



ALCO
HAZMAT

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April 28, 1994

Alameda County Health Care Services Agency
80 Swan Way, Room 200
Oakland, CA 94621

ATTENTION: Ms. Juliet Shin

SUBJECT: Soil and Groundwater Assessment Project Report
Former Alameda Max's Property
1357 High Street
Alameda, CA 94501

Dear Ms. Shin:

On behalf of our client, Mr. James A. Phillipsen, Aqua Science Engineers, Inc. is pleased to submit the subject report.

If you have any questions or comments, please feel free to give us a call at (510) 820-9391.

Respectfully submitted,

AQUA SCIENCE ENGINEERS, INC.

David Allen
Project Manager

Attachment: Project Report

cc: Mr. James A. Phillipsen, Property Owner
Mr. Rich Hiatt, RWQCB - San Francisco Bay Region

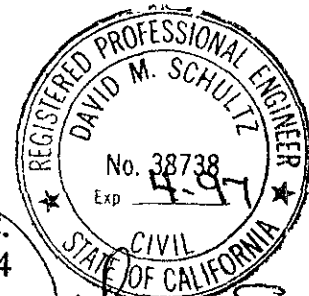
WE'VE MOVED TO
2411 OLD CROW CANYON RD #4
SAN RAMON, CA 94583
510-820-9391

94 APR 29 PM 1:58

April 14, 1994

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

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



David M. Schultz

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1.0 INTRODUCTION

This report outlines the methods and findings of Aqua Science Engineers, Inc. (ASE)'s soil and groundwater investigation at the former Alameda Max's service station located at 1357 High Street, Alameda, California (*Figure 1*). 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 May 12, 1993 (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 a 150-gallon oil and water separator. 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.

3.0 SCOPE OF WORK (SOW)

Based on the site history and requirements outlined in the ACHCSA May 12, 1994 letter, ASE's SOW was limited to:

- 1) Preparing a site safety plan;

- 2) Obtaining all necessary permits from the appropriate agencies including permits to install monitoring wells;
- 3) Drilling a series of three soil borings beneath the site;
- 4) Collecting and analyzing soil samples collected from the borings for TPH-G, TPH-D, O&G and benzene, toluene, ethylbenzene and total xylenes (BTEX). In addition, analyzing one soil sample from the boring near the waste oil tank for volatile organic compounds (VOCs) and CAM 17 metals;
- 5) Completing the borings as 4-inch diameter groundwater monitoring wells;
- 6) Developing the monitoring wells;
- 7) Collecting groundwater samples from the wells for analyses;
- 8) Analyzing the groundwater samples for TPH-G, TPH-D, O&G and BTEX. In addition, analyzing the groundwater sample from the boring near the waste oil tank for VOCs and CAM 17 metals;
- 9) Surveying top of casing elevation of the wells relative to a project datum, and determining the groundwater flow direction and gradient beneath the site;
- 10) Reporting the subsurface investigation results.

4.0 DRILLING SOIL BORINGS AND COLLECTING SAMPLES

ASE obtained Alameda County Flood Control and Water Conservation District (Zone 7) well construction permit #94212 prior to drilling (Appendix B).

On March 31, 1994, Soils Exploration Services of Vacaville, California drilled soil borings BH-A through BH-C at the site using a CME-75 drill rig equipped with 10-inch diameter hollow-stem augers. Groundwater monitoring wells MW-1 through MW-3 were subsequently constructed in the borings (*Figure 2*). The drilling was directed by ASE project geologist Robert E. Kitay. The borings were located to assess the extent of soil and groundwater contamination in the area surrounding and downgradient of the former underground storage tanks.

Undisturbed soil samples were collected at 2, 5, 10 and 15-feet below ground surface (bgs) for lithologic and hydrogeologic description and for possible chemical analyses. The samples were collected by driving a split-barrel drive sampler lined with 2-inch diameter stainless steel tubes ahead of the auger tip with successive blows from a 140-lb. hammer dropped 30-inches. One tube from 3-foot bgs was immediately trimmed, sealed with Teflon tape, plastic end caps and duct tape, labeled, sealed in a plastic bag and stored on ice for transport to American Environmental Network (AEN) of Pleasant Hill, California (DHS #1172) 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. The boring logs and well construction details are included as Appendix C. Drill cuttings were stockpiled on and covered with plastic sheeting on-site for future disposal by the client.

5.0 ANALYTICAL RESULTS FOR SOIL

The samples collected at 3-foot bgs in each boring were analyzed by AEN for TPH-G and TPH-D by modified EPA Method 8015, BTEX by EPA Method 8020 and O&G by EPA Method 5520B&F. In addition, the sample collected from boring BH-B was also analyzed for VOCs by EPA Method 8010 and CAM 17 metals. The analytical results are tabulated in Tables One and Two, and copies of the certified analytical report and chain of custody form are included in Appendix D. Analytical results indicate that 7,500 ppm hydrocarbon oil and grease and 1,400 ppm TPH-D were detected in the 3-foot sample from boring BH-B. Only 7.4 ppm TPH-G, 0.032 ppm ethylbenzene and 0.32 ppm total xylenes were detected in the 3-foot sample from boring BH-C.

6.0 MONITORING WELL INSTALLATION, DEVELOPMENT AND SAMPLING

Groundwater monitoring wells MW-1 through MW-3 were installed in borings BH-A through BH-C, respectively. The wells were constructed with 4-inch diameter, 0.020-inch slotted, flush-threaded, Schedule 40 PVC well screen and blank casing. The wells are screened between 3.0-feet bgs and the total depth of the boreholes (approximately 16 to 20-feet bgs) to monitor the first water bearing zone encountered. Lonestar #3 Monterey sand occupies the annular space between the borehole and the casing from the bottom of the boring to about 0.5-feet above the well screen. A 0.5-foot thick hydrated bentonite layer separates the sand from the overlying cement surface seal. The wellheads are secured with locking wellplugs beneath at-grade traffic-rated vaults.

On April 4, 1994, ASE project engineer David Allen developed the wells using two episodes of surge-block agitation and evacuation with bailers and an electric PVC pump. At least ten well casing volumes of water were removed from each well during development, and evacuation continued until the water was relatively clear. A hydrocarbon sheen and strong hydrocarbon odor were present in monitoring well MW-2 during well development and subsequent sampling. The wells yielded approximately 5 gallons per minute during development.

ASE sampled the wells following the well development. The samples were collected from each well using a pre-cleaned polyethylene bailer. The groundwater samples from each well were decanted from the bailer into three (3) 40-ml volatile organic analysis (VOA) vials and one (1) 1-liter amber glass bottle. All of the samples were preserved with hydrochloric acid, labeled, placed in protective foam sleeves, and stored on ice for transport to AEN under chain of custody. Well development and sampling purge water were contained in DOT 17H drums and stored on-site for handling by the client at a later date. See Appendix E for a copy of the Field Logs.

7.0 GROUNDWATER ELEVATIONS

ASE surveyed the top of casing elevation of each well relative to a project datum on April 4, 1994. A project elevation of 15.00 feet above mean sea level was interpellated from the USGS Oakland East, California 7.5' Quadrangle. Depths to groundwater were measured in each well on April 4, 1994 with an electric sounder prior to purging water from any well. Depth to groundwater measurements are presented in Table Three, and

groundwater elevation contours are plotted on Figure 3. Groundwater appears to flow to the southeast beneath the site at a gradient of 0.01 feet/foot.

8.0 ANALYTICAL RESULTS FOR GROUNDWATER

The groundwater samples were analyzed by AEN for TPH-G and TPH-D by modified EPA Method 8015, BTEX by EPA Method 8020 and O&G by EPA Method 5520B&F. In addition, the samples collected from monitoring well MW-2 were also analyzed for VOCs by EPA Method 8010 and CAM 17 metals. The analytical results are tabulated in Tables Four and Five, and copies of the certified analytical report and chain of custody form are included in Appendix F. Analytical results indicate that 6,200 parts per billion (ppb) oil and grease, 150 ppb TPH-G and low BTEX and TCE concentrations were in groundwater 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. Only 80 ppb TPH-G, 0.5 ppb ethylbenzene and 2 ppb total xylenes were detected in the groundwater samples collected from monitoring well MW-1.

9.0 CONCLUSIONS AND RECOMMENDATIONS

The analytical results show relatively high hydrocarbon oil and grease and TPH-D concentrations (7,500 ppm and 1,400 ppm, respectively) in the soil sample collected from 3.0-foot bgs in boring BH-B. 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.

Analytical results for groundwater indicate 6,200 ppb oil and grease, 150 ppb TPH-G and low BTEX and TCE concentrations were in groundwater 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. Benzene concentrations in the groundwater sample from monitoring well MW-3 exceeded the California Department of Toxic Substance Control (DTSC) maximum contaminant level (MCL) for drinking water of 1 ppb.

ASE recommends sampling groundwater from the site wells on a quarterly basis. ASE also recommends that in the future, overexcavating soil in the vicinity of monitoring well MW-2 to remove diesel and oil and grease contamination from the unsaturated zone may be a viable means of both soil and groundwater remediation. Since the waste-oil contaminated groundwater found in monitoring well MW-2 appears to be localized and not influencing downgradient wells MW-1 and MW-3, ASE does not recommend any groundwater remediation activities at this time.

