aqua science engineers inc.

95 AUG 24 PM 1:36

August 22, 1995

REPORT
of
SOIL AND GROUNDWATER ASSESSMENT
ASE JOB NO. 2607
at
Former Alameda Max's Service Station
1357 High Street
Alameda, California

REGISTERED PROFESSIONAL ENGINEER
DAVID M. SCHULTZ
No. 38738
Exp 4-96
CIVIL
STATE OF CALIFORNIA

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

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1.0 INTRODUCTION

This report outlines the methods and findings of Aqua Science Engineers, Inc. (ASE)'s soil and groundwater assessment at the former Alameda Max's service station located at 1357 High Street, Alameda, California *(Figure 1)*. This assessment was performed to (1) assess whether hydrocarbons detected in soil and groundwater samples at the site may have traveled along the utility lines in High Street which could act as a conduit for groundwater contamination and (2) to determine the nature of the oil that has been floating on the surface of the groundwater in monitoring well MW-2. The proposed site assessment activities were initiated by the property owner, Mr. James A. Phillipsen, in accordance with a letter received from the Alameda County Health Care Services Agency (ACHCSA) dated April 11, 1995 (Appendix A).

2.0 SITE HISTORY

A gasoline service station formerly occupied the site *(Figure 2)*. On March 26, 1993, ASE removed one (1) 6,000-gallon gasoline storage tank, one (1) 5,000-gallon gasoline storage tank, one (1) 4,000-gallon gasoline storage tank, one (1) 550-gallon gasoline storage tank, one (1) 150-gallon waste oil storage tank and one (1) 150-gallon oil and water separator from the site. All of the tanks were steel. The 550-gallon gasoline storage tank had a hole in the tank upon inspection, and strong petroleum odors were present around the tank. The 150-gallon waste oil storage tank did not contain any apparent holes or cracks, however, a strong petroleum odor was emanating from the excavation. No holes, cracks or petroleum odors were identified upon inspection of the other tanks. Up to 140 parts per million (ppm) total petroleum hydrocarbons as gasoline (TPH-G), 2,200 ppm total petroleum hydrocarbons as diesel (TPH-D) and 12,000 ppm oil and grease (O&G) were detected in soil samples collected from the tank pits.

On November 22, 1993, ASE overexcavated soil from the former waste-oil storage tank pit and removed the soil stockpiles that were generated during the tank removal operations, which were subsequently backfilled into their respective tank pits. A total of approximately 88 tons of contaminated soil was overexcavated and removed from the site. Only 2 ppm O&G was detected in a confirmation sample collected at the bottom of northern sidewall of the waste oil tank excavation.

On March 31, 1994, ASE drilled borings BH-A through BH-C at the site and installed groundwater monitoring wells MW-1 through MW-3 in the borings. Up to 7,500 ppm O&G and 1,400 ppm TPH-D were detected in a

soil sample collected from boring BH-B near the waste oil tank. Relatively low TPH-G concentrations (7.4 ppm) were detected in shallow unsaturated soil from boring BH-C. No hydrocarbons were detected in the soil sample collected in boring BH-A.

On April 4, 1994, ASE collected groundwater samples from the wells. 6,200 parts per billion (ppb) O&G, 150 ppb TPH-G and low benzene, toluene, ethylbenzene and total xylenes (BTEX) and trichloroethene (TCE) concentrations were in groundwater samples from monitoring well MW-2, located near the waste oil tank. 1,200 ppb TPH-G, 180 ppb TPH-D and between 3 and 230 ppb BTEX were detected in groundwater samples collected from monitoring well MW-3, at the downgradient edge of the site.

On August 2, 1994, monitoring well MW-2 contained 0.16-feet of what appeared to be free-floating unused motor oil. 60 ppb TPH-G, 500 ppb TPH-D and no BTEX were detected in monitoring well MW-1. 2,700 ppb TPH-G and between 6 ppb and 470 ppb BTEX were detected in the groundwater sample collected from monitoring well MW-3.

On September 30, 1994, ASE drilled soil boring BH-D and installed monitoring well MW-4 in the boring. This boring is located in High Street downgradient of the site. No hydrocarbons were detected in a soil sample collected from the capillary zone in this boring, and 500 ppb TPH-G, 200 ppb TPH-D and between 2 and 70 ppb BTEX were detected in groundwater samples collected from this well on October 4, 1994.

The site has been on a quarterly groundwater sampling plan since December 1994. During this period, hydrocarbon concentrations have been generally consistent at the site. Monitoring well MW-2 has consistently contained a layer of free-floating hydrocarbons which appear to be an unused motor oil. Groundwater samples collected from monitoring well MW-1 have contained up to 200 ppb TPH-G, 1,600 ppb TPH-D and low ethylbenzene concentrations. No benzene or toluene concentrations have ever been detected in groundwater samples collected from monitoring well MW-1. Groundwater samples collected from monitoring well MW-3 have contained up to 2,700 ppb TPH-G, 300 ppb TPH-D, 9 ppb benzene, 30 ppb toluene, 78 ppb ethylbenzene and 470 ppb total xylenes. Groundwater samples collected from monitoring well MW-4 have contained up to 1,600 ppb TPH-G, 620 ppb TPH-D, 8 ppb benzene, 48 ppb toluene, 83 ppb ethylbenzene, and 240 ppb total xylenes. Groundwater has consistently flowed to the southeast toward High Street during this period.

3.0 SCOPE OF WORK (SOW)

Based on the site history and requirements outlined in the ACHCSA April 11, 1995 letter, ASE's SOW was to:

1) Obtain all necessary permits from the appropriate agencies including a drilling permit from the Alameda County Flood Control and Water Conservation District (Zone 7) and an encroachment permit from the City of Alameda;

2) Drill at least five soil borings at locations along utility lines on High Street as well as in locations opposite High Street;

3) Collect soil samples for hydrogeologic description and analyses;

4) Analyze at least one soil sample from each boring for TPH-G, TPH-D, total petroleum hydrocarbons as oil (TPH-O), and BTEX;

5) Collect groundwater samples from each boring and analyze the groundwater samples for TPH-G, TPH-D, TPH-O and BTEX;

6) Backfill each boring with neat cement;

7) Report the methods and findings of this assessment.

Details of this assessment follow.

4.0 COLLECTION OF OIL SAMPLES

On August 4, 1995, ASE project geologist Robert Kitay collected samples of the free-floating oil in monitoring well MW-2 by lowering a strip of polyethylene into the well with twine, removing the polyethylene strip from the well, and allowing the oil that coated the polyethylene to drip into 40-ml volatile organic analysis (VOA) vials. This procedure was repeated until two VOA vials were full of the oil. The samples were preserved with hydrochloric acid, labeled, placed in protective foam sleeves, and stored on ice for transport to American Environmental Network (AEN) of Pleasant Hill, California (DHS #1172) under chain of custody.

5.0 ANALYTICAL RESULTS FOR OIL

The oil was analyzed by AEN for a fuel finger-print by modified EPA Method 8015. The analytical results are presented in Table One, and the certified analytical report is presented in Appendix B. The oil was characterized as 98% motor oil/asphalt range hydrocarbons (C8 - C14) and 2% mineral spirit/kerosene range hydrocarbons (C32 - C44). Upon further inquiry with AEN as to whether the motor oil range hydrocarbons were indeed motor oil or whether they could be hydraulic oil, AEN stated that although hydraulic oil is in the same range as motor oil, the chromatogram pattern resembled motor oil and not hydraulic oil. The chromatogram for the oil sample as well as the motor oil standard are included in Appendix B.

6.0 DRILLING SOIL BORINGS AND COLLECTING SAMPLES

ASE obtained Alameda County Flood Control and Water Conservation District (Zone 7) well construction permit #95480 and City of Alameda Encroachment Permit to allow for drilling in the city right of way prior to drilling (Appendix C).

On July 31, 1995, Gregg Drilling of Concord, California drilled soil borings BH-E through BH-J at the site using a Geoprobe drill rig *(Figure 3)*. The drilling was directed by ASE project geologist Robert E. Kitay. Borings BH-E through boring BH-G were placed in High Street along the first utility trench the hydrocarbon plume would encounter if it crossed below High Street. Borings BH-H and BH-I were placed on the opposite side of High Street to determine whether the hydrocarbon plume has reached the opposite side of High Street, and BH-J was placed in High Street along the utility lines southwest of site since there was field indications of contamination in boring BH-E.

Undisturbed soil samples were collected continuously as the drilling progressed for lithologic and hydrogeologic description and for possible chemical analyses. The sample collected from the capillary zone in each boring was contained in brass tubes, sealed with Teflon tape, plastic end caps and duct tape, labeled, sealed in a plastic bag and stored on ice for transport to AEN under chain of custody. Soil from the remaining tubes was described by the site geologist using the Unified Soil Classification System and was screened for volatile compounds with an Organic Vapor Meter (OVM). The soil was screened by emptying soil from one of the sample tubes into a plastic bag. The bag was then sealed and placed in the sun for approximately 10 minutes. After the hydrocarbons were allowed

to volatilize, the OVM measured the vapor in the bag through a small hole punched in the bag. OVM readings are used as a screening tool only, since the procedures are not as rigorous as those used in the laboratory.

Drilling equipment was steam-cleaned prior to use, and sampling equipment was washed with a TSP solution between sampling intervals to prevent cross-contamination. Rinsate was contained on-site in sealed and labeled Department of Transportation approved 55-gallon (DOT 17H) drums.

Sediments encountered during drilling consisted primarily of high permeability sand. There was field indications of hydrocarbon contamination in sediments from borings BH-E and BH-F (OVM readings, odor and/or soil discoloration). The boring logs are included as Appendix D. Drill cuttings were stockpiled on and covered with plastic sheeting on-site for future disposal by the client.

7.0 ANALYTICAL RESULTS FOR SOIL

The soil samples collected from the capillary zone 4.0-feet below ground surface (bgs) in each boring were analyzed by AEN for TPH-G by modified EPA Method 5030/8015, TPH-D and total petroleum hydrocarbons as oil (TPH-O) by modified EPA Method 3520/8015 and BTEX by EPA Method 8020. The analytical results are tabulated in Table Two, and copies of the certified analytical report and chain of custody form are included in Appendix E.

The soil sample collected from 4.0-feet bgs in boring BH-G contained 800 ppm TPH-O. The soil sample collected from 4.0-feet bgs in boring BH-J contained 20 ppm TPH-O. No other hydrocarbons were detected in any other soil sample.

