



Environmental Technical Services

March 8, 93

03/11/93 10:21

Sueit Shen:

Enclosed are the quarterly reports for Alameda Golf Course and Alameda Fire Station #2.

The report for Ron Goode Toyota will be sent to you from Ron Goode Toyota.

If you have any questions, please feel free to call our office.

Thank you.

A REPORT DOCUMENTING THE  
PURGING AND SAMPLING OF  
THREE GROUNDWATER MONITORING  
WELLS ON TWO CONSECUTIVE QUARTERS  
AND THE DETERMINATION OF GROUNDWATER  
GRADIENT FOR SIX CONSECUTIVE MONTHS:

ALAMEDA GOLF COURSE  
ONE MEMORIAL CLUBHOUSE DRIVE  
ALAMEDA, CALIFORNIA

prepared by:

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ENVIRONMENTAL TECHNICAL SERVICES  
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Senior Environmental Specialist

3-8-93

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## 1.0 INTRODUCTION

The following report documents the sampling of three groundwater monitoring wells and the determination of groundwater gradient at the Alameda Golf Course, One Memorial Clubhouse Drive, Alameda, California.

Groundwater was sampled on two consecutive quarters and groundwater gradient determined for six consecutive months.

The work was performed in response to the discovery of petroleum hydrocarbons beneath the site and has been requested by the Alameda County Environmental Health Department, Hazardous Materials Division.

## 2.0 PREVIOUS ENVIRONMENTAL INVESTIGATIONS

### 2.1 TANK REMOVAL

One July 10, 1991, one 500-gallon and one 125-gallon gasoline underground storage tanks were removed from the subject site. Groundwater was encountered at 5 feet within the tank pit excavation. Therefore, soil samples were collected from the tank pit wall vadose/saturated capillary zone and were analyzed for Total Petroleum Hydrocarbons as Gasoline with benzene, toluene, ethylbenzene, and total xylenes (TPH-G, BTEX, EPA Method 5030/8020).

### 2.2 EXCAVATION OF CONTAMINATED SOIL

The excavation and stockpiling of contaminated soils was performed the same day by Zaccor Corporation. Confirmatory soil samples were collected subsequent to the excavation and were found to be without detectable concentrations of previously noted contaminants, with the exception of sample #6. The excavation of soil within this area was limited by the presence of an existing monitoring well.

Results of these analyses are located in Table 1A, 1B, and 1C.

2.3 ORIGINAL TANK REMOVAL, ANALYTICAL RESULTS

TABLE 1A  
TANK PIT SOIL ANALYTICAL RESULTS  
Total Petroleum Hydrocarbons as Gasoline  
with Benzene, Toluene, Ethylbenzene and Xylenes  
July 10, 1991

TPHg and BTEX results reported in ppm

Sample #	TPH-G	B	T	E	X
2	960	3.5	0.10	3.0	13
4	ND	0.011	ND	ND	0.005
5	ND	ND	ND	ND	ND
6	3.0	0.030	0.006	0.023	0.059
7	ND	ND	ND	ND	ND
8	ND	ND	ND	ND	ND

TABLE 1B  
STOCKPILE ANALYTICAL RESULTS  
JULY 10, 1991

TPHg and BTEX results reported in ppm

Composite Sample #	TPH-G	B	T	E	X
1A, 1B, 1C	2000	1.2	2.8	2.6	26
3A-3C	250	0.52	0.45	0.65	5.4
9A-9D	ND	ND	ND	ND	ND
10A-10D	11	0.13	0.48	0.29	1.9

TABLE 1C  
GROUNDWATER ANALYTICAL RESULTS  
JULY 10, 1991

Results in ug/L

Sample #	TPH-G	B	T	E	X
TPW-1	8,200	210	ND	270	1,200

ND= Not detected at lower detection limit for this compound

### 3.0 SCOPE OF SERVICES

#### 3.1 Groundwater Purging & Sampling

The three existing groundwater monitoring wells were purged and sampled on September 5, 1992 and January 11, 1993. The wells were purged using a clean stainless steel bailer (1.5" diameter by 3' length). Subsequent to purging each well was sampled using a clean stainless steel bailer. A separate bailer was dedicated to each well for the sampling event. At consistent intervals throughout sampling groundwater parameters (pH, conductivity, salinity, and temperature) were monitored to evaluate stabilization of the wells.

A water sample was decanted from the sampling bailer into three one-liter amber bottles and three 40-ml volatile organics analysis vials (VOAs) to a positive meniscus eliminating headspace.

The samples were transported to a Certified Hazardous Waste Analytical Laboratory under chain of custody for analysis.

Refer to Appendix D, Groundwater Development Report.

#### 3.2 Groundwater Analysis

Each groundwater sample was analyzed for total petroleum hydrocarbons as gasoline, benzene, toluene, ethylbenzene, and total xylenes (TPHg & BTEX, using EPA Method 5030/602).

#### 3.3 Groundwater Analytical Results

TABLE II  
GROUNDWATER ANALYTICAL RESULTS  
FIRST QUARTER SAMPLING  
September 5, 1992

Results for TPHg & BTEX reported in ug/L

<u>Sample #</u>	<u>TPHg</u>	<u>B</u>	<u>T</u>	<u>E</u>	<u>X</u>	<u>Lead</u>
MW-1	ND	ND	ND	ND	ND	ND
MW-2	ND	ND	ND	ND	ND	6.3
MW-3	ND	ND	ND	ND	ND	ND

ND = Not detected at lower detection limit for this compound

### 3.3 Groundwater Analytical Results (cont.)

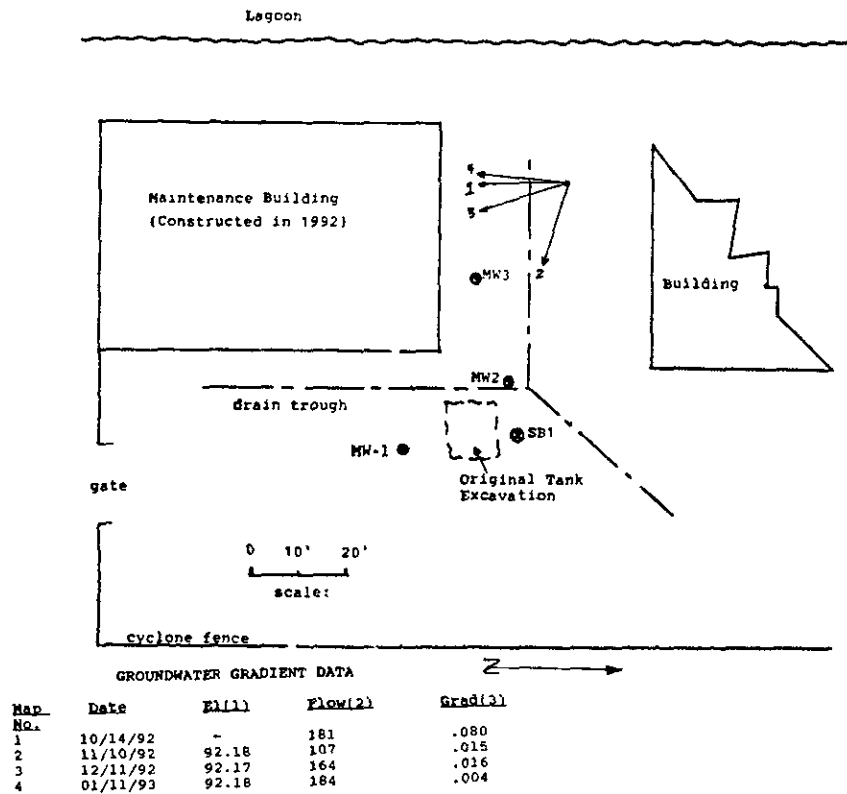
TABLE III  
GROUNDWATER ANALYTICAL RESULTS  
SECOND QUARTER  
JANUARY 11, 1993

Results for TPHg & BTEX reported in ug/L

Sample #	TPHg	B	T	E	X	Lead
MW-1	ND	ND	ND	ND	ND	NA
MW-2	ND	ND	ND	ND	ND	NA
MW-3	ND	ND	ND	ND	ND	NA

ND = Not detected at lower detection limit for this compound  
NA = Not analyzed for this compound

### 3.4 Groundwater Gradient



**NOTES**

- (1) Water elev. in MW1
- (2) Flow azimuth (° E of N)
- (3) Gradient (ft/ft)



#### 4.0 REPORT

Please forward copies of this report, chain of custody documentation, and laboratory analytical reports to the San Francisco Regional Water Quality Control Board, and the Alameda County Department of Environmental Health Hazardous Materials Division.

The following addresses have been included for your convenience:

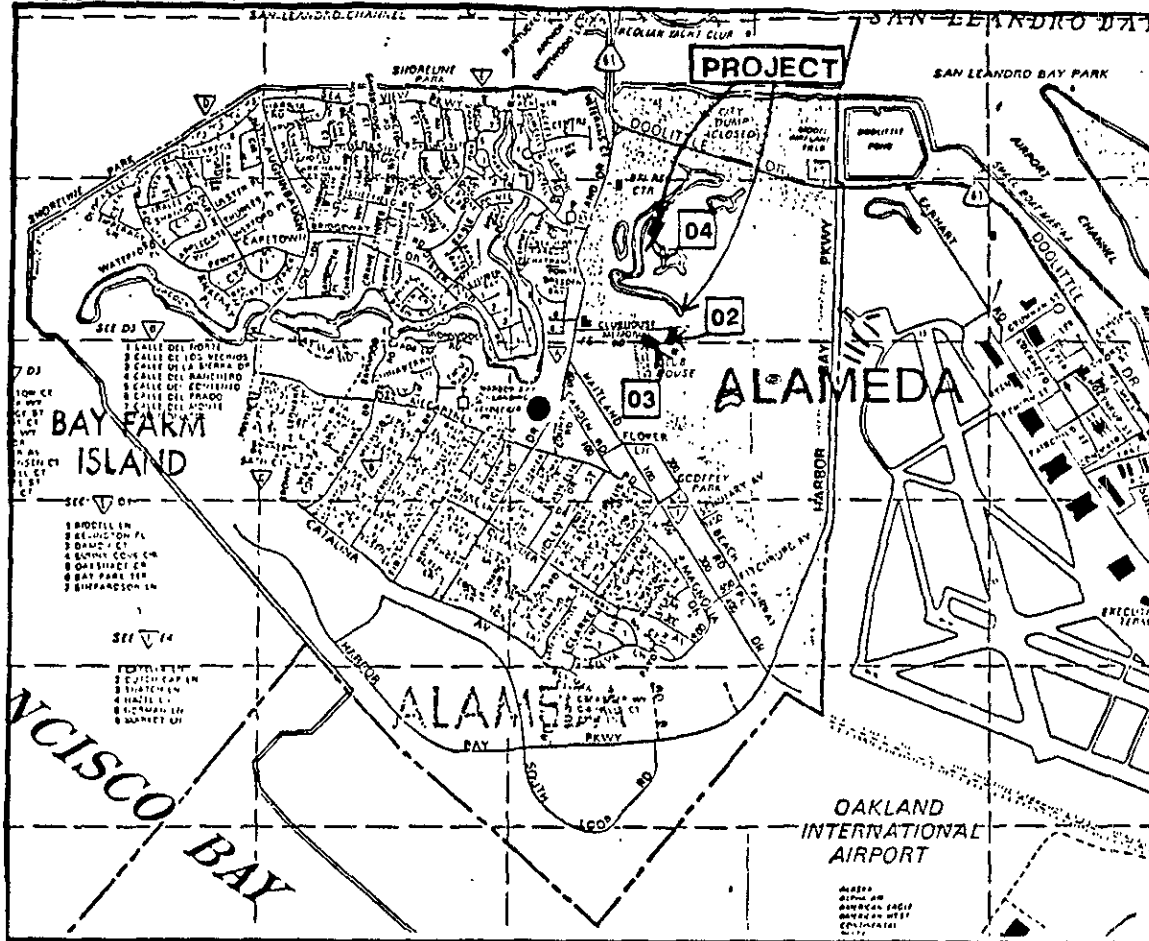
Water Quality Control Board  
San Francisco Bay Region  
2101 Webster Street  
Room 500  
Oakland, CA 94621

Alameda County Department  
of Environmental Health  
Hazardous Materials Division  
80 Swan Way, Room 200  
Oakland, CA 94621

APPENDIX A

MAPS

**VICINITY MAP**



ENVIRONMENTAL  
TECHNICAL  
SERVICES

Site:  
**ALAMEDA GOLF COURSE  
1 MEMORIAL CLUB HOUSE DRIVE  
ALAMEDA, CALIFORNIA**

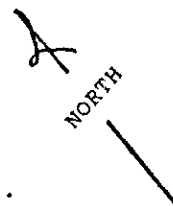
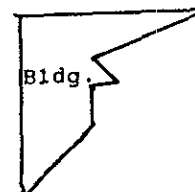
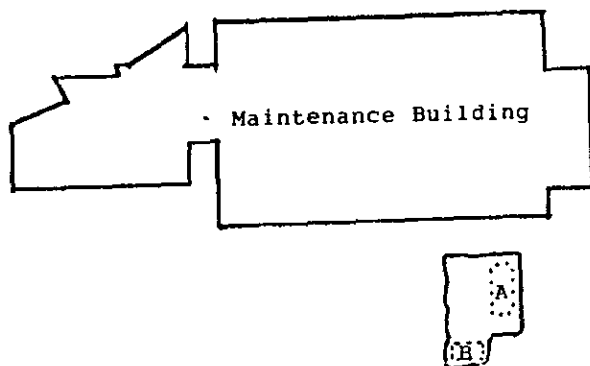
Figure 1.

Site Location Map

ENVIRONMENTAL  
TECHNICAL  
SERVICES

at: Alameda Golf Course, 1 Memorial Club House Drive, Alameda CA.

7/10/91



KEY

(A) 500 gal gasoline tank

(B) 125 gal gasoline tank

0 12.5 25  
Scale

ENVIRONMENTAL  
TECHNICAL  
SERVICES

Site:  
ALAMEDA GOLF COURSE  
1 MEMORIAL CLUB HOUSE DRIVE  
ALAMEDA, CALIFORNIA

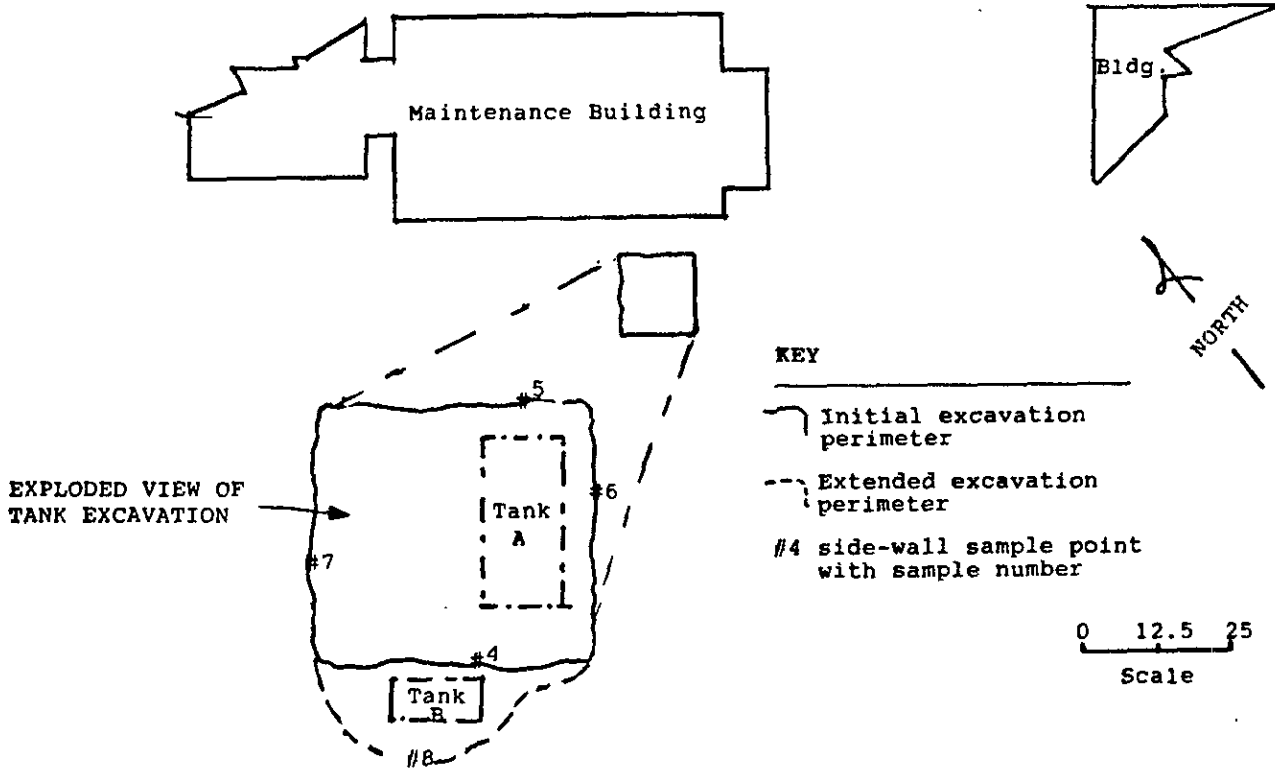
Figure 2.

Tank Location Map

ENVIRONMENTAL  
TECHNICAL  
SERVICES

at: Alameda Golf Course, 1 Memorial Club House Drive, Alameda CA.

7/10/91

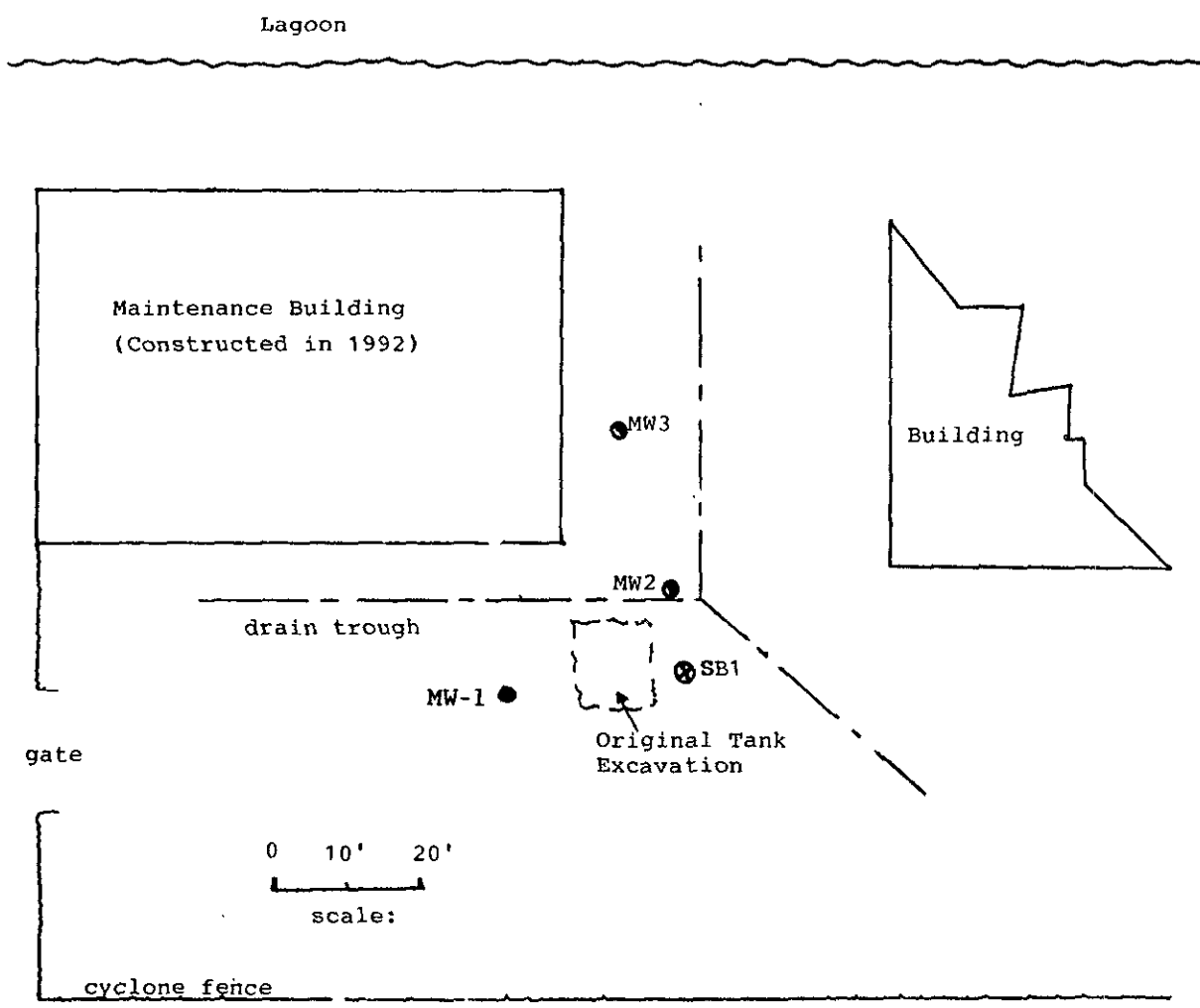


ENVIRONMENTAL  
TECHNICAL  
SERVICES

Site: **ALAMEDA GOLF COURSE  
1 MEMORIAL CLUBHOUSE DRIVE  
ALAMEDA, CALIFORNIA**

Figure 3.

Excavation/Sampling Map



ENVIRONMENTAL  
TECHNICAL  
SERVICES

Site:  
**ALAMEDA GOLF COURSE  
1 MEMORIAL CLUB HOUSE DRIVE  
ALAMEDA, CALIFORNIA**

Drawn by:  
Mawhinney  
9/21/92

Figure 4.

Monitoring Well Location Map 8/20/92

APPENDIX B  
GROUNDWATER ANALYTICAL RESULTS  
FIRST QUARTER

# S&W

**Soil and Water  
Environmental  
Laboratory**

**Laboratory Report**

Drinking Water  
Waste Water • Asbestos  
Hazardous Waste – Soil  
Calderon Testing – Air

14072 W. Park Avenue  
Boulder Creek, CA 95006  
(408) 338-3053

Client: Environmental Tech. Services  
1548 Jacob Ave.  
San Jose CA 95118

Report Date: 09/29/92

Sample Site: Alameda Golf Course  
Alameda, CA

Date Received: 09/05/92

MW ALAM Golf

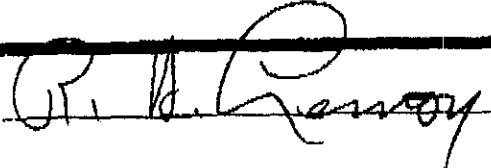
Analysis Requested: Total Hydrocarbons - Gas  
BTEX

Procedure: EPA 8030  
EPA 802

Date Analyzed: 09/05/92

S&W Ref. #	Client Ref. #	Matrix/Analysis	Concentration	Detection Limit
2492-ET2-C	MW-1	Water/TPH-G	*	50 ppb
2492-ET2-C	MW-1	Water/BTEX		
		Benzene	*	0.5 ppb
		Toluene	*	0.5 ppb
		Ethylbenzene	*	0.5 ppb
		Xylenes	*	0.5 ppb
-----				
2492-ET2-D	MW-2	Water/TPH-G	*	50 ppb
2492-ET2-D	MW-2	Water/BTEX		
		Benzene	*	0.5 ppb
		Toluene	*	0.5 ppb
		Ethylbenzene	*	0.5 ppb
		Xylenes	*	0.5 ppb
-----				
2492-ET2-E	MW-3	Water/TPH-G	*	50 ppb
2492-ET2-E	MW-3	Water/BTEX		
		Benzene	*	0.5 ppb
		Toluene	*	0.5 ppb
		Ethylbenzene	*	0.5 ppb
		Xylenes	*	0.5 ppb

\* No detectable amount @ detection limit

Analyst Signature: 





Laboratory Report

Soil and Water  
Environmental  
Laboratory

Drinking Water  
Waste Water • Asbestos  
Hazardous Waste – Soil  
Calderon Testing – Air

14072 W. Park Avenue  
Boulder Creek, CA 95006  
(408) 338.3053

Client	Report Date
Environmental Tech. Services	10-01-92
1548 Jacob Ave. e. Rd.	
San Jose, CA 95118	

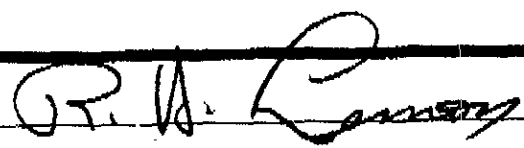
Sample Site	Date Received
Alameda Golf Course	9-17-92
Alameda, CA	

Analysis Requested	Procedure	Date Analyzed
Heavy Metals	EPA-6010/7000	9-21-92

S&W Ref. #	Client Ref. #	Matrix/Analysis	Concentration	Detection Limit
2492-ET2	D	MW-1	Total Lead	< 5.0 ppb
	D	MW-2	Total Lead	6.3 ppb
	E	MW-3	Total Lead	< 5.0 ppb

MDL- 5.00 ppb

This analysis performed for S & W Laboratory by West Laboratory  
Davis, California

Analyst Signature 



APPENDIX C

GROUNDWATER ANALYTICAL RESULTS  
SECOND QUARTER



Laboratory Report

Soil and Water Environmental Laboratory

Client Environmental Tech. Services Report Date 01/15/93
1548 Jacob Ave.
San Jose CA 95118

Drinking Water
Waste Water - Asbestos
Hazardous Waste - Soil
Calderon Testing - Air

Sample Site Alameda Golf Course Date Received 01/12/93
1 Club House Memorial Dr.

14072 W. Park Avenue
Boulder Creek, CA 95006
(408) 338-3053

PMWALGLF

Table with 3 columns: Analysis Requested, Procedure, Date Analyzed. Rows include Total Hydrocarbons - Gas, Total Hydrocarbons - Diesel, Total Oil & Grease, and BTEX.

Main data table with 5 columns: S&W Ref. #, Client Ref. #, Matrix/Analysis, Concentration, Detection Limit. Contains multiple rows for different monitoring wells (MW-1, MW-2, MW-3) and various analyses (TPH-G, TPH-D, TOG, BTEX, Benzene, Toluene, Ethylbenzene, Xylenes).

\* No detectable amount @ detection limit

Analyst Signature

Handwritten signature of R. H. Remon

**APPENDIX D**  
**GROUNDWATER DEVELOPMENT REPORTS**

MONITORING WELL SAMPLING DATA/ MW-1

<u>Project Name:</u>	<u>Well#</u>
ALAMEDA GOLF COURSE	MW-1

<u>Date:</u>	September 18, 1992
--------------	--------------------

<u>Name:</u>	<u>Time Began:</u>
Mawhinney	11:27

<u>DEPTH OF WELL(ft.)</u>	<u>DEPTH TO WATER(ft.)</u>	<u>WELL DIAM.</u>
9.77	5.36	2"

<u>Time</u>	<u>Gallons</u>	<u>Salinity</u>	<u>pH</u>	<u>Temp.</u>	<u>Cond.</u>
11:27	1	1.2	5.6	20 C	21.0
11:40	3	1.2	*	19 C	21.0
11:52	5	1.2	*	19 C	23.0
12:07	7	1.2	*	19 C	21.0

<u>Volume Evacuated</u>	<u>Purging Equip.</u>	<u>Sampling Equip.</u>
10 gallons	Stainless Steel Bailer	Stainless Steel Bailer

<u>Depth to Water Upon Completion of Sampling</u>
Not measured.      Slow Recharge

<u>Sheen</u>	<u>Floating Product</u>	<u>Sample Color</u>	<u>Odor</u>
no	no	grey	no

Sediment/Foreign Matter: very little silt

<u>Sample ID#</u>	<u>Analysis</u>	<u>Laboratory</u>
MW-1	TPHg, BTEX, Total Lead	S & W Lab.

<u>Sample Containers</u>
3/ 40-ml VOAs, 2 Liters

**MONITORING WELL SAMPLING DATA/ MW-2**

**Project Name:** ALAMEDA GOLF COURSE **Well#** MW-2

**Date:** September 18, 1992

**Name:** Mawhinney **Time Began:** 12:19

**DEPTH OF WELL(ft.)** 9.77 **DEPTH TO WATER(ft.)** 1.89 **WELL DIAM.** 2"

<u>Time</u>	<u>Gallons</u>	<u>Salinity</u>	<u>pH</u>	<u>Temp.</u>	<u>Cond.</u>
12:25	1	1.8		21 C	31.0
12:36	3	1.7		21 C	29.0
12:49	5	2.0		20 C	34.0
1:03	7	2.2		19 C	36.0
1:15	10	2.2		19 C	36.0

**Volume Evacuated** 10 gallons **Purging Equip.** Stainless Steel Bailer **Sampling Equip.** Stainless Steel Bailer

**Depth to Water Upon Completion of Sampling**

Not measure. Slow Recharge

**Sheen** no **Floating Product** no **Sample Color** grey **Odor** no

**Sediment/Foreign Matter:** silt

**Sample ID#** MW-2 **Analysis** TPHg, BTEX & Total Lead **Laboratory** S & W Lab.

**Sample Containers**  
3/ 40-ml VOAs, 2 Liters

**MONITORING WELL SAMPLING DATA/ MW-3**

<u>Project Name:</u>	<u>Well#</u>
ALAMEDA GOLF COURSE	MW-3

Date: September 18, 1992

<u>Name:</u>	<u>Time Began:</u>
Mawhinney	1:29

<u>DEPTH OF WELL(ft.)</u>	<u>DEPTH TO WATER(ft.)</u>	<u>WELL DIAM.</u>
9.71	2.28	2"

<u>Time</u>	<u>Gallons</u>	<u>Salinity</u>	<u>pH</u>	<u>Temp.</u>	<u>Cond.</u>
1:29	1	1.8		21 C	31.0
1:37	3	1.7		21 C	27.0
1:48	5	1.7		19C	29.0
1:59	7	2.0		20 C	30.0
2.15	10	2.2		19 C	30.0

<u>Volume Evacuated</u>	<u>Purging Equip.</u>	<u>Sampling Equip.</u>
10 gallons	Stainless Steel Bailer	Stainless Steel Bailer

Depth to Water Upon Completion of Sampling  
 Not measure.      Slow Recharge

<u>Sheen</u>	<u>Floating Product</u>	<u>Sample Color</u>	<u>Odor</u>
no	no	grey	no

Sediment/Foreign Matter: silt

<u>Sample ID#</u>	<u>Analysis</u>	<u>Laboratory</u>
MW-3	TPHg, BTEX, TOTAL LEAD	S & W Lab.

Sample Containers  
 3/ 40-ml VOAs



MONITORING WELL SAMPLING DATA  
MONITORING WELL NO.1

<u>PROJECT NAME:</u>	<u>WELL #</u>
ALAMEDA GOLF COURSE	MW-1

DATE:  
JANUARY 11, 1993

<u>NAME:</u>	<u>TIME BEGAN:</u>
Helen Mawhinney	12:45

<u>DEPTH OF WELL (FT.)</u>	<u>DEPTH OF WATER (FT.)</u>	<u>WELL DIAM.</u>
9.8	3.2	2"

<u>TIME</u>	<u>GALLONS</u>	<u>pH</u>	<u>TEMP.</u>	<u>COND.</u>
1:00	1	6.81	59.1	15.40
1:05	2	6.85	59.3	15.40
1:10	3	6.87	59.3	15.38
1:20	4	6.87	59.4	15.37
1:25	5	6.88	59.4	15.37
1:34	7	6.88	59.4	15.37

<u>VOLUME EVACUATED</u>	<u>PURGING EQUIP.</u>	<u>SAMPLING EQUIP.</u>
8 gallons	Stainless Steel Bailer	Stainless Steel Bailer

DEPTH TO WATER UPON COMPLETION OF SAMPLING  
Not measured. Recharge very slow.

<u>SHEEN</u>	<u>FLOATING PRODUCT</u>	<u>SAMPLE COLOR</u>	<u>ODOR</u>
no	no	grey	no

SEDIMENT/FOREIGN MATTER: very little silt

<u>SAMPLE ID#</u>	<u>ANALYSIS</u>	<u>LABORATORY</u>
MW-1	TPHg, TOG	S & W Lab.

SAMPLE CONTAINERS  
3/ 40-ml VOAs, 2 Liters

MONITORING WELL SAMPLING DATA  
MONITORING WELL NO.2

PROJECT NAME: ALAMEDA GOLF COURSE WELL # MW-2

DATE: JANUARY 11, 1993

NAME: Helen Mawhinney TIME BEGAN: 1:40

DEPTH OF WELL (FT.) 9.8 DEPTH OF WATER (FT.) 1.7 WELL DIAM. 2"

<u>TIME</u>	<u>GALLONS</u>	<u>pH</u>	<u>TEMP.</u>	<u>COND.</u>
1:40	1	7.02	60.7	17.70
1:45	2	7.02	60.7	17.70
1:55	3	7.02	60.8	17.69
2:00	4	7.02	60.9	17.68
2:05	5	7.02	60.9	17.68
2:07	7	7.02	60.9	17.68

VOLUME EVACUATED 8 gallons PURGING EQUIP. Stainless Steel Bailer SAMPLING EQUIP. Stainless Steel Bailer

DEPTH TO WATER UPON COMPLETION OF SAMPLING  
Not measured.

SHEEN no FLOATING PRODUCT no SAMPLE COLOR grey ODOR no

SEDIMENT/FOREIGN MATTER: very little silt

SAMPLE ID# MW-2 ANALYSIS TPHg, TOG LABORATORY S & W Lab

SAMPLE CONTAINERS  
3/ 40-ml VOAs, 2 Liters

**MONITORING WELL SAMPLING DATA  
MONITORING WELL NO.3**

<u>PROJECT NAME:</u>	<u>WELL #</u>
ALAMEDA GOLF COURSE	MW-3

DATE:  
JANUARY 11, 1993

<u>NAME:</u>	<u>TIME BEGAN:</u>
Helen Mawhinney	2:10p

<u>DEPTH OF WELL (FT.)</u>	<u>DEPTH OF WATER (FT.)</u>	<u>WELL DIAM.</u>
9.7	2.4	2"

<u>TIME</u>	<u>GALLONS</u>	<u>pH</u>	<u>TEMP.</u>	<u>COND.</u>
2:10	1	7.26	55.3	12.10
2:20	2	7.25	55.3	12.09
2:25	3	7.24	55.3	12.09
2:35	4	7.23	55.3	12.09
3:00	5	7.22	55.3	12.08
3:05	7	7.22	55.3	12.08

<u>VOLUME EVACUATED</u>	<u>PURGING EQUIP.</u>	<u>SAMPLING EQUIP.</u>
8 gallons	Stainless Steel Bailer	Stainless Steel Bailer

DEPTH TO WATER UPON COMPLETION OF SAMPLING  
Not measured. Recharge very slow

<u>SHEEN</u>	<u>FLOATING PRODUCT</u>	<u>SAMPLE COLOR</u>	<u>ODOR</u>
no	no	grey	no

SEDIMENT/FOREIGN MATTER:

<u>SAMPLE ID#</u>	<u>ANALYSIS</u>	<u>LABORATORY</u>
MW-3	TPHg, BTEX	S & W Lab.

SAMPLE CONTAINERS  
3/ 40-ml VOAs, 2 Liters