10.0 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.

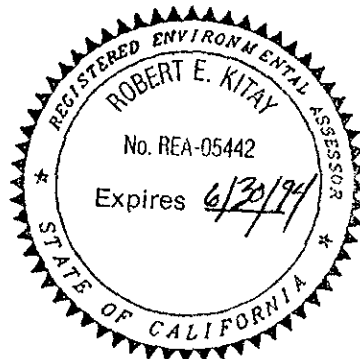
Aqua Science Engineers appreciates the opportunity to assist you with your environmental needs. Should you have any questions or comments, please feel free to call us at (510) 820-9391.

Respectfully submitted,

AQUA SCIENCE ENGINEERS, INC.

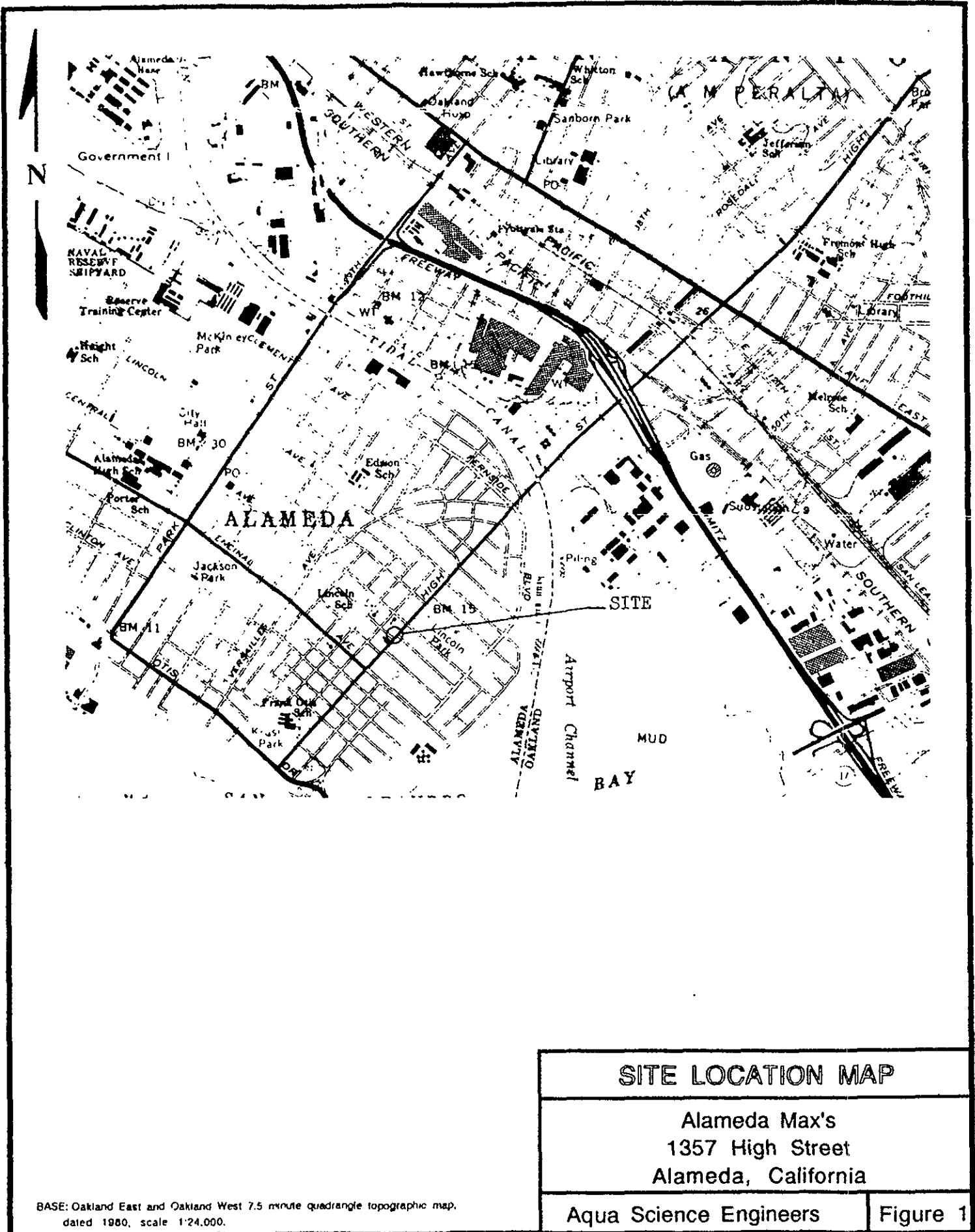


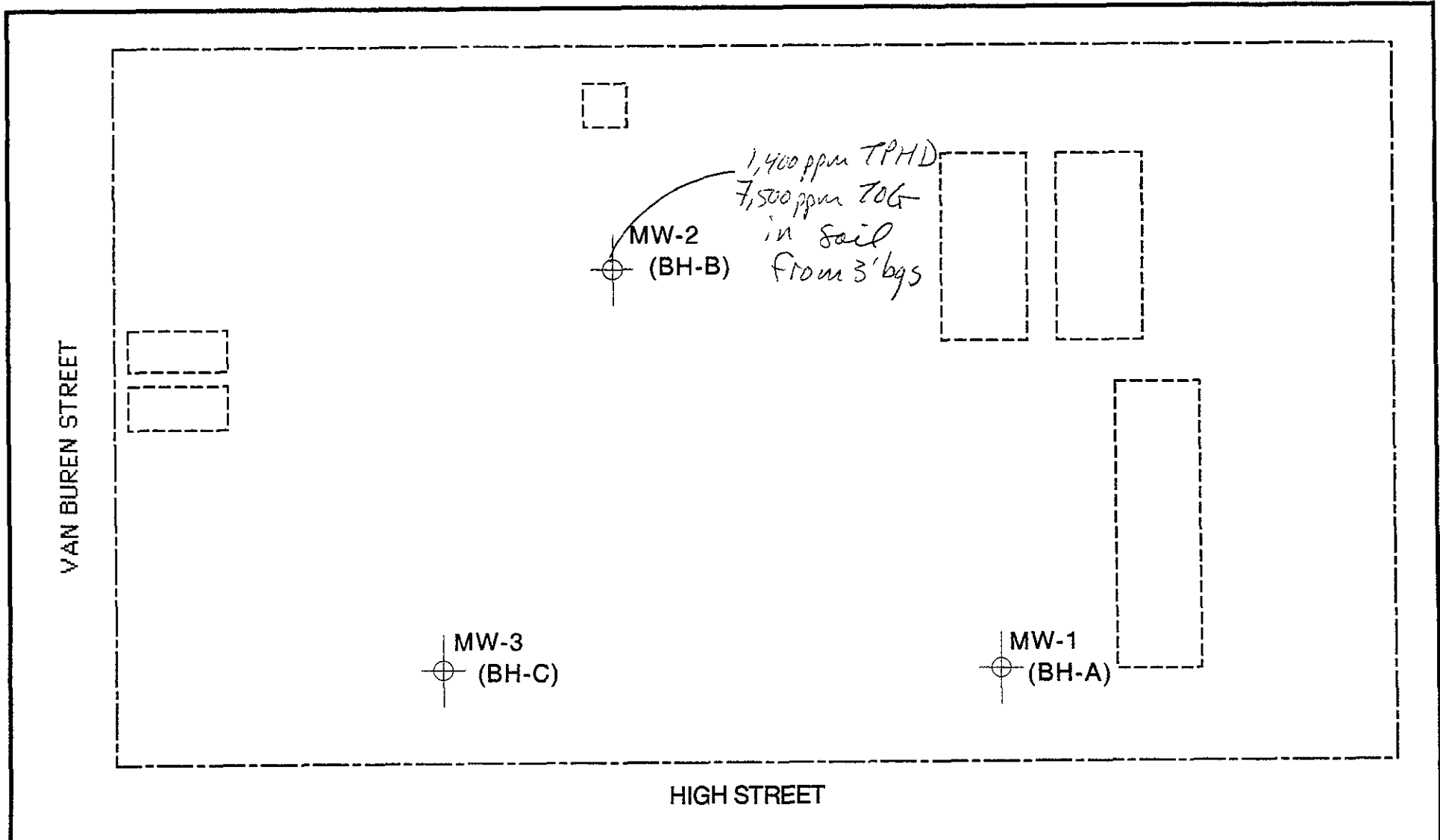
Robert E. Kitay, R.E.A.
Project Geologist




