October Semiannual 1995
Ground Water Sampling Report

Mills College Corporation Yard
Oakland, California

December 8, 1995

Prepared For:

Mills College
5000 MacArthur Boulevard
Oakland, CA 94613

Prepared By:

Harza Consulting Engineers and Scientists
425 Roland Way
Oakland, CA 94621

Derek D. Armentrout
Project Chemist

Dennis Laduzinsky, C.E.G.
Head, Geology and Hydrogeology

K275HREP.010
12-08-95

HARZA

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October 1995 Semiannual Ground Water Sampling Report

Mills College Corporation Yard
Oakland, California

1.0 INTRODUCTION

This report presents the results of the October 1995 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 from a depth of 21 feet below ground surface (bgs), collected 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 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 October 19, 1995. 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. Only two casing volumes could be removed from well MW-5 because of slow recovery. Purging consisted of the gradual removal of water from the well until physical parameters such as pH, temperature, and electrical conductivity stabilized. 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, southwest 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 southwest as shown on Figure 2. 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 in 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 0.87 ppm. BTEX compounds were detected in the sample from MW-1 at concentrations of 0.092, 0.026, 0.041 and 0.025 ppm, respectively. A petroleum odor and a slight hydrocarbon sheen on the water surface were recognized during the purging of the well.

Benzene was detected in samples from wells MW-2 and MW-3 at 0.11 and 0.002 ppm, respectively. Xylenes were also detected in the sample from MW-3 at 0.002 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 October 1995 has shown fluctuations in reported TPHg and BTEX concentrations, however, the concentrations of TPHg and benzene in MW-1 appear to be decreasing. Ground water elevations in wells MW-1, MW-4, and MW-5 indicate a gradient toward the southwest. Wells MW-4 and MW-5 appear to monitor downgradient water quality.

Preparation and submittal of reports will be on a semiannual basis. A semiannual sampling schedule will be maintained contingent on ground water quality continuing to exhibit little variation, and on contaminants remaining on site. The next monitoring event is scheduled for April 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

TABLE 1
Ground Water Elevation Data
October 1995 Semiannual Ground Water Sampling Report
Mills College Corporation Yard, Oakland, California
(Reported in feet)

Date	Monitoring Well	Relative Well-Top Elevation [1]	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
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

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

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TABLE 2

Summary of Ground Water Sample Analyses

October 1995 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.	1.1	0.41	2.8
	March 1992	1.6	0.26	0.1	0.47	0.12
	October 1992	2.8	0.33	0.13	0.06	0.2
	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.	0.29	0.14	0.36
	January 1995	5.9	1.5	0.088	0.13	0.14
	April 1995	3.4	0.78	0.34	0.1	0.21
	October 1995	0.87	0.092	0.026	0.041	0.025
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	0.001	ND	ND
	October 1992	ND	0.003	ND	ND	ND
	May 1994	0.2	0.084	0.001	ND	ND
	October 1994	0.2	0.13	ND	ND	ND
	January 1995	0.7	0.21	ND	ND	ND
	April 1995	ND	0.004	ND	ND	ND
	October 1995	0.2	0.11	ND	ND	ND
MW-3	June 1989	ND	ND	ND	ND	ND
	December 1990	0.05	0.011	ND	ND	ND
	June 1991	0.1	0.007	ND	ND	ND
	March 1992	0.09	0.27	0.001	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
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
	April 1995	ND	ND	ND	ND	ND
MW-5	October 1995	ND	ND	ND	ND	ND

NOTES

TPHg: Total petrolum 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

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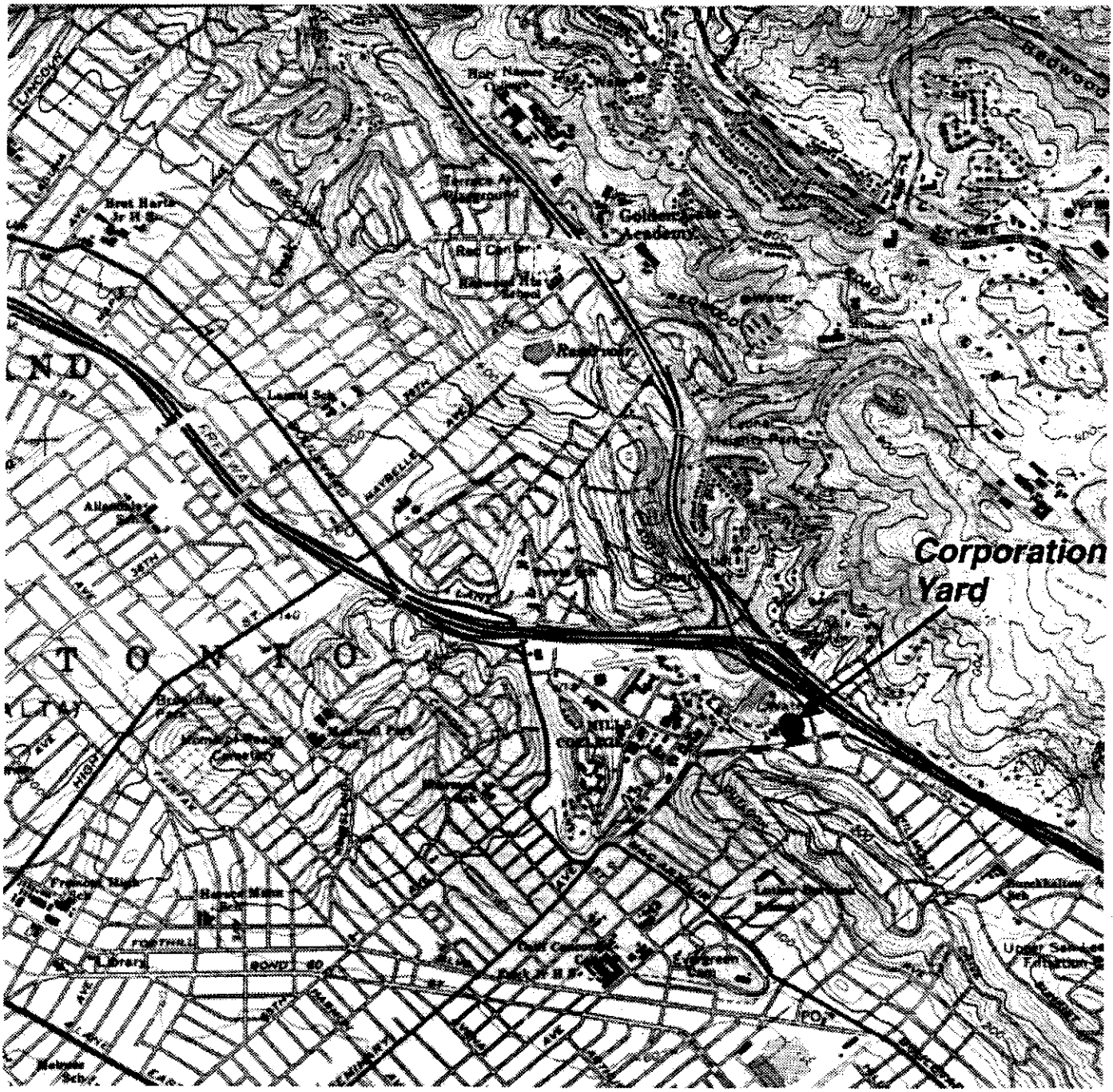
FIGURES



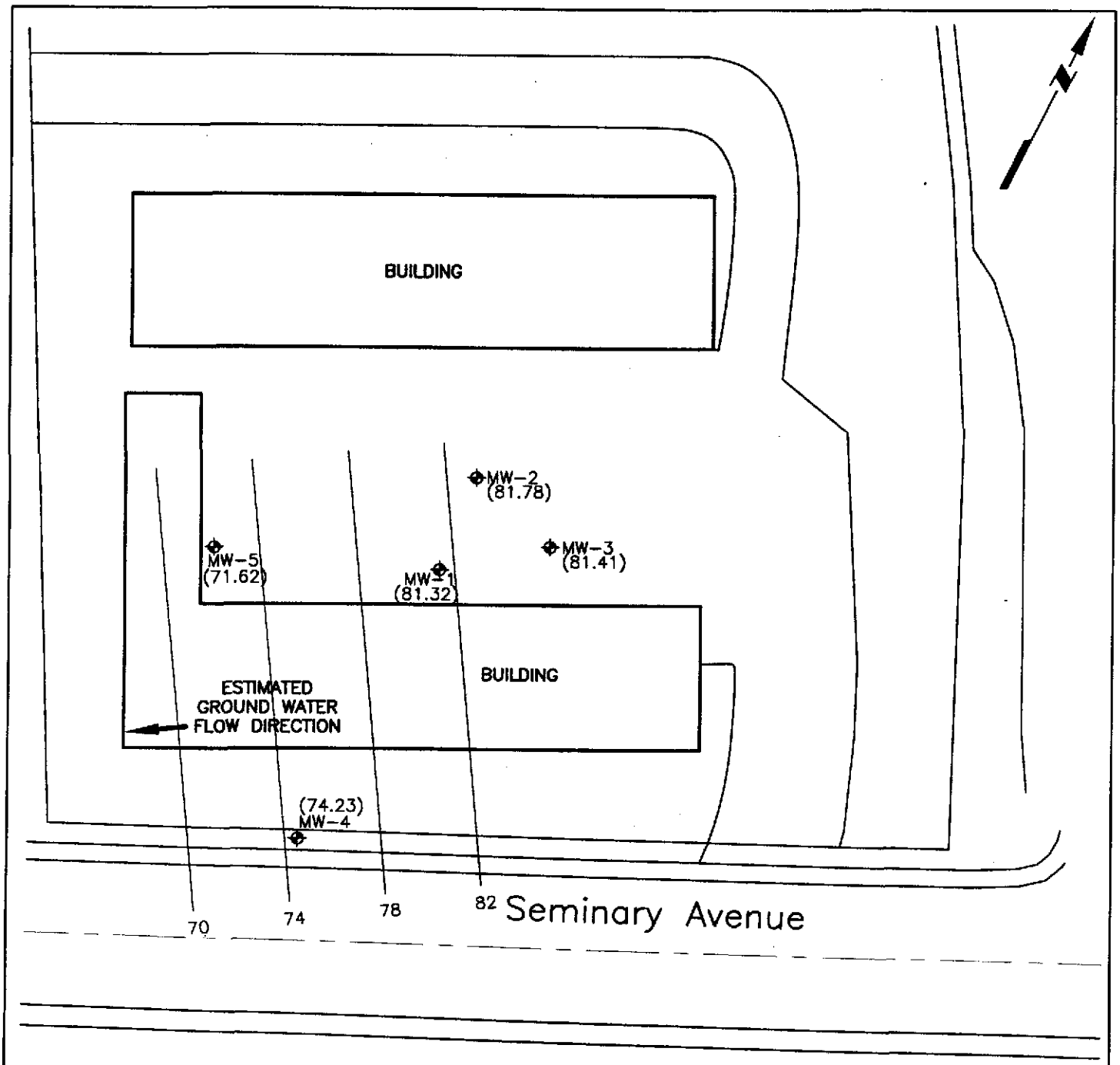
Approximate Scale In Miles

0 1/2 1

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

E275G1

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



LEGEND

◆ Monitoring Well Location

———70 Ground Water Contour 10/19/95

Approximate scale in feet

0 50 100

11-95-2

Rev.	Drawn By	Chk'd By	Date
0	D.F.	M.A.	11/09/95

HARZA

SITE PLAN

MILLS COLLEGE
CORPORATION YARD FACILITY
Oakland, California

Figure 2

Project No. K275-H

APPENDIX A

Water Sample Logs

WATER SAMPLE LOG

Project Name: Mills College
Project Number: K275-G
Well Number: MW-1
Well Location:

Date: 10/19/95
Sampler: M. Anders
Weather: Low 70° Sunny

Well Construction

Date Completed:
Total Depth of Well: 32.65
Diameter: 2"
Well Elevation and Reference:

Sampling Equipment & Cleaning

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

Ground Water Levels:

Initial: 18.68
Final: 19.19
Reference Point: TOC
Well Volume of Water: 2.3

SAMPLING MEASUREMENTS

Time	Discharge (gal.) Per Time Period	Discharge (gal.) Cumulative	pH	Temp (°F)	Spec. Conductance (µmhos/cm) Field	Spec. Conductance (µmhos/cm) @ 25°C	Color/ Turbidity	Odor
1550	start	0					note	slight sheen
1556		2.5	8.42	71	1522		DK GRAY / V. high	HC
1603		5	8.36	70.5	1508		LT. GRAY / V. high	"
1608		7.5	8.07	70.5	1495		"	"
	SAMPLED							

Total Discharge: 7.5 gal
Casing Volumes Removed: 3.26
Method of Disposal: DRUM ON-SITE

Comments:

HARZA
Consulting Engineers and Scientists

WATER SAMPLE LOG

Project No.	Date	Figure

WATER SAMPLE LOG

Project Name: Mills College
Project Number: K275-G
Well Number: MW-2
Well Location:

Date: 10/19/95
Sampler: M. Anders
Weather: 70s Sunny

Well Construction

Date Completed:
Total Depth of Well: 34.20
Diameter:
Well Elevation and Reference:

Sampling Equipment & Cleaning

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

Ground Water Levels:

Initial: (18.04) 18.21 falling
Final: 21.84
Reference Point: TOC
Well Volume of Water: 2.57

SAMPLING MEASUREMENTS

Time	Discharge (gal.) Per Time Period	Discharge (gal.) Cumulative	pH	Temp (°F)	Spec. Conductance (µmhos/cm) Field	Spec. Conductance (µmhos/cm) @ 25°C	Color/ Turbidity	Odor
1340	start	0						
1444		3	7.04	70	1276		BROWN / high	—
1450		6	7.01	69.3	1271		"	"
1455		8	6.72	69.3	1257		"	"
		SAMPLED						

Total Discharge: 8 gal
Casing Volumes Removed: 3.11
Method of Disposal: DRUMMED ON-SITE

Comments:

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Consulting Engineers and Scientists

WATER SAMPLE LOG

Project No.	Date	Figure

DDA:WATSAMP.XLS

WATER SAMPLE LOG

Project Name: Mills College
Project Number: K275-G
Well Number: MW-3
Well Location:

Date: 10/19/95
Sampler: M. Anders
Weather: Sunny, 70s

Well Construction

Date Completed:
Total Depth of Well: 32.34
Diameter: 2"
Well Elevation and Reference:

Sampling Equipment & Cleaning

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

Ground Water Levels:

Initial: 18.62
Final:
Reference Point: TOC
Well Volume of Water: 2.26

SAMPLING MEASUREMENTS

Time	Discharge (gal.) Per Time Period	Discharge (gal.) Cumulative	pH	Temp (°F)	Spec. Conductance (µmhos/cm) Field	Spec. Conductance (µmhos/cm) @ 25°C	Color/ Turbidity	Odor
1513	start	0						
1519		2.5	7.23	68.5	1208		GRN-BROWN / v. hi	NONE
1526		5	7.27	68.0	1202		"	"
1533		7.5	7.48	68.5	1209		"	"
	SAMPLED							

Total Discharge: 7.5
Casing Volumes Removed: 3.32
Method of Disposal: DRUM ON-SITE

Comments:

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Consulting Engineers and Scientists

WATER SAMPLE LOG

Project No.	Date	Figure

DDA:WATSAMP.XLS

WATER SAMPLE LOG

Project Name: Mills College
Project Number: K275-G
Well Number: MW-4
Well Location:

Date: 10/19/95
Sampler: M. Anders
Weather: 70s Sunny

Well Construction

Date Completed:
Total Depth of Well: 44.25
Diameter: 2"
Well Elevation and Reference:

Sampling Equipment & Cleaning

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

Ground Water Levels:

Initial: 14.65
Final: 29.50
Reference Point: TOC
Well Volume of Water: 4.82

SAMPLING MEASUREMENTS

Time	Discharge (gal.)		pH	Temp (°F)	Spec. Conductance (µmhos/cm)		Color/ Turbidity	Odor
	Per Time Period	Cumulative			Field	@ 25°C		
1223	start	0						
1232		5	7.19	69.5	1223		BROWN / MOD	NONE
1242		10	7.17	68.5	1215		BROWN / HIGH	"
1254		15	7.30	68.5	1202		"	"
1307		17.5	7.29	67.6	1220		"	"
	SAMPLED							

Total Discharge: 17.5
Casing Volumes Removed: ~3.63
Method of Disposal: DRUM

Comments:

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Consulting Engineers and Scientists

WATER SAMPLE LOG

Project No.	Date	Figure

WATER SAMPLE LOG

Project Name: Mills College
Project Number: K275-G
Well Number: MW-5
Well Location:

Date: 10/19/95
Sampler: M. Anders
Weather:

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/rinse
Pump/Bailer Type: Teflon bailer
Method of Cleaning: TSP/rinse
pH Meter: Hydac
Conductivity Meter: Hydac
Comments:

Ground Water Levels:

Initial: 28.36
Final: 29.31
Reference Point: TOC
Well Volume of Water: 0.7

SAMPLING MEASUREMENTS

Time	Discharge (gal.) Per Time Period	Discharge (gal.) Cumulative	pH	Temp (°F)	Spec. Conductance (µmhos/cm) Field	Spec. Conductance (µmhos/cm) @ 25°C	Color/ Turbidity	Odor
1205	start	1 bail	7.07	67.5	1267		colorless/v. low	none
1415		4 bails	707	64.5	1419		"	"
	Stopped 6th bailer (came up pretty-filled)							

Total Discharge: 1.66 gal
Casing Volumes Removed: 2.38
Method of Disposal: DRUM ON-SITE

Comments:

HARZA *Consulting Engineers and Scientists*	WATER SAMPLE LOG		
	Project No.	Date	Figure

DDA:WATSAMP.XLS

APPENDIX B

Laboratory Analytical Reports

HARZA
425 ROLAND WAY
OAKLAND, CA 94621

ATTN: MR. GARY GORMAN
CLIENT PROJ. ID: K275-H
CLIENT PROJ. NAME: MILLS COLLEGE

REPORT DATE: 10/26/95
DATE(S) SAMPLED: 10/19/95
DATE RECEIVED: 10/19/95
AEN WORK ORDER: 9510258

PROJECT SUMMARY:

On October 19, 1995, this laboratory received 6 water sample(s).

Client requested sample(s) be analyzed for organic parameters. Results of analysis are summarized on the following page(s). Please see quality control report for a summary of QC data pertaining to this project.

Samples will be stored for 30 days after completion of analysis, then disposed of in accordance with State and Federal regulations. Samples may be archived by prior arrangement.

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

Larry Klein
Laboratory Director

HARZA

SAMPLE ID: MW-1
AEN LAB NO: 9510258-04
AEN WORK ORDER: 9510258
CLIENT PROJ. ID: K275-H

DATE SAMPLED: 10/19/95
DATE RECEIVED: 10/19/95
REPORT DATE: 10/26/95

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
BTEX & Gasoline HCs	EPA 8020				
Benzene	71-43-2	92 *	0.5	ug/L	10/23/95
Toluene	108-88-3	26 *	0.5	ug/L	10/23/95
Ethylbenzene	100-41-4	41 *	0.5	ug/L	10/23/95
Xylenes, Total	1330-20-7	25 *	2	ug/L	10/23/95
Purgeable HCs as Gasoline	5030/GCFID	0.87 *	0.05	mg/L	10/23/95

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

HARZA

SAMPLE ID: MW-2
AEN LAB NO: 9510258-05
AEN WORK ORDER: 9510258
CLIENT PROJ. ID: K275-H

DATE SAMPLED: 10/19/95
DATE RECEIVED: 10/19/95
REPORT DATE: 10/26/95

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
BTEX & Gasoline HCs	**EPA 8020**				
Benzene	71-43-2	110 *	0.5	ug/L	10/23/95
Toluene	108-88-3	ND	0.5	ug/L	10/23/95
Ethylbenzene	100-41-4	ND	0.5	ug/L	10/23/95
Xylenes, Total	1330-20-7	ND	2	ug/L	10/23/95
Purgeable HCs as Gasoline	5030/GCFID	0.2 *	0.05	mg/L	10/23/95

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

HARZA

SAMPLE ID: MW-3
AEN LAB NO: 9510258-06
AEN WORK ORDER: 9510258
CLIENT PROJ. ID: K275-H

DATE SAMPLED: 10/19/95
DATE RECEIVED: 10/19/95
REPORT DATE: 10/26/95

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
BTEX & Gasoline HCs	**EPA 8020**				
Benzene	71-43-2	2 *	0.5	ug/L	10/24/95
Toluene	108-88-3	ND	0.5	ug/L	10/24/95
Ethylbenzene	100-41-4	ND	0.5	ug/L	10/24/95
Xylenes, Total	1330-20-7	2 *	2	ug/L	10/24/95
Purgeable HCs as Gasoline	5030/GCFID	ND	0.05	mg/L	10/24/95

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

HARZA

SAMPLE ID: MW-4
AEN LAB NO: 9510258-07
AEN WORK ORDER: 9510258
CLIENT PROJ. ID: K275-H

DATE SAMPLED: 10/19/95
DATE RECEIVED: 10/19/95
REPORT DATE: 10/26/95

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
BTEX & Gasoline HCs	EPA 8020				
Benzene	71-43-2	ND	0.5	ug/L	10/24/95
Toluene	108-88-3	ND	0.5	ug/L	10/24/95
Ethylbenzene	100-41-4	ND	0.5	ug/L	10/24/95
Xylenes, Total	1330-20-7	ND	2	ug/L	10/24/95
Purgeable HCs as Gasoline	5030/GCFID	ND	0.05	mg/L	10/24/95

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

HARZA

SAMPLE ID: MW-5
AEN LAB NO: 9510258-08
AEN WORK ORDER: 9510258
CLIENT PROJ. ID: K275-H

DATE SAMPLED: 10/19/95
DATE RECEIVED: 10/19/95
REPORT DATE: 10/26/95

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
BTEX & Gasoline HCs	**EPA 8020**				
Benzene	71-43-2	ND	0.5	ug/L	10/24/95
Toluene	108-88-3	ND	0.5	ug/L	10/24/95
Ethylbenzene	100-41-4	ND	0.5	ug/L	10/24/95
Xylenes, Total	1330-20-7	ND	2	ug/L	10/24/95
Purgeable HCs as Gasoline	5030/GCFID	ND	0.05	mg/L	10/24/95

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

HARZA

SAMPLE ID: TB
AEN LAB NO: 9510258-09
AEN WORK ORDER: 9510258
CLIENT PROJ. ID: K275-H

DATE SAMPLED: 10/19/95
DATE RECEIVED: 10/19/95
REPORT DATE: 10/26/95

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
BTEX & Gasoline HCs	**EPA 8020**				
Benzene	71-43-2	ND	0.5	ug/L	10/23/95
Toluene	108-88-3	ND	0.5	ug/L	10/23/95
Ethylbenzene	100-41-4	ND	0.5	ug/L	10/23/95
Xylenes, Total	1330-20-7	ND	2	ug/L	10/23/95
Purgeable HCs as Gasoline	5030/GCFID	ND	0.05	mg/L	10/23/95

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

AEN (CALIFORNIA)
QUALITY CONTROL REPORT

AEN JOB NUMBER: 9510258

CLIENT PROJECT ID: K275-H

Quality Control and Project Summary

All laboratory quality control parameters were found to be within established limits.

Definitions

Laboratory Control Sample (LCS)/Method Spike(s): Control samples of known composition. LCS and Method Spike data are used to validate batch analytical results.

Matrix Spike(s): Aliquot of a sample (aqueous or solid) with added quantities of specific compounds and subjected to the entire analytical procedure. Matrix spike and matrix spike duplicate QC data are advisory.

Method Blank: An analytical control consisting of all reagents, internal standards, and surrogate standards carried through the entire analytical process. Used to monitor laboratory background and reagent contamination.

Not Detected (ND): Not detected at or above the reporting limit.

Relative Percent Difference (RPD): An indication of method precision based on duplicate analysis.

Reporting Limit (RL): The lowest concentration routinely determined during laboratory operations. The RL is generally 1 to 10 times the Method Detection Limit (MDL). Reporting limits are matrix, method, and analyte dependent and take into account any dilutions performed as part of the analysis.

Surrogates: Organic compounds which are similar to analytes of interest in chemical behavior, but are not found in environmental samples. Surrogates are added to all blanks, calibration and check standards, samples, and spiked samples. Surrogate recovery is monitored as an indication of acceptable sample preparation and instrumental performance.

D: Surrogates diluted out.

#: Indicates result outside of established laboratory QC limits.

QUALITY CONTROL DATA

METHOD: EPA 8020, 5030 GCFID

AEN JOB NO: 9510258
INSTRUMENT: H
MATRIX: WATER

Surrogate Standard Recovery Summary

Date Analyzed	Client Id.	Lab Id.	Percent Recovery Fluorobenzene
10/23/95	MW-1	04	100
10/23/95	MW-2	05	102
10/24/95	MW-3	06	99
10/24/95	MW-4	07	100
10/24/95	MW-5	08	100
10/23/95	TB	09	100
QC Limits:			92-109

DATE ANALYZED: 10/23/95
SAMPLE SPIKED: 9510258-03
INSTRUMENT: H

Matrix Spike Recovery Summary

Analyte	Spike Added (ug/L)	Average Percent Recovery	RPD	QC Limits Percent Recovery	QC Limits RPD
Benzene	35.4	109	4	85-109	17
Toluene	108	109	3	87-111	16
HCs as Gasoline	1000	110	<1	66-117	19

Daily method blanks for all associated analytical runs showed no contamination at or above the reporting limit.

*** END OF REPORT ***

R-3, S-2

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Contact: DEREK ARMENTROUT

AEN

HARZA *Consulting Engineers and Scientists*
425 Roland Way
Oakland, CA 94621
(510) 568-4001
(510) 568-2205 Fax

Project Number: K275-G

Lab Project Number: 9510258

Project Name: MILLS COLLEGE

Sampler's Name (printed): M. ANDERS

Harza Sample ID	Lab Sample ID	Date	Time	Sample Type	Number/Type of Container	TPH as Gasoline	TPH as Diesel / Motor Oil / Full Scan	Method 418.1 - TRPH	Method 8240 - Volatile Organic Compounds	Method 8010 - Halogenated VOCs	Method 8020 - BTEX	Method 8270 - Semivolatile Organic Compounds	Method 8080 - Organochlorine Pesticides / PCBs	Metals -	Remarks
MHW-1	01A-E	10/7/95	1105	WTR	(2)Amb (3)VOAs		X			X					
MHW-2	02A-E		1030				X			X					
MHW-3	03A-E		945				X			X					
MW-1	04A-C		1610		(3)VOA	X				X					
MW-2	05A-C		1503			X				X					
MW-3	06A-C		1536			X				X					
MW-4	07A-C		1320			X				X					
MW-5	08A-B	↓	1420	↓	(2)VOA	X				X					
TB	09A-B	–	–	–		X	R			X					

Relinquished by: (Signature) — Date 10/9/95 Time 1703

Relinquished by: (Signature) — Date 10/9/95 Time 15:10

Relinquished by: (Signature) — Date — Time —

Received by: (Signature)

Received by: (Signature)

Date 10/10 Time 17:03

Date 10/11/95 Time 1810

Requested Turnaround Time: ☒ Standard ☐ 3-Day ☐ 2-Day ☐ 24-Hour ☐ other ☐ FAX Results

NOTES