8.0 GROUNDWATER SAMPLING

A temporary PVC casing was placed into each boring for the collection of groundwater samples. Several well casing volumes of water were removed from the boring with a pre-cleaned stainless steel bailer prior to the collection of the water. The samples were then decanted from the bailer into 40-ml VOA vials and 1-liter amber glass bottles. All samples were preserved with hydrochloric acid, sealed without headspace, labeled and placed on ice for transport to AEN under chain of custody.

Following collection of the groundwater samples, ASE removed the PVC casing from each boring and backfilled each boring with neat cement placed by tremie pipe. The surface in each boring matched the existing asphalt or concrete surface.

9.0 ANALYTICAL RESULTS FOR GROUNDWATER

The groundwater samples were analyzed by AEN for TPH-G by modified EPA Method 5030/8015, TPH-D and TPH-O by modified EPA Method 3510/8015 and BTEX by EPA Method 8020. The analytical results are tabulated in Table Three, and a copy of the certified analytical report and chain of custody form are included in Appendix F.

Analytical results indicate that 1,300 ppb TPH-G, 600 ppb TPH-D, 200 ppb TPH-O, and low ethylbenzene, toluene and total xylene concentrations were detected in groundwater samples collected from boring BH-F. 100 ppb TPH-D were detected in boring BH-E, and 300 ppb TPH-O were detected in the groundwater samples collected from boring BH-J. No hydrocarbons were detected in the groundwater samples collected from borings BH-G, BH-H and BH-I.

10.0 CONCLUSIONS AND RECOMMENDATIONS

The free-floating oil that has been present floating on the surface of the groundwater in monitoring well MW-2 appears to be 98% motor oil with 2% kerosine/mineral spirit range hydrocarbons.

Hydrocarbon concentrations in groundwater samples collected from boring BH-F were similar to concentrations previously detected in groundwater monitoring well MW-4, although 200 ppb TPH-O was detected in the groundwater sample collected from boring BH-F and no oil was ever detected in groundwater samples collected from monitoring well MW-4. 300 ppb TPH-O was detected in groundwater samples collected from boring BH-J. However, since no TPH-O was detected in boring BH-E, which is closer to the site than boring BH-J along the utility trench, it is likely that the TPH-O detected in boring BH-J is related to another source, possibly a home heating oil tank in the area. Other evidence of this is the lack of soil contamination in borings BH-E and BH-F, but the soil sample collected from BH-J, cross-gradient and further from the site than BH-E and BH-F, contained 20 ppm TPH-O.

ASE has no reasonable explanation for the relatively high TPH-O concentration (800 ppm) in the soil sample collected from boring BH-G.

ASE has contacted AEN to determine whether this soil sample could have been mixed up with the sample from boring BH-F which had field indications of contamination. AEN could not find evidence of any mislabeling. Although 800 ppm TPH-O is a relatively high hydrocarbon concentration, no hydrocarbons were detected in the groundwater samples collected from this boring.

It appears that the hydrocarbon plume does not extend across High Street and that underground utility lines have not acted as a conduit for the migration of contamination along High Street.

ASE does not recommend further work to define the extent of the plume at this time. An oil skimmer will be placed in monitoring well MW-2 during the next 60 days. After all free-floating hydrocarbons have been removed from monitoring well MW-2, additional contaminated soil at the site will be overexcavated as an additional remediation measure. The next quarterly groundwater sampling is scheduled for September 1995.

11.0 REPORT LIMITATIONS

The results of this investigation represent conditions at the time of the soil and groundwater sampling, at the specific locations at which the samples were collected, and for the specific parameters analyzed for by the laboratory.

It does not fully characterize the site for contamination resulting from unknown sources, or for parameters not analyzed for by the laboratory. All of the laboratory work cited in this report was prepared under the direction of an 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 assist you with your environmental needs. Should you have any questions or comments, please feel free to call us at (510) 820-9391.

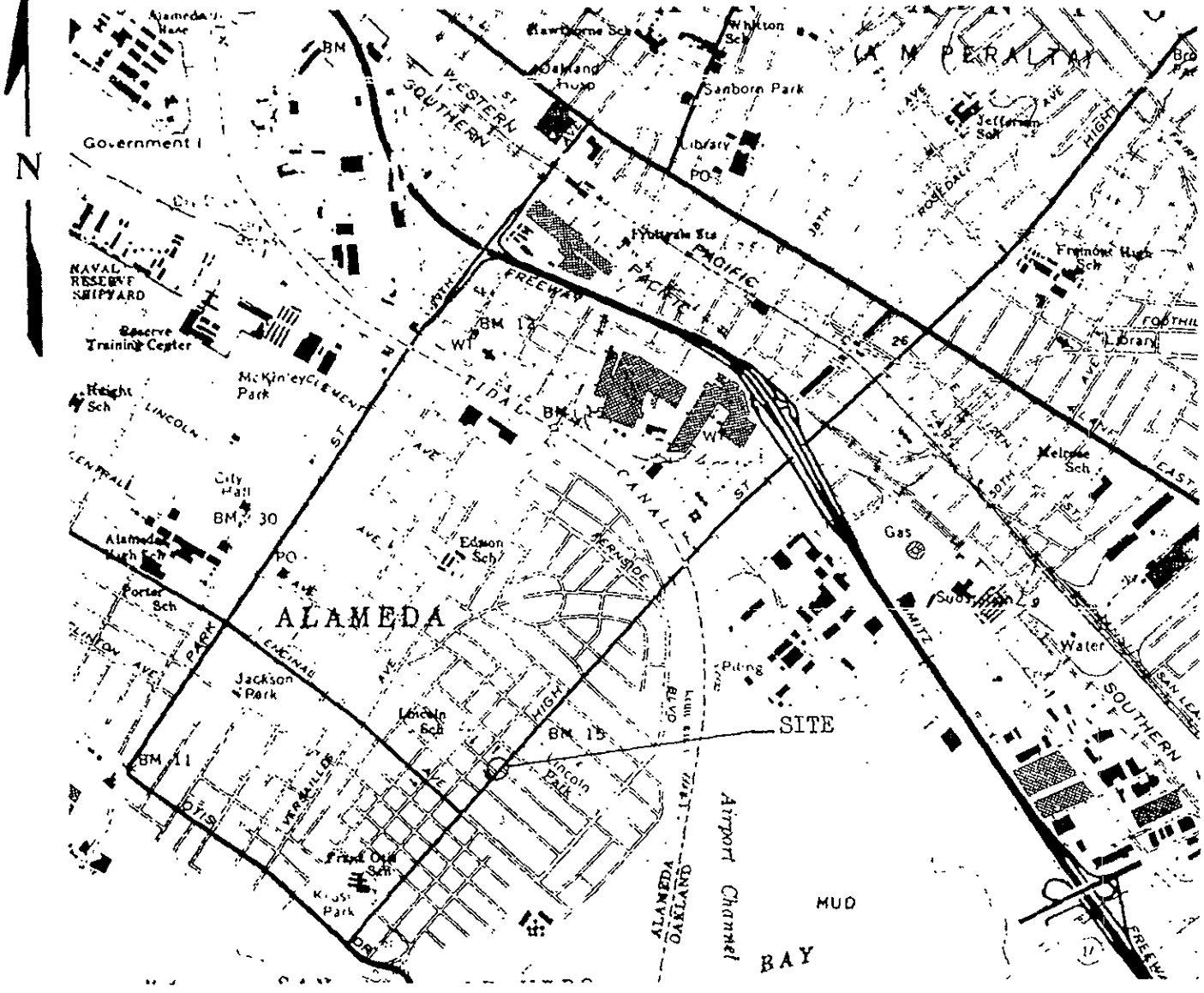
Respectfully submitted,

AQUA SCIENCE ENGINEERS, INC.

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

Attachments: Figures 1 through 3
Tables 1 through 3
Appendices A through E

FIGURES

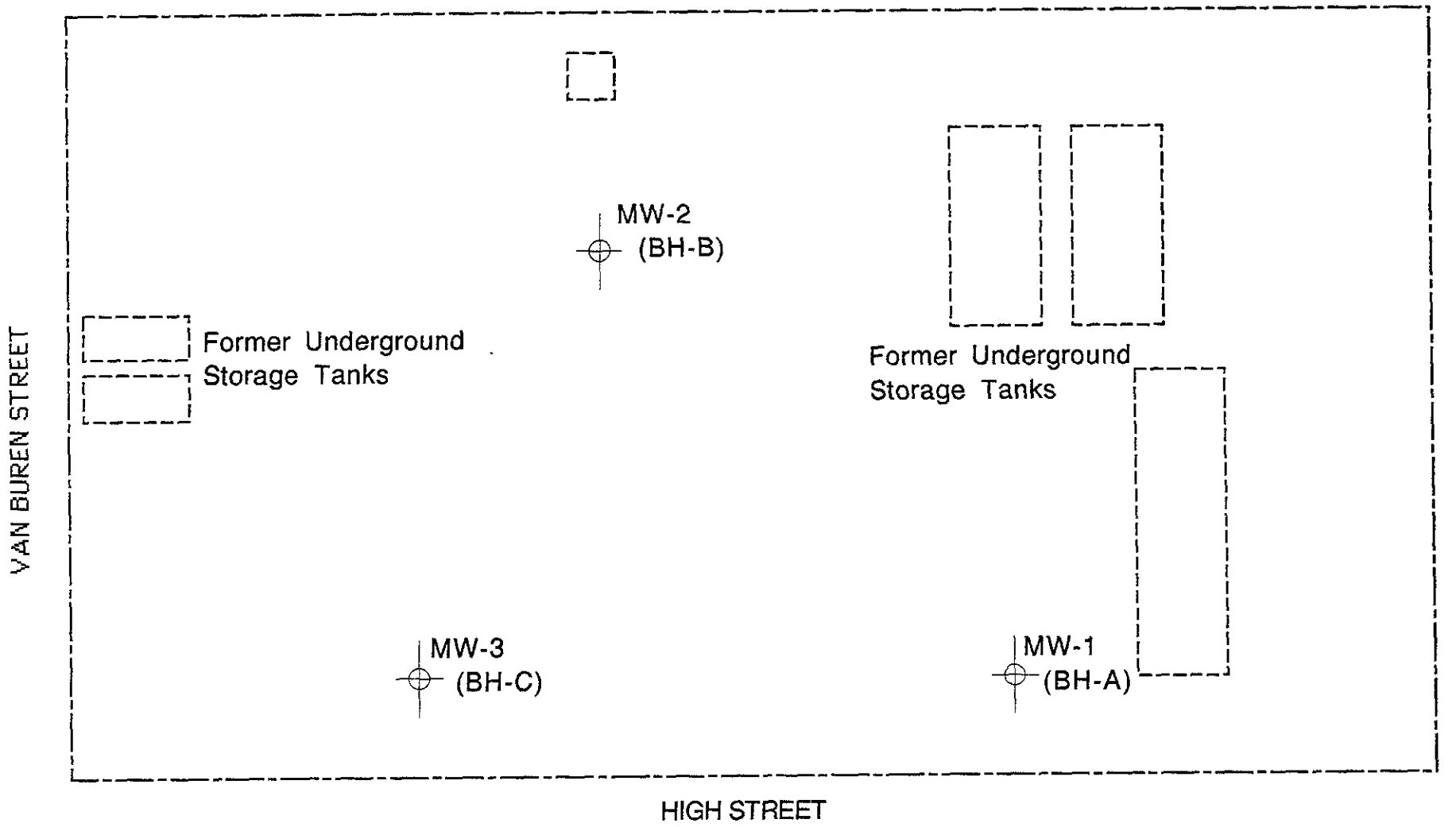


BASE: Oakland East and Oakland West 7.5 minute quadrangle topographic map, dated 1980, scale 1:24,000.

SITE LOCATION MAP

Alameda Max's
1357 High Street
Alameda, California

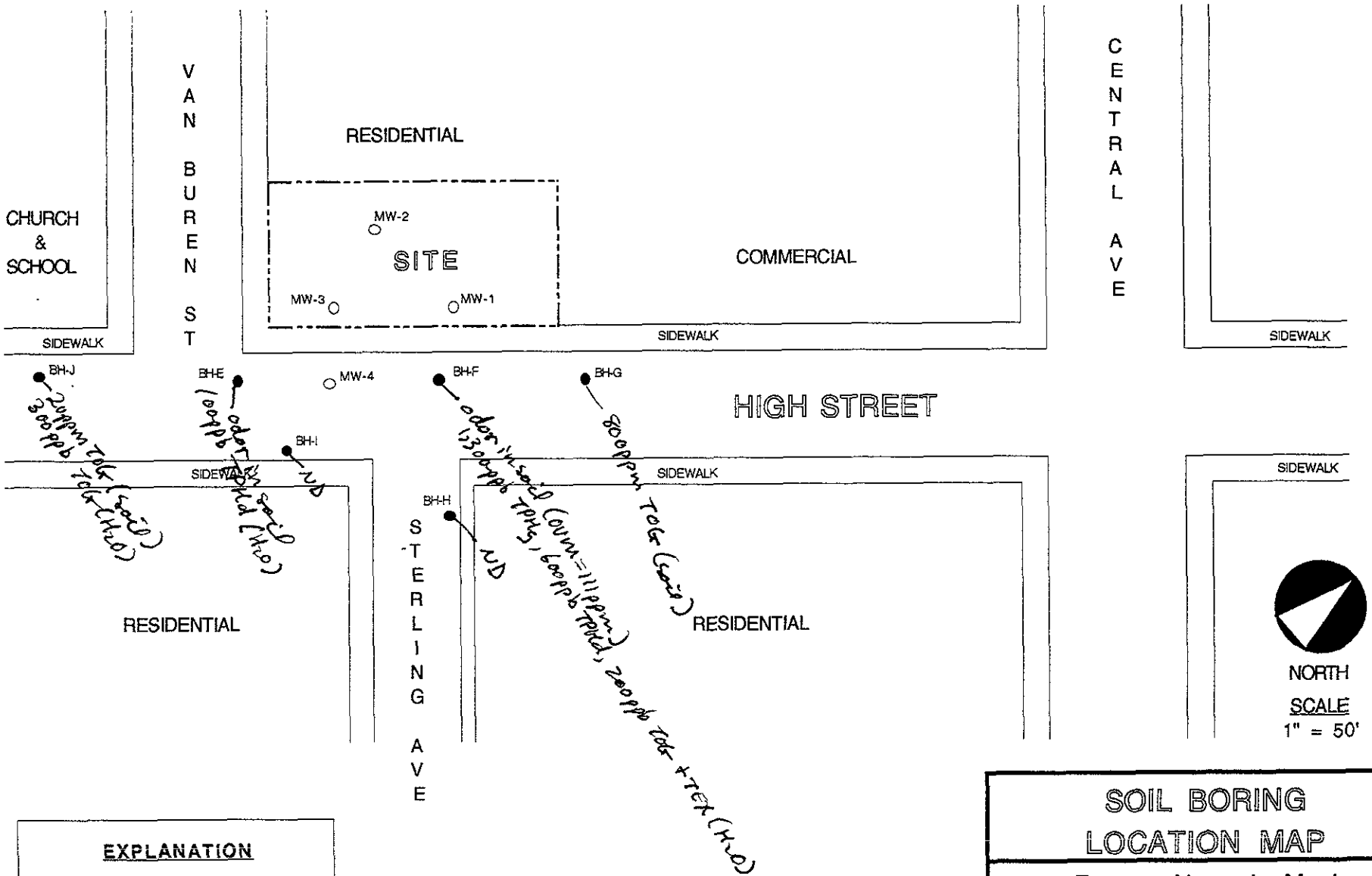
Aqua Science Engineers | Figure 1



MONITORING WELL LOCATION MAP

Former Alameda Max's
1357 High Street
Alameda, California

AQUA SCIENCE ENGINEERS, INC. | Figure 2



EXPLANATION

MW-4 ○ Monitoring Well

BH-J ● Soil Boring Location

SOIL BORING LOCATION MAP

Former Alameda Max's
1357 High Street
Alameda, California

AQUA SCIENCE ENGINEERS, INC. | Figure 3

TABLES

TABLE ONE
Fingerprint of **OIL** Sample
Monitoring Well MW-2

Well	Mineral Spirit/ Kerosine Range Hydrocarbons C8 - C14	Motor Oil/ Asphalt Range Hydrocarbons C32 - C44
MW-2	2%	98%

TABLE TWO
Summary of Chemical Analysis of **SOIL** Samples
All results are in **parts per million**

Boring & Depth	TPH Gasoline	TPH Diesel	TPH Oil	Benzene	Toluene	Ethyl Benzene	Total Xylenes
BH-E 4.0'	<0.2	<10	<10	<0.005	<0.005	<0.005	<0.005
BH-F 4.0'	<0.2	<10	<10	<0.005	<0.005	<0.005	<0.005
BH-G 4.0'	<0.2	<50	800	<0.005	<0.005	<0.005	<0.005
BH-H 4.0'	<0.2	<10	<10	<0.005	<0.005	<0.005	<0.005
BH-I 4.0'	<0.2	<10	<10	<0.005	<0.005	<0.005	<0.005
BH-J 4.0'	<0.2	<10	20	<0.005	<0.005	<0.005	<0.005
EPA METHOD	5030/ 8015	3520/ 8015	3520/ 8015	8020	8020	8020	8020

Suspicious odor

Could be that soil contam. from BH-F volatilized before analysis due to sandy soil.

TABLE THREE

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

Boring	TPH Gasoline	TPH Diesel	TPH Oil	Benzene	Toluene	Ethyl Benzene	Total Xylenes
BH-E	<50	100	<50	<0.5	<0.5	<0.5	<0.2
BH-F	1,300	600	200	<0.5	2	18	27
BH-G	<50	<50	<50	<0.5	<0.5	<0.5	<0.2
BH-H	<50	<50	<50	<0.5	<0.5	<0.5	<0.2
BH-I	<50	<50	<50	<0.5	<0.5	<0.5	<0.2
BH-J	<50	<50	300	<0.5	<0.5	<0.5	<0.2
EPA METHOD	5030/ 8015	3510/ 8015	3510/ 8015	8020	8020	8020	8020

APPENDIX A

Alameda County Health Care Services Agency
"Direction" Letter

ALAMEDA COUNTY
HEALTH CARE SERVICES
AGENCY
DAVID J. KEARS, Agency Director

RAFAT A. SHAHID, Assistant Agency Director

ALAMEDA COUNTY CC 430-4510
DEPT. OF ENVIRONMENTAL HEALTH
ENVIRONMENTAL PROTECTION DIVISION
1131 HARBOR BAY PKWY., RM.250
ALAMEDA, CAL. 94502-6577

April 11, 1995

Mr. James Phillipsen
3111 Marina Drive
Alameda, CA 94501

STID 1702

Re: Required investigations at 1357 High Street, Alameda, California

Dear Mr. Phillipsen,

This office has reviewed Aqua Science Engineer's (ASE) Quarterly Groundwater Monitoring Report, dated April 3, 1995, for the above site. During the last four quarters of on-site ground water monitoring, floating product, and elevated levels of Total Petroleum Hydrocarbons as gasoline (TPHg), Total Petroleum Hydrocarbons as diesel (TPHd), and benzene have been identified. Additionally, for the last three quarters of ground water monitoring in the off-site downgradient well, MW-4, TPHg, TPHd, and concentrations of benzene exceeding drinking water standards have consistently been identified.

Per Article 11 Title 23 California Code of Regulations, the extent of the contaminant plume should be delineated. Due to the shallow groundwater table, this office is concerned about the potential for any utility lines along High Street to be acting as a conduit for plume migration. As part of the next phase of work at the site, you are required to determine whether there are any utility lines along High Street and whether the plume is migrating along the utility trench.

Based on the free product observed in Well MW-2, and the analysis results for soil samples collected from this location in March 1994 (1,400 parts per million (ppm) TPHd and 7,500 ppm Total Oil & Grease (TOG) at 3-feet below ground surface), there still appears to be an ongoing source of contaminants in this area. Per Article 11 Title 23 California Code of Regulations, you are required to implement interim remedial measures to periodically remove the observed floating product. Based on the amount of floating product present, passive product skimmers may be one acceptable option for product removal. According to the April 1995 Quarterly Report, the contents of the floating product was not characterized. This office is requesting that you identify the type of product identified in Well MW-2, so that we can better determine the source of this product.

Please submit a work plan within 45 days of the date of this letter, addressing the above concerns.

Throughout the last year of ground water monitoring, the levels of TPHg, TPHd, and benzene observed in all the monitoring wells have remained fairly consistent, even with the overexcavation work conducted at the site. This indicates that there may still be an ongoing source for these contaminants. For example, soil sample #6, which was collected from the sidewall of the former gasoline tank pit, identified 140ppm TPHg and 120 parts per billion (ppb) benzene. Although initial recommendations proposed to overexcavate this area, no overexcavation was ever conducted in this location.

If after the next quarterly monitoring event, commensurate contaminant concentrations are still being identified in the wells, you will be required to submit an additional work plan addressing measures to contain the plume from migrating further off site. Additionally, if it appears that any remaining contaminant sources continue to significantly impact ground water, remedial measures shall be taken.

If you have any questions or comments, please contact me at (510) 567-6763.

Sincerely,

Juliet Shin
Senior Hazardous Materials Specialist

cc: Robert E. Kitay
Aqua Science Engineers, Inc.
2411 Old Crow Canyon Rd., #4
San Ramon, CA 94583

Cheryl Gordon
Division of Clean Water Programs
P.O. Box 944212
Sacramento, CA 94224-2120

File

APPENDIX B

Analytical Report and Chain of Custody Form
For Oil Samples

American Environmental Network

Certificate of Analysis

DOHS Certification: 1172 AIHA Accreditation: 11134

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

ATTN: ROBERT KITAY
CLIENT PROJ. ID: 2607
CLIENT PROJ. NAME: ALAMEDA'S MAX

REPORT DATE: 08/14/95

DATE(S) SAMPLED: 08/04/95

DATE RECEIVED: 08/04/95

AEN WORK ORDER: 9508055

PROJECT SUMMARY:

On August 4, 1995, this laboratory received 1 oil 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: 9508055
DATE SAMPLED: 08/04/95
DATE RECEIVED: 08/04/95
CLIENT PROJ. ID: 2607

Client Sample Id.	AEN Lab Id.	Mineral Spirit/ Kerosene Range Hydrocarbons C8 - C14 (%)	Motor Oil/ Asphalt Range Hydrocarbons C32 - C44 (%)
MW-2	01	2	98

EPA Method: 8015

Instrument: C

Date Extracted: 08/10/95

Date Analyzed: 08/10/95

AEN (CALIFORNIA)
QUALITY CONTROL REPORT

AEN JOB NUMBER: 9508055

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 Standard Deviation (RSD): An indication of method precision based on replicate 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.

D: Surrogates diluted out.

#: Indicates result outside of established laboratory QC limits.

*** END OF REPORT ***

R-7, S-17 9509055

Chain of Custody

Aqua Science Engineers, Inc.
2411 Old Crow Canyon Road, #4,
San Ramon, CA 94583
(510) 820-9391 · FAX (510) 837-4853

DATE 8-4-95 PAGE 1 OF 2

SAMPLERS (SIGNATURE) Robert E. Kitay (PHONE NO.)

PROJECT NAME Former Alameda Mart NO.

ADDRESS High Street, Alameda, Cal

ANALYSIS REQUEST

SPECIAL INSTRUCTIONS:

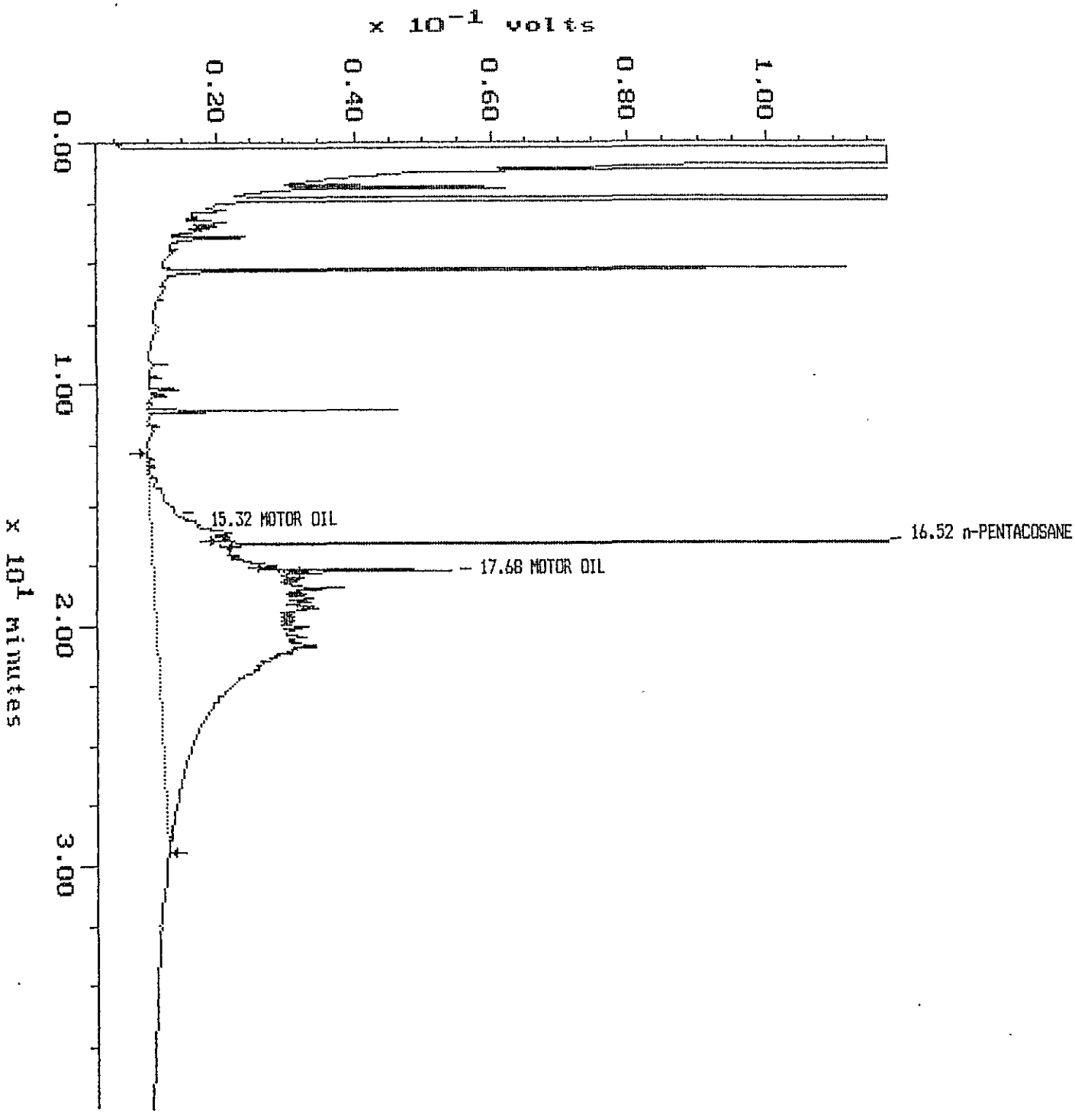
SAMPLE ID.	DATE	TIME	MATRIX	NO. OF SAMPLES	TPH-GASOLINE (EPA 5030/8015)	TPH-GASOLINE/BTEX (EPA 5030/8015-8020)	TPH-DIESEL (EPA 3510/8015)	PURGABLE AROMATICS (EPA 602/8020)	PURGABLE HALOCARBONS (EPA 601/8010)	VOLATILE ORGANICS (EPA 624/8240)	BASE/NUETRALS, ACIDS (EPA 625/8270)	OIL & GREASE (EPA 5520 E&F or B&F)	LUFT METALS (5) (EPA 6010+7000)	TITLE 22 (CAM 17) (EPA 6010+7000)	TCLP (EPA 1311/1310)	STLC- CAM WET (EPA 1311/1310)	REACTIVITY CORROSIVITY IGNITABILITY	Fuel Fingerprint EPA 8015 0.1 Rep.			
01AB MW-2	8/4	11:00	Oil	2														X			

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY LABORATORY:	COMMENTS:
Robert E. Kitay 12:15			Lori L Pruitt 12:15	
(signature) (time)	(signature) (time)	(signature) (time)	(signature) (time)	
Robert E. Kitay 8-4-95			Lori L Pruitt 8/4/95	
(printed name) (date)	(printed name) (date)	(printed name) (date)	(printed name) (date)	
Company- ASE	Company-	Company-	Company- AEN	

Sample: 08012-6A
Acquired: 08-AUG-95 15:11
Dilution: 1 : 2.000

Channel: FID 2 INST CB
Method: C:\MAX\DATA3B\DDIE
Amount: 50.000

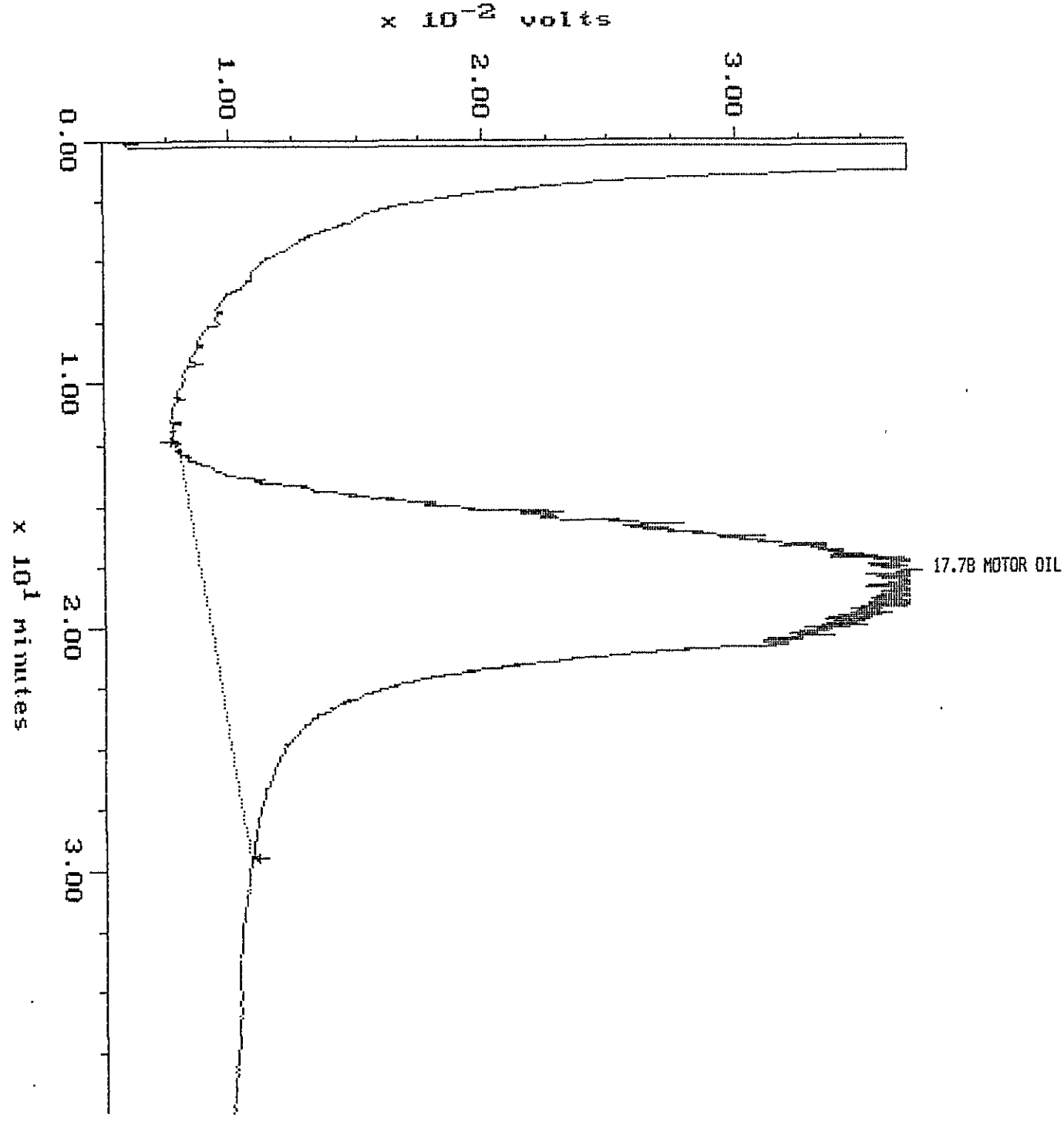
Filename: CB080724
Operator:



Sample: 500PPM OIL
Acquired: 07-AUG-95 21:45
Dilution: 1 : 100.000

Channel: FID 2 INST CB
Method: C:\MAX\DATA3B\DD1E
Amount: 500.000

Filename: CB08075
Operator:



APPENDIX C

Permits

CITY OF ALAMEDA
CENTRAL PERMIT OFFICE
2263 SANTA CLARA AVE., ROOM 204
ALAMEDA, CA 94501

415-522-4100

APPLICATION FOR PERMIT TO EXCAVATE IN THE RIGHT-OF-WAY OF THE CITY OF ALAMEDA

_____ SERVICE NUMBER

DATE 7-26 19 95

Application is hereby made for a permit to excavate on the Both Sides ~~side~~ of High Ave. (SB) _____ feet _____ of Between Van Buren Street and Central Avenue,

House No. _____ Owner _____

For the purpose of Collecting environmental soil and water samples from the subsurface

Name of Applicant Agua Science Engineers Address 2411 Old Crow Canyon Rd. #4 San Ramon, CA 94583

Phone 820-9391

☐ VERBAL APPROVAL
Date _____
By _____
Reasons: _____

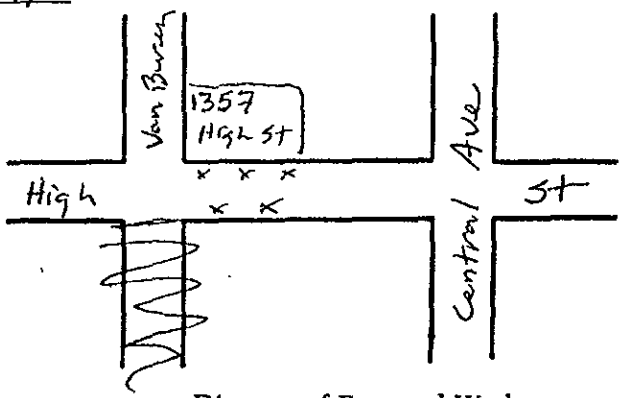


Diagram of Proposed Work

FOR OFFICE USE ONLY

This permit to be Inspected by ☒ ENGINEERING DIVISION ☐ MAINTENANCE DIVISION

☑ ALL STRIPING, PAINTED GRAPHICS AND PAVEMENT MARKERS DAMAGED OR DESTROYED BY STREET EXCAVATION WORK ARE TO BE RESTORED BY THE PERMITEE.

☑ ALL CONSTRUCTION WITHIN THE PUBLIC RIGHT OF WAY MUST HAVE BARRICADES WITH FLASHERS FOR NIGHT TIME PROTECTION.

☑ ALL WORK INVOLVED IS TO BE DONE IN ACCORDANCE WITH STANDARD CITY OF ALAMEDA SPECIFICATIONS AND CITY OF ALAMEDA PRACTICES ALL TO THE SATISFACTION OF THE CITY ENGINEER. INSPECTION CHARGES SHALL BE PAID TO THE CITY MONTHLY. ACCEPTANCE OF THIS PERMIT CONSTITUTES ACCEPTANCE OF THE CONDITIONS INCLUDED.

☐ CONCRETE PERMIT REQUIRED _____ SIGNATURE _____ DATE

☐ NO OPEN TRENCH CUTTING

☐ STATE PERMIT REQUIRED _____ CLEAR _____ SIGNATURE _____ DATE

☐ SPECIAL CONDITIONS _____

RECEIVED DATE 7/26/95 SIGNED Gail Moore

APPROVAL DATE 7/26/95 SIGNED [signature]

ISSUED DATE 7/26/95 SIGNED Gail Moore

PERMIT # 95-0030

ALAMEDA COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRICT
5997 PARKSIDE DRIVE • PLEASANTON, CALIFORNIA 94588-5127 • PHONE (510) 484-2600 FAX (510) 462-3914

3 August 1995

Mr. Robert Kitay
Aqua Science Engineers
2411 Old Crow Canyon Road, Suite 4
San Ramon, CA 94583

Dear Mr. Kitay:

Enclosed is drilling permit 95480 for a contamination investigation at 1357 High Street in Alameda for James Phillipson.

If you have any questions, please contact **Wyman Hong** at extension 235 or me at extension 233.

Very truly yours,

Craig A. Mayfield

Craig A. Mayfield
Water Resources Engineer III

WH:ab
Enc.

ZONE 7 WATER AGENCY

5997 PARKSIDE DRIVE PLEASANTON, CALIFORNIA 94588 VOICE (510) 484-2600
FAX (510) 462-3914

DRILLING PERMIT APPLICATION

FOR APPLICANT TO COMPLETE

LOCATION OF PROJECT 1357 High Street
Alameda, CA

CLIENT
Name Tamara A. Phillipsen
Address 311 Marina Drive Phone
City Alameda, CA Zip 94501

APPLICANT
Name Aqua Science Engineers
Attn: Robert Kitay
Address 2411 old crow canyon Rd #4 Phone (510) 820-9391
City San Ramon, CA Zip 94583
FAX (510) 837-4893

TYPE OF PROJECT

Well Construction		Geotechnical Investigation	
Cathodic Protection		General	
Water Supply		Contamination	X
Monitoring		Well Destruction	

PROPOSED WATER SUPPLY WELL USE
Domestic ___ Industrial ___ Other ___
Municipal ___ Irrigation ___

DRILLING METHOD:
Mud Rotary ___ Air Rotary ___ Auger ___
Cable ___ Other Geoprobe

DRILLER'S LICENSE NO. C-57 405165

WELL PROJECTS
Drill Hole Diameter ___ in. Maximum
Casing Diameter ___ in. Depth ___ ft.
Surface Seal Depth ___ ft. Number ___

GEOTECHNICAL PROJECTS
Number of Borings 5 Maximum
Hole Diameter 2.5 in. Depth 10 ft.

ESTIMATED STARTING DATE 7-31-95
ESTIMATED COMPLETION DATE 8-31-95

I hereby agree to comply with all requirements of this permit and Alameda County Ordinance No. 73-68.

APPLICANT'S SIGNATURE Robert E. Kitay Date 7-26-95

FOR OFFICE USE

PERMIT NUMBER 95480
LOCATION NUMBER

PERMIT CONDITIONS

Circled Permit Requirements Apply

A. GENERAL
(1.) A permit application should be submitted so as to arrive at the Zone 7 office five days prior to proposed starting date.
2. Submit to Zone 7 within 60 days after completion of permitted work the original Department of Water Resources Water Well Drillers Report or equivalent for well Projects, or drilling logs and location sketch for geotechnical projects.
(3.) Permit is void if project not begun within 90 days of approval date.

B. WATER WELLS, INCLUDING PIEZOMETERS
1. Minimum surface seal thickness is two inches of cement grout placed by tremie.
2. Minimum seal depth is 50 feet for municipal and industrial wells or 20 feet for domestic and irrigation wells unless a lesser depth is specially approved. Minimum seal depth for monitoring wells is the maximum depth practicable or 20 feet.

(C.) GEOTECHNICAL. Backfill bore hole with compacted cuttings or heavy bentonite and upper two feet with compacted material. In areas of known or suspected contamination, tremied cement grout shall be used in place of compacted cuttings.

D. CATHODIC. Fill hole above anode zone with concrete placed by tremie.

E. WELL DESTRUCTION. See attached.

Approved Wyman Hong Date 2 Aug 95
Wyman Hong

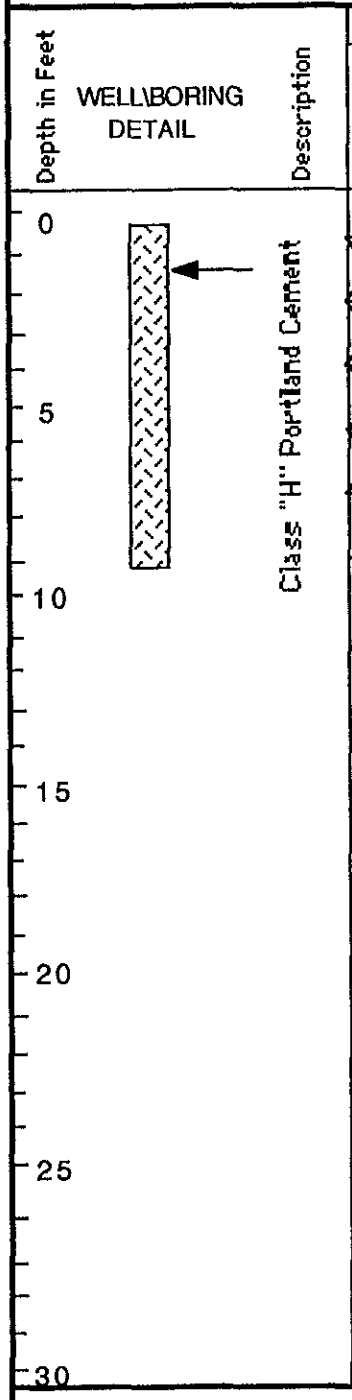
31992

APPENDIX D

Boring Logs

SOIL BORING LOG AND DETAILS		Boring BH-E
Project Name: Former Alameda Max's	Project Location: 1357 High Street, Alameda, CA	Page 1 of 1
Driller: Gregg Drilling	Type of Rig: Geoprobe	Type and Size of Auger: NA
Logged By: Robert E. Kitay	Date Drilled: July 31, 1995	Checked By: David M. Schultz, P.E.

WATER AND WELL DATA	
Depth of Water First Encountered: ≈ 4.0'	Total Depth of Well Completed: NA
Static Depth of Water in Well: NA	Well Screen Type and Diameter: NA
Total Depth of Boring: 9.0'	Well Screen Slot Size: NA
	Type and Size of Soil Sampler: 1.5" I.D., Calif. Split-barrel



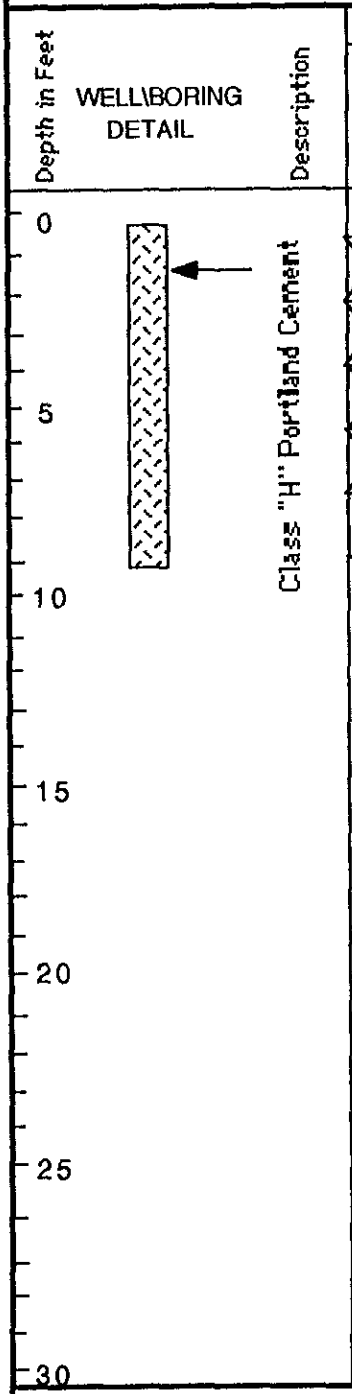
SOIL/ROCK SAMPLE DATA

Interval	Blow Ct.	OVM (ppmv)	Graphic Log
		1.7	

Depth in Feet	DESCRIPTION OF LITHOLOGY standard classification, texture, relative moisture, density, stiffness, odor-staining, USCS designation.
0	Asphaltic Concrete
	SAND (SP); yellow brown; medium dense; damp; 95% fine sand; 5% silt; high estimated K; no odor
5	olive; moist; moderate hydrocarbon odor at 3.5' wet at 4'
10	End of boring at 9.0'
15	
20	
25	
30	

SOIL BORING LOG AND DETAILS		Boring BH-F
Project Name: Former Alameda Max's	Project Location: 1357 High Street, Alameda, CA	Page 1 of 1
Driller: Gregg Drilling	Type of Rig: Geoprobe	Type and Size of Auger: NA
Logged By: Robert E. Kitay	Date Drilled: July 31, 1995	Checked By: David M. Schultz, P.E.

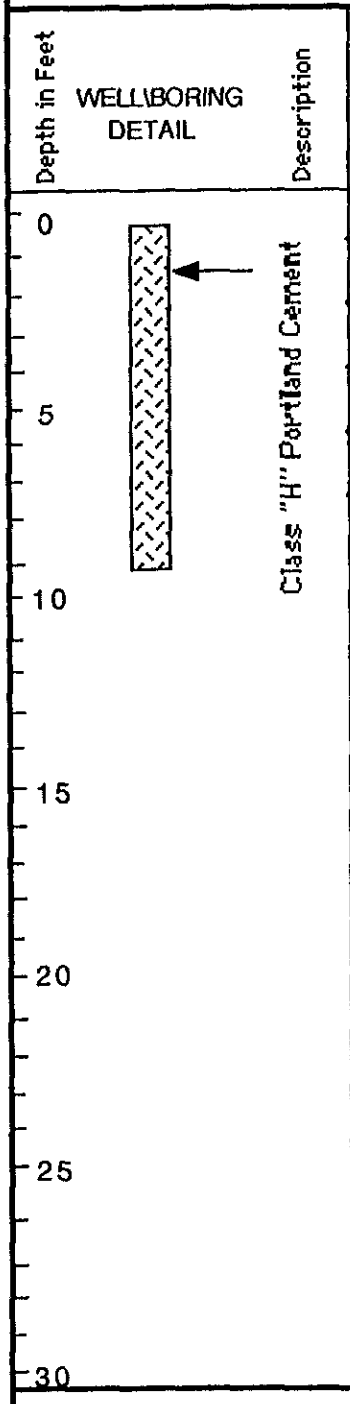
WATER AND WELL DATA	
Depth of Water First Encountered: ≈ 4.0'	Total Depth of Well Completed: NA
Static Depth of Water in Well: NA	Well Screen Type and Diameter: NA
Total Depth of Boring: 9.0'	Well Screen Slot Size: NA
	Type and Size of Soil Sampler: 1.5" I.D., Calif. Split-barrel



SOIL/ROCK SAMPLE DATA				DESCRIPTION OF LITHOLOGY
Interval	Blow Ct.	OVM (ppmv)	Graphic Log	Depth in Feet	standard classification, texture, relative moisture, density, stiffness, odor-staining, USCS designation.
				0	Asphaltic Concrete
		111		5	SAND (SP); yellow brown; medium dense; damp; 95% fine sand; 5% silt; non-plastic; high estimated K; no odor black; moist; moderate hydrocarbon odor at 3.5' wet at 4' yellow brown; no odor at 6'
				10	End of boring at 9.0'
				15	
				20	
				25	
				30	

SOIL BORING LOG AND DETAILS		Boring BH-G
Project Name: Former Alameda Max's	Project Location: 1357 High Street, Alameda, CA	Page 1 of 1
Driller: Gregg Drilling	Type of Rig: Geoprobe	Type and Size of Auger: NA
Logged By: Robert E. Kitay	Date Drilled: July 31, 1995	Checked By: David M. Schultz, P.E.

WATER AND WELL DATA	
Depth of Water First Encountered: ≈ 4.0'	Total Depth of Well Completed: NA
Static Depth of Water in Well: NA	Well Screen Type and Diameter: NA
Total Depth of Boring: 9.0'	Well Screen Slot Size: NA
	Type and Size of Soil Sampler: 1.5" I.D., Calif. Split-barrel



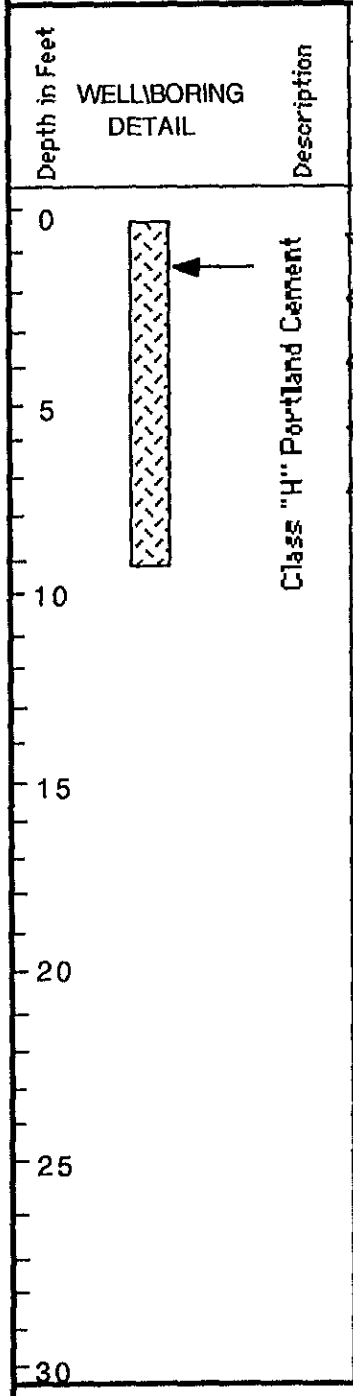
SOIL/ROCK SAMPLE DATA

Interval	Blow Ct.	OVM (ppmv)	Graphic Log
		0	

Depth in Feet	DESCRIPTION OF LITHOLOGY standard classification, texture, relative moisture, density, stiffness, odor-staining, USCS designation.
0	Asphaltic Concrete
	SAND (SP); yellow brown; medium dense; damp; 95% fine sand; 5% silt; non-plastic; high estimated K; no odor
	moist at 3.5'
5	wet at 4'
10	
15	
20	
25	
30	

SOIL BORING LOG AND DETAILS		Boring BH-H
Project Name: Former Alameda Max's	Project Location: 1357 High Street, Alameda, CA	Page 1 of 1
Driller: Gregg Drilling	Type of Rig: Geoprobe	Type and Size of Auger: NA
Logged By: Robert E. Kitay	Date Drilled: July 31, 1995	Checked By: David M. Schultz, P.E.

WATER AND WELL DATA	
Depth of Water First Encountered: ≈ 4.0'	Total Depth of Well Completed: NA
Static Depth of Water in Well: NA	Well Screen Type and Diameter: NA
Total Depth of Boring: 9.0'	Well Screen Slot Size: NA
	Type and Size of Soil Sampler: 1.5" I.D., Calif. Split-barrel



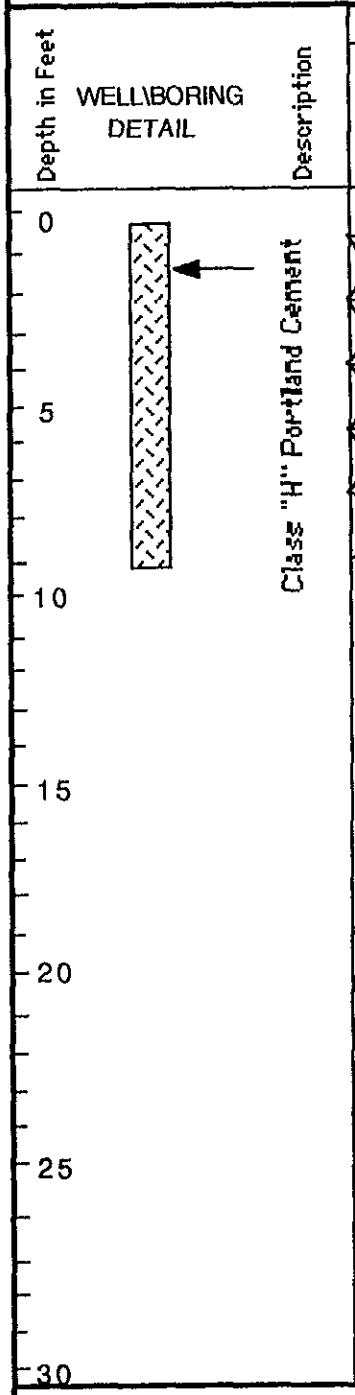
SOIL/ROCK SAMPLE DATA

Interval	Blow Ct.	OVM (ppmv)	Graphic Log
		0	

Depth in Feet	DESCRIPTION OF LITHOLOGY standard classification, texture, relative moisture, density, stiffness, odor-staining, USCS designation.
0	Asphaltic Concrete
0	SAND (SP); yellow brown; *medium dense*; *damp*; 95% fine sand; 5% silt; *non-plastic*; high estimated K; no odor moist at 3.5' wet at 4'
5	
10	
15	
20	
25	
30	

SOIL BORING LOG AND DETAILS		Boring BH-I
Project Name: Former Alameda Max's	Project Location: 1357 High Street, Alameda, CA	Page 1 of 1
Driller: Gregg Drilling	Type of Rig: Geoprobe	Type and Size of Auger: NA
Logged By: Robert E. Kitay	Date Drilled: July 31, 1995	Checked By: David M. Schultz, P.E.

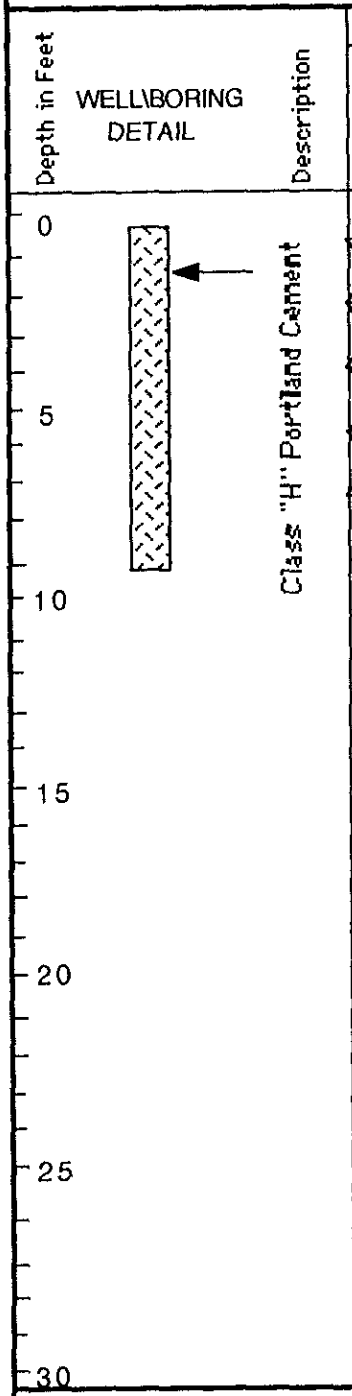
WATER AND WELL DATA	
Depth of Water First Encountered: ≈ 4.0'	Total Depth of Well Completed: NA
Static Depth of Water in Well: NA	Well Screen Type and Diameter: NA
Total Depth of Boring: 9.0'	Well Screen Slot Size: NA
	Type and Size of Soil Sampler: 1.5" I.D., Calif. Split-barrel



SOIL/ROCK SAMPLE DATA				DESCRIPTION OF LITHOLOGY
Interval	Blow Ct.	OVM (ppmv)	Graphic Log	Depth in Feet / standard classification, texture, relative moisture, density, stiffness, odor-staining, USCS designation.
		0		0 Asphaltic Concrete
				SAND (SP); yellow brown; medium dense; damp; 95% fine sand; 5% silt; non-plastic; high estimated K; no odor
				moist at 3.5'
				wet at 4'
				5
				10
				15
				20
				25
				30

SOIL BORING LOG AND DETAILS		Boring BH-J
Project Name: Former Alameda Max's	Project Location: 1357 High Street, Alameda, CA	Page 1 of 1
Driller: Gregg Drilling	Type of Rig: Geoprobe	Type and Size of Auger: NA
Logged By: Robert E. Kitay	Date Drilled: July 31, 1995	Checked By: David M. Schultz, P.E.

WATER AND WELL DATA	
Depth of Water First Encountered: ≈ 4.0'	Total Depth of Well Completed: NA
Static Depth of Water in Well: NA	Well Screen Type and Diameter: NA
Total Depth of Boring: 9.0'	Well Screen Slot Size: NA
	Type and Size of Soil Sampler: 1.5" I.D., Calif. Split-barrel



SOIL/ROCK SAMPLE DATA					DESCRIPTION OF LITHOLOGY
Depth in Feet	Interval	Blow Ct.	OVM (ppmv)	Graphic Log	standard classification, texture, relative moisture, density, stiffness, odor-staining, USCS designation.
0					Asphaltic Concrete
					Gravelly SAND (SW); brown; dense; damp; 60% fine sand; 30% subrounded pebbles to 0.5" diameter; 10% silt; non-plastic; high estimated K; no odor
			0		SAND (SP); yellow brown; medium dense; damp; 95% fine sand; 5% silt; non-plastic; high estimated K; no odor; moist at 3.5'; wet at 4'
5					
10					
15					
20					
25					
30					

APPENDIX E

Analytical Report and Chain of Custody Form
For Soil Samples

American Environmental Network

Certificate of Analysis

DOHS Certification: 1172 AIHA Accreditation: 11134

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

ATTN: ROBERT KITAY
CLIENT PROJ. ID: 2607
CLIENT PROJ. NAME: ALAMEDA MAX'S

REPORT DATE: 08/18/95

DATE(S) SAMPLED: 07/31/95

DATE RECEIVED: 08/01/95

AEN WORK ORDER: 9508012

PROJECT SUMMARY:

On August 1, 1995, this laboratory received 6 soil 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.

RW Buxton for Larry Klein
Larry Klein
Laboratory Director

AQUA SCIENCE ENGINEERS, INC.

AEN JOB NO: 9508012
DATE SAMPLED: 07/31/95
DATE RECEIVED: 08/01/95
CLIENT PROJ. ID: 2607

Client Sample Id.	AEN Lab Id.	Extractable Hydrocarbons as Diesel (mg/kg)	Extractable Hydrocabons as Oil (mg/kg)	Purgeable Hydrocarbons as Gasoline (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethyl-benzene (mg/kg)	Total Xylenes (mg/kg)
BH-E 4.0'	01	ND	ND	ND	ND	ND	ND	ND
BH-F 4.0'	02	ND	ND	ND	ND	ND	ND	ND
BH-G 4.0'	03	ND (50) *	800 (50) *	ND	ND	ND	ND	ND
BH-H 4.0'	04	ND	ND	ND	ND	ND	ND	ND
BH-I 4.0'	05	ND	ND	ND	ND	ND	ND	ND
BH-J 4.0'	06	ND	20	ND	ND	ND	ND	ND
Reporting Limit (unless otherwise noted by parentheses)		10	10	0.2	0.005	0.005	0.005	0.005
EPA Method:		3520 GCFID	3520 GCFID	5030 GCFID	8020	8020	8020	8020
Instrument:		C	C	E	E	E	E	E
Date Extracted:		08/05/95	08/05/95	NA	NA	NA	NA	NA
Date Analyzed:		08/08/95	08/08/95	08/04-05/95	08/04-05/95	08/04-05/95	08/04-05/95	08/04-05/95

* Reporting limits elevated for diesel and oil due to high levels of target compounds. Sample run at dilution.

NA = Not Applicable
ND = Not Detected

AEN (CALIFORNIA)
QUALITY CONTROL REPORT

AEN JOB NUMBER: 9508012

CLIENT PROJECT ID: 2607

Quality Control and Project Summary

All laboratory quality control parameters were found to be within established limits, with the following exception: The surrogate recovery for the diesel analysis of sample BH-E 4.0' was above AEN QC limits. Since the sample result is ND, the data is reported without qualification.

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.

D: Surrogates diluted out.

#: Indicates result outside of established laboratory QC limits.

QUALITY CONTROL DATA

METHOD: EPA 3520 GCFID

AEN JOB NO: 9508012
DATE EXTRACTED: 08/05/95
INSTRUMENT: C
MATRIX: SOIL

Surrogate Standard Recovery Summary

Date Analyzed	Client Id.	Lab Id.	Percent Recovery n-Pentacosane
08/08/95	BH-E 4.0'	01	129 #
08/08/95	BH-F 4.0'	02	88
08/08/95	BH-G 4.0'	03	80
08/08/95	BH-H 4.0'	04	84
08/08/95	BH-I 4.0'	05	83
08/08/95	BH-J 4.0'	06	D
QC Limits:			45-110

D: Surrogates diluted out.

#: Indicates result outside of established laboratory QC limits.

DATE EXTRACTED: 08/08/95
DATE ANALYZED: 08/09/95
SAMPLE SPIKED: SAND
INSTRUMENT: C

Laboratory Control Sample Recovery

Analyte	Spike Added (mg/kg)	Average Percent Recovery	QC Limits Percent Recovery
Diesel	36.3	95	53-103

Daily method blanks for all associated analytical runs showed no contamination at or above the reporting limit.

QUALITY CONTROL DATA

METHOD: EPA 8020, 5030 GCFID

AEN JOB NO: 9508012
INSTRUMENT: E
MATRIX: SOIL

Surrogate Standard Recovery Summary

Date Analyzed	Client Id.	Lab Id.	Percent Recovery Fluorobenzene
08/04/95	BH-E 4.0'	01	100
08/05/95	BH-F 4.0'	02	104
08/05/95	BH-G 4.0'	03	108
08/05/95	BH-H 4.0'	04	105
08/05/95	BH-I 4.0'	05	102
08/05/95	BH-J 4.0'	06	107
QC Limits:			92-110

DATE ANALYZED: 08/04/95
SAMPLE SPIKED: LCS
INSTRUMENT: E

Laboratory Control Sample Recovery

Analyte	Spike Added (ug/kg)	Average Percent Recovery	RPD	QC Limits Percent Recovery	QC Limits RPD
Benzene	36.8	96	4	60-120	20
Toluene	101	104	4	60-120	20
Hydrocarbons as Gasoline	1000	101	5	60-120	20

Daily method blanks for all associated analytical runs showed no contamination at or above the reporting limit.

*** END OF REPORT ***

R-7.5-5 9508012

Aqua Science Engineers, Inc.
2411 Old Crow Canyon Road, #4,
San Ramon, CA 94583
(510) 820-9391 - FAX (510) 837-4853

Chain of Custody

DATE 7-31-95 PAGE 1 OF 2

SAMPLERS (SIGNATURE) (PHONE NO.)
Robert E. Kitay (510) 820-9391

PROJECT NAME Alameda Mart NO. 2607
ADDRESS 1357 High Street, Alameda, CA

ANALYSIS REQUEST

SPECIAL INSTRUCTIONS:

	SAMPLE ID.	DATE	TIME	MATRIX	NO. OF SAMPLES	TPH-GASOLINE (EPA 5030/8015)	TPH-GASOLINE/BTEX (EPA 5030/8015-8020)	TPH-DIESEL + G / (EPA 3510/8015)	PURGABLE AROMATICS (EPA 602/8020)	PURGABLE HALOCARBONS (EPA 601/8010)	VOLATILE ORGANICS (EPA 624/8240)	BASE/NUETRALS, ACIDS (EPA 625/8270)	OIL & GREASE (EPA 5520 E&F or B&F)	LUFT METALS (5) (EPA 6010-7000)	TITLE 22 (CAM 17) (EPA 6010-7000)	TCLP (EPA 1311/1310)	STLC- CAM MET (EPA 1311/1310)	REACTIVITY CORROSIVITY IGNITABILITY
01A	BH-E 4.0'	7/31	10:15	Soil	1		X	X										
02A	BH-F 4.0'	"	10:55	"	1		X	X										
03A	BH-G 4.0'	"	12:00	"	1		X	X										
04A	BH-H 4.0'	"	12:58	"	1		X	X										
05A	BH-I 4.0'	"	13:45	"	1		X	X										
06A	BH-J 4.0'	"	15:30	"	1		X	X										

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY LABORATORY:	COMMENTS:
(signature) 10:10 (time)	(signature) 10:10 (time)	(signature) 12:15 (time)	(signature) Anna Gillespie 12:15 (time)	
Robert Kitay 8-1-95 (printed name) (date)	A. HERRICK 8-1-95 (printed name) (date)	A. HERRICK 8-1-95 (printed name) (date)	Anna Gillespie 8/1/95 (printed name) (date)	
Company- AES	Company- AEN	Company-	Company- AEN	

APPENDIX F

Analytical Report and Chain of Custody Form
For Groundwater Samples

American Environmental Network

Certificate of Analysis

DOHS Certification: 1172 AIHA Accreditation: 11134

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

ATTN: ROBERT KITAY
CLIENT PROJ. ID: 2607
CLIENT PROJ. NAME: ALAMEDA MAX'S

REPORT DATE: 08/14/95

DATE(S) SAMPLED: 07/31/95

DATE RECEIVED: 08/01/95

AEN WORK ORDER: 9508013

PROJECT SUMMARY:

On August 1, 1995, this laboratory received 6 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: 9508013
DATE SAMPLED: 07/31/95
DATE RECEIVED: 08/01/95
CLIENT PROJ. ID: 2607

Client Sample Id.	AEN Lab Id.	Extractable Hydrocarbons as Diesel (ug/L)	Extractable Hydrocabons as Oil (ug/L)	Purgeable Hydrocarbons as Gasoline (ug/L)	Benzene (ug/L)	Toluene (ug/L)	Ethyl-benzene (ug/L)	Total Xylenes (ug/L)
BH-E WATER	01	100	ND	ND	ND	ND	ND	ND
BH-F WATER	02	600	200	1,300	ND	2	18	27
BH-G WATER	03	ND	ND	ND	ND	ND	ND	ND
BH-H WATER	04	ND	ND	ND	ND	ND	ND	ND
BH-I WATER	05	ND	ND	ND	ND	ND	ND	ND
BH-J WATER	06	ND	300	ND	ND	ND	ND	ND
Reporting Limit		50	50	50	0.5	0.5	0.5	2
EPA Method:		3510 GCFID	3510 GCFID	5030 GCFID	8020	8020	8020	8020
Instrument:		C	C	H	H	H	H	H
Date Extracted:		08/08/95	08/08/95	NA	NA	NA	NA	NA
Date Analyzed:		08/08/95	08/08/95	08/08/95	08/08/95	08/08/95	08/08/95	08/08/95

NA = Not Applicable
ND = Not Detected

AEN (CALIFORNIA)
QUALITY CONTROL REPORT

AEN JOB NUMBER: 9508013

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.

D: Surrogates diluted out.

#: Indicates result outside of established laboratory QC limits.

QUALITY CONTROL DATA

METHOD: EPA 3510 GCFID

AEN JOB NO: 9508013
DATE EXTRACTED: 08/08/95
INSTRUMENT: C
MATRIX: WATER

Surrogate Standard Recovery Summary

Date Analyzed	Client Id.	Lab Id.	Percent Recovery n-Pentacosane
08/08/95	BH-E WATER	01	92
08/08/95	BH-F WATER	02	98
08/08/95	BH-G WATER	03	100
08/08/95	BH-H WATER	04	100
08/08/95	BH-I WATER	05	97
08/08/95	BH-J WATER	06	95
QC Limits:			59-118

DATE EXTRACTED: 08/07/95
DATE ANALYZED: 08/09/95
SAMPLE SPIKED: DI WATER
INSTRUMENT: C

Method Spike Recovery Summary

Analyte	Spike Added (mg/L)	Average Percent Recovery	RPD	QC Limits Percent Recovery	QC Limits RPD
Diesel	1.82	87	13	58-107	15

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: 9508013
INSTRUMENT: H
MATRIX: WATER

Surrogate Standard Recovery Summary

Date Analyzed	Client Id.	Lab Id.	Percent Recovery Fluorobenzene
08/08/95	BH-E WATER	01	99
08/08/95	BH-F WATER	02	98
08/08/95	BH-G WATER	03	99
08/08/95	BH-H WATER	04	100
08/08/95	BH-I WATER	05	100
08/08/95	BH-J WATER	06	99
QC Limits:			92-109

DATE ANALYZED: 08/06/95
SAMPLE SPIKED: 9508009-02
INSTRUMENT: H

Matrix Spike Recovery Summary

Analyte	Spike Added (ug/L)	Average Percent Recovery	RPD	QC Limits Percent Recovery	QC Limits RPD
Benzene	36.1	100	3	85-109	17
Toluene	99.3	105	7	87-111	16
HCs as Gasoline	1000	105	5	66-117	19

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

*** END OF REPORT ***

E-5, S-1
R-5, S-M/N

9508013

Aqua Science Engineers, Inc.
2411 Old Crow Canyon Road, #4,
San Ramon, CA 94583
(510) 820-9391 - FAX (510) 837-4853

Chain of Custody

DATE 7-31-95 PAGE 2 OF 2

SAMPLERS (SIGNATURE) (PHONE NO.)
R. E. Kitay (510) 820-2391

PROJECT NAME Alameda Naval NO. 2607
ADDRESS 1357 High Street, Alameda, CA

ANALYSIS REQUEST

SPECIAL INSTRUCTIONS:

SAMPLE ID.	DATE	TIME	MATRIX	NO. OF SAMPLES	TPH-GASOLINE (EPA 5030/8015)	TPH-GASOLINE/BTEX (EPA 5030/8015-8020)	TPH-DIESEL + C.Y. (EPA 3510/8015)	PURGABLE AROMATICS (EPA 602/8020)	PURGABLE HALOCARBONS (EPA 601/8010)	VOLATILE ORGANICS (EPA 624/8240)	BASE/NUETRALS, ACIDS (EPA 625/8270)	OIL & GREASE (EPA 5520 E&F or B&F)	LUFT METALS (5) (EPA 6010+7000)	TITLE 22 (CAM 17) (EPA 6010+7000)	TCLP (EPA 1311/1310)	STLC- CAM WET (EPA 1311/1310)	REACTIVITY CORROSIVITY IGNITABILITY				
01A-D	BH-E Water	7/31	10:15	Water	4		X	X													
02A-D	BH-F Water		11:30				X	X													
03A-D	BH-G Water		12:20				X	X													
04A-D	BH-H Water		13:25				X	X													
05A-D	BH-I Water		14:10				X	X													
06A-D	BH-J Water	↓	16:00	↓	↓		X	X													

RELINQUISHED BY:
R. E. Kitay 10:10
(signature) (time)
Robert Kitay 8-1-95
(printed name) (date)
Company- ASE

RECEIVED BY:
[signature] 10:10
(signature) (time)
M. HENRICH 8-1-95
(printed name) (date)
Company- AEN

RELINQUISHED BY:
[signature] 1215
(signature) (time)
K. HERRICH 8-1-95
(printed name) (date)
Company-

RECEIVED BY LABORATORY:
Gina Gillespie 1215
(signature) (time)
Gina Gillespie 8/1/95
(printed name) (date)
Company- AEN

COMMENTS: