Environmental
Technical
Services

A REPORT DOCUMENTING THE PURGING AND SAMPLING OF THREE GROUNDWATER MONITORING WELLS ON FOUR CONSECUTIVE QUARTERS AND THE DETERMINATION OF GROUNDWATER GRADIENT FOR TWELVE CONSECUTIVE MONTHS

AT:

ALAMEDA GOLF COURSE
ONE MEMORIAL CLUBHOUSE DRIVE
ALAMEDA, CALIFORNIA

SEPTEMBER 8, 1993

1548 Jacob Avenue San Jose, CA 95118
Phone/Fax (408) 267-6427 – Pager (415) 578-5947

Environmental
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AT:

ALAMEDA GOLF COURSE
ONE MEMORIAL CLUBHOUSE DRIVE
ALAMEDA, CALIFORNIA

prepared by:

Helen A. Mawhinney 9/9/93

ENVIRONMENTAL TECHNICAL SERVICES
Helen A. Mawhinney
Senior Environmental Specialist

Date

and

Roger Greensfelder 9-9-93

GREENSFELDER & ASSOCIATES
Roger Greensfelder PhD
CA. Registered Geologist #3011

Date

R W GREENSFELDER
No. 003011
STATE OF CALIFORNIA

AUGUST 8, 1993

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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.

Refer to Appendix A, Figure 1, Site Location Map.

Groundwater was sampled on four consecutive quarters and groundwater gradient determined for twelve 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 Office of Environmental Health Department, Hazardous Materials Division.

2.0 PREVIOUS ENVIRONMENTAL INVESTIGATIONS

2.1 Tank Removal

On July 10, 1991 two underground storage tanks (USTs) were removed from the above referenced site. These were one 500-gallon gasoline and one 125-gallon gasoline UST. Groundwater was encountered at 5 feet within the tank pit excavation. 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 no. 6. The excavation of soil within this area was limited by the presence of an existing monitoring well.

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

2.3 ORIGINAL TANK REMOVAL, ANALYTICAL RESULTS

TABLE IA
SOIL ANALYTICAL RESULTS, ORIGINAL TANK REMOVAL
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 mg/kg	B ug/kg	T ug/kg	E ug/kg	X ug/kg
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

ND = not detected at the lower detection limit

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 the lower detection limit

3.0 SCOPE OF SERVICES

3.1 Groundwater Purging & Sampling

The three existing groundwater monitoring wells were purged and sampled on September 5, 1992, January 11, 1993, May 4, 1993, and July 29, 1993. The wells were purged using a clean stainless steel bailer (1.5" diameter by 3.0' 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 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) eliminating headspace to a positive meniscus.

The samples were transported to a certified hazardous waste analytical laboratory under chain of custody for analysis.

3.2 GROUNDWATER ANALYSIS

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

3.3 GROUNDWATER ANALYTICAL RESULTS

TABLE II
GROUNDWATER ANALYTICAL RESULTS
TOTAL PETROLEUM HYDROCARBONS AS GASOLINE
WITH BENZENE, TOLUENE, ETHYLBENZENE, AND TOTAL XYLENES
SEPTEMBER 5, 1992

Results reported in ug/L

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

ND - not detected at lower detection limit

TABLE III
GROUNDWATER ANALYTICAL RESULTS
TOTAL PETROLEUM HYDROCARBONS AS GASOLINE
WITH BENZENE, TOLUENE, ETHYLBENZENE, AND TOTAL XYLENES
SECOND QUARTER
JANUARY 11, 1993

Results reported in ug/L

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

ND - not detected at lower detection limit

TABLE IV
GROUNDWATER ANALYTICAL RESULTS
TOTAL PETROLEUM HYDROCARBONS AS GASOLINE
WITH BENZENE, TOLUENE, ETHYLBENZENE, AND TOTAL XYLENES
THIRD QUARTER
MAY 4, 1993

Results reported in ug/L

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

ND - not detected at lower detection limit

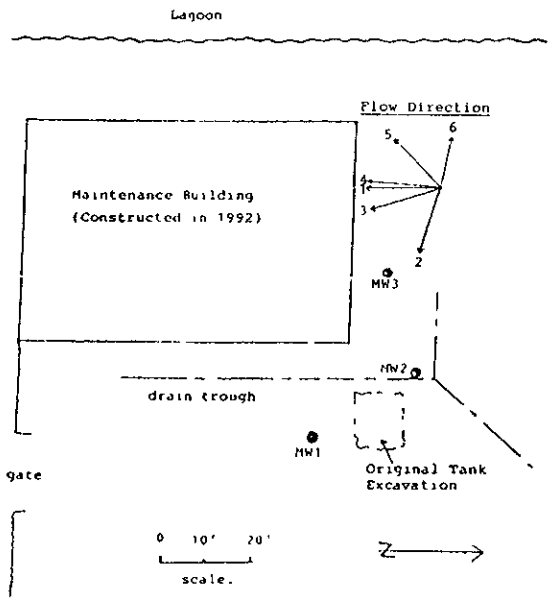
TABLE V
GROUNDWATER ANALYTICAL RESULTS
TOTAL PETROLEUM HYDROCARBONS AS GASOLINE
WITH BENZENE, TOLUENE, ETHYLBENZENE, AND TOTAL XYLENES
FOURTH QUARTER
JULY 29, 1993

