

June 13, 1996

Mr. Madhulla Logan  
Alameda County Health Care Services Agency  
Department of Environmental Health  
1131 Harbor Bay Parkway, 2nd Floor  
Alameda, CA 94502

Re: May 1996 Semiannual Ground Water Sampling Report  
Mills College Corporation Yard, Oakland, California  
*Project No.: K275-H*

Dear Ms. Logan:

We are pleased to submit our report for the above referenced project. Should you have any questions or require additional information, please do not hesitate to contact me.

Sincerely,

**Harza Consulting Engineers and Scientists**



Derek Armentrout  
Project Chemist

DA\DL:gg\encl.

Copies: Addressee

Mr. David Johnson (Mills College)

Case Officer, Regional Water Quality Control Board

**May 1996 Semiannual  
Ground Water Sampling Report  
Mills College Corporation Yard  
Oakland, California**

June 13, 1996

*Prepared For:*

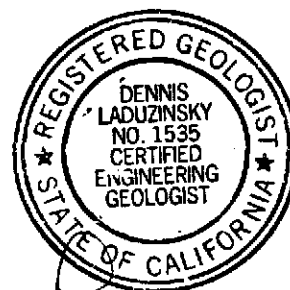
Mills College  
5000 MacArthur Boulevard  
Oakland, CA 94613

*Prepared By:*

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# May 1996 Semiannual Ground Water Sampling Report

Mills College Corporation Yard, Oakland, California

## 1.0 INTRODUCTION

This report presents the results of the May 1996 semiannual ground water sampling performed at the Mills College Corporation Yard in Oakland, California. The project location is shown on the Site Vicinity Map (Figure 1).

The purpose of the investigation has been to evaluate the extent of petroleum hydrocarbons in ground water related to a previously removed gasoline underground storage tank (UST) at the site. The investigation included collecting and analyzing ground water samples from five existing monitoring wells. This investigation was performed to comply with the continuing monitoring program under the jurisdiction of Alameda County Health Care Services Agency (ACHCSA).

## 2.0 BACKGROUND

In October 1988, a 1,000-gallon gasoline UST was removed from the Corporation Yard facility. A report prepared by Blaine Tech Services, Inc. of San Jose, California, indicated that soil samples collected from a depth of 21 feet below ground surface (bgs) following tank removal contained moderately high levels of total petroleum hydrocarbons as gasoline (TPHg). It is understood that 100 cubic yards of contaminated soils were excavated from the tank pit area at the time of tank removal and aerated on-site. The ACHCSA subsequently issued a letter, dated February 15, 1989, requesting investigation of the vertical and lateral extent of petroleum hydrocarbons in soil and ground water related to the former tank.

Beginning in June 1989, Harza (formerly Kaldveer Associates) performed soil and ground water quality investigations at the site, consisting of the installation and sampling of three ground water monitoring wells and two additional shallow soil borings.

The results of these investigations, presented in a report titled *Soil and Ground Water Testing Report For Mills College Corporation Yard*, dated May 7, 1991, indicated that the majority of gasoline contamination in the unsaturated zone in the vicinity of the tanks appeared to have been removed during the soil excavation program conducted when the tanks were removed. Analysis of ground water samples collected from the monitoring wells since June 1989 have indicated the presence of TPHg at concentrations up to 11 parts per million (ppm).

The measured ground water flow direction at the site was historically toward the south, beneath the existing Corporation Yard buildings, and recently more to the west-southwest.

In May 1994, well MW-4 was installed downgradient of the Corporation Yard along Seminary Avenue in response to the ACHCSA letter of April 23, 1993 requesting an additional downgradient monitoring point. In their September 7, 1994 letter, the ACHCSA expressed concern that well MW-4 was not screened in the same aquifer as wells MW-1 through MW-3, and requested an investigation to determine if well MW-4 was hydraulically connected to the other wells. A geologic and chemical investigation was performed in October 1994, and indicated that the well was most likely hydraulically connected to wells MW-1 through MW-3 at depth, but a conclusive determination could not be made, particularly along the upper surface of the ground water where floating hydrocarbons, such as gasoline, tend to reside.

In December 1994, the ACHCSA requested that an additional monitoring point be installed to further evaluate possible westward migration of gasoline hydrocarbons. Monitoring well MW-5 was installed west of the former UST in April 1995.

### **3.0 SCOPE OF SERVICES**

The investigation consisted of the following tasks:

- Measuring ground water levels for use in developing a ground water elevation contour map.
- Collecting ground water samples from the existing wells at the Corporation Yard.
- Analyzing the ground water samples for TPHg and for purgeable aromatic compounds (benzene, toluene, ethylbenzene, and xylenes or BTEX).

### **4.0 FIELD INVESTIGATION**

#### **4.1 Well Sampling**

Monitoring wells MW-1 through MW-5 were sampled on May 29, 1996. Following an initial ground water level measurement, a minimum of three well-casing volumes of water were purged from each well using a Teflon bailer. Purging consisted of the gradual removal of water from the well until physical parameters such as pH, temperature, and electrical conductivity (EC) stabilized.

The EC had not stabilized in well MW-2 after three casing volumes had been purged, so a total of four casing volumes was purged from this well. Following purging, samples were decanted from the bailer into appropriate sample containers, labeled, and placed in refrigerated storage for transport to the laboratory under chain-of-custody control. The bailer was washed with trisodium phosphate (TSP) and rinsed with deionized water between wells to reduce the potential for cross contamination. Purge water was contained on-site in 55-gallon drums. Monitoring well sampling logs are presented in Appendix A.

#### 4.2 Ground Water Gradient

Well-top elevations, depth to water, and calculated water-surface elevations are presented in Table 1. These data are used to generate the ground water elevation contours presented on Figure 2. However, the data does not appear internally consistent, in that a relatively flat southward gradient is depicted using water levels from MW-1, MW-2, and MW-3, and a relatively steep, westward gradient is depicted using wells MW-1, MW-4, and MW-5. In our opinion ground water levels measured in wells MW-1 through MW-3 appear anomalous and may be influenced by highly transmissive backfill used in the former tank excavation. Only data from wells MW-1, MW-4, and MW-5 were used to calculate the ground water gradient and flow direction shown on Figure 2. It is our professional opinion that ground water most likely follows the natural surface topography and flows west to southwest. In either case, the former UST area is monitored in both previously indicated downgradient directions. Wells MW-4 and MW-5 appear sufficient for monitoring downgradient water quality in any of the previously observed or potential ground water flow directions.

### 5.0 ANALYTICAL RESULTS

#### 5.1 Laboratory Procedures

Ground water samples were analyzed by American Environmental Network (AEN) of Pleasant Hill, California. AEN is certified by the California Environmental Protection Agency for the analyses performed. Samples from each well were analyzed for TPHg using EPA Method 5030/GC-FID, and for BTEX using EPA Method 8020.

#### 5.2 Analytical Results

The results of the chemical analyses are presented on Table 2 and laboratory analytical reports are

attached as Appendix B. A historical summary of ground water sample analytical results is also included in Table 2.

TPHg was detected in the sample from well MW-1 at a concentration of 1.0 ppm. BTEX compounds were detected in the sample from MW-1 at concentrations of 0.20, 0.068, 0.035 and 0.050 ppm, respectively. A petroleum odor and a slight hydrocarbon sheen on the water surface were recognized during the purging of the well.

TPHg was detected in the sample from well MW-2 at 0.2 ppm, and benzene and ethylbenzene were also detected in this sample at 0.086 and 0.0010 ppm, respectively. Benzene was detected in the sample from well MW-3 at 0.086 ppm. No TPHg or BTEX compounds were detected at or above the laboratory method reporting limits (MRLs) in the samples from wells MW-4 and MW-5.

## 6.0 CONCLUSIONS AND RECOMMENDATIONS

The sampling performed between June 1989 and May 1996 has shown fluctuations in reported TPHg and BTEX concentrations. A decreasing trend in TPHg and benzene concentrations in MW-1 is apparent. Measured hydrocarbon concentrations appear relatively stable in wells MW-2 and MW-3. Ground water elevations in wells MW-1, MW-4, and MW-5 indicate a general ground water flow direction toward the west. The plume does not appear to be migrating significantly, as evidenced by nondetectable levels of contaminants in downgradient wells MW-4 and MW-5.

Preparation and submittal of reports will continue on a semiannual basis, contingent on ground water quality continuing to exhibit little variation, and on contaminants remaining on site. The next monitoring event is scheduled for October 1996.

## 7.0 LIMITATIONS

The purpose of a geologic/hydrogeologic study is to reasonably characterize existing site conditions based on the geology/hydrogeology of the area. In performing such a study, a balance must be struck between a reasonable investigation into the site conditions and an exhaustive analysis of each conceivable condition. The following paragraphs discuss the assumptions and parameters under which such a study is conducted.

No investigation is thorough enough to detect every geologic/hydrogeologic condition of interest at a given site. If conditions have not been identified during the study, such a finding should not therefore be construed as a guarantee of the absence of such conditions at the site, but rather as the

result of the services performed within the scope, limitations, and cost of the work performed.

We are unable to report on or accurately predict events that may change the site conditions after the described services are performed, whether occurring naturally or caused by external forces. We cannot assume responsibility for conditions we were not authorized to evaluate, or conditions not generally recognized as predictable when services were performed.

Geologic/hydrogeologic conditions may exist at the site that cannot be identified solely by visual observation. Where subsurface exploratory work was performed, our professional opinions are based in part on interpretation of data from discrete sampling locations that may not represent actual conditions at unsampled locations.



TABLES

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**TABLE 1**  
**Ground Water Elevation Data**

May 1996 Semiannual Ground Water Sampling Report  
Mills College Corporation Yard, Oakland, California  
(Reported in feet)

Date	Monitoring Well	Relative Well-Top Elevation <sup>(1)</sup>	Depth to Water	Ground Water Elevation
June 1989	MW-1	100.00	19.44	80.56
	MW-2	99.98	19.36	80.62
	MW-3	100.01	19.40	80.61
December 1990	MW-1	100.00	22.05	77.95
	MW-2	99.98	21.96	78.02
	MW-3	100.01	22.00	78.01
June 1991	MW-1	100.00	20.85	79.15
	MW-2	99.98	20.76	79.22
	MW-3	100.01	20.81	79.20
March 1992	MW-1	100.00	19.87	80.13
	MW-2	99.98	19.92	80.06
	MW-3	100.01	19.82	80.19
October 1992	MW-1	100.00	21.69	78.31
	MW-2	99.98	21.60	78.38
	MW-3	100.01	21.65	78.36
May 1994	MW-1	100.00	19.66	80.34
	MW-2	99.97	19.62	80.35
	MW-3	100.01	19.60	80.41
	MW-4	88.88	13.60	75.28
June 1994	MW-1	100.00	19.72	80.28
	MW-2	99.97	19.65	80.32
	MW-3	100.01	19.65	80.36
	MW-4	88.88	14.01	74.87
October 1994	MW-1	100.00	20.17	79.83
	MW-2	99.97	20.10	79.87
	MW-3	100.01	20.08	79.93
	MW-4	88.88	17.95	70.93
January 1995	MW-1	100.00	17.46	82.54
	MW-2	99.97	17.48	82.49
	MW-3	100.01	17.30	82.71
	MW-4	88.88	10.76	78.12
May 1995	MW-1	100.00	15.56	84.44
	MW-2	99.99	15.75	84.24
	MW-3	100.03	15.50	84.53
	MW-4	88.88	9.25	79.63
	MW-5	99.98	27.66	72.32

**TABLE 1**  
**Ground Water Elevation Data**  
 May 1996 Semiannual Ground Water Sampling Report  
 Mills College Corporation Yard, Oakland, California  
 (Reported in feet)

Date	Monitoring Well	Relative Well-Top Elevation <sup>(1)</sup>	Depth to Water	Ground Water Elevation
October 1995	MW-1	100.00	18.68	81.32
	MW-2	99.99	18.21	81.78
	MW-3	100.03	18.62	81.41
	MW-4	88.88	14.65	74.23
	MW-5	99.98	28.36	71.62
May 1996	MW-1	100.00	15.92	84.08
	MW-2	99.99	15.70	84.29
	MW-3	100.03	15.83	84.20
	MW-4	88.88	9.55	79.33
	MW-5	99.98	25.51	74.47

NOTE

Well-top elevations are based on an arbitrary datum of 100.00 feet at MW-1.

**TABLE 2**  
**Ground Water Sample Analyses**  
 May 1996 Semiannual Ground Water Sampling Report  
 Mills College Corporation Yard, Oakland, California

Sample ID	Sample Date	TPHg ppm	Benzene ppm	Toluene ppm	Ethylbenzene ppm	Xylenes ppm
MW-1	June 1989	11.	2.1	1.9	0.031	1.4
	December 1990	2.5	0.4	0.21	0.056	0.31
	June 1991	16.	2.0	1.1	0.41	2.8
	March 1992	1.6	0.26	0.10	0.47	0.12
	October 1992	2.8	0.33	0.13	0.06	0.20
	October 1992(D)	4.2	0.54	0.23	0.08	0.36
	May 1994	3.4	0.6	0.11	0.11	0.15
	October 1994	8.7	1.0	0.29	0.14	0.36
	January 1995	5.9	1.5	0.088	0.13	0.14
	April 1995	3.4	0.78	0.34	0.10	0.21
	October 1995	0.87	0.092	0.026	0.041	0.025
	May 1996	1.0	0.20	0.068	0.035	0.050
MW-2	June 1989	ND	ND	ND	ND	ND
	December 1990	ND	ND	ND	ND	ND
	June 1991	ND	0.005	ND	ND	ND
	March 1992	0.09	0.047	0.0005	ND	ND
	October 1992	ND	0.003	ND	ND	ND
	May 1994	0.20	0.084	0.0006	ND	ND
	October 1994	0.20	0.13	ND	ND	ND
	January 1995	0.70	0.21	ND	ND	ND
	April 1995	ND	0.004	ND	ND	ND
	October 1995	0.20	0.11	ND	ND	ND
	May 1996	0.2	0.086	ND	0.0010	ND
	MW-3	June 1989	ND	ND	ND	ND
December 1990		0.05	0.011	ND	ND	ND
June 1991		0.10	0.007	ND	ND	ND
March 1992		0.09	0.27	0.0009	ND	ND
October 1992		ND	0.005	ND	ND	ND
May 1994		ND	0.005	ND	ND	ND
October 1994		ND	0.004	ND	ND	ND
January 1995		0.07	0.012	ND	ND	ND
April 1995		ND	0.006	ND	ND	ND
October 1995		ND	0.002	ND	ND	0.002
May 1996		ND	0.0065	ND	ND	ND

**TABLE 2**  
**Ground Water Sample Analyses**  
 May 1996 Semiannual Ground Water Sampling Report  
 Mills College Corporation Yard, Oakland, California

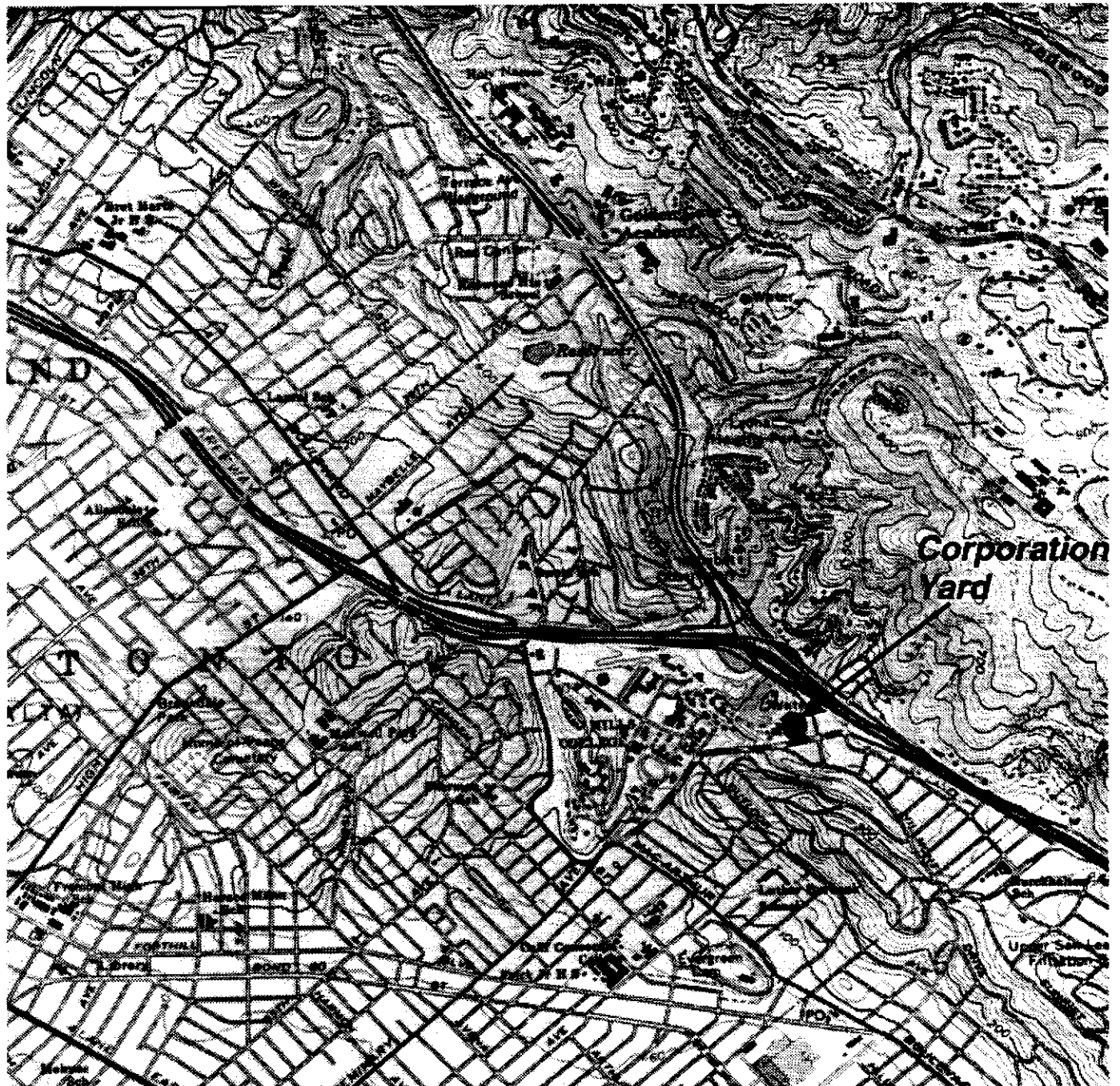
Sample ID	Sample Date	TPHg ppm	Benzene ppm	Toluene ppm	Ethylbenzene ppm	Xylenes ppm
MW-4	May 1994	ND	ND	ND	ND	ND
	October 1994	ND	ND	ND	ND	ND
	January 1995	ND	ND	ND	ND	ND
	October 1995	ND	ND	ND	ND	ND
	May 1996	ND	ND	ND	ND	ND
MW-5	April 1995	ND	ND	ND	ND	ND
	October 1995	ND	ND	ND	ND	ND
	May 1996	ND	ND	ND	ND	ND

NOTES

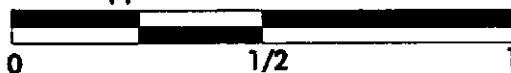
- TPHg: Total petroleum hydrocarbons as gasoline
- ppm: Parts per million or milligrams per liter
- ND: Not detected at or above the laboratory method reporting limits
- (D): Duplicate sample analytical results

**FIGURES**

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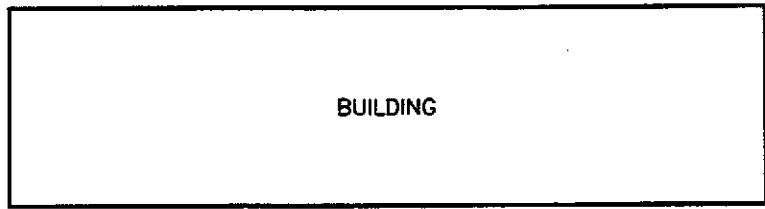
Approximate Scale In Miles



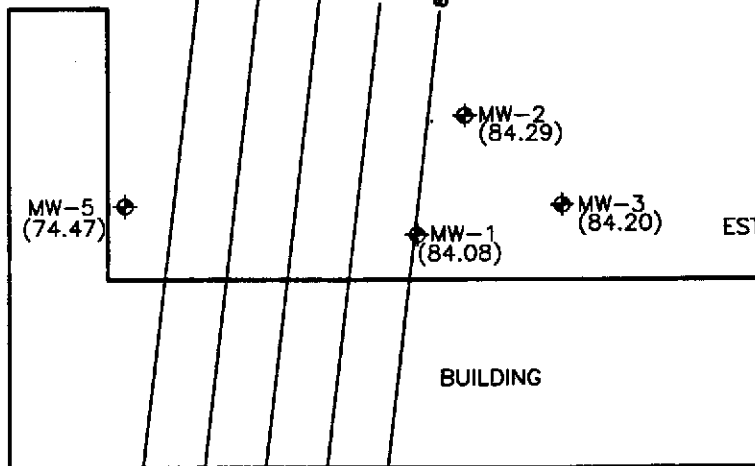
BASE: By U.S.G.S. Oakland East, California, 7.5 Min. Quadrangle Topography.

E275G1

Date	<b>HARZA</b>	SITE VICINITY MAP	Figure
11/95		MILLS COLLEGE CORPORATION YARD FACILITY Oakland, California	1
Project No. K275-H			



BUILDING



BUILDING

MW-5  
(74.47)

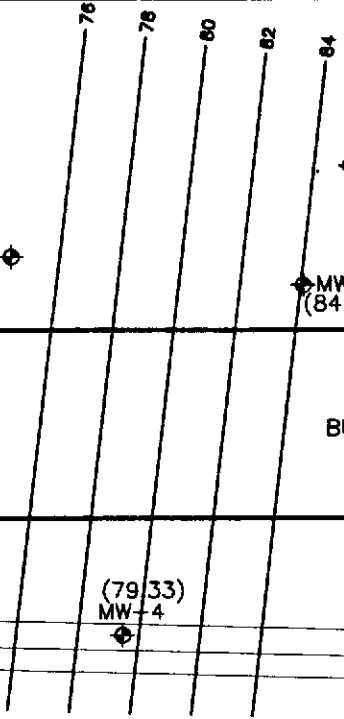
MW-2  
(84.29)

MW-3  
(84.20)

MW-1  
(84.08)

(79.33)  
MW-4

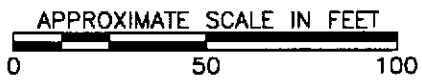
ESTIMATED GROUND WATER  
FLOW DIRECTION



SEMINARY AVENUE

**LEGEND**

- MW-5 MONITORING WELL LOCATION WITH RELATIVE GROUND WATER ELEVATION
- 70 GROUND WATER CONTOUR 5/29/96



6-95-2

Rev.	Drawn By	Chk'd By	Date
0	D.F.	D.A.	6/4/96

**HARZA**

SITE PLAN	Figure
MILLS COLLEGE CORPORATION YARD FACILITY Oakland, California	<b>2</b> Project No. K275-H



**APPENDIX A**  
Water Sample Logs

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**WATER SAMPLE LOG**

Project Name: Mills College  
 Project Number: K275-H  
 Well Number: MW-1  
 Well Location: \_\_\_\_\_

Date: 5/29/96  
 Sampler: Derek Armentrout  
 Weather: sunny, 60's

Well Construction

Date Completed: \_\_\_\_\_  
 Total Depth of Well: 32.7  
 Diameter: 2"  
 Well Elevation and Reference: \_\_\_\_\_

Sampling Equipment & Cleaning

Sampler Type: Teflon bailer  
 Method of Cleaning: disposable  
 Pump/Bailer Type: Teflon bailer  
 Method of Cleaning: disposable  
 pH Meter: Hydac  
 Conductivity Meter: Hydac  
 Comments: \_\_\_\_\_

Ground Water Levels:

Initial: 15.92  
 Final: 16.15  
 Reference Point: TOC  
 Well Volume of Water: 2.7 gal

**SAMPLING MEASUREMENTS**

Time	Discharge (gal.)		pH	Temp (°F)	Spec. Conductance (mmhos/cm)		Color/Turbidity	Odor
	Per Time Period	Cumulative			Field	@ 25°C		
15:38	start	0						
15:45		3	6.92	66.6	1018		gray/high	gasoline
15:54		6	6.93	65.9	1010		"	"
16:00		8.5	6.91	65.5	1009		"	"
	sampled							

Total Discharge: 8.5 gal      Comments: \_\_\_\_\_  
 Casing Volumes Removed: 3.1  
 Method of Disposal: drummed on site

**HARZA**  
*Consulting Engineers and Scientists*

**WATER SAMPLE LOG**

Project Name: Mills College  
 Project Number: K275-H  
 Well Number: MW-2  
 Well Location: \_\_\_\_\_

Date: 5/29/96  
 Sampler: Derek Armentrout  
 Weather: sunny, 60's

Well Construction

Sampling Equipment & Cleaning

Date Completed: \_\_\_\_\_  
 Total Depth of Well: 34.0  
 Diameter: 2"  
 Well Elevation and Reference: \_\_\_\_\_

Sampler Type: Teflon bailer  
 Method of Cleaning: TSP wash/DI rinse  
 Pump/Bailer Type: Teflon bailer  
 Method of Cleaning: TSP wash/DI rinse  
 pH Meter: Hydac  
 Conductivity Meter: Hydac  
 Comments: \_\_\_\_\_

Ground Water Levels:

Initial: 15.70  
 Final: 19.54  
 Reference Point: TOC  
 Well Volume of Water: 3.0 gal

**SAMPLING MEASUREMENTS**

Time	Discharge (gal.)		pH	Temp (°F)	Spec. Conductance (mmhos/cm)		Color/ Turbidity	Odor
	Per Time Period	Cumulative			Field	@ 25°C		
14:59	start	0						
15:04		3	7.30	67.1	684		brown/v. high	none
15:11		6	7.34	67.0	639		"	"
15:18		9	7.35	67.6	520		"	"
15:23		12	7.40	67.4	517		"	"
	sampled							

Total Discharge: 12 gal  
 Casing Volumes Removed: 4.0  
 Method of Disposal: drummed on site

Comments: not stablized after 3 volumes; purged 4

**HARZA**  
*Consulting Engineers and Scientists*

**WATER SAMPLE LOG**

Project Name: Mills College  
 Project Number: K275-H  
 Well Number: MW-3  
 Well Location: \_\_\_\_\_

Date: 5/29/96  
 Sampler: Derek Armentrout  
 Weather: sunny, 60's

Well Construction

Date Completed: \_\_\_\_\_  
 Total Depth of Well: 32.4  
 Diameter: 2"  
 Well Elevation and Reference: \_\_\_\_\_

Sampling Equipment & Cleaning

Sampler Type: Teflon bailer  
 Method of Cleaning: TSP wash/DI rinse  
 Pump/Bailer Type: Teflon bailer  
 Method of Cleaning: TSP wash/DI rinse  
 pH Meter: Hydac  
 Conductivity Meter: Hydac  
 Comments: \_\_\_\_\_

Ground Water Levels:

Initial: 15.83  
 Final: 17.61  
 Reference Point: TOC  
 Well Volume of Water: 2.7 gal

**SAMPLING MEASUREMENTS**

Time	Discharge (gal.)		pH	Temp (°F)	Spec. Conductance (mmhos/cm)		Color/ Turbidity	Odor
	Per Time Period	Cumulative			Field	@ 25°C		
14:31	start	0						
14:36		3	6.65	65.7	754		brown/moderate	none
14:41		6	6.56	66.0	775		"	"
14:45		8.5	6.60	65.7	750		"	"
	sampled							

Total Discharge: 8.5 gal      Comments: \_\_\_\_\_  
 Casing Volumes Removed: 3.1  
 Method of Disposal: drummed on site

**HARZA**  
*Consulting Engineers and Scientists*

**WATER SAMPLE LOG**

Project Name: Mills College  
 Project Number: K275-H  
 Well Number: MW-4  
 Well Location: \_\_\_\_\_

Date: 5/29/96  
 Sampler: Derek Armentrout  
 Weather: sunny, 60's

Well Construction

Date Completed: \_\_\_\_\_  
 Total Depth of Well: 44.3  
 Diameter: 2"  
 Well Elevation and Reference: \_\_\_\_\_

Sampling Equipment & Cleaning

Sampler Type: Teflon bailer  
 Method of Cleaning: TSP wash/DI rinse  
 Pump/Bailer Type: Teflon bailer  
 Method of Cleaning: TSP wash/DI rinse  
 pH Meter: Hydac  
 Conductivity Meter: Hydac  
 Comments: \_\_\_\_\_

Ground Water Levels:

Initial: 9.55  
 Final: 25.75  
 Reference Point: TOC  
 Well Volume of Water: 5.7 gal

**SAMPLING MEASUREMENTS**

Time	Discharge (gal.)		pH	Temp (°F)	Spec. Conductance (mmhos/cm)		Color/Turbidity	Odor
	Per Time Period	Cumulative			Field	@ 25°C		
13:01	start	0						
13:11		6	7.26	66.6	880		brown/moderate	none
13:22		12	7.25	67.0	889		brown/high	"
13:30		17	7.29	67.0	894		"	"
	sampled							

Total Discharge: 17 gal  
 Casing Volumes Removed: 3.0  
 Method of Disposal: drummed on site

Comments: \_\_\_\_\_

**HARZA**  
*Consulting Engineers and Scientists*

**WATER SAMPLE LOG**

Project Name: Mills College  
 Project Number: K275-H  
 Well Number: MW-5  
 Well Location: \_\_\_\_\_

Date: 5/29/96  
 Sampler: Derek Armentrout  
 Weather: sunny, 60's

Well Construction

Date Completed: \_\_\_\_\_  
 Total Depth of Well: 32.8  
 Diameter: 2"  
 Well Elevation and Reference: \_\_\_\_\_

Sampling Equipment & Cleaning

Sampler Type: Teflon bailer  
 Method of Cleaning: TSP wash/DI rinse  
 Pump/Bailer Type: Teflon bailer  
 Method of Cleaning: TSP wash/DI rinse  
 pH Meter: Hydac  
 Conductivity Meter: Hydac  
 Comments: \_\_\_\_\_

Ground Water Levels:

Initial: 25.51  
 Final: 30.47  
 Reference Point: TOC  
 Well Volume of Water: 1.2 gal

**SAMPLING MEASUREMENTS**

Time	Discharge (gal.)		pH	Temp (°F)	Spec. Conductance (mmhos/cm)		Color/ Turbidity	Odor
	Per Time Period	Cumulative			Field	@ 25°C		
13:50	start	0						
13:53		1.5	7.06	66.3	960		brown/moderate	none
13:58		3	7.11	65.3	948		brown/high	"
14:01		4.5	7.08	65.2	943		"	"
	sampled							

Total Discharge: 4.5 gal      Comments: \_\_\_\_\_  
 Casing Volumes Removed: 3.8  
 Method of Disposal: drummed on site

**HARZA**  
*Consulting Engineers and Scientists*

**APPENDIX B**  
Laboratory Analytical Reports

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AMERICAN ENVIRONMENTAL NETWORK (AEN)

FAX TRANSMISSION COVER

AMERICAN ENVIRONMENTAL NETWORK  
3440 VINCENT ROAD  
PLEASANT HILL, CA 94523

FAX NO: (510) 930-0256  
PH. NO: (510) 930-9090

DATE: 6-6-96 # OF PAGES (Including cover) 7

REPLY REQUESTED: (circle request) NO YES URGENT FAX REPLY  
PHONE REPLY FYI

TO: Derek Armentrout  
Hanza

AEN PROJ. NO: 9605371  
CLIENT PROJ. ID: K275-H

FROM: CLIENT SERVICES

- FINAL RESULTS  
 PARTIAL RESULTS  
 PRELIMINARY RESULTS, subject to  
change pending further review  
and/or laboratory analysis

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## HARZA

SAMPLE ID: MW-1  
 AEN LAB NO: 9605371-01  
 AEN WORK ORDER: 9605371  
 CLIENT PROJ. ID: K275-H

DATE SAMPLED: 05/29/96  
 DATE RECEIVED: 05/30/96  
 REPORT DATE: 06/06/96

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
BTEX & Gasoline HCs	EPA 8020				
Benzene	71-43-2	200 *	0.5	ug/L	06/05/96
Toluene	108-88-3	68 *	0.5	ug/L	06/05/96
Ethylbenzene	100-41-4	35 *	0.5	ug/L	06/05/96
Xylenes, Total	1330-20-7	50 *	2	ug/L	06/05/96
Purgeable HCs as Gasoline	5030/GCFID	1.0 *	0.05	mg/L	06/05/96

ND = Not detected at or above the reporting limit  
 \* = Value at or above reporting limit

## HARZA

SAMPLE ID: MW-2  
 AEN LAB NO: 9605371-02  
 AEN WORK ORDER: 9605371  
 CLIENT PROJ. ID: K275-H

DATE SAMPLED: 05/29/96  
 DATE RECEIVED: 05/30/96  
 REPORT DATE: 06/06/96

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
<b>BTEX &amp; Gasoline HCs</b>					
	<b>EPA 8020</b>				
Benzene	71-43-2	86 *	0.5	ug/L	06/05/96
Toluene	108-88-3	ND	0.5	ug/L	06/05/96
Ethylbenzene	100-41-4	1.0 *	0.5	ug/L	06/05/96
Xylenes, Total	1330-20-7	ND	2	ug/L	06/05/96
Purgeable HCs as Gasoline	5030/GCFID	0.2 *	0.05	mg/L	06/05/96

ND = Not detected at or above the reporting limit  
 \* = Value at or above reporting limit

## HARZA

SAMPLE ID: MW-3  
 AEN LAB NO: 9605371-03  
 AEN WORK ORDER: 9605371  
 CLIENT PROJ. ID: K275-H

DATE SAMPLED: 05/29/96  
 DATE RECEIVED: 05/30/96  
 REPORT DATE: 06/06/96

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
<b>BTEX &amp; Gasoline HCs</b>	<b>EPA 8020</b>				
Benzene	71-43-2	6.5 *	0.5	ug/L	06/05/96
Toluene	108-88-3	ND	0.5	ug/L	06/05/96
Ethylbenzene	100-41-4	ND	0.5	ug/L	06/05/96
Xylenes, Total	1330-20-7	ND	2	ug/L	06/05/96
Purgeable HCs as Gasoline	5030/GCFID	ND	0.05	mg/L	06/05/96

ND = Not detected at or above the reporting limit

\* = Value at or above reporting limit

## HARZA

SAMPLE ID: MW-4  
 AEN LAB NO: 9605371-04  
 AEN WORK ORDER: 9605371  
 CLIENT PROJ. ID: K275-H

DATE SAMPLED: 05/29/96  
 DATE RECEIVED: 05/30/96  
 REPORT DATE: 06/06/96

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
BTEX & Gasoline HCs	EPA 8020				
Benzene	71-43-2	ND	0.5	ug/L	06/05/96
Toluene	108-88-3	ND	0.5	ug/L	06/05/96
Ethylbenzene	100-41-4	ND	0.5	ug/L	06/05/96
Xylenes, Total	1330-20-7	ND	2	ug/L	06/05/96
Purgeable HCs as Gasoline	5030/GCFID	ND	0.05	mg/L	06/05/96

ND = Not detected at or above the reporting limit

\* = Value at or above reporting limit

## HARZA

SAMPLE ID: MW-5  
 AEN LAB NO: 9605371-05  
 AEN WORK ORDER: 9605371  
 CLIENT PROJ. ID: K275-H

DATE SAMPLED: 05/29/96  
 DATE RECEIVED: 05/30/96  
 REPORT DATE: 06/06/96

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
BTEX & Gasoline HCs	EPA 8020				
Benzene	71-43-2	ND	0.5 ug/L		06/05/96
Toluene	108-88-3	ND	0.5 ug/L		06/05/96
Ethylbenzene	100-41-4	ND	0.5 ug/L		06/05/96
Xylenes, Total	1330-20-7	ND	2 ug/L		06/05/96
Purgeable HCs as Gasoline	5030/GCFID	ND	0.05 mg/L		06/05/96

ND = Not detected at or above the reporting limit

\* - Value at or above reporting limit

R-3, 8-1

Contact: **DEREK A.**  
**HARZA Consulting Engineers and Scientists**  
 425 Poland Way (510) 568-4001  
 Oakland, CA 94621 (510) 568-2205 Fcx

Project Number: **K275-H**  
 Lab Project Number: **9605371**

Project Name: **MILLS - CORP YARD**  
 Sampler's Name (printed): **D. ARMENTROUT**

TPH as Gasoline / BY EX  
 TPH as Diesel / Motor Oil / Full Scan /  
 Method 418.1 - TPH  
 Method 8240 - Volatile Organic Compounds  
 Method 8010 - Halogenated VOCs  
 Method 8190 - BTEX  
 Method 8270 - Semivolatile Organic Compounds  
 Method 8080 - Organochlorine Pesticides / PCBs  
 Metals

Harza Sample ID	Lab Sample ID	Date	Time	Sample Type	Number/Type of Container
MW-1	01A-C	5/29/96		H <sub>2</sub> O	3 VOA
MW-2	02A-C	↓		↓	↓
MW-3	03A-C	↓		↓	↓
MW-4	04A-C	↓		↓	↓
MW-5	05A-C	↓		↓	↓

Remarks										

Relinquished by: (Signature) *[Signature]*  
 Date: 5/29/96 Time: 1145  
 Relinquished by: (Signature) *[Signature]*  
 Date: 5/31/96 Time: 1240  
 Relinquished by: (Signature)

Received by: (Signature) *[Signature]*  
 Date: 5/31/96 Time: 1145  
 Received by: (Signature) *[Signature]*  
 Date: 5-31-96 Time: 1240  
 Received by: (Signature)

Requester Turnaround Time:  Standard  3-Day  2-Day  24-Hour  other  FAX Results

NOTES REPORT TO HARZA, BILL TO DAVE JOHNSON, FACILITIES MGR, MILLS COLLEGE