100 Pine Street, 10th Floor
San Francisco, CA 94111
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GEOMATRIX

12 January 1994
Project 1736.11

Ms. Juliet Shin
Alameda County Health Care Services Agency
Division of Hazardous Materials
Department of Environmental Health
80 Swan Way, Room 200
Oakland, CA 94621

Subject: Quarterly Monitoring Report
Calendar Quarter October - December 1993
1020 Atlantic Avenue
Marina Village Development
Alameda, California

Dear Ms. Shin:

On behalf of Alameda Real Estate Investments, Inc. (AREI), Geomatrix Consultants, Inc. (Geomatrix), is submitting the subject report. This is the final report for the four quarter monitoring events conducted in 1993. Based on results of the monitoring events, we are recommending discontinuation of the monitoring program and UST site closure. If you have any questions regarding this report, please call either of the undersigned.

Sincerely,

GEOMATRIX CONSULTANTS, INC.

Jeff Nelson, P.E.
Project Manager

Elizabeth Nixon
Senior Project Engineer

JCN/slr
1736\1020QRT4.LTR

Enclosure

cc: Ms. Kathy Luck, AREI
Mr. Richard Hiett, Regional Water Quality Control Board

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QUARTERLY MONITORING REPORT
CALENDAR QUARTER
OCTOBER - DECEMBER 1993

1020 Atlantic Avenue
Marina Village Development
Alameda, California

Prepared for

Alameda Real Estate Investments
1150 Marina Village Parkway
Alameda, California

December 1993
Project No. 1736.11

Geomatrix Consultants

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CALENDAR QUARTER OCTOBER - DECEMBER 1993

1020 Atlantic Avenue
Marina Village Development
Alameda, California

1.0 INTRODUCTION

This report presents a summary of groundwater monitoring activities conducted by Geomatrix Consultants, Inc. (Geomatrix), on behalf of Alameda Real Estate Investments, Inc. (AREI), at 1020 Atlantic Avenue, Alameda, California (Figure 1). These activities are part of a quarterly groundwater monitoring program initiated in January 1993 and conducted in October 1993. The purpose of this program is to comply with Alameda County Department of Environmental Health (ACDEH) requirements for closure of underground storage tank (UST) sites. Work at the site was completed in accordance with the scope of work submitted to ACDEH by Geomatrix on 29 December 1992.

1.1 Background

Two USTs apparently were installed at the site at least 15 years ago by former property owners and were used to store diesel fuel and possibly gasoline. AREI removed the tanks in 1988, as described in Levine-Fricke, Inc.'s (Levine-Fricke), 25 April 1988 report entitled "Removal of Petroleum-Affected Soils in the Vicinity of the Rigging International Building, 2051 Sherman Street, Alameda, California." Approximately 200 cubic yards of petroleum-affected soil were removed from the tank excavation at the time of the tank removal. The location of the former USTs and excavation boundary are shown on Figure 2. Since removal of the USTs and affected soil, the site has been developed with an office building and parking lot.

2.0 QUARTERLY PROGRESS SUMMARY

The work performed during this quarter is summarized below:

- Water levels were measured in the three on-site monitoring wells on 15 October 1993. Water-level measurements and procedures are described in Section 3.0.

- Geomatrix performed the fourth of four quarterly groundwater sampling events on 15 October 1993. Section 4.0 describes the groundwater sampling activities and analytical procedures and results.

3.0 QUARTERLY WATER-LEVEL MEASUREMENTS

Geomatrix measured water levels in the three groundwater monitoring wells at the site on 15 October 1993; well construction information for these three wells is presented in Table 1. Water levels were measured to the nearest 0.01 foot using a Sinco electric well sounder in accordance with Geomatrix protocols previously submitted with the initial quarterly monitoring report for this project. Equipment used by Geomatrix personnel was washed with a detergent-water solution and rinsed with deionized water before each measurement was taken. Water-level measurements from this quarterly monitoring event are summarized in Table 2.

Water-level elevations ranged from 6.11 feet at well GMW-10 to 5.63 feet at well GMW-9 (City of Alameda Datum). Monitoring well locations, water-level elevations, and horizontal hydraulic gradient direction are shown on Figure 2. The horizontal hydraulic gradient beneath the site on 15 October 1993 was approximately 0.006 foot/foot, oriented generally to the northeast.

4.0 QUARTERLY GROUNDWATER SAMPLING AND ANALYSIS

A groundwater sample was collected from monitoring well GMW-8 on 15 October 1993. Sample collection followed Geomatrix protocols previously submitted for this project. Sampling field notes are included in Appendix A. Immediately after collection, the groundwater sample was placed in an ice-chilled cooler and transported under Geomatrix chain-of-custody procedures to American Environmental Network (AEN) of Pleasant Hill, California, a state-certified analytical laboratory.

The sample was analyzed by AEN for total petroleum hydrocarbons as diesel (TPHd), according to Environmental Protection Agency (EPA) Method 3520 GCFID; total petroleum hydrocarbons as gasoline (TPHg) according to EPA Method 5030 GCFID; and benzene, toluene, ethylbenzene, and xylenes (BTEX) according to EPA Method 8020. Copies of chain-of-custody records are included in Appendix A.

The results of chemical analyses performed on groundwater samples collected in this quarter are presented in Table 3. No TPHg or BTEX were detected in the groundwater sample. A concentration of 200 micrograms per liter (μg/l) of extractable petroleum hydrocarbons as diesel was detected in the groundwater sample. Laboratory reports are included in Appendix A.

5.0 CONCLUSIONS AND RECOMMENDATIONS

Based on the four quarterly groundwater monitoring events conducted in 1993, the following observations have been made:

- Groundwater elevations have fluctuated by less than one foot in two of the three wells and by about 2.5 feet in the other well. The groundwater horizontal hydraulic gradient has remained relatively flat at 0.005 to 0.008 foot/foot during sampling events in April, July, and October 1993 and was 0.04 foot/foot in the initial sampling event in January 1993. Hydraulic gradient direction has ranged from northerly to northeasterly.

- Results of chemical analysis for TPHd in the downgradient well GMW-8 have ranged from non-detectable to 300 μg/l.

- TPHg and BTEX have not been detected in the downgradient well GMW-8 during the four sampling events.

These observations indicate that hydraulic parameters and groundwater quality beneath the site have been sufficiently characterized to meet ACDEH requirements for UST site closure. Additionally, results of groundwater monitoring programs in other parts of the Marina Village Development suggest that the low concentrations of extractable petroleum hydrocarbons detected at the site may be representative of general groundwater quality in the site vicinity rather than specifically related to the former USTs.

We recommend that the quarterly groundwater monitoring program be discontinued and UST site closure be granted by the ACDEH.

TABLE 1

WELL CONSTRUCTION DATA
1020 Atlantic Avenue
Marina Village
Alameda, California

Well Number	Date Constructed	Well Depth (ft. below grade)	Screened Interval (ft. below grade)	Filter Pack Interval (ft. below grade)	Measuring Point Elevation[1] (feet)	Ground Surface Elevation (feet)[2]
GMW-8[3]	2/2/93	18	4-18	3-18	8.97	9.2
GMW-9[3]	2/2/93	20	5-20	4-20	9.72	9.9
GMW-10[3]	2/3/93	15	3-15	2.5-15	9.31	9.5

1 Top of PVC casing elevations were surveyed by Luk, Milani & Associates (formerly Stedman & Associates, Inc.) of Walnut Creek, California. Elevations are relative to City of Alameda Datum (6.4 feet above Mean Sea Level).
2 Ground surface elevations are approximate.
3 Installed by Geomatrix Consultants, Inc.

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TABLE 2

WATER-LEVEL MEASUREMENTS
1020 Atlantic Avenue
Marina Village
Alameda, California

Well Number	Date Water Level Measured	Measuring Point (MP) Elevation[1] (feet)	Depth to Water Below MP (feet)	Water-Level Elevation[1] (feet)
GMW-8	2/9/93	8.97	3.09	5.88
GMW-9	2/9/93	9.72	1.48	8.24
GMW-10	2/9/93	9.31	2.92	6.39
GMW-8	4/5/93	8.97	2.61	6.36
GMW-9	4/5/93	9.72	2.81	6.91
GMW-10	4/5/93	9.31	2.97	6.34
GMW-8	7/7/93	8.97	3.33	5.64
GMW-9	7/7/93	9.72	3.87	5.85
GMW-10	7/7/93	9.31	3.27	6.04
GMW-8	10/15/93	8.97	3.24	5.73
GMW-9	10/15/93	9.72	4.09	5.63
GMW-10	10/15/93	9.31	3.20	6.11

[1] Top of PVC casing elevations were surveyed by Luk, Milani & Associates of Walnut Creek, California. Elevations are relative to City of Alameda Datum (6.4 feet above Mean Sea Level).

TABLE 3

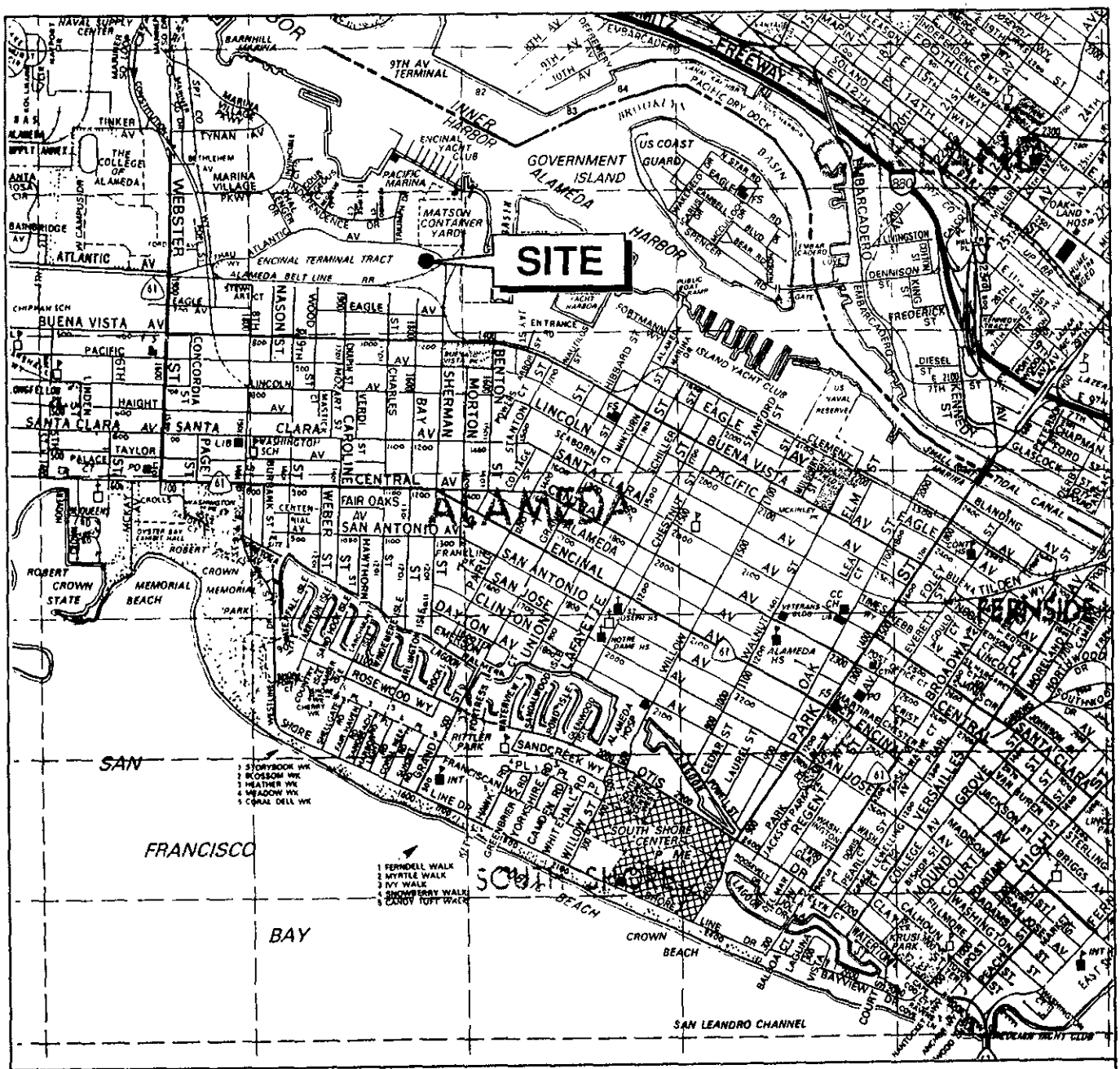
ANALYTICAL RESULTS FOR GROUNDWATER SAMPLES[1]

1020 Atlantic Avenue
Marina Village
Alameda, California

Results in micrograms per liter (μg/l)

Well Number	Sample Date	Extractable Petroleum Hydrocarbons as Diesel	Purgeable Hydrocarbons as Gasoline	Benzene	Toluene	Ethylbenzene	Xylenes (Total)
GMW-8	2/11/93	<50	<50	<0.5	<0.5	<0.5	<2
GMW-8	4/15/93	300	<50	<0.5	<0.5	<0.5	<2
GMW-8	7/7/93	100	<50	<0.5	<0.5	<0.5	<2
GMW-8	10/15/93	200	<50	<0.5	<0.5	<0.5	<2

[1] Samples collected by Geomatrix Consultants, Inc. and analyzed by American Environmental Network (formerly Quanteq Laboratories) of Pleasant Hill, California.



SITE VICINITY MAP
1020 Atlantic Avenue (Formerly 2051 Sherman Street
Rigging International Building)
Marina Village Development
Alameda, California

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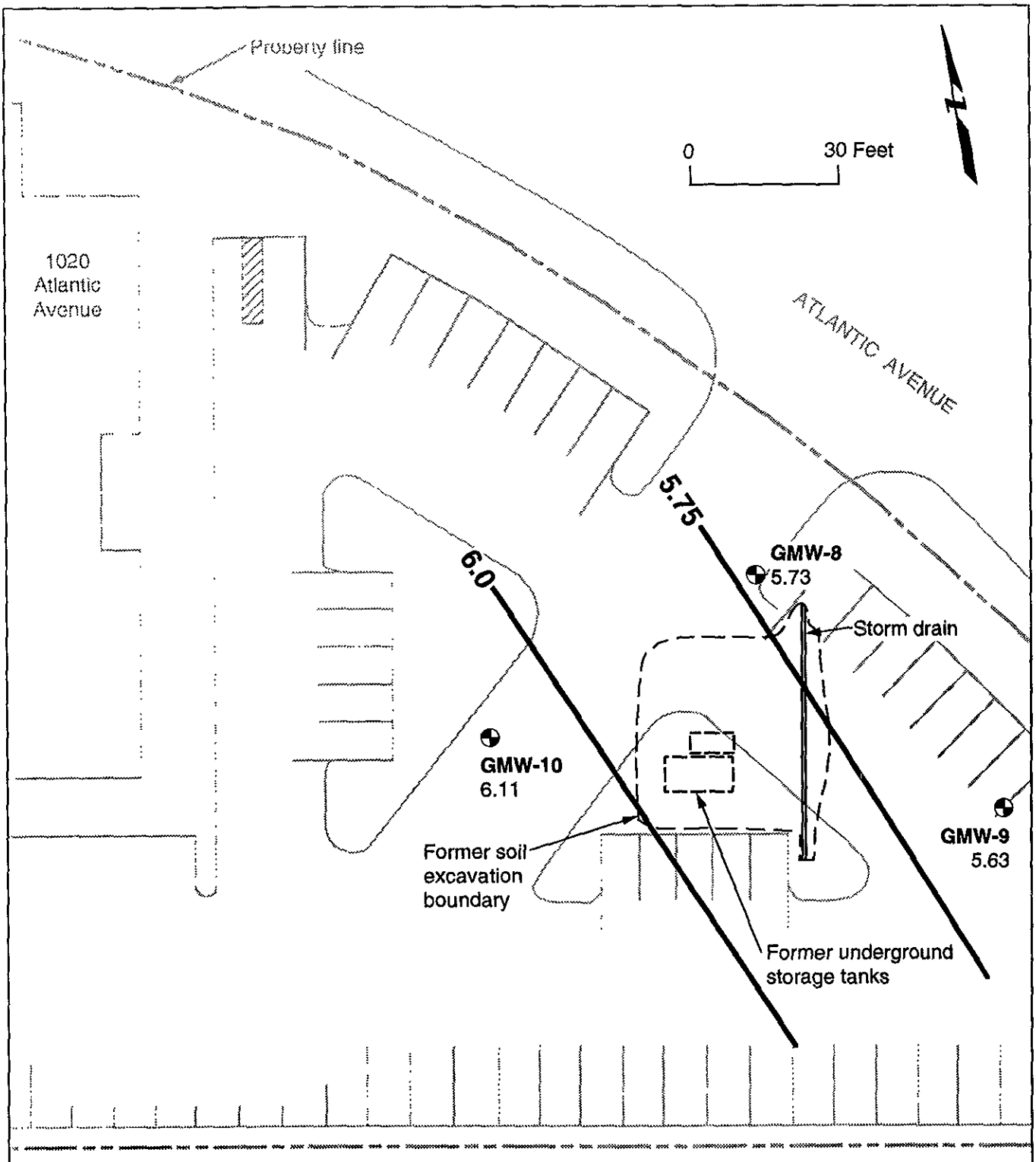
Figure
1

Project No
1736.11



EXPLANATION

- Groundwater monitoring well (installed by Geomatrix on 2/93) showing water-level elevation, in feet (City of Alameda datum)
- Lines of equal water-level elevation; based on interpretation of available data and are not intended to imply certainty

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MONITORING WELLS AND WATER-LEVEL ELEVATIONS (OCTOBER 1993)
1020 Atlantic Avenue (Formerly 2051 Sherman Street, Rigging International Building)
Marina Village Development
Alameda, California

Figure 2

Project No. 1736.11

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APPENDIX A

Laboratory Analytical Results and Chain-of-Custody Records for Groundwater Sampling Analyses; Field Notes

American Environmental Network

Certificate of Analysis

DOHS Certification: 1172

AIHA Accreditation: 94523-001

GEOMATRIX CONSULTANTS
100 PINE ST., 10TH FLOOR
SAN FRANCISCO, CA 94111

ATTN: JEFF NELSON

CLIENT PROJ. ID: 1736.11
C.O.C. NO: 3910

REPORT DATE: 11/05/93

DATE SAMPLED: 10/15/93

DATE RECEIVED: 10/15/93

AEN JOB NO: 9310160

PROJECT SUMMARY:

On October 15, 1993, this laboratory received one (1) water sample.

Client requested the sample be analyzed for Extractable Hydrocarbons as Diesel by EPA Method 3510 GCFID and Purgeable Hydrocarbons as Gasoline, Benzene, Toluene, Ethylbenzene and Total Xylenes by EPA Methods 8020, 5030 GCFID. Sample identification, 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 Bradley for
Larry Klein
General Manager

Results FAXed 10/27/93

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SAMPLE ID: GMW-8
AEN LAB NO: 9310160-01
AEN WORK ORDER: 9310160
CLIENT PROJ. ID: 1736.11

DATE SAMPLED: 10/15/93
DATE RECEIVED: 10/15/93
REPORT DATE: 11/05/93

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
BTEX & Gasoline HCs(Water)	**EPA 8020**				
Benzene	71-43-2	ND	0.5	ug/L	10/25/93
Toluene	108-88-3	ND	0.5	ug/L	10/25/93
Ethylbenzene	100-41-4	ND	0.5	ug/L	10/25/93
Xylenes, Total	1330-20-7	ND	2	ug/L	10/25/93
Purgeable HCs as Gasoline	5030/GCFID	ND	0.05	mg/L	10/25/93
#Extraction for Diesel/Oil	**EPA 3510**	-		Extrn Date	10/22/93
TPH as Diesel	**GC-FID**	0.2 *	0.05	mg/L	10/24/93

ND = Not detected
* = Indicates value above reporting limit

QUALITY CONTROL DATA

DATE EXTRACTED: 10/22/93
DATE ANALYZED: 10/24/93
CLIENT PROJ. ID: 1736.11

AEN JOB NO: 9310160
SAMPLE SPIKED: D.I. WATER
INSTRUMENT: C

MATRIX SPIKE RECOVERY SUMMARY
TPH EXTRACTABLE WATER
METHOD: EPA 3510 GCFID

ANALYTE	Spike Conc. (mg/L)	Sample Result (mg/L)	MS Result (mg/L)	MSD Result (mg/L)	Average Percent Recovery	RPD
Diesel	2.04	ND	2.01	1.88	95.3	6.7

CURRENT QC LIMITS (Revised 10/18/93)

Analyte	Percent Recovery	RPD
Diesel	(55-119)	8

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

QUALITY CONTROL DATA

CLIENT PROJ. ID: 1736.11

AEN JOB NO: 9310160

INSTRUMENT: F

SURROGATE STANDARD RECOVERY SUMMARY
METHOD: EPA 8020
(WATER MATRIX)

Date Analyzed	SAMPLE IDENTIFICATION Client Id.	Lab Id.	SURROGATE RECOVERY (PERCENT) Fluorobenzene
10/25/93	GMW-8	01	98.6

CURRENT QC LIMITS

ANALYTE	PERCENT RECOVERY
Fluorobenzene	(70-115)

QUALITY CONTROL DATA

DATE ANALYZED: 10/25/93
SAMPLE SPIKED: 9310160-01
CLIENT PROJ. ID: 1736.11

AEN JOB NO: 9310160
INSTRUMENT: F

MATRIX SPIKE RECOVERY SUMMARY
METHOD: EPA 8020
(WATER MATRIX)

ANALYTE	Spike Conc. (ug/L)	Sample Result (ug/L)	MS Result (ug/L)	MSD Result (ug/L)	Average Percent Recovery	RPD
Benzene	9.9	ND	9.4	9.6	96.0	2.1
Toluene	34.9	ND	35.9	36.8	104.2	2.5
Hydrocarbons as Gasoline	500	ND	527	534	106.1	1.3

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	(72.0-119.4)	12.3

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

*** END OF REPORT ***

R-1, S-D
R-3, S-1

R-1, S-

9310160

Chain-of-Custody Record

No 3910

Date: 10/15/93

Page 1 of 1

Project No.: 1736.11

Samplers (Signatures): James M Carolan

Date	Time	Sample Number	EPA Method 8010	EPA Method 8020	EPA Method 8240	EPA Method 8270	TPH as gasoline	TPH as diesel	TPH as BTEX 8020	Cooled	Soil (S) or water (W)	Acidified	Number of containers
10/15	1025	GMW-8					X	X	X	X	W	X	8

ANALYSES

REMARKS

Additional comments

A-H

Turnaround time: Standard

Results to: Jeff Nelson

Total No. of containers: 8

Relinquished by:	Date:	Relinquished by:	Date:	Relinquished by:	Date:
Signature: James M Carolan	10/15/93	Signature: Thomas R Jones	10/15/93	Signature: Ron Stallings	
Printed name: Jim Carolan		Printed name: THOMAS R JONES		Printed name: Ron Stallings	
Company: Geomatrix		Company: GEOMATRIX		Company: AEN.	
Received by:	**Time:**	**Received by:**	**Time:**	**Received by**	**Time**
Signature: Thomas R Jones	03:30	Signature: Ron Stallings	1811	Signature: Gina Gillespie	
Printed name: THOMAS R JONES		Printed name: Ron Stallings		Printed name: AEN.	
Company: GEOMATRIX		Company: AEN		Company: 10-15-93 1710	

Method of shipment: Lab Pickup

Laboratory comments and Log No.

Geomatrix Consultants
100 Pine St 10th Floor
San Francisco, CA 94111
(415) 434-9400

WATER LEVEL MONITORING RECORD

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Project 1736.11 Project No. Marina Village

Date 10/15/93 Recorded By Jim Carolan

Note: Use these abbreviations to make your life easier:
P = Pumping SC = Specific Conductance Measured
I = Inaccessible WS = Water Sample Collected

Well No.	Date	Water Level Below MP (feet)	Corrections (feet)	Previous ~~Water Level~~ Below GL (feet)	Water Level Elevation (feet, MSL)	Remarks
GP-1	10/15/93	9.00		8.46		
GMW-3		6.88		11.15		
GMW-4		7.57		7.23		
GMW-5		7.75		7.64		
GMW-6		5.76		5.66		
GMW-7		7.24		7.99		
LF-2		8.73		9.01		
WC-3		8.98		9.43		
GMW-8		3.24		3.33		
GMW-9		4.09		3.87		
GMW-10		3.20		3.27		
GMW-1		5.54		5.43		
		7.88		8.01		Norm of LF-2 1301 Marina Village

Geomatrix Consultants
100 Pine Street, 10th Floor
San Francisco, California 94111
(415) 434-9400

MONITORING WELL SAMPLING RECORD AND WELL DEVELOPMENT DATA

Well ID: GMW-8
Sample ID.: GMW-8 Duplicate ID.:
Sample Depth: 12'
Project No: 1736.11
Project Name: Marina Village
Date: 10/15/93
Sampled By: JMC

Initial Depth to Water: 3.24
Depth to Water after Purging:
Total Depth of Well: 18' T.O.C.
Well Diameter: 2"
1 Casing Volume = 2.4 gallons
4 Casing Volumes = 10 gallons
Method of Purging: Diaphragm Pump
Method of Sampling: Teflon Bailer

TIME	INTAKE DEPTH	RATE (gpm)	CUM. VOL. (gal)	TEMP. (°C)	pH (units)	CONDUCTIVITY (umhos/cm)	REMARKS (color, turbidity & sediment)
0956	16'	—	2	21.6	6.0	5300	Clear, pumped dry
1002	17'	—	4	22.1	6.0	5300	Clear, pumped dry
1009	18'		8	22.0	6.0	5600	Clear, pumped dry
1012	17'		10	21.9	6.0	5500	Clear, pumped dry
1025	12'	SAMPLE		21.7	6.0	5500	Clear

pH CALIBRATION (CHOOSE TWO)				Model or Unit No.: 4
Buffer Solution	pH 4.0	pH 7.0	pH 10.0	
Temp. °C	19.8	19.7	19.7	
Instrument Reading	4.0	7.0	10.0	

SPECIFIC CONDUCTANCE - CALIBRATION:						Model or Unit No.:
KCL Solution (umhos/cm at 20°C)	1409	12856				
Temp. °C		19.9				
Instrument Reading		12800				

Notes: