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CONSULTANTS

January 12, 1993

Mr. Robert Deluca
Alameda Unified School District
2200 Central Avenue
Alameda, CA 94501

RE: Second Quarter Groundwater Sampling
Alameda Historical High School in Alameda, California

Dear Bob:

The attached report describes the materials and procedures used during quarterly sampling of three monitoring wells located at the Alameda Historical High School in Alameda, California. This work was performed to evaluate the presence or absence of residual hydrocarbon concentrations in groundwater.

Groundwater samples collected during sampling were submitted to Geochem, Inc. Analytical Laboratory for petroleum hydrocarbon analyses. Analytical results of the groundwater samples collected from the monitoring wells indicated below detectable levels for the hydrocarbon constituents evaluated. A copy of this report will be submitted to the regulatory agencies for their review.

If you have any questions or comments regarding this report or any other comments regarding this project, please call.

Sincerely,

Misty C. Kaltreider
Geologist

Encl.

cc. Mr. Eddie So - Regional Water Quality Control Board
Ms. Juliet Shin - Alameda County Health Agency - Hazardous Materials

1000 Atlantic Avenue, Suite 110 • Alameda, CA 94501 • (510) 522-8188 • FAX: (510) 865-5731

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QUARTERLY GROUNDWATER SAMPLING
SECOND QUARTER

ALAMEDA HISTORICAL HIGH SCHOOL
2200 CENTRAL AVENUE
ALAMEDA, CALIFORNIA

January 1993

Prepared for:
Mr. Robert Deluca
Alameda School District
2200 Central Avenue
Alameda, CA 94501

Prepared by:

Misty Kaltreider
Project Geologist

Reviewed by:

Elizabeth Herbert, RG
Registered Geologist

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TABLE OF CONTENTS

LIST OF FIGURES

APPENDICES

1.0 INTRODUCTION

This report presents the procedures and findings of ACC Environmental Consultants, Inc. (ACC) quarterly groundwater sampling performed on January 6, 1993, for the three monitoring wells located at the Alameda Historical High School in Alameda, California. The objective of this project, as described in the Work Plan dated June 9, 1992, is to determine if groundwater has been impacted from the release of petroleum hydrocarbons discovered during removal of two underground heating oil tanks.

During drilling and installation of the monitoring wells in June of 1992, groundwater was encountered at approximately 10 feet below ground surface. The wells were installed and sampled to determine what impact the release had on the groundwater. Groundwater analysis results from the initial round of sampling performed on July 6, 1992, indicated elevated levels of Total Petroleum Hydrocarbons (TPH) as diesel in monitoring well MW-1. Analysis of groundwater samples collected the first quarterly monitoring indicated concentrations of Total Petroleum Hydrocarbons below detectable levels. This report documents the procedures and results found during the second round of quarterly sampling.

2.0 BACKGROUND

In December of 1991, Semco of San Mateo removed two heating oil tanks (one 4000-gallon and one 2000-gallon) from Alameda Historical High School campus. During excavation, it was discovered that the tanks were stacked on top of each other. Analysis of soil samples collected 11 feet below existing grade and within the excavation indicated below detectable levels of Total Petroleum Hydrocarbons (TPH) as diesel, benzene, toluene, ethylbenzene and total xylenes. Water was observed in the excavation at approximately 12 feet below ground surface. Analysis of the water sample collected from the excavation indicated that the water contained 0.6 parts per billion (ppb) of toluene, 1.2 ppb ethylbenzene and 1.8 ppb total xylenes.

Alameda County Health Services - Hazardous Materials Division (HAZMAT) requested the installation of one monitoring well in the verified downgradient direction of the former heating oil tanks with verification sampling to determine possible impact to groundwater from this release.

In order to verify the groundwater gradient, three monitoring wells (MW-1, MW-2 and MW-3) were installed within 100 feet of the tank excavation on June 26, 1992. The Site Plan, Figure 1, shows the approximate well locations. Soil samples collected while drilling indicated below detectable levels of the constituents evaluated. Groundwater samples were collected from the newly installed monitoring wells on July 6, 1992. Laboratory analysis of the groundwater samples indicated 170 ppb of TPH as diesel in monitoring well MW-1. Laboratory analysis from monitoring wells MW-2 and MW-3 indicated below detectable concentrations of the constituents evaluated. Sampling and analysis of groundwater collected from the monitoring wells performed on September 29, 1992, indicated below detectable levels of the constituents evaluated.

3.0 GROUNDWATER SAMPLING

Groundwater samples were collected on January 6, 1992 from monitoring wells MW-1, MW-2 and MW-3. Prior to groundwater sampling the depth to the surface of the water table was measured from the top of the PVC casing using a Solinst Water Level Meter. Information regarding depths of wells, well elevations and groundwater level measurements are summarized in Table 1 below:

Table 1 - Well Information

Monitoring Well MW-1 Well Elevation = 31.50

Date Measured	Static Water Level	Groundwater Elevation
07/06/92	9.49	22.01
09/29/92	10.97	20.53
01/06/93	7.78	23.72

Monitoring Well MW-2 Well Elevation = 32.16

Date Measured	Static Water Level	Groundwater Elevation
07/06/92	10.05	22.11
09/29/92	11.67	20.49
01/06/93	8.25	23.91

Monitoring Well MW-3 Well Elevation = 31.02

Date Measured	Static Water Level	Groundwater Elevation
07/06/92	9.03	21.99
09/29/92	10.54	20.48
01/06/93	8.21	22.81

Notes:
All measurements in feet
Elevations figured per mean sea level
Static water level is measured in feet below ground surface

After water-level measurements were taken, each well was purged by hand using a designated teflon bailer for each well. Groundwater pH, temperature and electrical conductivity were monitored during well purging. Each well was considered to be purged when these parameters stabilized. Approximately four well volumes were removed to purge each well.

After the groundwater had recovered to a minimum of approximately 80 percent of its static level, water samples were obtained using the disposal Teflon bailer for each well. Two 40 ml VOA vials, without headspace, and two 1-liter bottles were filled with water from each well using the Teflon bailer. These samples were preserved on ice and submitted to Geochem, Inc. analytical laboratory, an accredited Cal/EPA analytical laboratory the same day under chain of custody protocol (forms are provided in Appendix A).

4.0 FINDINGS

One sample from each groundwater monitoring well was submitted to Geochem for analysis of TPH as diesel, heating oil and kerosene using EPA test method 8015 modified with benzene, toluene, ethylbenzene and total xylenes (BTEX) using EPA test method 602. The results of the laboratory analyses indicated below detectable concentrations of the constituents evaluated. Table 2 below, summarizes the analytical results of the groundwater samples collected from each monitoring well. Copies of the recent analytical results are provided in Appendix A.

Table 2 - Analytical Results

Well No.	Date Sampled	TPH-d (ug/L)	Benzene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	Xylenes (ug/L)
MW-1	07/06/92	170	<0.5	<0.5	<0.5	<0.5
	09/29/92	<50	<0.5	<0.5	<0.5	<0.5
	01/06/93	<50	<0.5	<0.5	<0.5	<0.5
MW-2	07/06/92	<50	<0.5	<0.5	<0.5	<0.5
	09/29/92	<50	<0.5	<0.5	<0.5	<0.5
	01/06/93	<50	<0.5	<0.5	<0.5	<0.5
MW-3	07/06/92	<50	<0.5	<0.5	<0.5	<0.5
	09/29/92	<50	<0.5	<0.5	<0.5	<0.5
	01/06/93	<50	<0.5	<0.5	<0.5	<0.5

Notes:
ug/L = micrograms per liter or parts per billion

4.1 Groundwater Gradient

The groundwater gradient at the site was evaluated by triangulation using the elevation of the groundwater level in the well casings (Mean Sea Level datum). As shown on Figure 2, the approximate direction of groundwater flow at the time of measurement was approximately north. The groundwater gradient was approximately 0.02 foot per foot.

5.0 CONCLUSION

The data and observations provided herein allow the technical evaluation that an impact to groundwater, derived from the unauthorized release of hydrocarbons, has apparently been mitigated by natural degradation of the contaminants.

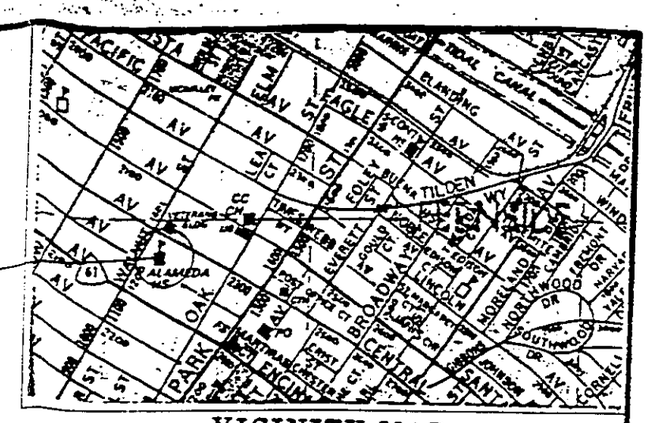
Pursuant to the guidelines, groundwater monitoring of the on-site wells will continue for two more consecutive quarters. Upon acceptable monitoring results, a request for site closure shall be submitted for the regulatory agencies' approval.

JUNE 30, 1992 JOB NO. 1941

PLAT SHOWING EXISTING MONITOR WELLS BEHIND THE GIRLS GYMNASIUM BUILDING AT THE ALAMEDA HIGH SCHOOL FACILTY, LOCATED AT 2200 CENTRAL AVENUE, BETWEEN OAK STREET AND WALNUT STREET, CITY OF ALAMEDA, ALAMEDA COUNTY, CALIFORNIA.

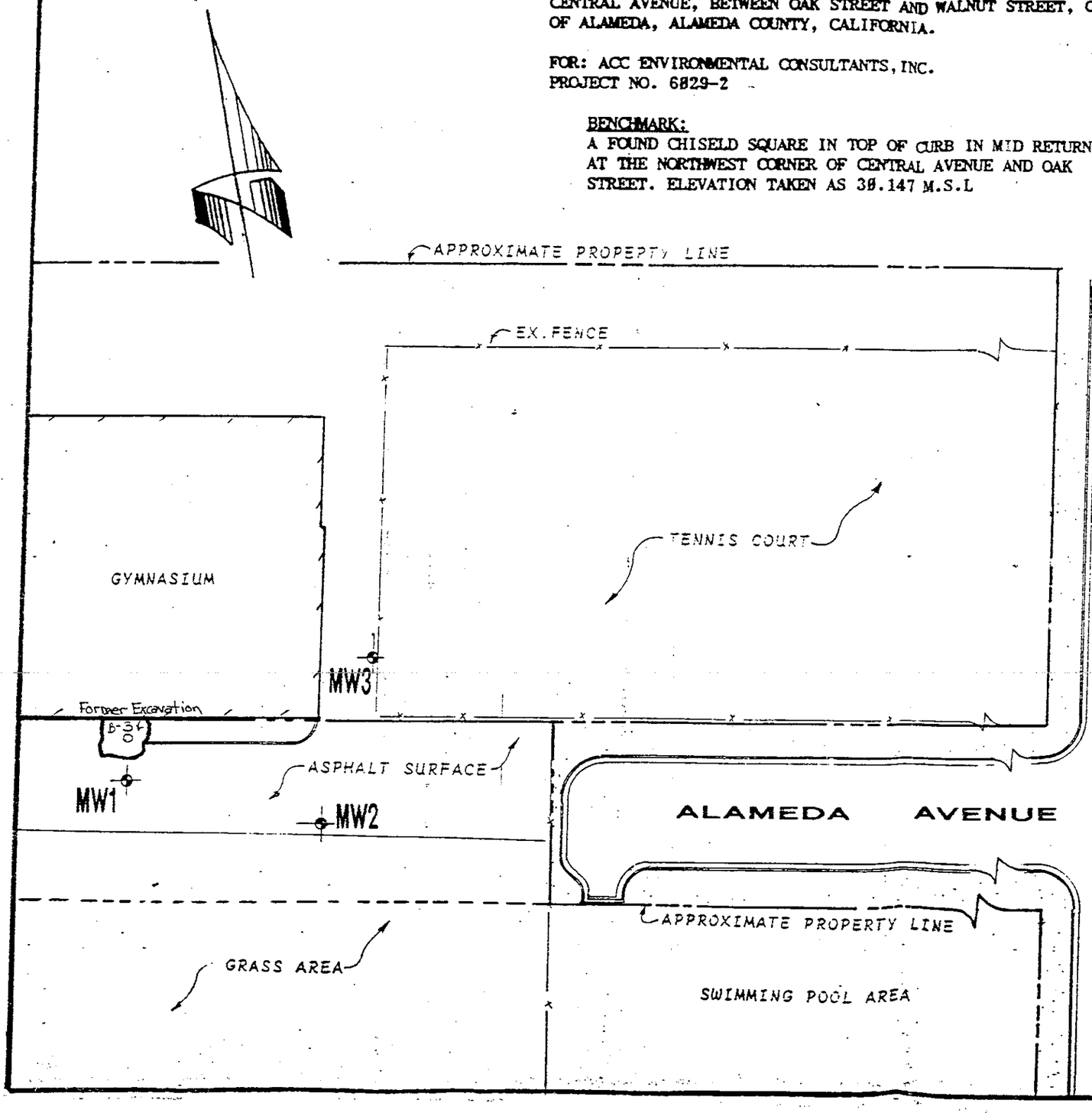
FOR: ACC ENVIRONMENTAL CONSULTANTS, INC.
PROJECT NO. 6029-2

BENCHMARK:
A FOUND CHISELD SQUARE IN TOP OF CURB IN MID RETURN AT THE NORTHWEST CORNER OF CENTRAL AVENUE AND OAK STREET. ELEVATION TAKEN AS 30.147 M.S.L



VICINITY MAP
N.T.S

REGISTERED PROFESSIONAL ENGINEER
RONALD R. ARCHER
No. 23721
EXP 12/31/93
CIVIL
STATE OF CALIFORNIA



MONITOR WELL DATA TABLE

WELL DESIGNATION	ELEV	DESCRIPTION
MW1	31.50	TOP OF PVC CASING
	32.21	TOP OF BOX
MW2	32.16	TOP OF PVC CASING
	32.56	TOP OF BOX
MW3	31.02	TOP OF PVC CASING
	31.60	TOP OF BOX

1" = 40'
0 20 40 80 120
Graphic Scale in feet

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Figure 1
Site Map

JUNE 30, 1992 JOB NO. 1941

PLAT SHOWING EXISTING MONITOR WELLS BEHIND THE GIRLS GYMNASIUM BUILDING AT THE ALAMEDA HIGH SCHOOL FACILTY, LOCATED AT 2200 CENTRAL AVENUE, BETWEEN OAK STREET AND WALNUT STREET, CITY OF ALAMEDA, ALAMEDA COUNTY, CALIFORNIA.

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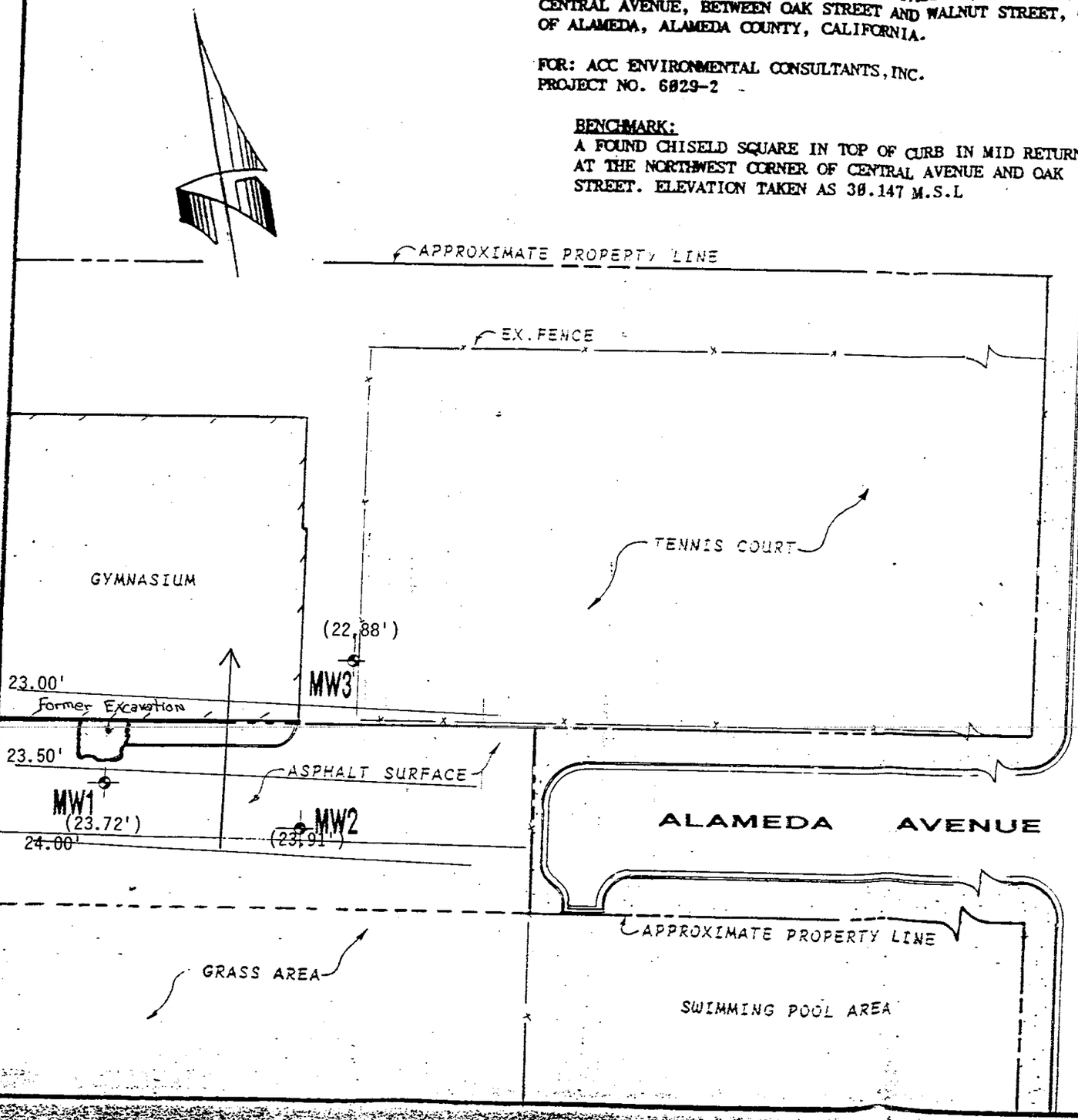
VICINITY MAP
N.T.S



REGISTERED PROFESSIONAL ENGINEER
RONALD R. ARCHER
No. 23721
EXP. 12/31/93
CIVIL
STATE OF CALIFORNIA

MONITOR WELL DATA TABLE

WELL DESIGNATION	ELEV	DESCRIPTION
MW1	31.58	TOP OF PVC CASING
	32.21	TOP OF BOX
MW2	32.16	TOP OF PVC CASING
	32.56	TOP OF BOX
MW3	31.82	TOP OF PVC CASING
	31.68	TOP OF BOX

1" = 40'
0 20 40 80 120
Graphic Scale in feet

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Figure 2
Groundwater Gradient 1/6/93

APPENDIX A

Well Sampling [✓] Well Development [ ] check one

Well Number: MW1

Job Number: 6029-2

Job Name: Alameda High

Date: 1/6/93

Sampler: Carl Soane

1:20

Depth to Water (measured from TOC): 7.78'

Inside Diameter of Casing: 2"

Depth of Boring: 20.53'

Method of well development/purging: Purge

Amount of Water Bailed/Pumped from well: ~~8 gallons~~ 8.5 gallons

Depth to Water after well development: —

Depth to water prior to sampling: 8.85'

Bailed water stored on-site ? How ? Drum

Number of well volumes removed: 4

TSP wash, distilled rinse, new rope ? New rope

Water Appearance:

	yes	no
froth		✓
irridesence		✓
oil		✓
smell		✓
product		✓
other, describe		✓

Gallons Removed	pH	EC	Temp
5	7.15	10.20	57.8
10	9.23	10.17	57.8
15	7.20	10.20	57.9
20			
25			
30			
35			
40			
45			
50			

Samples Obtained:

TPH (gasoline)	✓
TPH (diesel)	
TPH (motor oil)	✓
BTXE	✓
EPA 624	
EPA 625	
EPA 608	
PCBs only	
Metals	
Other, specify	
Field Blank	

Well Sampling [✓] Well Development [ ] check one

Well Number: MW 2

Job Number: 6029-2 11:45

Job Name: Alameda High

Date: 1/6/93

Sampler: Carl Soone

Depth to Water (measured from TOC): 8.25'

Inside Diameter of Casing: 2"

Depth of Boring: 20.49'

Method of well development/purging: Purge

Amount of Water Bailed/Pumped from well: 8 gallons

Depth to Water after well development: _____

Depth to water prior to sampling: 9.20'

Bailed water stored on-site ? How ? Drum

Number of well volumes removed: 4

TSP wash, distilled rinse, new rope ? New rope

Water Appearance:

	yes	no
froth		✓
irridesence		✓
oil		✓
smell		✓
product		✓
other, describe		✓

Gallons Removed	pH	EC	Temp
5	7.40	5.89	63.1
10	7.49	5.92	62.7
15	7.44	5.90	63.3
20			
25			
30			
35			
40			
45			
50			

Samples Obtained:

TPH (gasoline)	✓
TPH (diesel)	
TPH (motor oil)	✓
BTXE	✓
EPA 624	
EPA 625	
EPA 608	
PCBs only	
Metals	
Other, specify	
Field Blank	

Well Sampling [✓] Well Development [ ] check one

Well Number: MW 3

Job Number: 6029-2

12:25

Job Name: Alameda High

Date: 1/6/93

Sampler: Carl Soares

Depth to Water (measured from TOC): 8.21'

Inside Diameter of Casing: 2"

Depth of Boring: 20.48'

Method of well development/purging: Purge

Amount of Water Bailed/Pumped from well: 8 gallons

Depth to Water after well development: _____

Depth to water prior to sampling: 8.51'

Bailed water stored on-site ? How ? Drum

Number of well volumes removed: 4

TSP wash, distilled rinse, new rope ? New rope

Water Appearanca:

	yes	no
froth		✓
irridesence		✓
oil		✓
smell		✓
product		✓
other, describe		✓

Gallons Removed	pH	EC	Temp
5	7.40	1070	66.0
10	7.37	1066	66.1
15	7.39	1069	66.0
20			
25			
30			
35			
40			
45			
50			

Samples Obtained:

TPH (gasoline)	✓
TPH (diesel)	
TPH (motor oil)	✓
BTXE	✓
EPA 624	
EPA 625	
EPA 608	
PCBs only	
Metals	
Other, specify	
Field Blank	

Geochem ENVIRONMENTAL LABORATORIES

Mobile & In-House Laboratories Certified by State of California
Phone: (408) 955-9988 / FAX: (408) 955-9538

ANALYTICAL REPORT

Client: ACC Environmental
1000 Atlantic Ave.
Alameda, CA 94501
Attn: Misty Kaltreider

Date Sampled: 01/06/93
Date Received: 01/07/93
Date Analyzed: 01/07/93
Batch:SD-065 Matrix: Water
Conc. Unit ug/kg(ppb)

Project: Alameda High

"**ND**" means "not detected" at indicated detection limit.
B:benzene, **T**:toluene, **E**:ethylbenzene & **X**:total xylenes.
Samples received chilled with a chain of custody record.

SAMPLE I.D.	8015M/TPH Diesel	8015M/TPH Heating Oil	602 B / T / E / X
DETECTION LIMIT	50 ppb	50ppb	0.5 ppb
MW-1	ND	ND	ND / ND / ND / ND
MW-2	ND	ND	ND / ND / ND / ND
MW-3	ND	ND	ND / ND / ND / ND

Reviewed and approved by George Tsai, JAN. 08, 1992
George Tsai, Laboratory Director

ACC ENVIRONMENTAL CONSULTANTS, INC.

1000 ATLANTIC AVENUE, SUITE 110
ALAMEDA, CA 94501
(415) 522-8188
FAX (415) 865-5731

CHAIN OF CUSTODY RECORD

PROJ. NO: 6029-2 | PROJECT NAME: Alameda High

SAMPLERS: (Signature) Carl Soane

STA. NO.	DATE	TIME	COMP.	GRAB	STATION LOCATION	NO. OF CONTAINERS	TPH gas	BTEX	TPH modor oil	REMARKS
					Groundwater					
MW1	1/6/93	1:20		X	Groundwater	3	X	X		Standard turnaround
MW2	"	11:45		X	"	3	X	X		
MW3	"	12:25		X	"	3	X	X		

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Relinquished by: (Signature)	Date	Time	Received by: (Signature)
Carl Soane	01/07/93	9:00 AM					
Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Relinquished by: (Signature)	Date	Time	Received by: (Signature)

Relinquished by: (Signature)	Date	Time	Received for Laboratory by: (Signature)	Date	Time	Remarks