

STD 5589

RECEIVED
JAN 13 1989
Hazardous Materials Division
Alameda County Department of Environmental Health

January 12, 1989

ATT

Encl copy

Mr. Rafat A. Shahid
Hazardous Materials Division
Alameda County Department of Environmental Health
80 Swan Way, Room 200
Oakland, CA 94621

Subject: Installation of a Monitoring Well and
Groundwater Investigation of 4250 Horton
Street, Emeryville, California

Dear Mr. Shahid:

In response to your letter dated November 29, 1989. Aqua Terra Technologies, Inc. (ATT) is providing your office with the information requested regarding 4250 Horton Street, Emeryville, California. This letter provides a description of activities that have been undertaken by ATT in its investigation of possible environmental contamination due to a former underground storage tank at the subject property.

Aqua Terra Technologies
Consulting Engineers
& Scientists

2950 Buskirk Avenue
Suite 120
Walnut Creek, CA
94596
415 934-4884

In accordance with the guidelines established by the San Francisco Bay Region of the California Regional Water Quality Control Board (RWQCB), a monitoring well has been installed at the site. The monitoring well was constructed in accordance with the protocol presented in Attachment A. The placement of the monitoring well is within 10 feet west of the former underground storage tank. The monitoring well represents a downgradient location from the excavation, determined by the 205 (J) report prepared for the Alameda County Flood Control and Water Conservation District, June 1988; (p. 42). The monitoring well was constructed on November 30, 1988 and was developed and sampled on December 5, 1988. The boring log and well development details are provided in Attachment B. Soil samples were collected during the well construction at depths of six, 13.5, 20.5 and 24 feet below grade. Following well development, a groundwater sample was also collected. A discussion of sample collection procedures, laboratory analysis, and analytical results is provided below.

Soil samples were collected in 2.5 inch brass tubes which had been steam cleaned prior to use. Following the collection of the soil sample, each tube end was covered with Teflon sheeting and capped with plastic caps. All samples collected were labeled with the date, ATT job number, sample identification, and collector's initials. These samples were placed in an iced cooler immediately following collection, and remained on ice until placed in refrigeration at the analytical

Mr. Rafat A. Shahid
Alameda County Department of Environmental Health
January 10, 1989
Page 2

laboratory. The soil sample collected at six feet below grade (MW1-6) was analyzed for Total Oil and Grease (TOG) by Trace Analysis Laboratory (TAL). Due to the absence of detectable limits of Total Petroleum Hydrocarbons (TPH) as gas, and TPH as diesel in the November 2, 1988 sampling, these analyses were not performed. Results from the analysis on MW1-6 reveal that levels of TOG were below detection limits of 10,000 ug/Kg. Since this depth represents the zone immediately below the bottom of the former underground storage tank, analysis of soil samples collected at deeper levels was not performed. A copy of the Chain of Custody form and laboratory analysis record is provided in Attachment C.

A groundwater sample was collected in accordance with EPA protocol by ATT on December 5, 1988 following development of the monitoring well. The sample was collected in a one liter amber glass bottle which had been pre-cleaned by the supplier. The sample was placed in an iced cooler and remained in the cooler for transport to the laboratory. The groundwater sample was analyzed by Anametrix Laboratories of San Jose, California for TOG by EPA Method 503E. Results of this analysis do not reveal contaminant levels above the detection limit of 10,000 ug/L. Chain of Custody forms and analytical results are provided in Attachment C.

ATT will continue to monitor the groundwater on a quarterly basis for the upcoming year. A brief letter report along with analytical results will be provided to your office following each sampling event.

Please feel free to contact me if you have any questions or comments regarding this matter.

Sincerely,

AQUA TERRA TECHNOLOGIES, INC.



