

GROUND WATER SAMPLING REPORT
OCTOBER, 1992
FOR
MILLS HALL/TOYON MEADOW
OAKLAND, CALIFORNIA

HARZA KALDVEER

HARZA KALDVEER

Consulting Engineers

December 7, 1992
KE1025-3B-718, 22097

Mills College
5000 MacArthur Boulevard
Oakland, California 94621

Attention: Mr. Tom Biddle


RE: GROUND WATER SAMPLING
REPORT - OCTOBER, 1992
MILLS HALL/TOYON MEADOW
OAKLAND, CALIFORNIA


Dear Mr. Biddle:

Enclosed is our October, 1992 ground water sampling report for the Mills Hall/Toyon Meadow site. We appreciate the opportunity to provide services to you on this project and trust this report meets your needs at this time. If you have any questions, or require additional information, please do not hesitate to call.

Very truly yours,

HARZA KALDVEER


Dennis Laduzinsky, C.E.G.
Senior Engineering Geologist


John R. Sutton, P.E./G.E.
Manger, Environmental/Hazardous
Waste Services
Associate

DL/JRS:pv
Copies: Addressee (4)

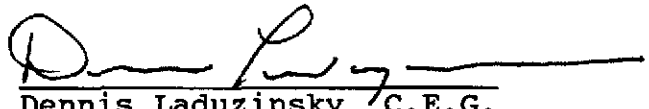
GROUND WATER SAMPLING REPORT
OCTOBER, 1992

For
MILLS HALL/TOYON MEADOW
OAKLAND, CALIFORNIA

To
Mills College
5000 MacArthur Boulevard
Oakland, California 94621

December, 1992





Dennis Laduzinsky, C.E.G.
Senior Engineering Geologist



John R. Sutton, P.E./G.E.
Manager, Environmental/Hazardous
Waste Services
Associate

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Letter of Transmittal

TITLE PAGE

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GROUND WATER SAMPLING REPORT
OCTOBER, 1992
MILLS HALL/TOYON MEADOW
OAKLAND, CALIFORNIA

I. INTRODUCTION

This report presents the results of a ground water sampling study at the Mills Hall/Toyon Meadow site in Oakland, California. The project location is shown on the Site Location Map, Figure 1. The scope of services provided during this investigation consisted of collecting and analyzing ground water samples from three monitoring wells. Ground water samples were analyzed for total petroleum hydrocarbons as diesel, oil, and purgeable aromatic compounds. Well locations are shown on the Site Plan, Figure 2. The sampling round completes the scheduled semi-annual sampling program outlined the letter from Randall Morrison of Crosby, Heafey, Roach and May, to Mr. Paul Smith of the Alameda County Department of Environmental Health dated March 29, 1991.

II. FIELD INVESTIGATION

A. Well Sampling

Three ground water monitoring wells were sampled on October 9, 1992. Following an initial ground water level measurement, a minimum of five well-casing volumes of water was 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 specific conductivity had stabilized. Following purging, samples were decanted from the teflon bailer, placed in appropriate sample containers, labeled, and placed in refrigerated storage for transport to the laboratory under chain-of-custody control. All sampling equipment was thoroughly cleaned with a laboratory grade detergent solution and rinsed with deionized water prior to sampling each well. Monitoring well sampling logs are attached to this report as Appendix A.

B. Ground Water Gradient

Well-top elevations were surveyed to an arbitrary datum by our firm during a previous investigation at the site. Well-top elevations, depth to water measured during this investigation, and calculated water-surface elevations are presented in Table 1. These data are used to generate the Ground Water Elevation Contour map presented on Figure 3. Ground water elevation data collected during this investigation indicate a general southwesterly flow of ground water at an approximate gradient of 0.05 ft/ft.

III. ANALYTICAL RESULTS

A. Laboratory Procedures

Ground water samples were analyzed by Quanteq Laboratories of Pleasant Hill, California. Samples from each well were analyzed for total petroleum hydrocarbons as diesel and oil using EPA Method 3550, and for purgeable aromatic compounds using EPA Method 8020.

B. Analytical Results

The results of the chemical analyses are presented on Table 2 and laboratory certificates are attached to this report as Appendix B. Hydrocarbons as diesel were measured in the water samples from Wells MHW-1 and MHW-2 at concentrations of 0.09 and 0.61 parts per million (ppm), respectively. The water sample from Well MHW-3 did not contain petroleum hydrocarbons as diesel in detectable quantities. Petroleum hydrocarbons as oil, and benzene, toluene, ethylbenzene, and xylenes (BTEX) were not detected in any of the wells. No visible product or sheen was observed during sampling. The analytical results are generally consistent with those of sampling rounds previously performed in June, 1991 and March, 1992 (Table 2).

IV. LIMITATIONS

This report has been prepared according to generally accepted geologic and environmental practices. No other warranty, either expressed or implied is made. The analysis, conclusions and recommendations contained in this report are based on site conditions as they existed at the time of our investigation; review of previous reports relevant to the site conditions; and laboratory results from an outside analytical laboratory.

Changes in the information or data gained from any of these sources could result in changes in our conclusions or recommendations. If such changes do occur, we should be advised so that we can review our report in light of these changes.

* * * * *

TABLE 1

GROUND WATER ELEVATION DATA
(all values reported in feet)

<u>Monitoring Well</u>	<u>Relative Well Top Elevation (1)</u>	<u>Depth to Water</u>	<u>Relative Ground Water Elevation</u>
JUNE 1991			
MHW-1	99.53	11.92	87.61
MHW-2	100.00	10.32	89.68
MHW-3	98.01	12.45	85.56
MARCH 1992			
MHW-1	99.53	9.95	89.58
MHW-2	100.00	8.26	91.84
MHW-3	98.01	11.12	86.89
OCTOBER 1992			
MHW-1	99.53	12.98	86.55
MHW-2	100.00	11.19	88.81
MHW-3	98.01	12.79	85.22

(1) Well-top elevations based on an arbitrary datum of 100.00 feet at MHW-2.

TABLE 2

ANALYTICAL RESULTS - WATER
(Results Reported in parts per million, mg/l)

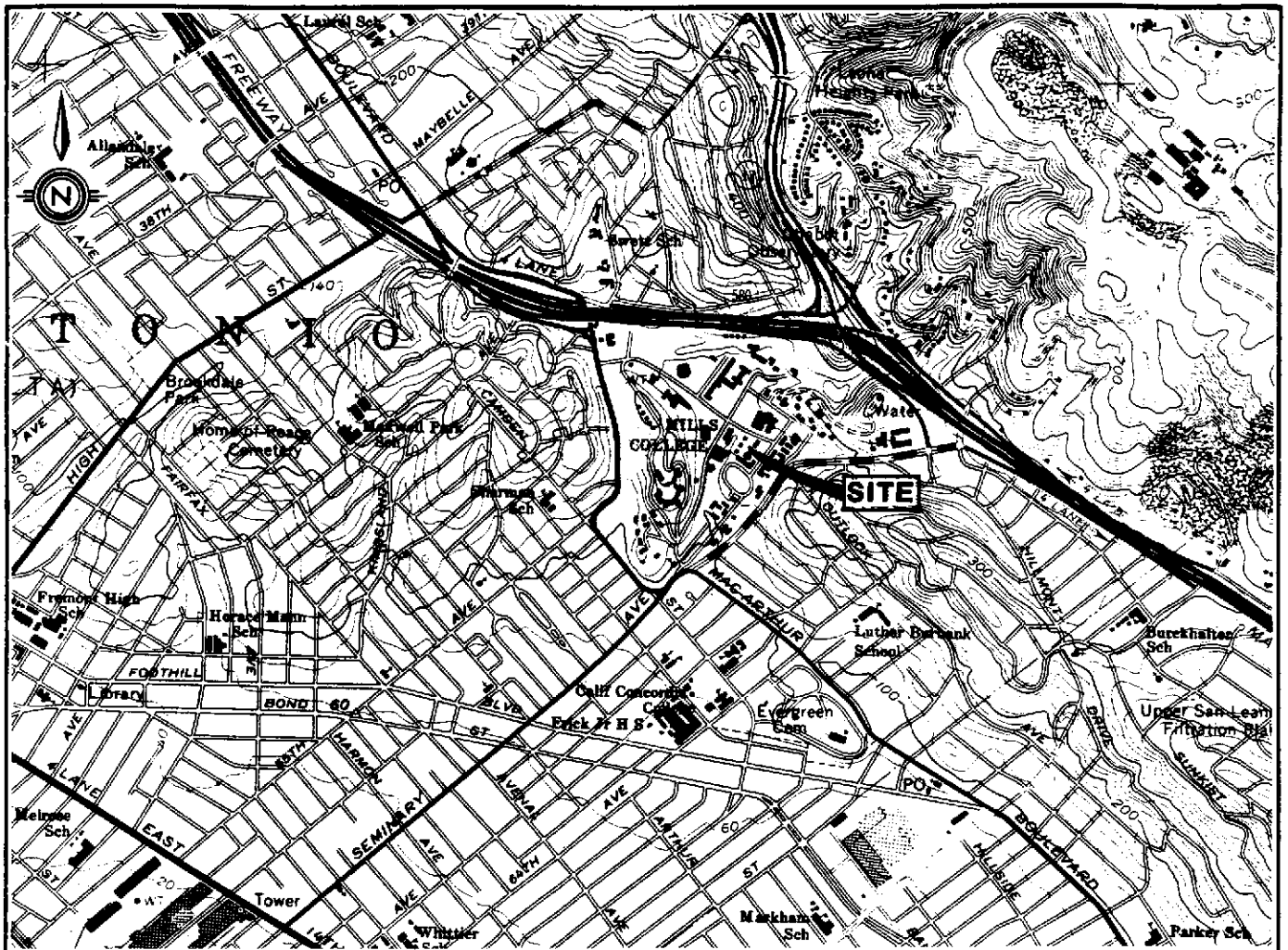
<u>Constituent</u>	<u>MHW-1</u>	<u>MHW-2</u>	<u>MHW-3</u>
JUNE 1991			
TPH as Diesel	0.06	3.2	ND
TPH as Oil	ND	ND	ND
Benzene	ND	ND	ND
Toluene	ND	ND	ND
Ethylbenzene	ND	ND	ND
Xylene	ND	ND	ND
MARCH 1992			
TPH as Diesel	ND	0.1	ND
TPH as Oil	NA	NA	NA
Benzene	ND	ND	ND
Toluene	ND	ND	ND
Ethylbenzene	ND	ND	ND
Xylene	ND	ND	ND
OCTOBER 1992			
TPH as Diesel	0.09	0.61	ND
TPH as Oil	ND	ND	ND
Benzene	ND	ND	ND
Toluene	ND	ND	ND
Ethylbenzene	ND	ND	ND
Xylene	ND	ND	ND

Notes:

MHW = Ground Water Monitoring Well Sample

NA = Not Analyzed

ND = Not Detected



Base: U.S.G.S. Oakland East 7.5 Minute Quadrangle (Topographic)

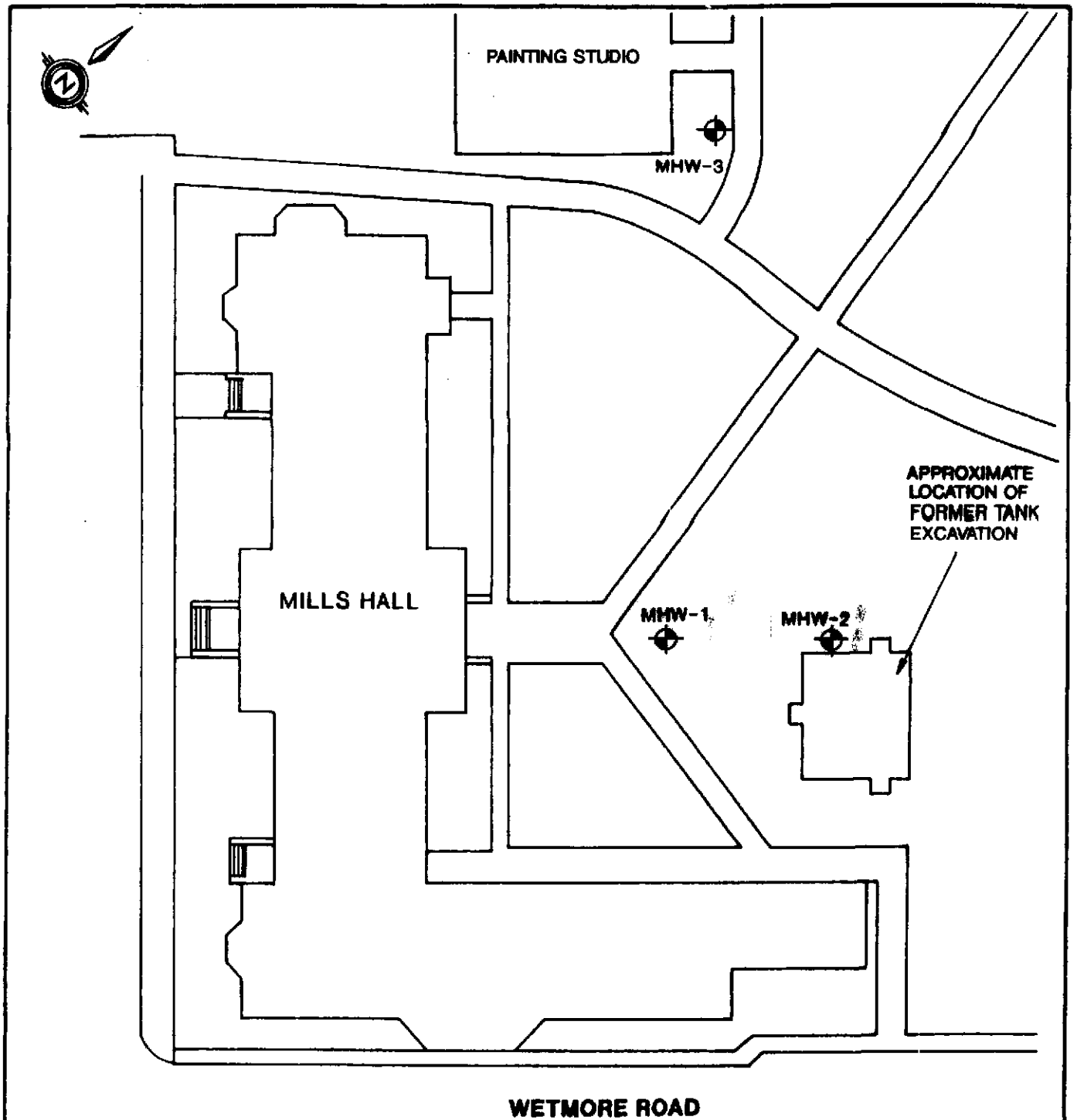
HARZA KALDVEER
Consulting Engineers

SITE VICINITY MAP

MILLS HALL/TOYON MEADOW
 Oakland, California

PROJECT NO.	DATE
KE1025-3B-718	October 1992

Figure 1



LEGEND
 MHW-1  APPROXIMATE LOCATION OF MONITORING WELL



BASE: Provided by Mills College, Dated 3/88

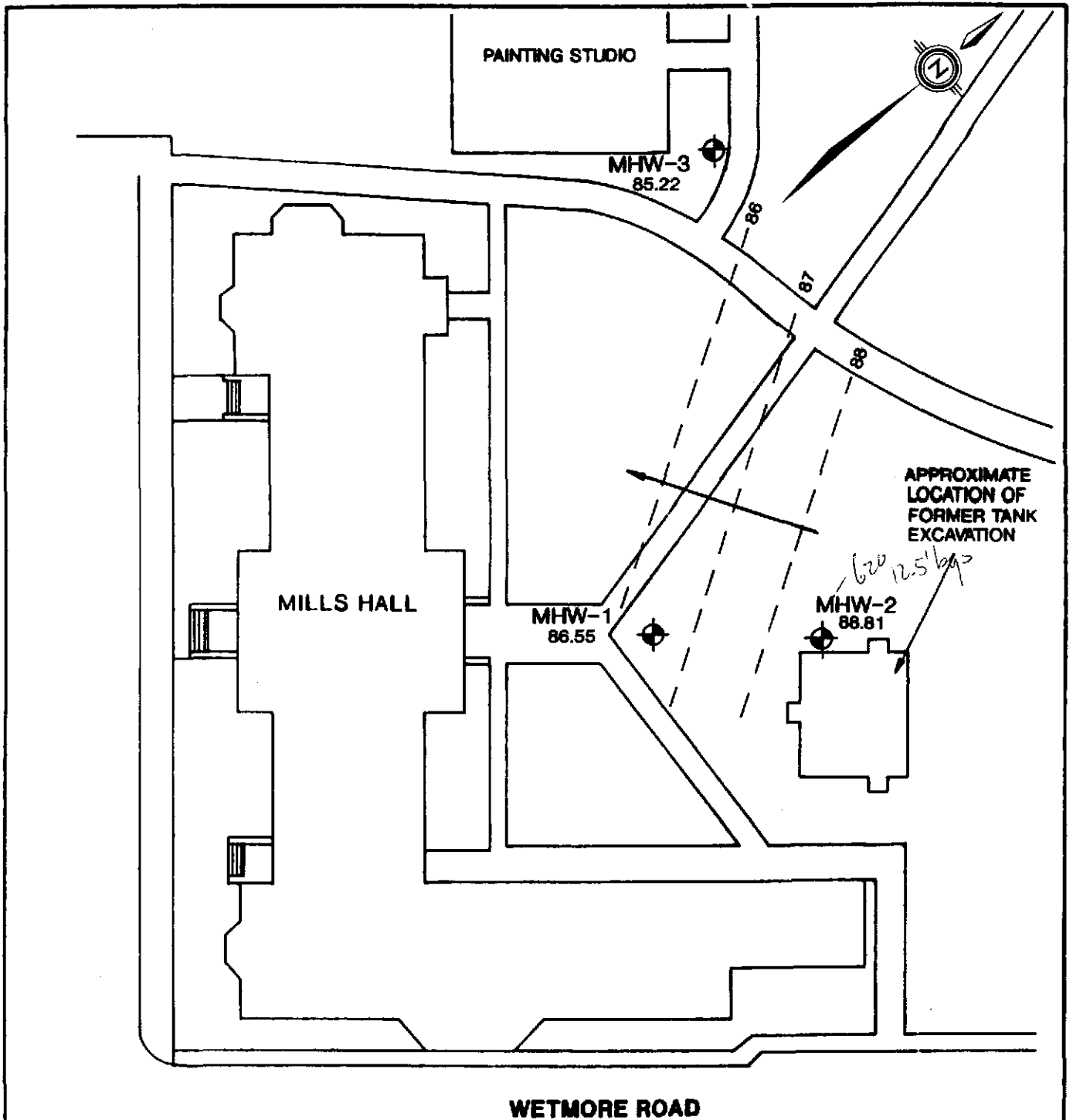
HARZA KALDVEER
 Consulting Engineers

SITE PLAN

MILLS HALL/TOYON MEADOW
 Oakland, California

PROJECT NO.	DATE
KE1026-3B-718	October 1992

Figure 2



LEGEND

MHW-1 86.58 APPROXIMATE LOCATION OF MONITORING WELL

88 GROUND WATER CONTOURS APPROXIMATED BY STRAIGHT LINE INTERPOLATION BETWEEN WELLS