Attachments: Figures 1 through 3
Tables 1 through 5
Appendices A through F

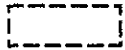
FIGURES

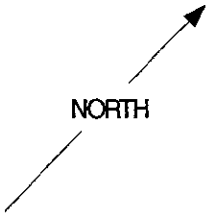




LEGEND

MW-3 (BH-C)  Groundwater Monitoring Well; Boring I.D. in Parentheses

 Former Underground Storage Tank

NORTH 

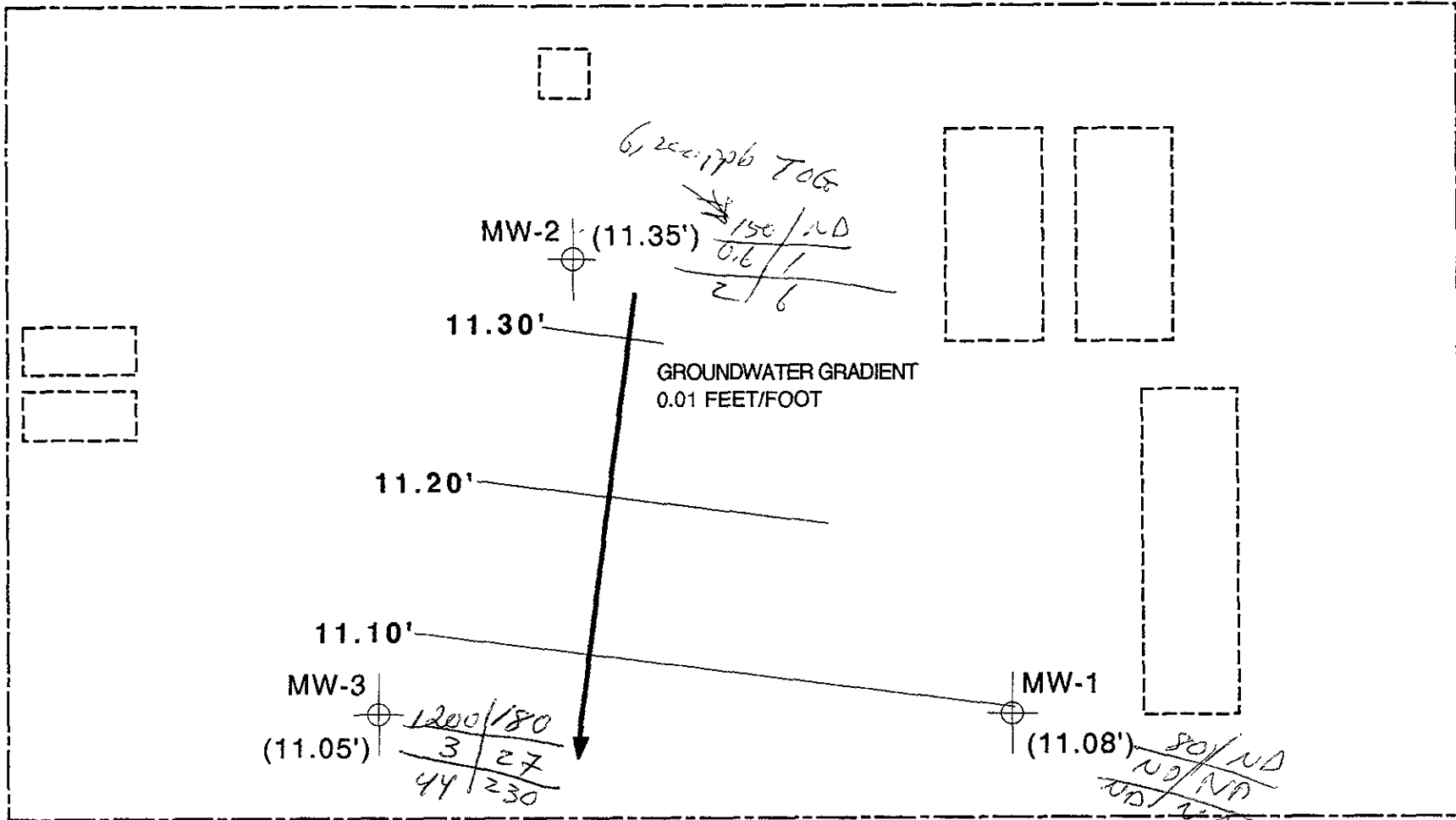
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**MONITORING WELL
LOCATION MAP**

Former Alameda Max's
1357 High Street
Alameda, California

AQUA SCIENCE ENGINEERS, INC. | Figure 2

VAN BUREN STREET

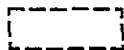


HIGH STREET

LEGEND

MW-3
(11.05')

Groundwater Monitoring Well with groundwater elevation relative to a project datum



Former Underground Storage Tank

TPH _g	TPH _d
B	T
E	X

(ppb)

NORTH

SCALE: 1" = 10'

POTENTIOMETRIC SURFACE

MAP - April 6, 1994

Former Alameda Max's
1357 High Street
Alameda, California

AQUA SCIENCE ENGINEERS, INC.

Figure 3

TABLES

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

Sample I.D.	TPH Gasoline	TPH Diesel	Petroleum		Toluene	Ethyl Benzene	Total Xylenes
			Oil & Grease	Benzene			
MW-1 BH-A 3.0'	<0.2	<1	<10	<0.005	<0.005	<0.005	<0.005
MW-2 BH-B 3.0'	<1	1,400	7,500	<0.005	<0.005	<0.005	<0.005
MW-3 BH-C 3.0'	7.4	<1	<10	<0.005	<0.005	0.032	0.32
EPA METHOD	5030/ 8015	3550/ 8015	3550/ 8015	8020	8020	8020	8020

TABLE TWO
Summary of Chemical Analysis of BH-B 3.0' SOIL Sample
CCR 17 Metals and Volatile Organic Compounds
March 31, 1994

<u>Compound</u>	<u>Concentration</u> <u>(parts per million)</u>
Arsenic	1
Barium	40
Beryllium	0.1
Cobalt	3.4
Chromium	32
Copper	6.1
Nickel	16
Lead	2
Vanadium	22
Zinc	12
Other CCR 17 Metals	N.D.
All Volatile Organics	N.D.

N.D. = Not detected at detection limits

TABLE THREE
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	4-06-94	15.00	3.92	11.08
MW-2	4-06-94	14.37	3.02	11.35
MW-3	4-06-94	14.56	3.51	11.05

TABLE FOUR
Summary of Chemical Analysis of GROUNDWATER Samples
All results are in parts per billion
April 4, 1994

Sample I.D.	TPH Gasoline	TPH Diesel	Oil & Grease	Benzene	Toluene	Ethyl Benzene	Total Xylenes
MW-1	80	<50	<500	<0.5	<0.5	0.5	2
MW-2	150	<50	6,200	0.6	1	2	6
MW-3	1,200	180	<500	3	27	44	230
EPA METHOD	5030/ 8015	3510/ 8015	5520 B&C	8020	8020	8020	8020

TABLE FIVE
Summary of Chemical Analysis of GROUNDWATER Samples
CCR 17 Metals and Volatile Organic Compounds
April 4, 1994

Sample I.D.	As (ppm)	Ba (ppm)	Co (ppm)	Ni (ppm)	Other Metals	TCE (ppb)	Other VOCs
MW-2	0.003	0.51	0.061	0.06	N.D.	0.7	<0.5
EPA METHOD	7060	6010	6010	6010	6010/ 7470/ 7740	8010	8010

ppm = parts per million
 ppb = parts per billion
 As = Arsenic
 Ba = Barium
 Co = Cobalt
 Ni = Nickel
 TCE = Trichloroethene
 VOCs = volatile organic compounds
 N.D. = Not detected at detection limits

APPENDIX A

Alameda County Health Care Services Agency
"Direction" Letter

ALAMEDA COUNTY
HEALTH CARE SERVICES
AGENCY

DAVID J. KEARS, Agency Director



RAFAI A. SHAHID, ASSI. AGENCY DIRECTOR

DEPARTMENT OF ENVIRONMENTAL HEALTH

May 12, 1993

Mr. James Phillipsen
3111 Marina Dr.
Alameda, CA 94501

Post-It™ brand fax transmittal memo 7671 # of pages 4

To	Dave Allen	From	Fahad Shin
Co.	Aqua Sciences	Co.	Alameda County
Dept.		Phone #	
Fax #	837-4853	Fax #	

STID 1703

Re: Investigations at 1357 High Street, Alameda, California

Dear Mr. Phillipsen,

This office has received and reviewed Aqua Science Engineers' (ASE) Underground Storage Tank (UST) Removal Report, dated May 10, 1993. Elevated levels of soil contamination was identified from the soil samples collected from the various tank pits. One soil sample collected from the waste oil tank pit identified 2,200 ppm Total Petroleum Hydrocarbons as diesel (TPHd) and 12,000 ppm Oil and Grease. Total Petroleum Hydrocarbons as gasoline (TPHg) was identified near the 6,000-gallon gasoline tank at 140 ppm, along with concentrations of benzene, toluene, ethylbenzene, and xylenes (BTEX). Additionally, elevated levels of TPHg, TPHd, BTEX, and Oil and Grease were identified in the stockpiled soil excavated from the 550-gallon gas tank pit and the waste oil tank pit.

You are required to re-excavate out the contaminated stockpiled soil that was placed back into the two above tank pits. A work plan addressing this work shall be submitted to this office within 30 days of the date of this letter.