Results reported in ug/L

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

ND - not detected at lower detection limit

3.4 GROUND WATER GRADIENT



GROUNDWATER GRADIENT DATA

MAP NO.	DATE	E1(1)	FLOW(2)	GRAD(3)
1	10/14/92	-	181	.080
2	11/10/92	92.18	107	.015
3	12/11/92	92.17	164	.016
4	01/11/93	92.18	184	.004
5	05/04/93	93.07	226	.056
6	07/29/93	93.77	280	.043

NOTES

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

4.0 CONCLUSIONS AND RECOMMENDATIONS

The three monitoring wells located on this site have been developed and sampled for four consecutive quarters and found no detectable amounts of TPH-G and BTEX.

Therefore it is our recommendation that this site be considered for closure and no further monitoring be required.

5.0 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 Department Hazardous Materials Division.

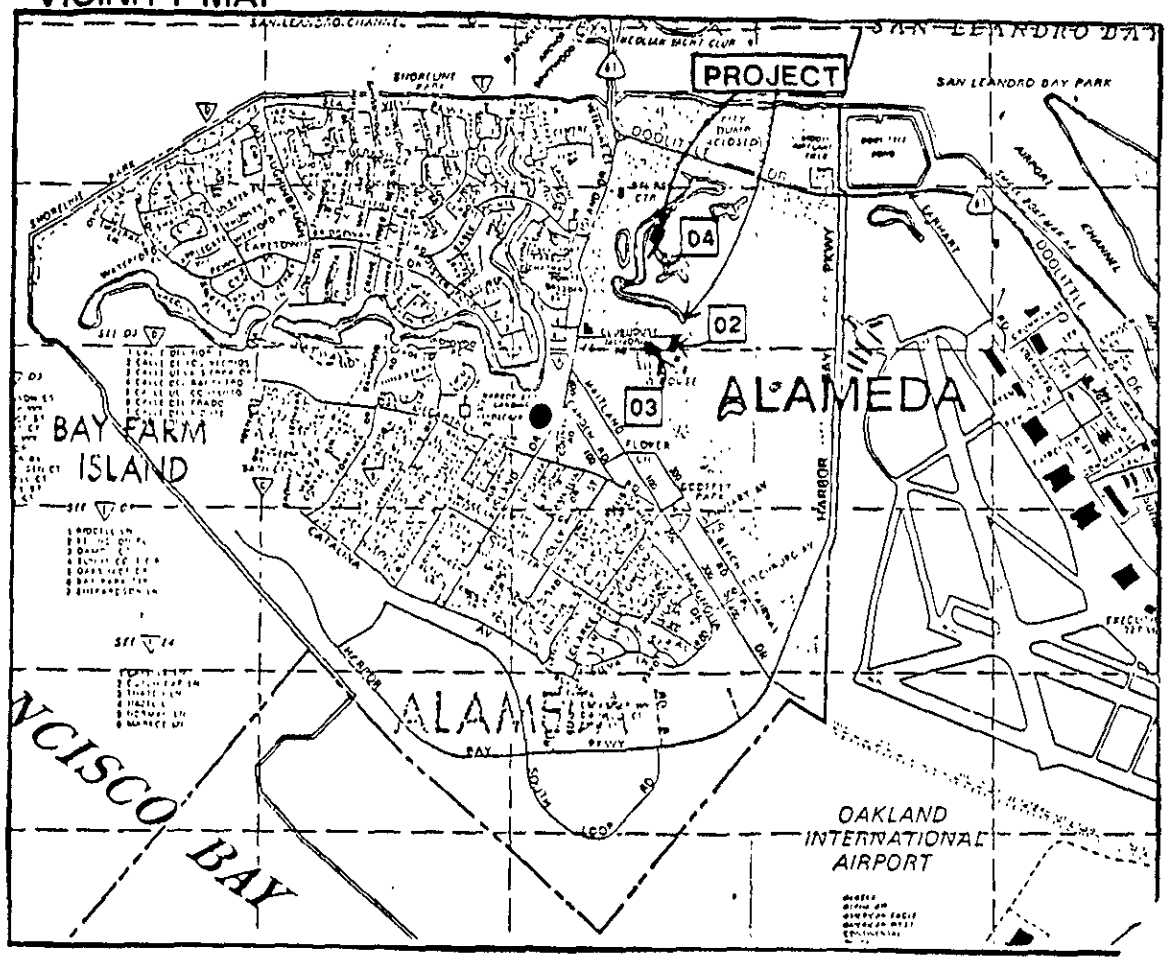
Alameda County
Department of Environmental Health
Hazardous Materials Division
80 Swan Way,
Room 200
Oakland, CA 94621

San Francisco Regional
Water Quality Control Board
2101 Webster Street, Rm 500
Oakland, CA 94621

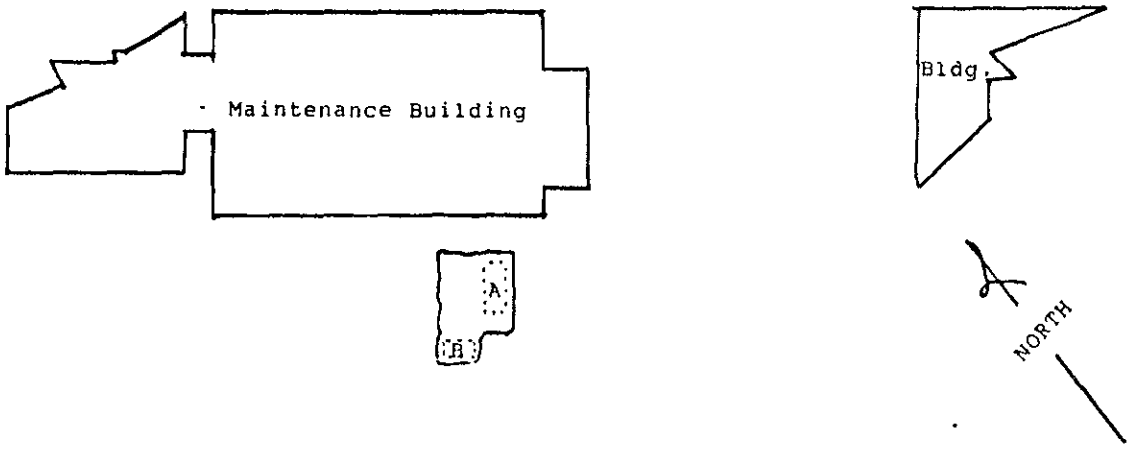
APPENDIX A

MAPS

VICINITY MAP



Environmental Technical Services	ALAMEDA GOLF COURSE 1 MEMORIAL CLUBHOUSE ALAMEDA, CALIF	Figure 1 SITE LOCATION MAP



KEY

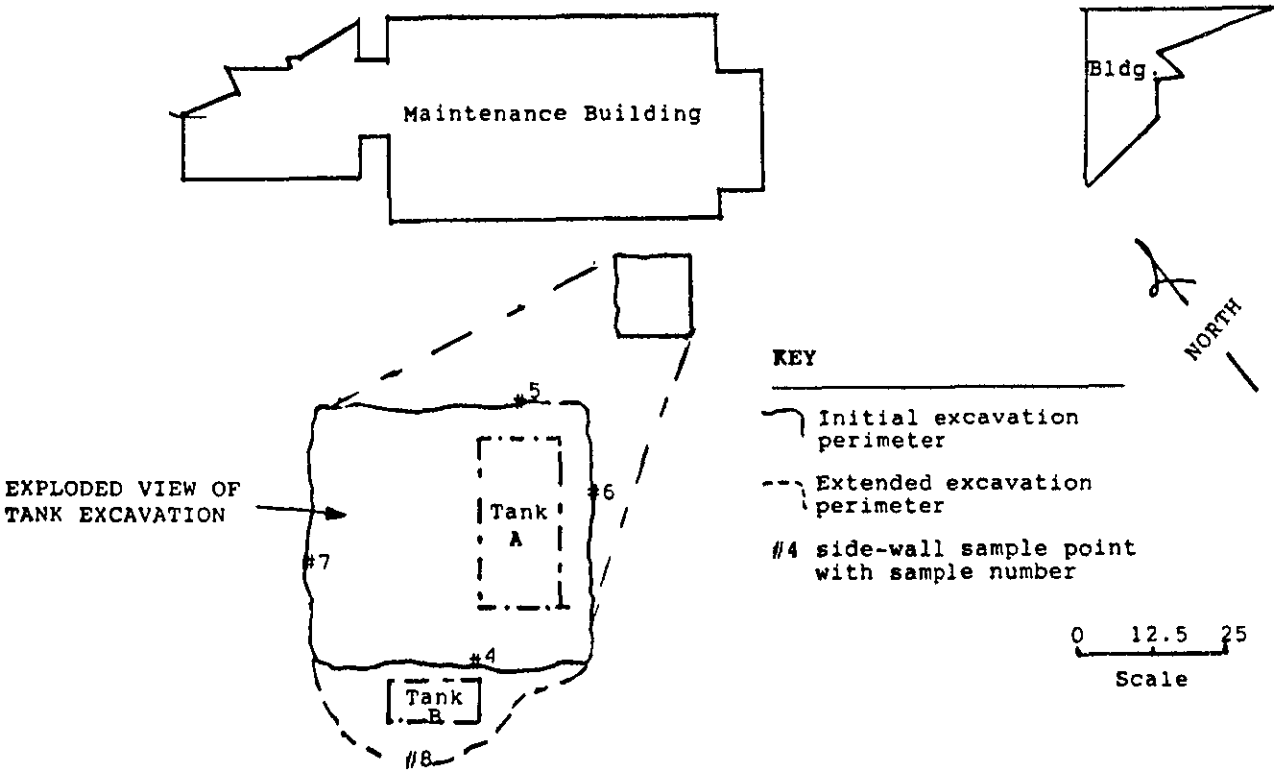
A 500 gal gasoline tank

B 125 gal gasoline tank

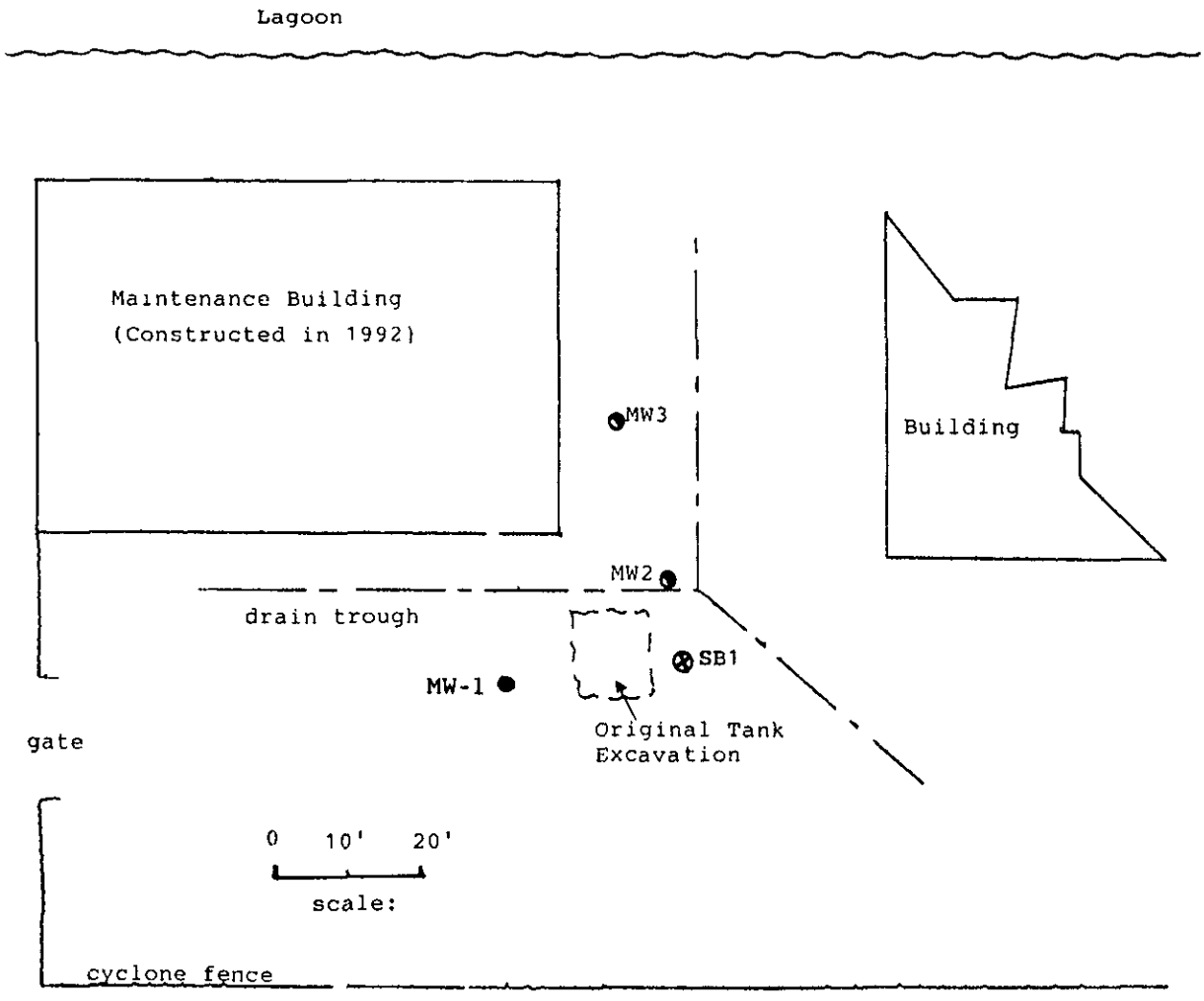
0 12.5 25

Scale

Environmental Technical Services	ALAMEDA GOLF COURSE	Figure 2
	1 MEMORIAL CLUBHOUSE	FORMER TANK LOCATION
	ALAMDEA, CALIF.	



Environmental Technical Services	ALAMEDA GOLF COURSE	Figure 3
	1 MEMORIAL CLUBHOUSE	EXCAVATION AND
	ALAMEDA, CALIF	SAMPLING MAP



Environmental Technical Services	ALAMEDA GOLF COURSE	**Figure** 4
	1 MEMORIAL CLUBHOUSE	MONITORING WELL
	ALAMEDA, CALIF	LOCATION MAP

APPENDIX B

GROUNDWATER ANALYTICAL RESULTS
FIRST QUARTER

S&W
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

Laboratory Report

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

Report Date: 09/29/92

Sample Site: Alameda Golf Course
Alameda, CA

MW ALAM Golf

Date Received: 09/05/92

Analysis Requested: Total Hydrocarbons - Gas
BTEX

Procedure: EPA 5030
EPA 602

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

Soil and Water Environmental Laboratory
14072 West Park Avenue
Boulder Creek, CA 95006
(408) 338-3053/4466

CHAIN - OF - CUSTODY

Project Number	Site Name and Address	Type and Number of Containers	Analysis Required							Laboratory ID	Comments
MWAIGolf	Clubhouse DK Alameda Golf Course		TPH-G + BTEX	TPH-D + BTEX	TOG	TOTAL LEAD				Condition of Samples 1 - Good 2 - See Reverse	
Witnessing Agency/Inspector Name and Date Juliet Shen/Alan. Co Env Hlth Dept											
Sample ID	Date / Time / Matrix / Sample Location										
MW1	9/5/92 / H2O / 2-40ml VOCs vials		✓			✓				1	Not enough
MW2	↓ / ↓		✓			✓				1	Hold for Lead
MW3	↓ / ↓		✓			✓				1	

Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Date/Time	Remarks:
Helen Mawhinney	9-5-92			
Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Date/Time	COMPANY: ETS
Relinquished by: (Signature)	Date/Time	Received by Lab: (Signature) R H Lemon	Date/Time 6:45 9/5/92	ADDRESS: PHONE: FAX:

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S&W
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

Laboratory Report

Client
Environmental Tech. Services
1548 Jacob Ave. e. Rd.
San Jose, CA 95118

Report Date
10-01-92

Sample Site
Alameda Golf Course
Alameda, CA

Date Received
9-17-92

Analysis Requested
Heavy Metals

Procedure
EPA-6010/7000

Date Analyzed
9-21-92

S&W Ref. #	Client Ref. #	Matrix/Analysis	Concentration	Detection Limit
2492-ET2 C	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

Soil and Water Environmental Laboratory
14072 West Park Avenue
Boulder Creek, CA 95006
(408) 338-3053/4466

CHAIN - OF - CUSTODY

Project Number	Site Name and Address
MWALGOIF	Alam. Golf Course 1 Memorial Club House Dr. Alameda

Witnessing Agency/Inspector Name and Date: Alam. Co Env Health Dept / Sylvia Shen

Sample ID	Date	Time	Matrix	Sample Location	Type and Number of Containers	TPH-G + BTEX	TPH-D + BTEX	TOG	Total Lead				Laboratory ID	Condition of Samples 1 - Good 2 - See Reverse	Comments
MW-1	9/17/92		H2O	2 Liters Amber					✓						Additional water
MW-2	9/17/92		↓	↓					✓						for lead analysis
MW-3	9/17/92		↓	↓					✓						(9-5-92)

Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Date/Time
[signature]	9/17/92 4:02		
Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Date/Time
Relinquished by: (Signature)	Date/Time	Received by Lab: (Signature) R W [signature]	Date/Time 9/17/92 4:00

Remarks:

COMPANY:
ADDRESS:

PHONE: FAX:

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APPENDIX C

GROUNDWATER ANALYTICAL RESULTS
SECOND QUARTER

S&W
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

Laboratory Report

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

Report Date: 01/15/93

Sample Site: Alameda Golf Cource
1 Club House Memorial Dr.

EMWALGLF

Date Received: 01/12/93

Analysis Requested	Procedure	Date Analyzed
Total Hydrocarbons – Gas	EPA 5030	01/14/93
Total Hydrocarbons – Diesel	EPA 3510	
Total Oil & Grease	EPA 503e	
BTEX	EPA 602	

S&W Ref #	Client Ref. #	Matrix/Analysis	Concentration	Detection Limit
0123-ET3-A	MW-1	Water/TPH-G	*	50 ppb
0123-ET3-A	MW-1	Water/TPH-D	*	50 ppb
0123-ET3-A	MW-1	Water/TOG	*	5 ppm
0123-ET3-A	MW-1	Water/BTEX		
		Benzene	*	0.5 ppb
		Toluene	*	0.5 ppb
		Ethylbenzene	*	0.5 ppb
		Xylenes	*	0.5 ppb
0123-ET3-B	MW-2	Water/TPH-G	*	50 ppb
0123-ET3-B	MW-2	Water/TPH-D	*	50 ppb
0123-ET3-B	MW-2	Water/TOG	*	5 ppm
0123-ET3-B	MW-2	Water/BTEX		
		Benzene	*	0.5 ppb
		Toluene	*	0.5 ppb
		Ethylbenzene	*	0.5 ppb
		Xylenes	*	0.5 ppb
0123-ET3-C	MW-3	Water/TPH-G	*	50 ppb
0123-ET3-C	MW-3	Water/TPH-D	*	50 ppb
0123-ET3-C	MW-3	Water/TOG	*	5 ppm
0123-ET3-C	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: R. A. Lemon

Environmental Technical Services
(408) 267-6427

CHAIN - OF - CUSTODY

Project Number	Site Name and Address	Type and Number of Containers	Analysis Required	Laboratory ID	Comments
2MWALGLF	Alameda A/AM Golf Course 1150 House Memorial Dr		TPH-G + BTEX; TPH-D - BTEX; TOG	0123-ET-3	
Witnessing Agency/Inspector Name and Date: Alam Co Env Health Serv. July 93				Condition of Samples 1 - Good 2 - See Reverse	

Sample ID	Date	Time	Matrix	Sample Location									
MW-1	1/11/93		H2O	groundwater	~~BTEX~~	✓						A	
MW-2	↓		↓	↓		✓						B	
MW-3	↓		↓	↓		✓						C	

Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Date/Time	Remarks:
Helen Nieuwenhuis	1/11/93 4:30	BTS FRIDGE	1/11/93 4:30	
Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Date/Time	COMPANY:
				ADDRESS:
Relinquished by: (Signature) * Lisa Abbott	Date/Time 1/12/93	Received by Lab: (Signature) R. H. Lenoy	Date/Time 1/12/93 2:40	PHONE: FAX:

APPENDIX D

GROUNDWATER ANALYTICAL RESULTS
THIRD QUARTER

S&W
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

Laboratory Report

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

Report Date: 05/13/93

Sample Site: Alameda Golf Cource
One Memorial Club House Drive
Alameda
AC-C

Date Received: 05/05/93

Analysis Requested: Total Hydrocarbons - Gas
BTEX

Procedure: EPA 5030
EPA 602

Date Analyzed: 05/06/93

S&W Ref. #	Client Ref. #	Matrix/Analysis	Concentration	Detection Limit
1253-ET2-A	MW-1	Water/TPH-G	*	50 ppb
1253-ET2-A	MW-1	Water/BTEX		
		Benzene	*	0.5 ppb
		Toluene	*	0.5 ppb
		Ethylbenzene	*	0.5 ppb
		Xylenes	*	0.5 ppb
1253-ET2-B	MW-2	Water/TPH-G	*	50 ppb
1253-ET2-B	MW-2	Water/BTEX		
		Benzene	*	0.5 ppb
		Toluene	*	0.5 ppb
		Ethylbenzene	*	0.5 ppb
		Xylenes	*	0.5 ppb
1253-ET2-C	MW-3	Water/TPH-G	*	50 ppb
1253-ET2-C	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: R. W. Lemon

Soil and Water Environmental Laboratory
14072 West Park Avenue
Boulder Creek, CA 95006
(408) 338-3053/4466

CHAIN - OF - CUSTODY

Project Number	Site Name and Address	Type and Number of Containers	Analysis Required							Laboratory ID	Comments
AC-C	One Memorial Club House Drive Alameda, CA Alameda Golf Course		TPH-G + BTEX	TPH-D + BTEX	TOG					Condition of Samples 1 - Good 2 - See Reverse	
Witnessing Agency/Inspector Name and Date											
Sample ID	Date / Time / Matrix / Sample Location										
MW-1	5/4/93 H2O		✓								
MW-2	↓ ↓		✓								
MW-3	↓ ↓		✓								

Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Date/Time	Remarks:
Helen Mannerino	5/4/93 4:15	TO ETS FRIDGE		
Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Date/Time	COMPANY:
				ADDRESS:
Relinquished by: (Signature)	Date/Time	Received by Lab: (Signature)	Date/Time	
Helen Mannerino	5/5/93 6:21	R. H. Lemon	5/5/93 6:20	PHONE: FAX:

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APPENDIX E

GROUNDWATER ANALYTICAL RESULTS
FOURTH QUARTER

S&W
Soil and Water Environmental Laboratory, Inc.

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

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

Laboratory Report

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

Report Date: 08/15/93

Sample Site: Alam Golf Cource
Club House Memorial Dr.
Alameda
AlamGolf

Date Received: 07/29/93

Analysis Requested: Total Hydrocarbons - Gas
BTEX

Procedure: EPA 5030
EPA 602

Date Analyzed: 08/01/93

S&W Ref #	Client Ref #	Matrix/Analysis	Concentration	Detection Limit
2103-ET2-A	MW-1	Water/TPH-G	*	50 ppb
2103-ET2-A	MW-1	Water/BTEX		
		Benzene	*	0.5 ppb
		Toluene	*	0.5 ppb
		Ethylbenzene	*	0.5 ppb
		Xylenes	*	0.5 ppb
2103-ET2-B	MW-2	Water/TPH-G	*	50 ppb
2103-ET2-B	MW-2	Water/BTEX		
		Benzene	*	0.5 ppb
		Toluene	*	0.5 ppb
		Ethylbenzene	*	0.5 ppb
		Xylenes	*	0.5 ppb
2103-ET2-C	MW-3	Water/TPH-G	*	50 ppb
2103-ET2-C	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: R. W. Lemons

Environmental Technical Services
(408) 267-6427

CHAIN - OF - CUSTODY

Project Number	Site Name and Address	Type and Number of Containers	Analysis Required							Laboratory ID	Comments
Clam Golf	Club House Menlo Park Golf Course Davis Alameda		TPH-D + BTEX	TPH-D + BTEX	TOC					1103-ET-2	
Witnessing Agency/Inspector Name and Date										Condition of Samples 1 - Good 2 - See Reverse	
Sample ID / Date / Time / Matrix / Sample Location											
MW1 / 7/28/93 / / H2O /		VOAs 2 40-ml	✓								A
MW2 / " / / " /		VOAs 2 40-ml	✓								B
MW3 / " / / " /		" "	✓								C

Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Date/Time	Remarks:
Helen Mawhinney	7/28/93 3:45	ETS Fridge		
Relinquished by: (Signature)	Date/Time	Received by: (Signature)	Date/Time	COMPANY: ETS
Relinquished by: (Signature)	Date/Time	Received by Lab: (Signature)	Date/Time	ADDRESS:
Helen Mawhinney	7/29/93 9:30	R. H. Lemon	7/29/93 10:20	PHONE: FAX:

APPENDIX F

GROUNDWATER DEVELOPMENT REPORTS

MONITORING WELL SAMPLING DATA
MW-1

Project Name:	**Well#**
ALAMEDA GOLF COURSE	MW-1

DATE: July 29, 1993

NAME:	**Time Began:**
Mawhinney	11:10a

DEPTH OF WELL	**DEPTH TO WATER**	**WELL DIAM.**
10.8	1.61'	2"

Time	**Gallons**	**Temp.**	**pH**	**Cond.**
11:21	1	76.2	9.39	
11:24	3	78.4	9.13	
11:27	5	78.4	9.82	

Conductivity was not measured. Meter was not operating properly.

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

Depth to Water Upon Completion of Sampling: not measured

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

Sediment/Foreign Matter: very little silt

Sample ID#	**Analysis**	**Laboratory**
MW-1	TPH-G, BTEX	S & W Lab

Sample Containers:

2/40ml VOAs
2 amber one-liter bottles

MONITORING WELL SAMPLING DATA
MW-2

Project Name:
ALAMEDA GOLF COURSE

Well#
MW-2

DATE: July 29, 1993

NAME:
Mawhinney

Time Began:
11:35p

DEPTH OF WELL	DEPTH TO WATER	WELL DIAM.
9.6'	1.7'	2"

Time	Gallons	Temp.	pH	Cond.
11:45	1	88.8	9.81	
11:48	3	83.3	9.61	
11:52	5	81.5	9.76	

Volume Evacuated	Purging Equip.	Sampling Equip.
7 gallons	Stainless Steel Bailer	Stainless Steel Bailer

Depth to Water Upon Completion of Sampling: not measured

Sheen	Floating Product	Sample Color	Odor
no	no	dark grey	no

Sediment/Foreign Matter: very little silt

Sample ID#	Analysis	Laboratory
MW-2	TPH-G, BTEX	S & W Lab

Sample Containers:

2/40ml VOAs
2 amber one-liter bottles

MONITORING WELL SAMPLING DATA
MW-3

Project Name:	**Well#**
ALAMEDA GOLF COURSE	MW-3

DATE: July 29, 1993

NAME:	**Time Began:**
Mawhinney	12:10p

DEPTH OF WELL	**DEPTH TO WATER**	**WELL DIAM.**
9.71'	2.9'	2"

Time	**Gallons**	**Temp.**	**pH**	**Cond.**
12:20	1	93.4	13.14	
12:24	3	82.8	12.70	
12:29	5	82.4	12.70	

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

Depth to Water Upon Completion of Sampling: not measured

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

Sediment/Foreign Matter: very little silt

Sample ID#	**Analysis**	**Laboratory**
MW-3	TPH-g, BTEX	S & W Lab

Sample Containers:

2/40ml VOAs
2 amber one-liter bottles

MONITORING WELL SAMPLING DATA
MW-1

Project Name:	Well#
ALAMEDA GOLF COURSE	MW-1

DATE: May 4, 1993

NAME:	Time Began:
Mawhinney	10:51

DEPTH OF WELL	DEPTH TO WATER	WELL DIAM.
9.8	2.31	2"

Time	Gallons	Salinity	pH	Temp.	Cond.
11:20	1	*	*	56.4 F	10.94
11:38	3	*	*	59.3 F	8.56
11:45	5	*	*	44.9 F	9.29
12:00	7	*	*	46.3 F	9.44

Volume Evacuated	Purging Equip.	Sampling Equip.
7 gallons	Stainless Steel Bailer	Stainless Steel Bailer

Depth to Water Upon Completion of Sampling:

9.74' Slow to recharge

Sheen	Floating Product	Sample Color	Odor
no	no	dark grey	yes

Sediment/Foreign Matter: very silty

Sample ID#	Analysis	Laboratory
MW-1	TPHg, BTEX	S & W Lab

Sample Containers

2/40-ml VOAs
2 amber one liter bottles

MONITORING WELL SAMPLING DATA
MW-2

Project Name:	Well#
ALAMEDA GOLF COURSE	MW-2

DATE: May 4, 1993

NAME:	Time Began:
Mawhinney	12:19p

DEPTH OF WELL	DEPTH TO WATER	WELL DIAM.
9.8′	1.4′	2"

Time	Gallons	Salinity	pH	Temp.	Cond.
12:27	1	*	*	66.4 F	7.92
12:35	3	*	*	67.4 F	7.94
1:45	5	*	*	65.4 F	6.47
1:50	7	*	*	62.1 F	6.48

Volume Evacuated	Purging Equip.	Sampling Equip.
7 gallons	Stainless Steel Bailer	Stainless Steel Bailer

Depth to Water Upon Completion of Sampling:

9.8′ Good Recharge

Sheen	Floating Product	Sample Color	Odor
no	no	grey/gold	no

Sediment/Foreign Matter: very silty

Sample ID#	Analysis	Laboratory
MW-2	TPHg, BTEX	S & W Lab

Sample Containers

2/40-ml VOAs
2 amber one liter bottles

MONITORING WELL SAMPLING DATA
MW-3

Project Name:	Well#
ALAMEDA GOLF COURSE	MW-3

DATE: May 4 , 1993

NAME:	Time Began:
Mawhinney	1:15p

DEPTH OF WELL	DEPTH TO WATER	WELL DIAM.
9.72	2.9′	2"

Time	Gallons	Salinity	pH	Temp.	Cond.
1:15	1	*	*	58.3 F	4.62
1:25	3	*	*	47.3 F	4.40
1:35	5	*	*	31.3 F	3.57
1:42	7	*	*	31.2 F	3.37

Volume Evacuated	Purging Equip.	Sampling Equip.
7 gallons	Stainless Steel Bailer	Stainless Steel Bailer

Depth to Water Upon Completion of Sampling:

9.73′ at completion

Sheen	Floating Product	Sample Color	Odor
no	no	dark grey	yes

Sediment/Foreign Matter: very little silt

Sample ID#	Analysis	Laboratory
MW-3	TPHg, BTEX	S & W Lab

Sample Containers

2/40-ml VOAs
2 amber one liter bottles

MONITORING WELL SAMPLING DATA
MONITORING WELL NO.1

PROJECT NAME:	WELL #
ALAMEDA GOLF COURSE	MW-1

DATE: JANUARY 11, 1993

NAME:	TIME BEGAN:
Helen Mawhinney	12:45

DEPTH OF WELL(FT.)	DEPTH OF WATER(FT.)	WELL DIAM.
9.8	3.2	2"

TIME	GALLONS	pH	TEMP.	COND.
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

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

DEPTH TO WATER UPON COMPLETION OF SAMPLING

Not measured. Recharge very slow.

SHEEN	FLOATING PRODUCT	SAMPLE COLOR	ODOR
no	no	grey	no

SEDIMENT/FOREIGN MATTER: very little silt

SAMPLE ID#	ANALYSIS	LABORATORY
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:	WELL #
ALAMEDA GOLF COURSE	MW-2

DATE: JANUARY 11, 1993

NAME:	TIME BEGAN:
Helen Mawhinney	1:40

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

TIME	GALLONS	pH	TEMP.	COND.
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	PURGING EQUIP.	SAMPLING EQUIP.
8 gallons	Stainless Steel Bailer	Stainless Steel Bailer

DEPTH TO WATER UPON COMPLETION OF SAMPLING
Not measured.

SHEEN	FLOATING PRODUCT	SAMPLE COLOR	ODOR
no	no	grey	no

SEDIMENT/FOREIGN MATTER: very little silt

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

SAMPLE CONTAINERS
3/ 40-ml VOAs, 2 Liters

MONITORING WELL SAMPLING DATA
MONITORING WELL NO.3

PROJECT NAME:	WELL #
ALAMEDA GOLF COURSE	MW-3

DATE: JANUARY 11, 1993

NAME:	TIME BEGAN:
Helen Mawhinney	2:10p

DEPTH OF WELL(FT.)	DEPTH OF WATER(FT.)	WELL DIAM.
9.7	2.4	2"

TIME	GALLONS	pH	TEMP.	COND.
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

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

DEPTH TO WATER UPON COMPLETION OF SAMPLING

Not measured. Recharge very slow

SHEEN	FLOATING PRODUCT	SAMPLE COLOR	ODOR
no	no	grey	no

SEDIMENT/FOREIGN MATTER:

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

SAMPLE CONTAINERS
3/ 40-ml VOAs, 2 Liters

MONITORING WELL SAMPLING DATA/ MW-1

Project Name:	Well#
ALAMEDA GOLF COURSE	MW-1

Date: September 18, 1992

Name:	Time Began:
Mawhinney	11:27

DEPTH OF WELL(ft.)	DEPTH TO WATER(ft.)	WELL DIAM.
9.77	5.36	2"

Time	Gallons	Salinity	pH	Temp.	Cond.
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

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

Depth to Water Upon Completion of Sampling

Not measured. Slow Recharge

Sheen	Floating Product	Sample Color	Odor
no	no	grey	no

Sediment/Foreign Matter: very little silt

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

Sample Containers
3/ 40-ml VOAs, 2 Liters

MONITORING WELL SAMPLING DATA/ MW-2

Project Name:	Well#
ALAMEDA GOLF COURSE	MW-2

Date: September 18, 1992

Name:	Time Began:
Mawhinney	12:19

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

Time	Gallons	Salinity	pH	Temp.	Cond.
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	Purging Equip.	Sampling Equip.
10 gallons	Stainless Steel Bailer	Stainless Steel Bailer

Depth to Water Upon Completion of Sampling

Not measure. Slow Recharge

Sheen	Floating Product	Sample Color	Odor
no	no	grey	no

Sediment/Foreign Matter: silt

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

Sample Containers
3/ 40-ml VOAs, 2 Liters

MONITORING WELL SAMPLING DATA/ MW-3

Project Name:	Well#
ALAMEDA GOLF COURSE	MW-3

Date: September 18, 1992

Name:	Time Began:
Mawhinney	1:29

DEPTH OF WELL(ft.)	DEPTH TO WATER(ft.)	WELL DIAM.
9.71	2.28	2"

Time	Gallons	Salinity	pH	Temp.	Cond.
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

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

Depth to Water Upon Completion of Sampling

Not measure. Slow Recharge

Sheen	Floating Product	Sample Color	Odor
no	no	grey	no

Sediment/Foreign Matter: silt

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

Sample Containers
3/ 40-ml VOAs