Bradley J. Bennett
Project Manager

BJB/kmr

Attachments

cc: Ms. A. Robin Orden, 45th Street Artist's Coop

ATTACHMENT A
Monitoring Well Installation Protocol

ATTACHMENT A

DRILLING PROCEDURES & GROUNDWATER
MONITORING WELL CONSTRUCTION/DESIGN

DRILLING AND SAMPLING PROCEDURES

All borings for well construction were drilled using eight-inch diameter or larger hollow stem auger equipment. A California Registered Geologist directed the collection of undisturbed samples of the soils encountered and the preparation of detailed logs of each boring.

Soil sampling was conducted using a modified California drive sampler, a standard penetration sampler, or a five-foot continuous sampler. Representative samples of each soil type were retained in either Ziploc bags or two-inch to three-inch diameter, six-inch long, clean, brass tubes. The samples were retained for verification of soil classification and for chemical laboratory analytical testing, as appropriate. Teflon sheeting was placed between the soil sample and the cap, and the cap was sealed with PVC tape.

Where access limitations did not allow drilling with truck mounted equipment, either a trailer mounted drilling rig, portable power driven, or manually operated soil sampling equipment was utilized. If soil samples were to be retained for analysis, they were collected in clean brass tubes fitted within a thin walled drive sampler. The soil samples were capped and sealed as described above.

All down hole sampling, drilling, and well construction equipment and materials, including augers, casing, and screens were steam cleaned prior to their initial use. The sampling equipment was cleaned prior to each assembly by washing with a trisodium phosphate solution, rinsing with distilled water, and allowing to air dry. The auger flights, drill bit, and sampler were steam cleaned at each boring location.

MONITORING WELL CONSTRUCTION

Monitoring wells were constructed in accordance with applicable local water district or California Department of Water Resources guidelines. The specific completion details for each well were determined in the field at the time of drilling by a California Registered

Geologist experienced in groundwater monitoring system design and installation.

Monitoring wells consist of two or four-inch diameter, Schedule 40 PVC casing and screens with flush, threaded joints. No PVC glue is used. The screened sections are machine slotted with either 0.010-inch (0.255 mm) 0.020-inch (0.51 mm) openings. The smaller slot size was used where the wells are screened within fine-grained sandy soils, and the larger slots were used where coarse sand or gravels are encountered. The slotted sections were fitted with a slip-on cap and placed opposite the water-bearing strata in the boring. The blank pipe was connected to the perforated pipe and extends to just below the ground surface.

The annulus between the side of the borehole and the slotted section was filled with a clean sand pack to variable depths, but not less than one or two feet above the perforated pipe. The annulus was packed with either Lonestar No. 1/20 (where 0.010-inch slotted pipe is used) or No. 3 (where 0.020-inch slotted pipe is used) washed sand filter material. The gradation of the filter material is summarized below:

U.S. Sieve No.	Opening (mm)	Percent Passing (No. 3)	Percent Passing (No. 1/20)
6	3.35	100	
8	2.36	99 - 100	
12	1.70	62 - 78	
16	1.18	15 - 33	100
20	0.85	0 - 8	90 - 100
30	0.60	0 - 4	14 - 40
40	0.425		0 - 5

A seal of bentonite pellets approximately 24-inches thick was placed above the sand pack to reduce the risk of grout penetration into the sand. The bentonite pellets were hydrated with distilled water to form a tight plug. A cement/bentonite grout was placed above the bentonite plug to a depth of approximately two feet below the ground surface. The grout was pumped into the boreholes using a tremie pipe. Concrete was placed from the top of the cement/bentonite mixture to the ground surface.

At most sites in sedimentary formations, it is not practical to "rationally design" a filter pack based on sieve analyses. From experience, Lonestar No. 1/20 or No. 3 washed sand as a filter material was selected for use in wells. The 0.010-inch and 0.020-inch slot sizes were selected to retain 100 percent of the filter material.

The completed wells were enclosed in a traffic rated enclosure placed flush with grade or in an above-ground metal enclosure, and were fitted with a locking cap. If a groundwater level contour map was prepared, well head elevations were determined by a level survey, and well coordinates were determined by a traverse survey. The level/traverse survey was referenced to a bench mark of known or assigned elevation and coordinates. Once water levels have stabilized, water levels in all wells were measured.

After the wells had been completed, they were developed by pumping and surging to clean and stabilize the soils around the screens. A manually operated, positive displacement surge pump and Teflon bailer, surge block, and/or centrifugal pump was used for development. A minimum of 10 well casing volumes of water was removed during development; however, development continued until water flowed clear and pH, temperature, and conductivity had stabilized. All development equipment was steam cleaned prior to its initial use in each well. A well development log was maintained which included 1) a record of development water parameters at frequent intervals, 2) the quantity of water removed during development, and 3) flow rates during development.

Soil cuttings generated during drilling were wrapped in plastic sheeting, and water generated during well development was retained in secured 55-gallon drums until chemical analytical data from samples were received.

ATTACHMENT B
Boring Log, Well Development Log

AQUA TERRA TECHNOLOGIES INC.

Log of Exploratory Boring

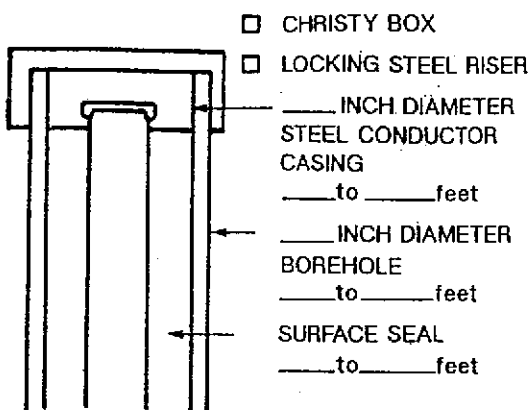
Project: 45th Street Artists Co-op Job No.: 883
 Location: 1401 45th Street, Emeryville Date: 11/30/88
 Boring No.: MW1 Driller: ENSCO Page 1 of 2
 Geologist: BB Proj. Mgr. JSM Surface Elev. :

Penetration (Blows/ 6")	Depth	U.S.C.S. Soil Class.	Field Description	Remarks
	0			
	1	<u>Concrete</u>	0-8" Concrete	
	2		8"-25' Clay, silty, to clay, sandy; 0 to 30% fine sand; stiff to hard; damp to saturated; black (10YR2/1) to 5.5'; brown (10YR4/3 and 10YR5/3) to 11'; gray (2.5Y5/0) to 25'.	
	3			
	4			
	5	CL		
10	6			6' Sample
17	7			
20	8			
6	9		9'-19'; soil saturated	8.08' static W.L. 12/7/88
4	10			First water at 9'
3	11		11'-19'; 20-30% fine sand	
5	12			8'-11' samples lost
6	13			
8	14			13.5' sample
4	15			
4	16			15'-16.5' sample liquid
3	17			

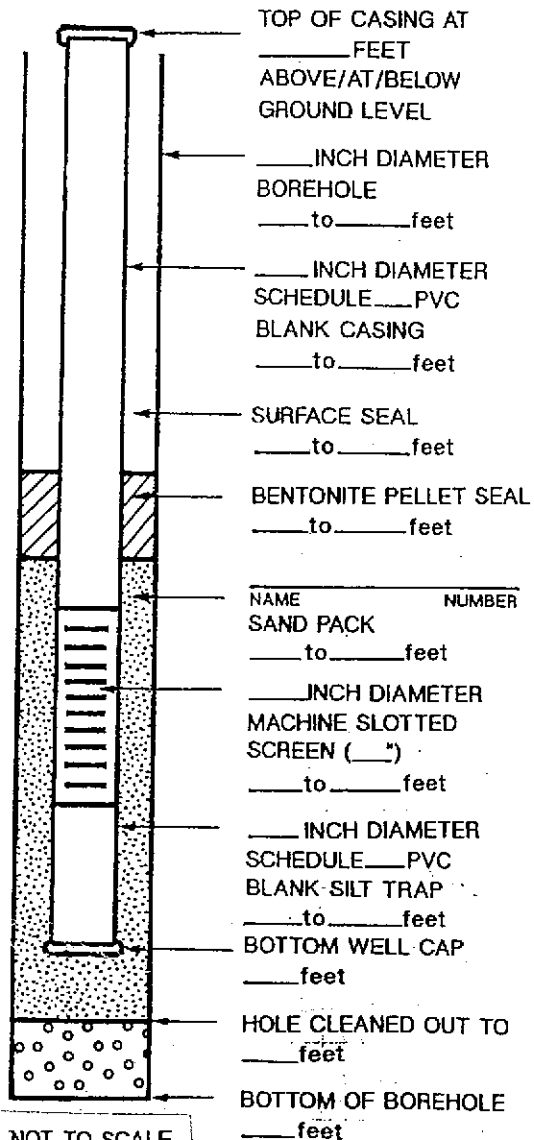
Penetration (Blows/ 6")	Depth	U.S.C.S. Soil Class.	MW1 Field Description	Remarks
	17			
	18			
	19			
	20			
5	20			
7	20			
10	21	CL	19'-25'; Silty clay, little or no sand.	20.5' sample
	22			
	23			
8	23			
14	24			
18	24			24' sample
	25		EOH at 25'	
	26			
	27			
	28			
	29			
	30			
	31			
	32			
	33			
	34			
	35			
	36			
	37			
	38			
	39			

ATT

WELL CONSTRUCTION AND DEVELOPMENT DETAILS



- CHRISTY BOX
- LOCKING STEEL RISER
- ___ INCH DIAMETER STEEL CONDUCTOR CASING
___ to ___ feet
- ___ INCH DIAMETER BOREHOLE
___ to ___ feet
- SURFACE SEAL
___ to ___ feet



NOT TO SCALE

ADDITIONAL INFORMATION:

JOB NAME EMERYVILLE	
JOB NUMBER 883	PROJECT MANAGER JSM
LOGGED BY	EDITED BY
WELL DESIGNATION MW1	DATE 12/5/88
DRILLING COMPANY	
EQUIPMENT: <input type="checkbox"/> ___ INCH ROTARY WASH <input type="checkbox"/> ___ INCH HOLLOW STEM AUGER <input type="checkbox"/> ___ INCH DUAL TUBE	DRILLER HOURS DRILLED
VOLUME OF WATER USED DURING DRILLING: _____	GALLONS
METHOD OF DECONTAMINATION PRIOR TO DRILLING:	

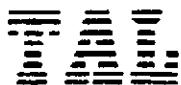
DEVELOPMENT

METHOD OF DEVELOPMENT: HAND PUMP			
DEVELOPMENT BEGAN: DATE 12/5 TIME 1030		DATE: 12/5/88	
YIELD: 3 GPM	TIME: FROM 1030 TO 1130	DATE: 12/5/88	
YIELD: _____ GPM	TIME: FROM _____ TO _____	DATE: _____	
DEVELOPMENT ENDED: DATE 12/5 TIME 1130			
TOTAL WATER REMOVED DURING DEVELOPMENT: 60 GALLONS			
DESCRIPTION OF TURBIDITY AT END OF DEVELOPMENT:	<input type="checkbox"/> CLEAR	<input type="checkbox"/> SLIGHTLY CLOUDY	
	<input checked="" type="checkbox"/> MOD. TURBID	<input type="checkbox"/> VERY MUDDY	
ODOR OF WATER: NONE			
WATER DISCHARGED TO:	<input type="checkbox"/> GROUND SURFACE	<input type="checkbox"/> STORM SEWERS	
	<input type="checkbox"/> TANK TRUCK	<input type="checkbox"/> STORAGE TANK	
	<input checked="" type="checkbox"/> DRUMS	<input type="checkbox"/> OTHER	
DEPTH TO WATER AFTER DEVELOPMENT 8.32 FEET			

MATERIALS USED

_____ SACKS OF _____ SAND
_____ SACKS OF _____ CEMENT
_____ GALLONS OF GROUT USED
_____ SACKS OF POWERED BENTONITE
_____ POUNDS OF BENTONITE PELLETS
_____ FEET OF _____ INCH PVC BLANK CASING
_____ FEET OF _____ INCH PVC SLOTTED SCREEN
_____ FEET OF _____ INCH STEEL CONDUCTOR CASING
GROUT PUMP USED? <input type="checkbox"/> YES <input type="checkbox"/> NO
TREMIE PIPE USED? <input type="checkbox"/> YES <input type="checkbox"/> NO
WELL COVER USED <input type="checkbox"/> LOCKING STEEL COVER
<input type="checkbox"/> CHRISTY BOX
<input type="checkbox"/> OTHER _____
SILT TRAP USED? <input type="checkbox"/> YES <input type="checkbox"/> NO

ATTACHMENT C
Chain of Custody Forms
Analytical Results

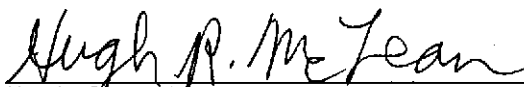


DATE: 1/4/89
LOG NO.: 6741
DATE SAMPLED: 11/30/88
DATE RECEIVED: 12/2/88

CUSTOMER: Aqua Terra Technologies
REQUESTER: Julie Menack
PROJECT: No. 883, 1401, 45th Street, Emeryville

Sample Type: Soil

Method and Constituent	Units	MW1-6'	
		Concen- tration	Detection Limit
Standard Method 503E, Hydrocarbons: Oil and Grease	ug/kg	< 10,000	10,000



Hugh R. McLean
Supervisory Chemist

HRM:mln



1961 Concourse Drive, Suite E
San Jose, CA 95131
(408) 432-8192 • Fax (408) 432-8198

Julie Menack
Aqua Terra Technology
2950 Buskirk Ave., Ste. 120
Walnut Creek, CA 94596

December 21, 1988
Work Order Number 8812036
Date Received 12/07/88
Project No. 883

Dear Mr. Menack:

Two water samples were received for analysis of total oil and grease by gravimetric analysis, using the following method(s):

ANAMETRIX I.D.	SAMPLE I.D.	METHOD(S)
8812036-01 -02	883 MW1 " CB	503E "

RESULTS

See enclosed data sheets, Pages 2 thru 3.

NOTE: Amounts reported are net values, i.e. corrected for method blank contamination.

If there is any more that we can do, please give us a call. Thank you for using ANAMETRIX, INC.

Sincerely,

Sarah Schoen, Ph.D.
GC Manager

SRS/lm

ANALYSIS DATA SHEET - PETROLEUM HYDROCARBON COMPOUNDS
ANAMETRIX, INC. (408) 432-8192

Sample I.D. : 883 MW1
 Matrix : WATER
 Date sampled : 12-07-88
 Date anl.TPHg: NA
 Date ext.TPHd: NA
 Date anl.TPHd: NA

Anamatrix I.D. : 8812036-01
 Analyst : A.S.
 Supervisor : DPG
 Date released : 12-21-88
 Date ext. TOG : 12-15-88
 Date anl. TOG : 12-20-88

CAS #	Compound Name	Detection Limit (ug/l)	Amount Found (ug/l)
	Total Oil & Grease	10000	ND

- ND - Not detected at or above the practical quantitation limit for the method.
- TPHg - Total Petroleum Hydrocarbons as gasoline is determined by GCFID using EPA Method 5030.
- TPHd - Total Petroleum Hydrocarbons as diesel is determined by GCFID following either EPA Method 3510 or 3550.
- TOG - Total Oil & Grease is determined by Standard Method 503E.
- BTEX - Benzene, Toluene, Ethylbenzene, and Total Xylenes are determined by modified EPA 8020.

All testing procedures follow California Department of Health Services (Cal-DHS) approved methods.

ANALYSIS DATA SHEET - PETROLEUM HYDROCARBON COMPOUNDS
ANAMETRIX, INC. (408) 432-8192

Sample I.D. : 883 CB
 Matrix : WATER
 Date sampled : 12-07-88
 Date anl.TPHg: NA
 Date ext.TPHd: NA
 Date anl.TPHd: NA

Anamatrix I.D. : 8812036-02
 Analyst : A.S.
 Supervisor : DCC
 Date released : 12-21-88
 Date ext. TOG : 12-15-88
 Date anl. TOG : 12-20-88

CAS #	Compound Name	Detection Limit (ug/l)	Amount Found (ug/l)
	Total Oil & Grease	10000	ND

ND - Not detected at or above the practical quantitation limit for the method.

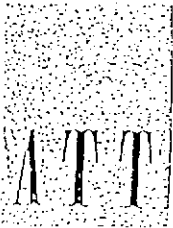
TPHg - Total Petroleum Hydrocarbons as gasoline is determined by GCFID using EPA Method 5030.

TPHd - Total Petroleum Hydrocarbons as diesel is determined by GCFID following either EPA Method 3510 or 3550.

TOG - Total Oil & Grease is determined by Standard Method 503E.

BTEX - Benzene, Toluene, Ethylbenzene, and Total Xylenes are determined by modified EPA 8020.

All testing procedures follow California Department of Health Services (Cal-DHS) approved methods.



CHAIN OF SAMPLE CUSTODY RECORD

Collector: Bruce Berman Date Sampled: 11-30-88 Time: _____
Location of Sampling: 1401 45th Street, Emeryville

Project Number: 883 Survey Number: _____
Sample Type: Soil

Container Type and Condition: 2.5" dia. brass tubes, steam cleaned
Contract Laboratory Record/Name: Trace Analysis Laboratories

Sample ID	Field Information
<u>MW1-6</u>	} <u>hold samples</u>
<u>MW1-13.5</u>	
<u>MW1-20.5</u>	
<u>MW1-24</u>	

Analysis Requested: call Julie Menack for analysis and other instructions

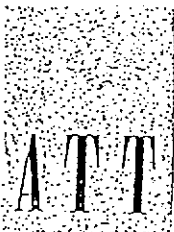
Results Needed By: _____

Contact and results to be sent to: Julie Menack

Travel Blank: Yes No Travel Blank to be Analyzed Separately: Yes No
 Duplicate Samples: Yes No Duplicates to be Analyzed Separately: Yes No
 Cleaning Blank: Yes No Cleaning Blank to be Analyzed Separately: Yes No
 Background Soil Sample: Yes No Background Soil Sample to be Analyzed Separately: Yes No

Chain of Custody:

1. <u>Bruce Berman</u>	<u>11-30-88</u>
Field Personnel	Date
2. <u>Alexis DRVSH</u>	<u>12-2-88</u>
Courier	Date
3. <u>Trace Analysis</u>	
Lab	Date



Anamatrix 8812036

CHAIN OF SAMPLE CUSTODY RECORD

Collector: AQUA TERRA TECH Date Sampled: 12/7/88 Time: 0900
Location of Sampling: EMERVILLE

Project Number: 883 Survey Number:
Sample Type: GROUND WATER
Container Type and Condition: 1 L AMBER
Contract Laboratory Record/Name: ANAMATRIX

Sample ID	Field Information
MW1	(1) 1 L AMBER
MW1 DUP	(1) 1 L AMBER
CB	(1) 1 L AMBER

Analysis Requested: TOTAL OIL AND GREASE (503E)
EPA METHOD

Results Needed By: 2 WEEK TURNAROUND

Contact and results to be sent to: JULIE MENACK

Travel Blank: Yes No Travel Blank to be Analyzed Separately: Yes No

Duplicate Samples: Yes No Duplicates to be Analyzed Separately: Yes No

Cleaning Blank: Yes No Cleaning Blank to be Analyzed Separately: Yes No

Background Soil Sample: Yes No Background Soil Sample to be Analyzed Separately: Yes No

Chain of Custody:

1. Ed Mill 12/7/88
Field Personnel Date

2. _____
Courier

3. Darine Syle 12-7-88 10:15
Lab Date