It appears that ground water has been impacted by former releases at the site. During the tank removals, residual tank contents and "unidentified substances" were observed floating on the ground water in the tank pits. Additionally, a ground water sample collected from the large gasoline UST tank pit identified 11,000 ppb TPHg. Consequently, you are required to conduct a Preliminary Site Assessment (PSA) to determine the lateral and vertical extent and severity of ground water contamination at the site. This PSA must also address the soil contamination associated with the former 2,000-gallon UST, removed in August 15, 1989.

The information gathered by the PSA will be used to determine an appropriate course of action to remediate the site, if deemed necessary. The PSA must be conducted in accordance with the RWQCB's Staff Recommendations for the Initial Evaluation and Investigation of underground Tanks, and be consistent with

Mr. James Phillipsen
Re: 1357 High St.
May 12, 1993
Page 2 of 4

requirements set forth in Article 11, of Title 23, California Code of Regulations. The major elements of such an investigation are summarized in the attached Appendix A. The major elements of the guidelines include, but are not limited to, the following:

- o At least one ground water monitoring well must be installed within 10 feet of the observed soil contamination, oriented in the confirmed downgradient direction relative to ground water flow. In the absence of data identifying the confirmed downgradient direction, a minimum of three wells will be required to verify gradient direction. During the installation of these wells, soil samples are to be collected at five-foot-depth intervals and any significant changes in lithology.
- o subsequent to the installation of the monitoring wells, these wells must be surveyed to an established benchmark, with an accuracy of 0.01 foot. Ground water samples are to be collected and analyzed quarterly, and water level measurements are to be collected monthly for the first three months, and then quarterly thereafter. If the initial ground water elevation contours indicate that ground water flow directions vary greatly then you will be required to continue monthly water level measurements until the ground water gradient behavior is known. Both soil and groundwater samples must be analyzed for the appropriate fuel contaminants listed in Table 2 of the RWQCB's Staff Recommendations for the Initial Evaluation and Investigation of Underground Tanks.

This Department will oversee the assessment and remediation of your site. Our oversight will include the review of and comment on work proposals and technical guidance on appropriate investigative approaches and monitoring schedules. The issuance of well drilling permits, however, will be through the Alameda County Flood Control and Water Conservation District, Zone 7, in Pleasanton. The RWQCB may choose to take over as lead agency if it is determined, following the completion of the initial assessment, that there has been a substantial impact to ground water.

The PSA proposal is due within 60 days of the date of this letter. Once the proposal is approved, field work should commence within 60 days. A report must be submitted within 45 days after the completion of this phase of work at the site.

Mr. James Phillipson
Re: 1357 High St.
May 12, 1993
Page 3 of 4

Subsequent reports are to be submitted quarterly until this site qualifies for final RWQCB "sign-off". Such quarterly reports are due the first day of the second month of each subsequent quarter.

The referenced initial and quarterly reports must describe the status of the investigation and must include, among others, the following elements:

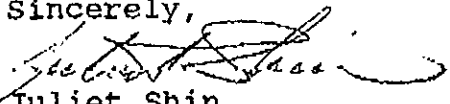
- o Details and results of all work performed during the designated period of time: records of field observations and data, boring and well construction logs, water level data, chain-of-custody forms, laboratory results for all samples collected and analyzed, tabulations of free product thicknesses and dissolved fractions, etc.
- o Status of ground water contamination characterization.
- o Interpretations of results: water level contour maps showing gradients, free and dissolved product, plume definition maps for each target component, geologic cross sections, etc.
- o Recommendations or plans for additional investigative work or remediation.

Please be advised that this is a formal request for a work plan pursuant to Section 2722 (c)(d) Title 23 California Code of Regulations. Any extensions of the stated deadlines, or modifications of the required tasks, must be confirmed in writing by either this agency or RWQCB.

Please be reminded to copy Richard Hiett, at the San Francisco Bay Region-Water Quality Control Board, on all correspondence and reports regarding this site.

If you have any questions or comments, please contact me at (510) 271-4530.

Sincerely,


Juliet Shin
Hazardous Materials Specialist

Mr. James Phillipsen
Re: 1357 High St.
May 12, 1993
Page 4 of 4

cc: Richard Hiett, RWQCB

David Allen
Aqua Science Engineers, Inc.
P.O. Box 535
San Ramon, CA 94583

Edgar Howell-File(JS)

APPENDIX B

Permits



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

FOR OFFICE USE

LOCATION OF PROJECT Former Alameda Max's Property
1357 High Street
Alameda, California

PERMIT NUMBER 94212
LOCATION NUMBER _____

CLIENT
Name Mr. James A. Phillipson
Address 311 Marina Drive Voice _____
City Alameda, CA Zip 94501

PERMIT CONDITIONS

Circled Permit Requirements Apply

APPLICANT
Name Aqua Science Engineers
Attn: Robert Kistay Fax (510) 837-4853
Address 2411 Old Crow Canyon Rd #4 Voice (510) 820-9391
City San Ramon, CA Zip 94583

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.

TYPE OF PROJECT
Well Construction _____ Geotechnical Investigation _____
Cathodic Protection _____ General _____
Water Supply _____ Contamination _____
Monitoring X Well Destruction _____

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.

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

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.

DRILLING METHOD:
Mud Rotary _____ Air Rotary _____ Auger X
Cable _____ Other _____

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

DRILLER'S LICENSE NO. C-57 582696

E. WELL DESTRUCTION. See attached.

WELL PROJECTS
Drill Hole Diameter 10 in. Maximum _____
Casing Diameter 4 in. Depth 20 ft.
Surface Seal Depth 3 ft. Number 3

GEOTECHNICAL PROJECTS
Number of Borings _____ Maximum _____
Hole Diameter _____ in. Depth _____ ft.

ESTIMATED STARTING DATE 3-31-94
ESTIMATED COMPLETION DATE 4-31-94

Approved Wyman Hong Date 6 Apr 94
Wyman Hong

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

APPLICANT'S SIGNATURE Robert C. Kistay Date 3/29/94

APPENDIX C

Boring Logs and Well Construction Details

SOIL BORING LOG AND MONITORING WELL CONSTRUCTION DETAILS

Monitoring Well MW-1

Project Name: Former Alameda Max's

Project Location: 1357 High Street, Alameda, CA

Page 1 of 1

Driller: Soils Exploration Services

Type of Rig: CME 55

Type and Size of Auger: 10-inch O.D. Hollow-stem.

Logged By: Robert E. Kitay

Date Drilled: March 31, 1994

Checked By: David M. Schultz, P.E.

WATER AND WELL DATA

Total Depth of Well Completed: 20.0'

Depth of Water First Encountered: ~ 4.0'

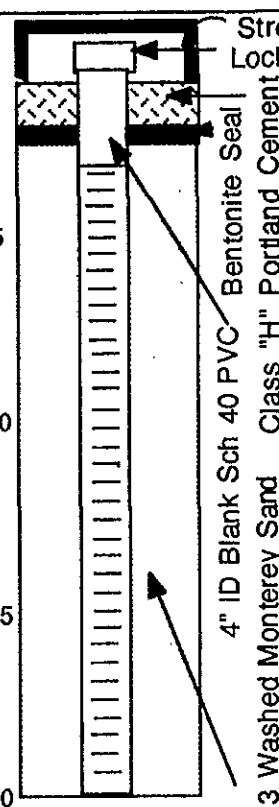
Well Screen Type and Diameter: 4" Diameter Schedule 40 PVC

Static Depth of Water in Well: 3.51'

Well Screen Slot Size: 0.020"

Total Depth of Boring: 20.0'

Type and Size of Soil Sampler: 2" I.D., Calif. Split-barrel

Depth in Feet	WELLBORING DETAIL	Description	SOIL/ROCK SAMPLE DATA				Depth in Feet	DESCRIPTION OF LITHOLOGY
			Interval	Blow Ct.	Time	Graphic Log		standard classification, texture, relative moisture, density, stiffness, odor-staining, USCS designation.
0		Street Box Locking Well Cap					0	Gravelly SAND (SW); dark brown; loose; damp; 85% medium sand; 10% rounded pebbles to 0.25"; 5% silt; very high estimated K; no odor
5		Bentonite Seal Portland Cement	X	5 2 2	14:00		5	moist at 3.5' ~4.5'; Silty SAND (SM); brown; loose; wet; 85% fine to medium sand; 10% silt; 5% subangular pebbles to 0.25" very high estimated K; no odor blue; wet; strong hydrocarbon odor at 5.2'
10		4" ID Blank Sch 40 PVC	X	2 2 2			10	
15		Class "H" Portland Cement	X	5 11 15			15	no odor at 15'
20		No. 3 Washed Monterey Sand	X	5 9 15			20	End of boring at 20.0'
25							25	
30							30	

SOIL BORING LOG AND MONITORING WELL CONSTRUCTION DETAILS

Monitoring Well MW-2

Project Name: Former Alameda Max's

Project Location: 1357 High Street, Alameda, CA

Page 1 of 1

Driller: Soils Exploration Services

Type of Rig: CME 55

Type and Size of Auger: 10-inch O.D. Hollow-stem.

Logged By: Robert E. Kitay

Date Drilled: March 31, 1994

Checked By: David M. Schultz, P.E.

