36
 Did the well go dry?: NO After how many gallons: —
 Time samples were collected: 12:45
 Depth to water at time of sampling: 16.92
 Percent recovery at time of sampling: 99
 Samples collected with: Dedicated Bailer
 Sample color: clear Odor: moderate no odor
 Description of sediment in sample: fine silt

CHEMICAL DATA

Volume Purged	Temp	pH	Conductivity
<u>Initial</u>	<u>65.0</u>	<u>8.14</u>	<u>328</u>
<u>10 gal</u>	<u>64.8</u>	<u>8.22</u>	<u>330</u>
<u>20 gal</u>	<u>64.5</u>	<u>8.13</u>	<u>331</u>
<u>30 gal</u>	<u>64.4</u>	<u>8.11</u>	<u>335</u>
<u>36</u>	<u>64.6</u>	<u>8.12</u>	<u>333</u>

SAMPLES COLLECTED

Sample	# of containers	Volume & type container	Pres	iced?	Analysis
<u>MW-3</u>	<u>2</u>	<u>40 ml VOA glass</u>	<u>✓</u>	<u>✓</u>	<u>TPH-G/BTEX</u>
<u>↓</u>	<u>2</u>	<u>" "</u>	<u>✓</u>	<u>✓</u>	<u>8010</u>
<u>↓</u>	<u>2</u>	<u>1-liter Amber</u>	<u>✓</u>	<u>✓</u>	<u>TPH-D</u>
<u>↓</u>	<u>1</u>	<u>" "</u>	<u>✓</u>	<u>✓</u>	<u>0+G</u>



WELL SAMPLING FIELD LOG

Project Name and Address: PHILLIPSEN
 Job #: 2607 Date of sampling: 6-6-95
 Well Name: MW-4 Sampled by: DA
 Total depth of well (feet): 13.12 Well diameter (inches): 2
 Depth to water before sampling (feet): 3.86
 Thickness of floating product if any: 0
 Depth of well casing in water (feet): 9.26
 Number of gallons per well casing volume (gallons): 1.55
 Number of well casing volumes to be removed: 4
 Req'd volume of groundwater to be purged before sampling (gallons): 6.2
 Equipment used to purge the well: Pre-cleaned Electric Pump
 Time Evacuation Began: 11:30 Time Evacuation Finished: 11:40
 Approximate volume of groundwater purged: 6.5
 Did the well go dry?: NO After how many gallons: —
 Time samples were collected: 11:45
 Depth to water at time of sampling: 3.98
 Percent recovery at time of sampling: 92
 Samples collected with: Dedicated
 Sample color: cloudy brown Odor: trace hc odor
 Description of sediment in sample: fine silt

CHEMICAL DATA

Volume Purged	Temp	pH	Conductivity
Initial	63.8	8.44	328
2	64.0	8.28	334
4	64.2	8.26	331
6.5	64.2	8.28	330

SAMPLES COLLECTED

Sample	# of containers	Volume & type container	Pres	leed?	Analysis
MW-4	2	40-ml VOA glass	✓	✓	TPH-G / BTEX
	2	" "	✓	✓	8010
	2	1-liter Amber	✓	✓	TPH-D
	1	" "	✓	✓	0+G