City of Alameda California

January 14, 1993

Juliet Shin
Hazardous Materials Specialist
Alameda County Health Care Services
Department of Environmental Health
80 Swan Way, Room 200
Oakland, CA 94621

RE: Required Ground Water Investigation of Tank Removal Site at 2401 Encinal Ave Alameda, CA 94501 (STID 3948)

Dear Ms. Shin,

Attached you will find the information we have available on our existing test well that was installed adjacent to the underground fuel tanks that were removed in 1990. We have not had water samples taken or tested since the tanks were removed.

As I explained during our November 1992 conversation, we left the area unpaved for over six months in case additional soil samples and/or monitoring wells were needed. Since that time the area has been rebuilt. The tank removal site has been capped with a forty by thirty-five foot, ten inch reinforced concrete pad, and the adjacent area has been rebuilt with eight to thirteen inches of asphalt. To provide either a **new** boring for samples and/or monitoring well would be extremely expensive. To pierce the slab or asphalt would also cause an integrity break-down in a special vapor/soils matting that was installed between the soil and the aggregate base during construction.

It is our understanding that our first step is to have your approval on our existing well. Once we have your approval the samples from the well can be gathered easily.

As per your request a copy of this letter and attachments are being sent to Mr. Richard Hiett at the San Francisco Bay Region-Water Quality Control Board.

If I can be of further information on this matter, please feel free to contact me.

Robert L Pogue

ROBERT L POGUE, ~~Deputy~~ Fire Chief

Alameda Fire Department

Headquarters
1300 Park Street · 94501
510.748 4601

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

RAFAT A. SHAHID, ASST. AGENCY DIRECTOR
DEPARTMENT OF ENVIRONMENTAL HEALTH
State Water Resources Control Board
Division of Clean Water Programs
UST Local Oversight Program
80 Swan Way, Rm 200
Oakland, CA 94621
(510) 271-4530

November 2, 1992

Robert Pogue
City of Alameda
1300 Park Street
Alameda, CA 94501

STID 3948

RE: Required ground water investigations for the site located at 2401 Encinal Avenue, Alameda, California

Dear Mr. Pogue,

On June 4, 1990, one 180-gallon diesel underground storage tank (UST) and one 500-gallon gasoline UST were removed from the above site. One soil sample was collected from underneath each of the USTs. Analysis of these samples identified low concentrations of Total Petroleum Hydrocarbons as gasoline (TPHg) from underneath the tank pit and from the sidewalls of the tank pit. Although low concentrations of contaminants were identified in the soil samples, this office is concerned that ground water may have been impacted due to the shallow ground water observed at the site.

Per our conversation on November 2, 1992, there is a monitoring well located within two feet of the former tank pit. Please submit any information you have on the construction of this well. If this office determines that the construction of this well is adequate for monitoring the shallow aquifer beneath the site, you will be required to collect ground water samples from this well and have them analyzed. If this well is determined to be inadequate for monitoring purposes, you will be required to install a boring or well to adequately collect ground water samples. Ground water samples shall be analyzed for TPHg, BTEX, and TPH as diesel.

You are required to submit a work plan to this office **within 60 days** of the receipt of this letter addressing ground water investigations at the site. All reports and proposals must be submitted under seal of a California-Registered Geologist, -Certified Engineering Geologist, or -Registered Civil Engineer. This Department will oversee the assessment 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.

Please be advised that this is a formal request for technical reports pursuant to **California Water Code Section 13267 (b)**. 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, San Francisco Bay Region-Water Quality Control Board, on all correspondence and reports.

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

Sincerely,

Juliet Shin
Hazardous Materials Specialist

cc: Richard Hiett, RWQCB

Edgar Howell-File(JS)

aqua science engineers inc.

July 2, 1986

PROJECT REPORT

FUEL TANK MONITORING WELL INSTALLATION

For The

City of Alameda
Room 204
Santa Clara and Oak Streets
Alameda, California 94501

Submitted
By

Aqua Science Engineers
P.O. Box 535
San Ramon, California 94583

BACKGROUND

The passage of Assembly Bill 1362 has required that every owner/operator of underground tanks used for the storage of hazardous substances including fuels provide a means of monitoring their tanks against leaks or spills. The deadline for compliance was January 1, 1985. However, extensions have been granted. The bill stipulated that administration was to be conducted at the local level. Subsequently, The Alameda County Flood Control and Water Conservation District, Zone 7 with jurisdiction over Alameda City groundwater use jointly adopted hazardous materials ordinances and accepted the Groundwater Monitoring Guidelines for Hazardous Materials Storage (GMG) drafted by the Alameda County Water District (May 1984).

The City of Alameda maintains eleven underground tanks at seven different sites around the city. Nine tanks were selected for monitoring and two tanks selected for removal. The following is a summary of tank size, site location, and installations for the nine tanks selected for monitoring.

Location	Capacity	Contents	# of wells Installed
Alameda Police Department 1555 Oak Street	1,000 Gallons	Diesel	1
Alameda City Hall 2263 Santa Clara	1,000 Gallons 280 Gallons	Gasoline Gasoline	2
Firehouse #1 1300 Park Street	280 Gallons 280 Gallons	Gasoline Diesel	1
Firehouse #2 635 Pacific Street	280 Gallons	Diesel	1
Firehouse #3 1703 Grand Street	280 Gallons 280 Gallons	Gasoline Diesel	2
Alameda Mun. Golf Course	500 Gallons	Gasoline	1

In September 1985, Aqua Science Engineers was asked to submit a proposal on behalf of the City of Alameda which would fulfill city monitoring requirements for underground fuel tanks. Our proposal to install four monitoring wells was submitted on September 19. Four additional wells have since been approved, bringing the total number of installed wells

to eight. The proposal and subsequent additions have been approved by the Alameda County Flood Control and Water Conservation District, Zone 7 and well drilling permits issued. The monitoring wells were installed during the period begining June 2 and ending June 4, 1986.

We certify that all licensing, credential and permit requirements under Chapter 3 of the GMG covering owner responsibility with regard to responsibility of performance (3.1), compliance with existing statutes (3.2), and well construction permits (3.3) have been satisfied. The hazardous materials classification used with reference to the Alameda County Water District GMG was that for commercial motor fuel (4.1).

The elements of the following report include monitoring well construction, figures depicting the site, tank configuration and monitoring well placement, well logs, soil and water sampling, analysis for hydrocarbons and recommendations for continued monitoring.

MONITORING WELL CONSTRUCTION

A 2-inch diameter PVC monitoring well was installed adjacent to each of the underground fuel tanks or tank configurations during the period 6/2 thru 6/4/86 (Figures 1 thru 6). The wells are located in the assumed direction of groundwater flow and satisfy the criteria within section 5.1.3. (GMG) concerning adequacy of monitoring coverage with respect to tank dimensions and spacing.

A Geo Space mobile drill with an 8-inch hollow stem auger was used and 2-inch PVC casing was installed in the borings. Screw caps were attached to the 2-inch PVC and 12-inch steel street boxes were grouted in to prevent surface contamination from entering the well. Eye bolt anchors were set in the street boxes to allow the placement of locks which will preclude tampering with the monitoring wells. A description of the well construction and findings is provided in the boring logs (Appendix).

The well screen used was 2 inch I.D. PVC tubing with 0.010 inch slots. The annular space outside each well screen was packed with washed No. 3 aquarium sand. The top of each well was sanitary sealed with neat portland cement to prevent surface contamination from entering the borings.

The well logs (see appendix) indicate layers of sand, and sandy clays of variable thickness were encountered at each of the borings with the exception of the golf course where the soils were mainly clays. Drilling was terminated after having penetrated at least five feet of saturated aquifer, the full depth of the primary aquifer to aquiclude, or at least five feet of aquiclude in the region of the water table. The engineer on site was careful to conduct the boring to a depth at which conclusive hydrogeolgic results were obtained without penetrating the bay muds of the region which protect underlying aquifers.

Saturated conditions were first encountered at depths between four and seven feet. Since, in all cases, groundwater was encountered at a depth of less than 20 feet, no vadose monitoring well was required within the tank backfill. Details of well construction in each case, including

final depth to water, are shown on the accompanying well logs.

Motor fuels are essentially non-miscible with water and are lighter than water; therefore, when present, they will be found floating on top. The important interval to monitor is at the motor fuel-water interface (GMG 5.2). For this reason well screen was installed in the appropriate region about this interface to allow for fluctuations in groundwater level. The boring from the bottom of the well screen to the bottom of boring was backfilled with bentonite to protect deeper aquifers against possible introduction of contaminants via the monitoring wells.

SOIL AND WATER SAMPLING

Alameda County Groundwater Monitoring Guidelines state that soils shall be sampled, starting at the bottom of the tank, every 5 feet to the water table (6.1). A modified California split spoon sampler, holding 4, 2-in x 4-in brass tubes was used to take undisturbed samples. The samples thus obtained were used for soil classification but, in all cases, were excluded from chemical analysis since groundwater levels were above the level of the tank bottoms. Water samples were taken from the newly installed and developed monitoring wells, sealed, refrigerated, and transported to the lab for analysis.

Chemical analysis of the samples was performed by Wesco Laboratories, Novato, CA. using Gas Chromatography/Flame Ionization Detection. The hydrocarbon concentration in the samples obtained adjacent to the Fire House #3 diesel tank and the Police Station diesel tank indicate low to moderate levels of contamination at these sites. Hydrocarbon concentrations of 5.4 ppm and 1.6 ppm respectively were recorded (see appendix). The RWQCB is to be notified directly concerning these findings. At the Golf Course, odors of old, decomposing fuel were detected but high levels of fuels were not detected in the chemical analysis.

At all of the other sites sampled and tested, the hydrocarbon concentration recorded in the test results indicate levels below which either the Department of Health Services or the Regional Water Quality Control Board would require further action. Additionally, these sites have no prior history of contamination. Drilling spoils were frequently checked for fuel odors throughout the drilling. None were found.

SCHEDULE FOR CONTINUED MONITORING

To assure early detection in the event of a fuel leak or spill, monthly monitoring is required (GMG 6.3.2). Groundwater monitoring wells for motor fuels are generally sampled using a clear plastic ball-valve bailer. The visual indication is the presence of sheen at the water surface which reflects rainbow colors when exposed to sunlight. Should positive results be found, you must notify hazardous materials officials at the California Regional Water Quality Control Board and the Alameda County Flood Control and Water Conservation District, Zone 7 as soon as possible.

Monitoring is also required of vadose wells, on a quarterly basis (GMG

6.3.2). The procedure recommended by ACWD is to pump vapor from the monitoring well through a portable field analyzer (GHG 6.4). Should you find positive results, you must notify the hazardous materials administrators as soon as possible.

If you wish we can set up a groundwater and/or vapor monitoring program and maintain a monthly log of the results. The fee for a water monitoring well is $45.00 per month for water monitoring wells and $50.00 per quarter for vapor monitoring wells.

William F. Rusk, PhD.
Director

Approved:

David M. Schultz, P.E.
C 38738

ALAMEDA COUNTY FLOOD CONTROL AND WATER CONSERVATION DISTRIC

5997 PARKSIDE DRIVE, PLEASANTON, CALIFORNIA 94566 415-484-2600

GROUNDWATER PROTECTION ORDINANCE PERMIT APPLICATION

FOR APPLICANT TO COMPLETE

(1) LOCATION OF PROJECT Firehouse #1
1300 Park Street
Alameda, CA 94501

(2) CLIENT
Name City of Alameda
Address 2263 Santa Clara Phone (415) 522-7700
City Alameda, CA Zip 94501

(3) APPLICANT
Name Aqua Science Engineers *
1 Crow Canyon Ct. Suite 100
Address San Ramon, CA Phone (415) 820-9391
City Zip 94583

(4) DESCRIPTION OF PROJECT
Water Well Construction X Geotechnical ___
Cathodic Protection ___ Well Destruction ___

(5) PROPOSED WATER WELL USE
Domestic ___ Industrial ___ Irrigation ___
Municipal ___ Monitoring X Other ___

(6) PROPOSED CONSTRUCTION
Drilling Method:
Mud Rotary ___ Air Rotary ___ Auger X
Cable ___ Other ___

WELL PROJECTS
Drill Hole Diameter 8 in. Depth 15 ft.
Casing Diameter 2 in. Number 1
Surface Seal Depth 5 ft.
Driller's License No. 483678

GEOTECHNICAL PROJECTS
Number ___
Diameter ___ in. Maximum Depth ___ ft.

(7) ESTIMATED STARTING DATE 6-2-86
ESTIMATED COMPLETION DATE 6-4-86

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

APPLICANT'S SIGNATURE David Schultz 5-27-86

FOR OFFICE USE

PERMIT NUMBER 86136
LOCATION NUMBER

Approved Craig A. Mayfield Date 3 Jun
Craig A. Mayfield

PERMIT CONDITIONS

Circled Permit Requirements Apply

(A) GENERAL
1. A permit application should be submitted so as t arrive at the Zone 7 office five days prior t proposed starting date.
2. Notify this office (443-9300) at least one da ~~prior to starting work on permitted work an~~ before placing well seals.
3. Submit to Zone 7 within 30 days after completio of permitted work the original Department o Water Resources Water Well Drillers Report or equivalent for well projects, or bore hole log and location sketch for geotechnical projects. Permitted work is completed when the last surface seal is placed or the last boring is completed.
4. 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, or equivalent.
2. Minimum seal depth is 50 feet for municipal and industrial wells or 20 feet for domestic, irrigation, and monitoring wells unless a lesser depth is specially approved.

(C) GEOTECHNICAL. Backfill bore hole with compacted cuttings or heavy bentonite and upper two feet with compacted material.

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

E. WELL DESTRUCTION. See attached.

* Aqua Science Engineers Representative:
David Schultz

APPENDIX

CREDENTIALS

Engineer of Record

For Aqua Science Engineers:
David M. Schultz, Civil Engineer
Calif. State License P.E. C 38738
1280 C, Suite 144
Walnut Creek, CA 94596

Driller

ASE Drilling
P.O. Box 535
San Ramon, CA 94583
License #487000

Laboratory

Wesco Laboratories
State Certified Water Quality Lab
14 Galli Drive, Suite A
Novato, CA 94947

PRIMARY AUTHORITY FOR MONITORING WELL REQUIREMENTS

Alameda County Flood Control and Water Conservation District, Zone 7 as put forth in:

(GMG) Groundwater Monitoring Guidelines
for Hazardous Materials Storage. May 1984.
Alameda County Water District
38050 Fremont Boulevard
Fremont, CA 94537

WESCO LABORATORIES

RECEIVED
JUN 18 1986
AQUA SCIENCE ENG.

Date: June 17, 1986
Client: Aqua Science
Submitted by: B. Bratlien
Report to: Aqua Science
WESCO Job #: AQS 8648

Client Job/P.O. #: Alameda City
Date collected: 6-9-86
Date submitted: 6-10-86
& type of sample(s): 8 Water

Lab No.	Client ID	Motor Fuel (mg/l)	Benzene (mg/l)	Toluene (mg/l)	Xylene (mg/l)	Fuel Type	
4629	Fire House #2 635 Pacific Street	< 0.2	———	———	———	Diesel	
4630	Fire House #3 1703 Grand Street	5.4	———	———	———	Diesel	
4631	Police Dept. 1555 Oak Street	1.6	———	———	———	Diesel	
4632	Fire House #1 1300 Park Street	< 0.2	———	———	———	Diesel	
4633	City Hall #1 2263 Santa Clara	< 0.05	< 0.001	< 0.001	< 0.001	Gasoline	
4634	City Hall #2 2263 Santa Clara	< 0.05	< 0.001	< 0.001	< 0.001	Gasoline	
4635	Fire House #3 1703 Grand Street	< 0.05	< 0.001	< 0.001	< 0.001	Gasoline	
4636	Alameda Municipal Golf Course	< 0.05	< 0.001	< 0.001	< 0.001	Gasoline	
	METHOD: Note 1						

NOTES:
Note 1 - EPA method 5020/8015/8020.

Analytical Supervisor

Figure 3

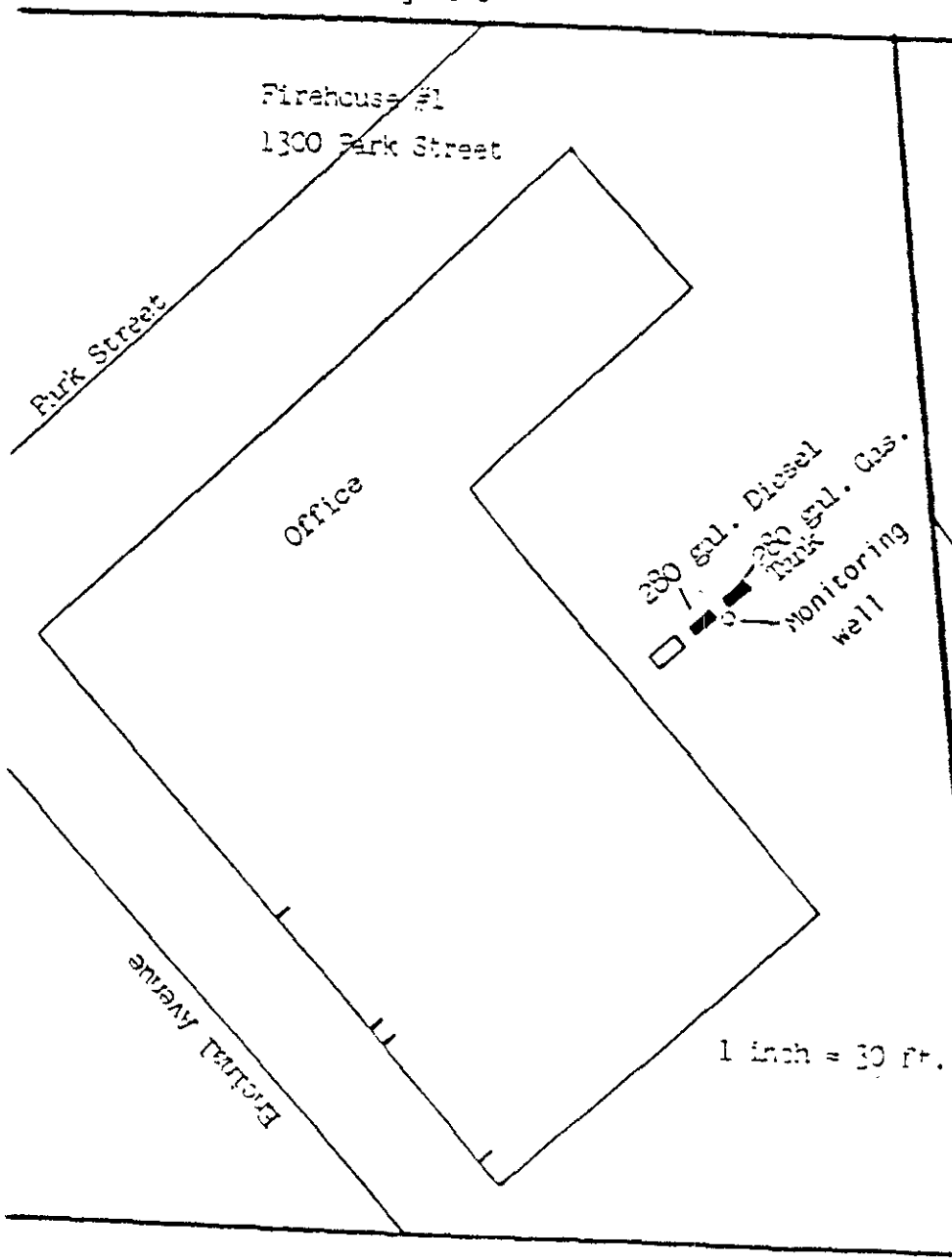
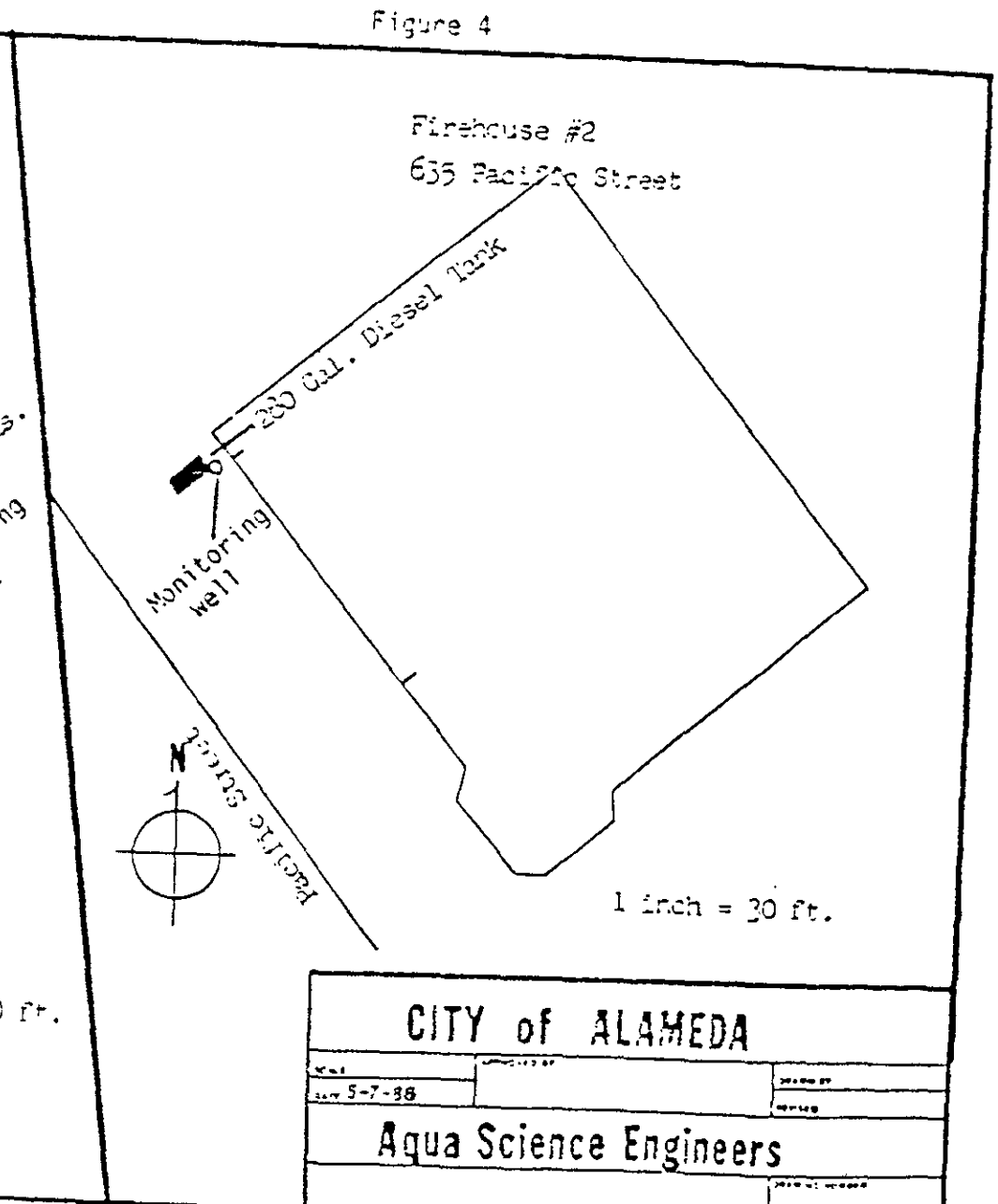


Figure 4

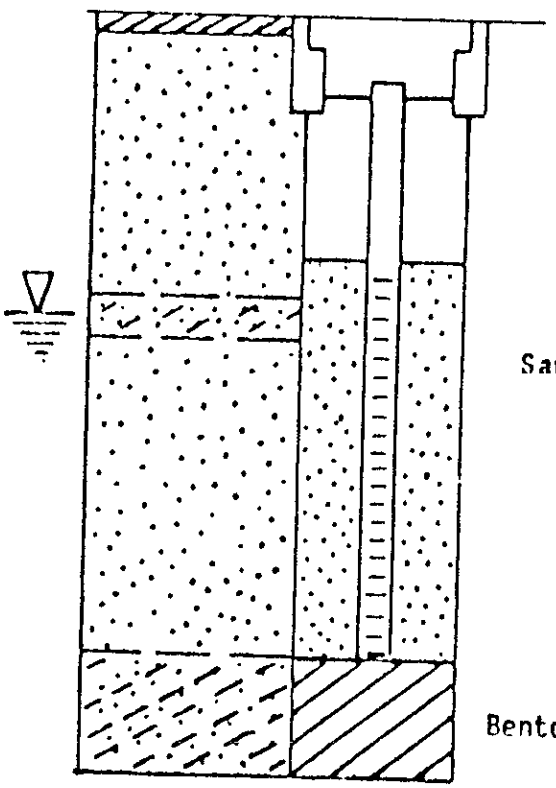


AQUA SCIENCE ENGINEERS WELL LOG

Casing: 2" PVC
Well Depth: 19 ft.
Logged By: D. Schultz, P.E.
Water Depth: 9.0 ft.
Driller: ASK

Alameda Firehouse #1
1300 Park Street
Alameda, CA
Boring # 1
Date: 6-2-86

DEPTH (ft.)	SOIL DESCRIPTION	WELL CONSTRUCTION DETAILS
0-	6" Asphalt Cover	
2-		
4-	Sand	
6-		
8-		
	Sand, trace Clay	
10-		
12-		
	Sand	
14-		
16-		
18-		
20-	Brown Clayey Sand	
22-		



Bottom of Boring 22.5 ft.