WATER AND WELL DATA

Depth of Water First Encountered: ~ 5.0'

Total Depth of Well Completed: 16.0'

Well Screen Type and Diameter: 4" Diameter Schedule 40 PVC

Static Depth of Water in Well: 3.02'

Well Screen Slot Size: 0.020"

Total Depth of Boring: 16.5'

Type and Size of Soil Sampler: 2" I.D., Calif. Split-barrel

Depth in Feet	WELLBORING DETAIL	Description	SOIL/ROCK SAMPLE DATA				Depth in Feet	DESCRIPTION OF LITHOLOGY		
			Interval	Blow Ct.	Time	Graphic Log		standard classification, texture, relative moisture, density, stiffness, odor-staining, USCS designation.		
0		4" ID Blank Sch 40 PVC Bentonite Seal Class "H" Portland Cement No. 3 Washed Monterey Sand					0	SAND (SP); brown; loose; dry; 95% fine sand; 5% silt; high estimated K; no odor		
								0	damp; oil-like odor at 2'	
					3				2	
					2				5	blue; wet; strong hydrocarbon odor
					5		9:20		5	strong gasoline-like hydrocarbon odor at 7'
					4				7	
					4				10	brown at 10'
					4				10	
					2				15	
					10				15	
					12				15	
					8				16.5	End of boring at 16.5'
					17				20	
					19				20	
									25	
									30	

SOIL BORING LOG AND MONITORING WELL CONSTRUCTION DETAILS

Monitoring Well MW-3

Project Name: Former Alameda Max's

Project Location: 1357 High Street, Alameda, CA

Page 1 of 1

Driller: Solls Exploration Services

Type of Rig: CME 55

Type and Size of Auger: 10-inch O.D. Hollow-stem.

Logged By: Robert E. Kitay

Date Drilled: March 31, 1994

Checked By: David M. Schultz, P.E.

WATER AND WELL DATA

Total Depth of Well Completed: 20.0'

Depth of Water First Encountered: ~ 4.0'

Well Screen Type and Diameter: 4" Diameter Schedule 40 PVC

Static Depth of Water in Well: 3.51'

Well Screen Slot Size: 0.020"

Total Depth of Boring: 20.0'

Type and Size of Soil Sampler: 2" I.D., Calif. Split-barrel

Depth in Feet	WELLBORING DETAIL	Description	SOIL/ROCK SAMPLE DATA				Depth in Feet	DESCRIPTION OF LITHOLOGY
			Interval	Blow Ct.	Time	Graphic Log		standard classification, texture, relative moisture, density, stiffness, odor-staining, USCS designation.
0		Street Box Locking Well Cap					0	SAND (SP); brown; loose; damp; 90% fine sand; 5% subrounded pebbles to 0.25"; 5% silt; high estimated K; no odor moist at 2'
3		Bentonite Seal	X	3	11:24		3	
4		Class "H" Portland Cement	X	4			4	blue; wet; very strong hydrocarbon odor at 4'
5		4" ID Blank Sch 40 PVC	X	3			5	95% fine sand; 5% silt at 5'
3			X	3				
5			X	5				
10		No. 3 Washed Monterey Sand	X	5			10	yellow; no odor at 10'
10			X	10				
13			X	13				
15		No. 3 Washed Monterey Sand	X	5			15	no odor at 15'
10			X	10				
19			X	19				
20						20	End of boring at 20.0'	
25						25		
30						30		

APPENDIX D

Analytical Report and Chain of Custody Forms
For Soil Samples

American Environmental Network

Certificate of Analysis

DOHS Certification: 1172

AIHA Accreditation: 11134

PAGE 1

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

REPORT DATE: 04/15/94

DATE(S) SAMPLED: 03/31/94

DATE RECEIVED: 04/01/94

ATTN: ROBERT KITAY
CLIENT PROJ. ID: 2697
CLIENT PROJ. NAME: FORM.ALA.MAXS'

AEN WORK ORDER: 9404009


PROJECT SUMMARY:

On April 1, 1994, this laboratory received 3 soil sample(s).

Client requested samples be analyzed for inorganic and organic parameters. Sample identification, methodologies, results and dates analyzed are summarized on the following pages.

Please see quality control report for a summary of QC data pertaining to this project.

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


Larry Klein
General Manager

RECEIVED
APR 1 1994
AQUA SCIENCE ENG.

AQUA SCIENCE ENGINEERS, INC.

DATE SAMPLED: 03/31/94
 DATE RECEIVED: 04/01/94
 CLIENT PROJ. ID: 2697

REPORT DATE: 04/15/94

AEN JOB NO: 9404009

Client Sample Id	AEN Lab Id	Purgeable Hydrocarbons as Gasoline (mg/kg)	Extractable Hydrocarbons as Diesel (mg/kg)	Oil & Grease (mg/kg)	Hydrocarbons (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)
BH-A 3.0'	01A	ND	ND	ND	ND	ND	ND	ND	ND
BH-B 3.0'	02A	ND (1)*	1,400	14,000 ^{1/2}	7,500	ND	ND	ND	ND
BH-C 3.0'	03A	7.4	ND	ND	ND	ND	ND	0.032	0.32
Reporting Limit (Unless otherwise indicated in parentheses)		0.2	1	10	10	0.005	0.005	0.005	0.005
EPA Method:		5030 GCFID	3550 GCFID	5520E	5520F	8020	8020	8020	8020
Instrument:		H	C	IR	IR	H	H	H	H
Date Extracted:		NA	04/05/94	04/05/94	04/05/94	NA	NA	NA	NA
Date Analyzed:		04/06-07/94	04/07/94	04/05/94	04/05/94	04/06-07/94	04/06-07/94	04/06-07/94	04/06-07/94
NA = Not Applicable									
ND = Not Detected									

* Reporting limit elevated for gasoline due to matrix interference

AQUA SCIENCE ENGINEERING, INC

SAMPLE ID: BH-B 3.0'
 AEN LAB NO: 9404009-02
 AEN WORK ORDER: 9404009
 CLIENT PROJ. ID: 2697

DATE SAMPLED: 03/31/94
 DATE RECEIVED: 04/01/94
 REPORT DATE: 04/15/94

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
CCR 17 Metals					
Ag	Silver EPA 6010	ND	0.1	mg/kg	04/07/94
As	Arsenic EPA 7060	1 *	1	mg/kg	04/06/94
Ba	Barium EPA 6010	40 *	3	mg/kg	04/07/94
Be	Beryllium EPA 6010	0.1 *	0.1	mg/kg	04/07/94
Cd	Cadmium EPA 6010	ND	0.1	mg/kg	04/07/94
Co	Cobalt EPA 6010	3.4 *	0.3	mg/kg	04/07/94
Cr	Chromium EPA 6010	32 *	1	mg/kg	04/07/94
Cu	Copper EPA 6010	6.1 *	0.5	mg/kg	04/07/94
Hg	Mercury EPA 7471	ND	0.06	mg/kg	04/08/94
Mo	Molybdenum EPA 6010	ND	0.3	mg/kg	04/07/94
Ni	Nickel EPA 6010	16 *	1	mg/kg	04/07/94
Pb	Lead EPA 6010	2 *	1	mg/kg	04/07/94
Sb	Antimony EPA 6010	ND	1	mg/kg	04/07/94
Se	Selenium EPA 7740	ND	2	mg/kg	04/06/94
Tl	Thallium EPA 6010	ND	1	mg/kg	04/07/94
V	Vanadium EPA 6010	22 *	1	mg/kg	04/07/94
Zn	Zinc EPA 6010	12 *	1	mg/kg	04/07/94
EPA 8010 - Soil matrix					
Bromodichloromethane	EPA 8010 75-27-4	ND	0.005	mg/kg	04/07/94
Bromoform	75-25-2	ND	0.005	mg/kg	04/07/94
Bromomethane	74-83-9	ND	0.005	mg/kg	04/07/94
Carbon Tetrachloride	56-23-5	ND	0.005	mg/kg	04/07/94
Chlorobenzene	108-90-7	ND	0.005	mg/kg	04/07/94
Chloroethane	75-00-3	ND	0.005	mg/kg	04/07/94
2-Chloroethyl Vinyl Ether	110-75-8	ND	0.005	mg/kg	04/07/94
Chloroform	67-66-3	ND	0.005	mg/kg	04/07/94
Chloromethane	74-87-3	ND	0.005	mg/kg	04/07/94
Dibromochloromethane	124-48-1	ND	0.005	mg/kg	04/07/94
1,2-Dichlorobenzene	95-50-1	ND	0.005	mg/kg	04/07/94
1,3-Dichlorobenzene	541-73-1	ND	0.005	mg/kg	04/07/94
1,4-Dichlorobenzene	106-46-7	ND	0.005	mg/kg	04/07/94
Dichlorodifluoromethane	75-71-8	ND	0.005	mg/kg	04/07/94
1,1-Dichloroethane	75-34-3	ND	0.005	mg/kg	04/07/94
1,2-Dichloroethane	107-06-2	ND	0.005	mg/kg	04/07/94
1,1-Dichloroethene	75-35-4	ND	0.005	mg/kg	04/07/94
cis-1,2-Dichloroethene	156-59-2	ND	0.005	mg/kg	04/07/94
trans-1,2-Dichloroethene	156-60-5	ND	0.005	mg/kg	04/07/94
1,2-Dichloropropane	78-87-5	ND	0.005	mg/kg	04/07/94
cis-1,3-Dichloropropene	10061-01-5	ND	0.005	mg/kg	04/07/94
trans-1,3-Dichloropropene	10061-02-6	ND	0.005	mg/kg	04/07/94

AQUA SCIENCE ENGINEERING, INC

SAMPLE ID: BH-B 3.0'
AEN LAB NO: 9404009-02
AEN WORK ORDER: 9404009
CLIENT PROJ. ID: 2697

DATE SAMPLED: 03/31/94
DATE RECEIVED: 04/01/94
REPORT DATE: 04/15/94

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
Methylene Chloride	75-09-2	ND	0.005	mg/kg	04/11/94
1,1,2,2-Tetrachloroethane	79-34-5	ND	0.005	mg/kg	04/07/94
Tetrachloroethene	127-18-4	ND	0.005	mg/kg	04/11/94
1,1,1-Trichloroethane	71-55-6	ND	0.005	mg/kg	04/07/94
1,1,2-Trichloroethane	79-00-5	ND	0.005	mg/kg	04/07/94
Trichloroethene	79-01-6	ND	0.005	mg/kg	04/07/94
Trichlorofluoromethane	75-69-4	ND	0.005	mg/kg	04/07/94
1,1,2Trichlorotrifluoroethane	76-13-1	ND	0.005	mg/kg	04/07/94
Vinyl Chloride	75-01-4	ND	0.005	mg/kg	04/07/94

ND = Not detected at or above the reporting limit

* = Value above reporting limit

AEN (CALIFORNIA)
QUALITY CONTROL REPORT

AEN JOB NUMBER: 9404009

CLIENT PROJECT ID: 2697

Quality Control Summary

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

Definitions

The following abbreviations are found throughout the QC report:

- ND = Not Detected at or above the reporting limit
- RPD = Relative Percent Difference
- < = Less Than

QUALITY CONTROL DATA

DATE EXTRACTED: 04/05/94
 DATE ANALYZED: 04/07/94
 CLIENT PROJ. ID: 2697

AEN JOB NO: 9404009
 SAMPLE SPIKED: 9404009-01
 INSTRUMENT: C

MATRIX SPIKE RECOVERY SUMMARY
 TPH EXTRACTABLE SOIL
 METHOD: EPA 3550 GCFID

ANALYTE	Spike Added (mg/kg)	Average Percent Recovery	RPD
Diesel	41.8	73	2

CURRENT QC LIMITS

<u>Analyte</u>	<u>Percent Recovery</u>	<u>RPD</u>
Diesel	(44-105)	18

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

QUALITY CONTROL DATA

INSTRUMENT: G

AEN JOB NO: 9404009

CLIENT PROJ. ID: 2697

SURROGATE STANDARD RECOVERY SUMMARY
METHOD: EPA 8010
(SOIL MATRIX)

Date Analyzed	SAMPLE IDENTIFICATION		SURROGATE RECOVERY (PERCENT)	
	Client Id.	Lab Id.	Bromochloro-methane	1-Bromo-3-chloro-propane
04/07/94	BH-B 3.0'	02	93	102

CURRENT QC LIMITS

<u>ANALYTE</u>	<u>PERCENT RECOVERY</u>
Bromochloromethane	(71-127)
1-Bromo-3-chloropropane	(70-137)

QUALITY CONTROL DATA

DATE ANALYZED: 04/07/94
 SAMPLE SPIKED: 9404009-02
 CLIENT PROJ. ID: 2697

AEN JOB NO: 9404009
 INSTRUMENT: G

MATRIX SPIKE RECOVERY SUMMARY
 METHOD: EPA 8010
 (SOIL MATRIX)

ANALYTE	Spike Conc. (ug/kg)	Average Percent Recovery	RPD
1,1-Dichloroethene	500	71	2
Trichloroethene	500	77	1
Chlorobenzene	500	69	<1

CURRENT QC LIMITS

Analyte	Percent Recovery	RPD
1,1-Dichloroethene	(35-127)	13
Trichloroethene	(71-127)	8
Chlorobenzene	(68-117)	10

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

QUALITY CONTROL DATA

CLIENT PROJ. ID: 2697

AEN JOB NO: 9404009

INSTRUMENT: H

SURROGATE STANDARD RECOVERY SUMMARY
METHOD: EPA 8020, 5030 GCFID
(SOIL MATRIX)

Date Analyzed	SAMPLE IDENTIFICATION		SURROGATE RECOVERY (PERCENT)
	Client Id.	Lab Id.	Fluorobenzene
04/06/94	BH-A 3.0'	01	101
04/07/94	BH-B 3.0'	02	98
04/06/94	BH-C 3.0'	03	103

CURRENT QC LIMITS

<u>ANALYTE</u>	<u>PERCENT RECOVERY</u>
Fluorobenzene	(78-114)

QUALITY CONTROL DATA

DATE ANALYZED: 04/06/94

AEN JOB NO: 9404009

CLIENT PROJ. ID: 2697

SAMPLE SPIKED: LCS

INSTRUMENT: H

LABORATORY CONTROL SAMPLE
METHOD: EPA 8020, 5030 GCFID
(SOIL MATRIX)

ANALYTE	Spike Added (ug/kg)	Percent Recovery
Benzene	16.9	96
Toluene	64.9	99
Hydrocarbons as Gasoline	1000	95

CURRENT QC LIMITS

<u>Analyte</u>	<u>Percent Recovery</u>
Benzene	(65-122)
Toluene	(67-124)
Gasoline	(60-125)

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

QUALITY CONTROL DATA

MATRIX: SOIL

AEN JOB NO: 9404009

CLIENT PROJ. ID: 2697

DATE ANALYZED: 04/05/94

METHOD SPIKE RECOVERY SUMMARY

Compound	Inst./ Method	Spike Added (mg/kg)	Average Percent Recovery	RPD	QC Limits	
					% Rec. Limit	RPD Limit
Ag, Silver	ICP/6010	10	58	<1	38- 78	7
As, Arsenic	4000/7060	20	112	5	79-122	10
Ba, Barium	ICP/6010	200	100	<1	85-108	6
Cd, Cadmium	ICP/6010	10	93	1	79-102	7
Cr, Chromium	ICP/6010	50	99	<1	85-107	7
Cu, Copper	ICP/6010	50	98	<1	89-107	6
Hg, Mercury	Hg/7471	0.4	97	2	75-125	15
Ni, Nickel	ICP/6010	50	99	<1	85-107	6
Pb, Lead	ICP/6010	50	99	<1	84-111	7
Se, Selenium	4000/7740	40	103	3	73-126	14
Zn, Zinc	ICP/6010	50	97	1	82-107	8

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

*** END OF REPORT ***

APPENDIX E

Well Sampling Field Log



WELL SAMPLING FIELD LOG

Project Name and Address: Phillipsen
 Job #: 2607 Date of sampling: 4-4-94
 Well Name: MW-1 Sampled by: DA
 Total depth of well (feet): 18.14 Well diameter (inches): 4"
 Depth to water before sampling (feet): 3.92
 Thickness of floating product if any: 0
 Depth of well casing in water (feet): 14.22
 Number of gallons per well casing volume (gallons): 9.38
 Number of well casing volumes to be removed: 10
 Req'd volume of groundwater to be purged before sampling (gallons): 90
 Equipment used to purge the well: Pre-cleaned PVL Bailer + electric pump
 Time Evacuation Began: 9:10 Time Evacuation Finished: 10:25
 Approximate volume of groundwater purged: 90 gal.
 Did the well go dry?: NO After how many gallons: ---
 Time samples were collected: 13:20
 Depth to water at time of sampling: 3.98
 Percent recovery at time of sampling: 99%
 Samples collected with: New, disposable bailer
 Sample color: None Odor: None
 Description of sediment in sample: None

SAMPLES COLLECTED

Sample	# of containers	Volume & type container	Pres	Iced?	Analysis
<u>MW-1</u>	<u>3</u>	<u>40ml - glass</u>	<u>✓</u>	<u>✓</u>	<u>TPH-G, BTEX</u>
<u>MW-1</u>	<u>2</u>	<u>1-liter amber glass</u>	<u>✓</u>	<u>✓</u>	<u>TPH-D</u>
<u>MW-1</u>	<u>2</u>	<u>" "</u>	<u>✓</u>	<u>✓</u>	<u>Oil + Grease</u>



WELL SAMPLING FIELD LOG

Project Name and Address: PHILLIPSEN
 Job #: 2607 Date of sampling: 4.4.94
 Well Name: MW-2 Sampled by: DA
 Total depth of well (feet): 13.74 Well diameter (inches): 4
 Depth to water before sampling (feet): 3.02'
 Thickness of floating product if any: Ø
 Depth of well casing in water (feet): 10.72
 Number of gallons per well casing volume (gallons): 7
 Number of well casing volumes to be removed: 10
 Req'd volume of groundwater to be purged before sampling (gallons): 70
 Equipment used to purge the well: Pre-cleaned PVC bailer + electric pump
 Time Evacuation Began: 10:40 Time Evacuation Finished: 11:35
 Approximate volume of groundwater purged: 70 gal.
 Did the well go dry?: No After how many gallons: ---
 Time samples were collected: 14:10
 Depth to water at time of sampling: 3.16
 Percent recovery at time of sampling: 99%
 Samples collected with: New disposable bailer
 Sample color: clear Odor: moderate petroleum / oil
 Description of sediment in sample: None

SAMPLES COLLECTED

Sample	# of containers	Volume & type container	Pres	Iced?	Analysis
<u>MW-2</u>	<u>3</u>	<u>40-ml glass</u>	<u>✓</u>	<u>✓</u>	<u>TPH-6/BTEX</u>
<u>MW-2</u>	<u>3</u>	<u>40-ml glass</u>	<u>✓</u>	<u>✓</u>	<u>8010, 8020</u>
<u>MW-2</u>	<u>2</u>	<u>1,000-ml plastic</u>	<u>✓</u>	<u>✓</u>	<u>CAM 17 metals</u>
<u>MW-2</u>	<u>2</u>	<u>1-liter amber glass</u>	<u>✓</u>	<u>✓</u>	<u>TPH-D</u>
<u>MW-2</u>	<u>2</u>	<u>" "</u>	<u>✓</u>	<u>✓</u>	<u>Oil + Grease</u>



WELL SAMPLING FIELD LOG

Project Name and Address: PHILLIPSEN
 Job #: 2607 Date of sampling: 4-4-94
 Well Name: MW-3 Sampled by: DA
 Total depth of well (feet): 16.84 Well diameter (inches): 4"
 Depth to water before sampling (feet): 3.51
 Thickness of floating product if any: 0
 Depth of well casing in water (feet): 13.33
 Number of gallons per well casing volume (gallons): 8.8
 Number of well casing volumes to be removed: 10
 Req'd volume of groundwater to be purged before sampling (gallons): 88
 Equipment used to purge the well: Pie-clemed PVC Bailer + electric pump
 Time Evacuation Began: 11:40 Time Evacuation Finished: 12:55
 Approximate volume of groundwater purged: 90 gal.
 Did the well go dry?: No After how many gallons: -
 Time samples were collected: 14:50
 Depth to water at time of sampling: 3.68
 Percent recovery at time of sampling: 99%
 Samples collected with: New disposable bailer
 Sample color: Clear Odor: None
 Description of sediment in sample: None

SAMPLES COLLECTED

Sample	# of containers	Volume & type container	Pres	Iced?	Analysis
<u>MW-3</u>	<u>5</u>	<u>40-ml glass</u>	<u>/</u>	<u>✓</u>	<u>TPH-6, BTEX</u>
<u>MW-3</u>	<u>2</u>	<u>1-liter amber glass</u>	<u>✓</u>	<u>✓</u>	<u>TPH-D</u>
<u>MW-3</u>	<u>2</u>	<u>" "</u>	<u>✓</u>	<u>✓</u>	<u>Oil + Grease</u>

APPENDIX F

Analytical Report and Chain of Custody Forms
For Groundwater Samples

American Environmental Network

Certificate of Analysis

DOHS Certification: 1172

AIHA Accreditation: 11134

PAGE 1

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

REPORT DATE: 04/27/94

DATE(S) SAMPLED: 04/04/94

DATE RECEIVED: 04/05/94

ATTN: ROBERT KITAY
CLIENT PROJ. ID: 2607
CLIENT PROJ. NAME: PHILLIPSEN

AEN WORK ORDER: 9404036

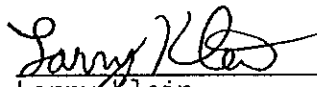
PROJECT SUMMARY:

On April 5, 1994, this laboratory received 3 water sample(s).

Client requested samples be analyzed for inorganic and organic parameters. Sample identification, methodologies, results and dates analyzed are summarized on the following pages.

Please see quality control report for a summary of QC data pertaining to this project.

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


Larry Klein
General Manager

AQUA SCIENCE ENGINEERS, INC.

DATE SAMPLED: 04/04/94
 DATE RECEIVED: 04/05/94
 CLIENT PROJ. ID: 2607

REPORT DATE: 04/27/94
 AEN JOB NO: 9404036

Client Sample Id	AEN Lab Id	Purgeable Hydrocarbons as Gasoline (ug/L)	Extractable Hydrocarbons as Diesel (ug/L)	Oil & Grease (ug/L)	Benzene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	Total Xylenes (ug/L)
MW-1	01A	80	ND	ND	ND	ND	0.5	2
MW-2	02A	150	ND	6,200	0.6	1	2	6
MW-3	03A	1,200	180	ND	3	27	44	230
Reporting Limit		50	50	500	0.5	0.5	0.5	2
EPA Method:		5030 GCFID	3510 GCFID	5520C	8020	8020	8020	8020
Instrument:		H	C	IR	H	H	H	H
Date Extracted:		NA	04/05/94	04/06/94	NA	NA	NA	NA
Date Analyzed:		04/08-11/94	04/07/94	04/06/94	04/08-11/94	04/08-11/94	04/08-11/94	04/08-11/94
NA = Not Applicable								
ND = Not Detected								

AQUA SCIENCE ENGINEERING, INC

SAMPLE ID: MW-2
 AEN LAB NO: 9404036-02
 AEN WORK ORDER: 9404036
 CLIENT PROJ. ID: 2607

DATE SAMPLED: 04/04/94
 DATE RECEIVED: 04/05/94
 REPORT DATE: 04/27/94

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
#Sample Filtration	0.45 um	-		Filtr Date	04/05/94
CCR 17 Metals					
Ag	Silver EPA 6010	ND	0.005	mg/L	04/12/94
As	Arsenic EPA 7060	0.003 *	0.002	mg/L	04/11/94
Ba	Barium EPA 6010	0.51 *	0.05	mg/L	04/12/94
Be	Beryllium EPA 6010	ND	0.002	mg/L	04/12/94
Cd	Cadmium EPA 6010	ND	0.005	mg/L	04/12/94
Co	Cobalt EPA 6010	0.061 *	0.005	mg/L	04/12/94
Cr	Chromium EPA 6010	ND	0.01	mg/L	04/12/94
Cu	Copper EPA 6010	ND	0.01	mg/L	04/12/94
Hg	Mercury EPA 7470	ND	0.0002	mg/L	04/11/94
Mo	Molybdenum EPA 6010	ND	0.01	mg/L	04/12/94
Ni	Nickel EPA 6010	0.06 *	0.01	mg/L	04/12/94
Pb	Lead EPA 6010	ND	0.04	mg/L	04/12/94
Sb	Antimony EPA 6010	ND	0.02	mg/L	04/12/94
Se	Selenium EPA 7740	ND	0.004	mg/L	04/11/94
Tl	Thallium EPA 6010	ND	0.1	mg/L	04/12/94
V	Vanadium EPA 6010	ND	0.005	mg/L	04/12/94
Zn	Zinc EPA 6010	ND	0.01	mg/L	04/12/94
EPA 8010 - Water matrix					
Bromodichloromethane	EPA 8010 75-27-4	ND	0.5	ug/L	04/12/94
Bromoform	75-25-2	ND	0.5	ug/L	04/12/94
Bromomethane	74-83-9	ND	0.5	ug/L	04/12/94
Carbon Tetrachloride	56-23-5	ND	0.5	ug/L	04/12/94
Chlorobenzene	108-90-7	ND	0.5	ug/L	04/12/94
Chloroethane	75-00-3	ND	0.5	ug/L	04/12/94
2-Chloroethyl Vinyl Ether	110-75-8	ND	0.5	ug/L	04/12/94
Chloroform	67-66-3	ND	0.5	ug/L	04/12/94
Chloromethane	74-87-3	ND	0.5	ug/L	04/12/94
Dibromochloromethane	124-48-1	ND	0.5	ug/L	04/12/94
1,2-Dichlorobenzene	95-50-1	ND	0.5	ug/L	04/12/94
1,3-Dichlorobenzene	541-73-1	ND	0.5	ug/L	04/12/94
1,4-Dichlorobenzene	106-46-7	ND	0.5	ug/L	04/12/94
Dichlorodifluoromethane	75-71-8	ND	0.5	ug/L	04/12/94
1,1-Dichloroethane	75-34-3	ND	0.5	ug/L	04/12/94
1,2-Dichloroethane	107-06-2	ND	0.5	ug/L	04/12/94
1,1-Dichloroethene	75-35-4	ND	0.5	ug/L	04/12/94
cis-1,2-Dichloroethene	156-59-2	ND	0.5	ug/L	04/12/94
trans-1,2-Dichloroethene	156-60-5	ND	0.5	ug/L	04/12/94
1,2-Dichloropropane	78-87-5	ND	0.5	ug/L	04/12/94

AQUA SCIENCE ENGINEERING, INC

SAMPLE ID: MW-2
AEN LAB NO: 9404036-02
AEN WORK ORDER: 9404036
CLIENT PROJ. ID: 2607

DATE SAMPLED: 04/04/94
DATE RECEIVED: 04/05/94
REPORT DATE: 04/27/94

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
cis-1,3-Dichloropropene	10061-01-5	ND	0.5	ug/L	04/12/94
trans-1,3-Dichloropropene	10061-02-6	ND	0.5	ug/L	04/12/94
Methylene Chloride	75-09-2	ND	0.5	ug/L	04/12/94
1,1,2,2-Tetrachloroethane	79-34-5	ND	0.5	ug/L	04/12/94
Tetrachloroethene	127-18-4	ND	0.5	ug/L	04/12/94
1,1,1-Trichloroethane	71-55-6	ND	0.5	ug/L	04/12/94
1,1,2-Trichloroethane	79-00-5	ND	0.5	ug/L	04/12/94
Trichloroethene	79-01-6	0.7 *	0.5	ug/L	04/12/94
Trichlorofluoromethane	75-69-4	ND	0.5	ug/L	04/12/94
1,1,2Trichlorotrifluoroethane	76-13-1	ND	0.5	ug/L	04/12/94
Vinyl Chloride	75-01-4	ND	0.5	ug/L	04/12/94

ND = Not detected at or above the reporting limit

* = Value above reporting limit

AEN (CALIFORNIA)
QUALITY CONTROL REPORT

AEN JOB NUMBER: 9404036

CLIENT PROJECT ID: 2607

Quality Control Summary

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

Definitions

The following abbreviations are found throughout the QC report:

ND = Not Detected at or above the reporting limit
RPD = Relative Percent Difference
< = Less Than

QUALITY CONTROL DATA

DATE EXTRACTED: 04/04/94
 DATE ANALYZED: 04/05/94
 CLIENT PROJ. ID: 2607

AEN JOB NO: 9404036
 SAMPLE SPIKED: DI WATER
 INSTRUMENT: IR

IR DETERMINATION FOR OIL & GREASE/HYDROCARBONS
 METHOD SPIKE RECOVERY SUMMARY
 (WATER MATRIX)

ANALYTE	Spike Added (mg/L)	Average Percent Recovery	RPD
Oil	6.06	104	2

CURRENT QC LIMITS

Analyte	Percent Recovery	RPD
Oil	(83-107)	5

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

QUALITY CONTROL DATA

DATE EXTRACTED: 04/03/94
DATE ANALYZED: 04/03/94
CLIENT PROJ. ID: 2607

AEN JOB NO: 9404036
SAMPLE SPIKED: DI WATER
INSTRUMENT: C

METHOD SPIKE RECOVERY SUMMARY
TPH EXTRACTABLE WATER
METHOD: EPA 3510 GCFID

ANALYTE	Spike Added (mg/L)	Average Percent Recovery	RPD
Diesel	2.09	75	6

CURRENT QC LIMITS

<u>Analyte</u>	<u>Percent Recovery</u>	<u>RPD</u>
Diesel	(63-109)	10

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

QUALITY CONTROL DATA

INSTRUMENT: G

AEN JOB NO: 9404036

CLIENT PROJ. ID: 2607

SURROGATE STANDARD RECOVERY SUMMARY
 METHOD: EPA 8010
 (WATER MATRIX)

Date Analyzed	SAMPLE IDENTIFICATION		SURROGATE RECOVERY (PERCENT)	
	Sample Id.	Lab Id.	Bromochloro-methane	1-Bromo-3-chloro-propane
04/12/94	MW-2	02	99	85

CURRENT QC LIMITS

<u>ANALYTE</u>	<u>PERCENT RECOVERY</u>
Bromochloromethane	(78-153)
1-Bromo-3-chloropropane	(74-143)

QUALITY CONTROL DATA

DATE ANALYZED: 04/12/94
 SAMPLE SPIKED: LCS
 CLIENT PROJ. ID: 2607

AEN JOB NO: 9404036
 INSTRUMENT: G

LABORATORY CONTROL SAMPLE
 METHOD: EPA 8010
 (WATER MATRIX)

ANALYTE	Spike Added (ug/L)	Percent Recovery
1,1-Dichloroethene	50.0	79
Trichloroethene	50.0	92
Benzene	50.0	97
Toluene	50.0	99
Chlorobenzene	50.0	91

CURRENT QC LIMITS

Analyte	Percent Recovery
1,1-Dichloroethene	(37-156)
Trichloroethene	(54-122)
Benzene	(65-122)
Toluene	(67-124)
Chlorobenzene	(54-141)

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

QUALITY CONTROL DATA

CLIENT PROJ. ID: 2607

AEN JOB NO: 9404036

INSTRUMENT: F

SURROGATE STANDARD RECOVERY SUMMARY
METHOD: EPA 8020, 5030 GCFID
(WATER MATRIX)

Date Analyzed	SAMPLE IDENTIFICATION		SURROGATE RECOVERY (PERCENT)
	Client Id.	Lab Id.	Fluorobenzene
04/08/94	MW-1	.01	101
04/08/94	MW-2	02	101
04/11/94	MW-3	03	101

CURRENT QC LIMITS

<u>ANALYTE</u>	<u>PERCENT RECOVERY</u>
Fluorobenzene	(70-115)

QUALITY CONTROL DATA

DATE ANALYZED: 04/08/94
SAMPLE SPIKED: LCS
CLIENT PROJ. ID: 2607

AEN JOB NO: 9404036
INSTRUMENT: F

LABORATORY CONTROL SAMPLE
METHOD: EPA 8020, 5030 GCFID
(WATER MATRIX)

ANALYTE	Spike Added (ug/L)	Percent Recovery
Benzene	10.0	107
Toluene	34.7	114
Hydrocarbons as Gasoline	500	107

CURRENT QC LIMITS

<u>Analyte</u>	<u>Percent Recovery</u>
Benzene	(65-122)
Toluene	(67-124)
Gasoline	(60-125)

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

QUALITY CONTROL DATA

MATRIX: WATER

AEN JOB NO: 9404036

CLIENT PROJ. ID: 2607

DATE DIGESTED: 04/06/94

METHOD SPIKE RECOVERY SUMMARY

Compound	Inst./ Method	Spike Added (mg/L)	Average Percent Recovery	RPD	QC Limits	
					% Rec. Limit	RPD Limit
Ag, Silver	ICP/6010	0.25	87	1	64-122	8
As, Arsenic	4000/7060	0.04	101	11	90-115	12
Ba, Barium	ICP/6010	2.0	100	1	85-116	5
Cd, Cadmium	ICP/6010	0.25	97	2	78-119	10
Cr, Chromium	ICP/6010	0.2	112	4	87-117	8
Cu, Copper	ICP/6010	0.25	95	2	85-113	6
Hg, Mercury	Hg/7470	2.0 ug/L	104	2	80-120	15
Ni, Nickel	ICP/6010	0.5	104	<1	88-116	6
Pb, Lead	ICP/6010	0.5	104	2	80-120	15
Se, Selenium	4000/7740	0.08	102	1	76-131	14
Zn, Zinc	ICP/6010	0.5	95	<1	87-117	7

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

*** END OF REPORT ***

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

Chain of Custody

R-1, S-E
 R-3, S-2

9404036

DATE 4.5.94 PAGE 1 OF 1

SAMPLERS (SIGNATURE) D. Allen (PHONE NO.) 820-9391 PROJECT NAME PHILLIPSEN NO. 2607
 ADDRESS 1357 HIGH ST. ALAMEDA

ANALYSIS REQUEST

SPECIAL INSTRUCTIONS:
 MW-2 METALS SAMPLES NEED
 TO BE FILTERED + PRESERVED
 BY AEN.

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 601/8020) ^{RB}	PURGABLE HMOCARBONS (EPA 601/8010)	VOLATILE ORGANICS (EPA 624/8240)	BASE/NEUTRALS, ACIDS (EPA 625/8270)	OIL & GREASE 5520C	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	ICHTABILITY
1-G MW-1	4/4/94	13:20	H ₂ O	7		X	X					X							
1-L MW-2	4/4/94	14:10	H ₂ O	12		X	X	✓	✓	X		X		X					
1-G MW-3	4/4/94	14:50	H ₂ O	7		X	X					X							

RELINQUISHED BY: <u>D. Allen</u> (signature)	RECEIVED BY: <u>Michael E. McMiller</u> (signature)	RELINQUISHED BY: <u>Michael E. McMiller</u> (signature)	RECEIVED BY LABORATORY: <u>Lori L. Pruitt</u> (signature)	COMMENTS: Special reporting format for FAX results & report 4/5/94 in Robert King, 5520C for O&G, RB 4-15-94 & 8010/8020 for MW2
9/30am (time)	4/5/94 (time)	10:15 (time)	10:15 (time)	
D. ALLEN (printed name)	Michael McMiller (printed name)	Michael McMiller (printed name)	LORI L. PRUITT (printed name)	
4/5/94 (date)	4/5/94 (date)	4/5/94 (date)	4/5/94 (date)	
Company- ASE, Inc.	Company-	Company-	Company- AEN	

Rec'd to Robert King RB