DIRECTION OF GROUND WATER FLOW



BASE: Provided by Mills College, Dated 3/88

HARZA KALDVEER <i>Consulting Engineers</i>	GROUND WATER CONTOUR MAP October 1992	
	MILLS HALL/TOYON MEADOW Oakland, California	
	PROJECT NO.	DATE
	KE1025-3B-718	October 1992
		Figure 3

APPENDIX A
WELL SAMPLING LOGS

WATER SAMPLE LOG

Project Name: Mills Hall/Toyon Meadow Date: 10/9/92
 Project Number: KE1025-3B-718 Sampler: JAF
 Well Number: MHW-1 Weather: Clear, warm, calm
 Well Location: North of Mills Hall approx. 30 feet

Well Construction:

Date Completed: 7/10/89
 Total Depth of Well: 21.9 Feet
 Diameter: 2 inch
 Well Elevation & Reference: Not Surveyed

Groundwater Levels:

Initial: 12.98 Feet
 Final: 13.83 Feet
 Reference Point: Top of PVC
 Well Volume of Water: 1.7 Gallons

Sampling Equipment & Cleaning

Sampler Type: Teflon Bailer
 Method of Cleaning: See Below
 Pump or Bailer Type: Teflon
 Method of Cleaning: See Below
 pH Meter: HYDAC
 Conductivity Meter: HYDAC
 Comments: Bailer cleaned in a liquinox solution and rinsed with deionized water.

SAMPLING MEASUREMENTS

Time	Discharge (gal.)		pH	Temp (°F)	Spec. Conductance (umhos/cm)		Color/Turbidity	Odor
	Per Time Period	Cumulative			Field	@ 25°C		
11:00	Begin Purging						Brown/Trace Silt	None
11:10		2	7.78	69.4		4120	"	"
11:20		4	7.67	67.3		4010	"	"
11:25		6	7.33	66.2		3800	"	"
11:29		8.5	7.27	66.2		3860	"	"
12:00	Sampled Well							

Total Discharge: 8.5 Gallons
 Casing Volumes Removed: 5 Volumes
 Method of Disposal: To 55g drum.

Comments: _____



Kaldveer Associates
 Geoscience Consultants
 A California Corporation

WATER SAMPLE LOG

**MILLS HALL/TOYON MEADOW
 Oakland, California**

PROJECT NO.	DATE	Figure A-1
KE1025-3B-718	October 1992	

WATER SAMPLE LOG

Project Name: Mills Hall/Toyon Meadow Date: 10/9/92
 Project Number: KE1025-3B-718 Sampler: IAF
 Well Number: MHW-2 Weather: Clear, warm, calm
 Well Location: North of Mills Hall entrance approx. 90 feet

Well Construction:

Date Completed: 6/3/91
 Total Depth of Well: 20 Feet
 Diameter: 2 Inch
 Well Elevation & Reference: _____
Not Surveyed

Groundwater Levels:

Initial: 11.19 Feet
 Final: 11.48 Feet
 Reference Point: Top of PVC
 Well Volume of Water: 1.5 Gallons

Sampling Equipment & Cleaning

Sampler Type: Teflon Bailer
 Method of Cleaning: See Below
 Pump or Bailer Type: Teflon
 Method of Cleaning: See Below
 pH Meter: HYDAC
 Conductivity Meter: HYDAC
 Comments: Bailer cleaned in a liquinox solution and rinsed with deionized water.

SAMPLING MEASUREMENTS

Time	Discharge (gal.)		pH	Temp (°F)	Spec. Conductance (umhos/cm)		Color/Turbidity	Odor
	Per Time Period	Cumulative			Field	@ 25°C		
09:20	Begin Purging						Tan/Cloudy	None
09:28		2	7.11	66.1		4800	"	"
09:37		4	7.06	65.7		4480	"	"
09:42		6	7.05	65.6		4280	"	"
09:48		8	7.03	65.8		4780	"	"
09:55	Sampled Well							

Total Discharge: 8 Gallons
 Casing Volumes Removed: 5 Volumes
 Method of Disposal: To 55g drum.

Comments: Christy box flooded with water.



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WATER SAMPLE LOG

**MILLS HALL/TOYON MEADOW
 Oakland, California**

PROJECT NO.	DATE	Figure A-2
KE1025-3B-718	October 1992	

WATER SAMPLE LOG

Project Name: Mills Hall/Toyon Meadow Date: 10/9/92
 Project Number: KE1025-3B-718 Sampler: IAF
 Well Number: MHW-3 Weather: Clear, warm, calm
 Well Location: NE corner former boiler plant building

Well Construction:

Date Completed: 6/3/91
 Total Depth of Well: 18.5 Feet
 Diameter: 2 Inch
 Well Elevation & Reference: Not Surveyed

Groundwater Levels:

Initial: 12.79 Feet
 Final: 12.94 Feet
 Reference Point: Top of PVC
 Well Volume of Water: 1 Gallon

Sampling Equipment & Cleaning

Sampler Type: Teflon Bailer
 Method of Cleaning: See Below
 Pump or Bailer Type: Teflon
 Method of Cleaning: See Below
 pH Meter: HYDAC
 Conductivity Meter: HYDAC
 Comments: Bailer cleaned in a liquinox solution and rinsed with deionized water.

SAMPLING MEASUREMENTS

Time	Discharge (gal.)		pH	Temp (°F)	Spec. Conductance (umhos/cm)		Color/Turbidity	Odor
	Per Time Period	Cumulative			Field	@ 25°C		
10:22	Begin Purging						Brown/Cloudy	None
10:30		2	7.33	66.1		4510	"	"
10:38		4	7.19	65.9		5410	"	"
10:40		5	7.12	65.7		5830	"	"
10:45	Sampled Well							

Total Discharge: 5 Gallons
 Casing Volumes Removed: 5 Volumes
 Method of Disposal: To 55g drum

Comments: _____



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WATER SAMPLE LOG

**MILLS HALL/TOYON MEADOW
 Oakland, California**

PROJECT NO.	DATE	Figure A-3
KE1025-3B-718	October 1992	

APPENDIX B
LABORATORY ANALYTICAL REPORTS

Certificate of Analysis

DOHS CERTIFICATION NO. E772

AIHA ACCREDITATION NO. 352

HARZA KALDVEER
425 ROLAND WAY
OAKLAND, CA 94621

ATTN: JEFF FIEDLER

CLIENT PROJ. ID: KE1025-3B-719

REPORT DATE: 10/20/92

DATE SAMPLED: 10/09/92

DATE RECEIVED: 10/09/92

QUANTEQ JOB NO: 9210067

PROJECT SUMMARY:

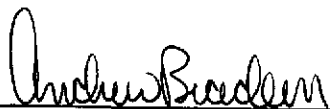
On October 9, 1992, this laboratory received four (4) water samples. Samples were in appropriate containers and properly preserved (cold).

Client requested three (3) samples be analyzed for Total Petroleum Hydrocarbons as Diesel and Oil, Benzene, Toluene, Ethylbenzene and Xylenes, and one (1) sample be analyzed for Benzene, Toluene, Ethylbenzene and Xylenes.

Sample identification, methodologies, results and dates analyzed are summarized on the following pages.

All laboratory quality control parameters were found to be within established limits. Batch QC data is included at the end of this report.

If you have any questions, please contact Client Services at (510) 930-9090.



Andrew Bradeen, Manager
Organic Laboratory

Results FAXed 10/15/92

HARZA KALDVEER

DATE SAMPLED: 10/09/92
DATE RECEIVED: 10/09/92
CLIENT PROJ. ID: KE1025-3B-719

REPORT DATE: 10/20/92
QUANTEQ JOB NO: 9210067

Client Sample Id.	Quanteq Lab Id.	Extractable Hydrocarbons as Diesel (mg/L)	Extractable Hydrocarbons as Oil (mg/L)
MHW-1	01A	0.09	ND
MHW-2	02A	0.61	ND
MHW-3	03A	ND	ND

Detection Limit 0.05 0.2

Method: 3510 GCFID

Instrument: C

Date Extracted: 10/12/92

Date Analyzed: 10/13/92

ND = Not Detected

HARZA KALDVEER

SAMPLE ID: MHW-1
CLIENT PROJ. ID: KE1025-38-719
DATE SAMPLED: 10/09/92
DATE RECEIVED: 10/09/92
REPORT DATE: 10/20/92

QUANTEQ LAB NO: 9210067-01C
QUANTEQ JOB NO: 9210067
DATE ANALYZED: 10/13/92
INSTRUMENT: F

BTEX (WATER MATRIX)
METHOD: EPA 8020 (5030)

COMPOUND	CAS #	CONCENTRATION (ug/L)	DETECTION LIMIT (ug/L)
Benzene	71-43-2	ND	0.3
Toluene	108-88-3	ND	0.3
Ethylbenzene	100-41-4	ND	0.3
Xylenes, Total	1330-20-7	ND	1

ND = Not Detected

HARZA KALDVEER

SAMPLE ID: MHW-2
CLIENT PROJ. ID: KE1025-3B-719
DATE SAMPLED: 10/09/92
DATE RECEIVED: 10/09/92
REPORT DATE: 10/20/92

QUANTEQ LAB NO: 9210067-02C
QUANTEQ JOB NO: 9210067
DATE ANALYZED: 10/13/92
INSTRUMENT: F

BTEX (WATER MATRIX)
METHOD: EPA 8020 (5030)

COMPOUND	CAS #	CONCENTRATION (ug/L)	DETECTION LIMIT (ug/L)
Benzene	71-43-2	ND	0.3
Toluene	108-88-3	ND	0.3
Ethylbenzene	100-41-4	ND	0.3
Xylenes, Total	1330-20-7	ND	1

ND = Not Detected

HARZA KALDVEER

SAMPLE ID: MHW-3
CLIENT PROJ. ID: KE1025-3B-719
DATE SAMPLED: 10/09/92
DATE RECEIVED: 10/09/92
REPORT DATE: 10/20/92

QUANTEQ LAB NO: 9210067-03C
QUANTEQ JOB NO: 9210067
DATE ANALYZED: 10/13/92
INSTRUMENT: F

BTEX (WATER MATRIX)
METHOD: EPA 8020 (5030)

COMPOUND	CAS #	CONCENTRATION (ug/L)	DETECTION LIMIT (ug/L)
Benzene	71-43-2	ND	0.3
Toluene	108-88-3	ND	0.3
Ethylbenzene	100-41-4	ND	0.3
Xylenes, Total	1330-20-7	ND	1

ND = Not Detected

HARZA KALDVEER

SAMPLE ID: MHW-2A
CLIENT PROJ. ID: KE1025-3B-719
DATE SAMPLED: 10/09/92
DATE RECEIVED: 10/09/92
REPORT DATE: 10/20/92

QUANTEQ LAB NO: 9210067-04A
QUANTEQ JOB NO: 9210067
DATE ANALYZED: 10/13/92
INSTRUMENT: F

BTEX (WATER MATRIX)
METHOD: EPA 8020 (5030)

COMPOUND	CAS #	CONCENTRATION (ug/L)	DETECTION LIMIT (ug/L)
Benzene	71-43-2	ND	0.3
Toluene	108-88-3	ND	0.3
Ethylbenzene	100-41-4	ND	0.3
Xylenes, Total	1330-20-7	ND	1

ND = Not Detected

QUALITY CONTROL DATA

DATE EXTRACTED: 10/12/92
DATE ANALYZED: 10/13/92
CLIENT PROJ. ID: KE1025-3B-719

QUANTEQ JOB NO: 9210067
SAMPLE SPIKED: D.I. WATER
INSTRUMENT: C

MATRIX SPIKE RECOVERY SUMMARY
TPH EXTRACTABLE WATER
METHOD 3520 GCFID
(WATER MATRIX; EXTRACTION METHOD)

ANALYTE	Spike Conc. (mg/L)	Sample Result (mg/L)	MS Result (mg/L)	MSD Result (mg/L)	Average Percent Recovery	RPD
Diesel	2.61	ND	2.25	2.32	87.5	3.1

CURRENT QC LIMITS (Revised 08/15/91)

Analyte	Percent Recovery	RPD
Diesel	(49.3-101.4)	29.0

MS = Matrix Spike
MSD = Matrix Spike Duplicate
RPD = Relative Percent Difference
ND = Not Detected

QUALITY CONTROL DATA

DATE ANALYZED: 10/12/92
SAMPLE SPIKED: 9210077-07A
CLIENT PROJ. ID: KE1025-3B-719

QUANTEQ JOB NO: 9210067
INSTRUMENT: F

MATRIX SPIKE RECOVERY SUMMARY
METHOD: EPA 8020, 5030 GCFID
(WATER MATRIX)

ANALYTE	Spike Conc. (ug/L)	Sample Result (ug/L)	MS Result (ug/L)	MSD Result (ug/L)	Average Percent Recovery	RPD
Benzene	13.0	ND	13.1	13.6	102.7	3.7
Toluene	45.7	ND	45.8	47.8	102.4	4.3
Hydrocarbons as Gasoline	500	ND	472	495	96.7	4.8

CURRENT QC LIMITS (Revised 05/14/92)

Analyte	Percent Recovery	RPD
Benzene	(81.4-115.3)	10.2
Toluene	(85.3-112.4)	9.4
Gasoline	(72.0-111.5)	12.3

MS = Matrix Spike
MSD = Matrix Spike Duplicate
RPD = Relative Percent Difference
ND = Not Detected

KE-1,5
R-3,5-1

CHAIN-OF-CUSTODY RECORD

Project Number: KE1005-35-719
Project Name: MILL STAIL TOWER MOUND
Location: OAKLAND

Sampler's Name (printed): JEFF FICOUR

- Analytical Tests
- Method 8015 - TPH as Gasoline
- Method 8015 - TPH as Diesel
- Method 8240 - Volatile Organics
- Method 8270 - Semi-Volatiles
- Method 8010 - Halogenated Organics
- Method 8080 - Organochlorine Pesticides & PCB's
- Waste Oil -
- Metals -
- TPH-DIESEL + OIL
- BTEX

Remarks

KA Sample I.D. Number	Lab Sample I.D. Number	Date	Soil	Water	Number/Type of Container	Analytical Tests	Method 8015 - TPH as Gasoline	Method 8015 - TPH as Diesel	Method 8240 - Volatile Organics	Method 8270 - Semi-Volatiles	Method 8010 - Halogenated Organics	Method 8080 - Organochlorine Pesticides & PCB's	Waste Oil -	Metals -	TPH-DIESEL + OIL	BTEX	Remarks	
MHW-1	D1AB	10/9		X	2x1L Amber									X	X	X		HCL PRESENCE
MHW-1	CD			X	2x40ml									X	X	X		
MHW-2	O2AB			X	2x1L AMBER									X	X	X		
MHW-2	CD			X	2x40ml									X	X	X		
MHW-3	O3AB			X	2x1L AMBER									X	X	X		
MHW-3	CD			X	2x40ml									X	X	X		
MHW-2A	O4AB			X	2x40ml									X	X	X		UNPRESERVED

Relinquished by: (Signature) <i>Jeff Fickou</i>	Date/Time 10/22/10	Received by: (Signature) <i>Denise Harvinton</i>
Relinquished by: (Signature) <i>Jeff Fickou</i>	Date/Time	Received by: (Signature)
Relinquished by: (Signature)	Date/Time	Received for Laboratory by: (Signature)

Ship To: _____

Attention: _____

Phone No: _____

Requested Turnaround Time: *NOA*

Kaldveer Assoc. Contact: *Jeff Fickou*

Please address correspondence and return cooler # _____ to:

Kaldveer Associates, Inc.
425 Roland Way
Oakland, California 94621
(415) 568-4001



Kaldveer Associates
Geoscience Consultants
A California Corporation

Remarks: