HYDRO ENVIRONMENTAL TECHNOLOGIES, INC.

2394 Mariner Square Drive, Suite 2
Alameda, California 94501
Tel 510-521-2681
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Massachusetts
New York
Maryland

June 7, 1996

7-284.1

Ms. Juliet Shin
Senior Hazardous Materials Specialist
Alameda County
Health Care Services Agency
Environmental Protection Division
1131 Harbor Bay Parkway, Room 250
Alameda, CA 94502-6577

Re: 2203 and 2227 Mariner Square Loop, Alameda
1st Quarter 1996 Monitoring and Sampling Report

Dear Ms. Shin:

Hydro-Environmental Technologies, Inc. (HETI) is providing the attached First Quarter 1996 monitoring and sampling report. Second quarter monitoring and sampling is anticipated later this month.

Please call me at (510) 521-2684, if you have any questions.

Sincerely,

HYDRO-ENVIRONMENTAL TECHNOLOGIES, INC.

Gary Pischke, C.E.G.
Senior Geologist

cc: Mr. Ron Doll
Mr. John Beery

6/18/96
- I was going up, may be concerned about looking into utility lines at site, cited during attempted drilling of boring B-6.
- Can possibly consider conditional Closure or Mgmt Plan if levels continue to go down in g.w. → soil conc. for TPHg & TPHd were fairly high, but if not leaching into g.w. readily, may not be a problem.
- PNA levels are mostly below all established thresholds concentrations.
- Next round of sampling has been coordinated w/ a silica gel cleanup according to Pischke

- JMS

HYDRO
ENVIRONMENTAL
TECHNOLOGIES, INC.

QUARTERLY MONITORING REPORT, First Quarter 1996

2203 and 2227 Mariner Square Loop
Alameda, California 94501

Sampling Dates: March 16, 18 and 19, 1996

Prepared for:

Mariner Development Company
2900 Main Street, Suite 100
Alameda, California 94501

Prepared by:

HYDRO-ENVIRONMENTAL TECHNOLOGIES, INC.
2394 Mariner Square Drive, Suite 2
Alameda, CA 94501
HETI Job No. 7-284.1

May 10, 1996

HYDRO ENVIRONMENTAL TECHNOLOGIES, INC.

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APPENDICES

1.0 INTRODUCTION

This report presents the results of work conducted in the first quarter of 1996 by Hydro-Environmental Technologies, Inc. (HETI) at the referenced location (Figure 1). All work was performed in accordance with California State Water Resources Control Board and San Francisco Bay Regional Water Quality Control Board (SFBRWQCB) recommended guidelines and procedures. A copy of HETI 's standard sampling protocols was previously included in HETI's *Subsurface Investigation Report* dated October 5, 1994.

2.0 BACKGROUND

The subject site is located in Alameda, California in an area of commercial and military usage immediately adjacent to the Alameda Fleet Industrial Supply Center. The site is occupied by Mariner Square Athletic Club which consists of one large building housing a swimming pool, fitness center, dining area and other facilities. A day-care center is also located in the building. Also occupying the site, is a smaller building operated as the Live Bait Cantina, a restaurant and dance club. The site is located approximately 1,300 feet from Oakland Inner Harbor. The local geology consists of fine grained fill over fine grained estuarine and marsh sediments derived from the East Bay Hills and Bay sedimentation. Regional ground water flow is predominantly westerly, towards San Francisco Bay.

The site was reclaimed from marshlands in the late 1920's. Available maps indicate tidal channels present in the former marshland now occupied by the site (Figure 2). From approximately 1930 to 1960, the San Francisco Airdrome hanger occupied the site. The hanger used to serve as an operations base for commercial and privately owned planes. The hanger housed shop facilities, offices and passenger waiting rooms. Transformers and a steam heating plant were located near the west end of the hanger. In 1960, the hanger building was cut in half and reassembled on Navy Alameda Annex, Fleet Industrial Supply Center (FISC), property located west of the site.

Discussions with the consultant (Versar) for the FISC indicate the primary contaminants for the solid waste management unit #1 (SWMU) adjacent to the site are benzene, motor oil and naphthalene. According to the Remedial Investigation Report by Versar, sources for these compounds have reportedly been found both in soils at the SWMU and in sediments underlying the FISC and the subject site. Naphthalene and associated polynuclear aromatic compounds have been reported as associated with industrial activity (refineries) operating on the Alameda west end in the late 1800's. These compounds are associated with the former tidal channels which were present prior to filling of the area in the early 1900s.

On June 14, 1994, HETI supervised the installation of four two-inch diameter monitoring wells designated MW-1, MW-2, MW-3, and MW-5. Concrete blocks encountered beneath the surface prevented the completion of boring B-4 into well MW-4. Monitoring well locations are shown on Figure 3, the Site Plan.

Sediments encountered during drilling consisted primarily of gravely clay and sandy fill material overlying silty to clayey sand fill material. The sand was underlain by fat clay with sandy gravel and shell fragments (bay mud).

Total Petroleum Hydrocarbons as diesel (TPHd) were detected in all soil samples collected from all the borings. Total Petroleum Hydrocarbons as gasoline (TPHg) were detected in the soil sample collected from MW-2 only. Total Recoverable Petroleum Hydrocarbons (TRPH) were detected in the soil samples collected from MW-2 and MW-5. Benzene was not detected in any soil sample.

No PCB's, VOCs nor PNAs were detected in any of the soil samples collected. No CAM 17 metals were detected in any of the soil samples collected in concentrations exceeding typical background levels for the San Francisco Bay Area as defined in U.S.G.S. Professional Paper 1270 for the Conterminous United States. Soil sampling results were presented in the *Subsurface Investigation Report* by HETI dated October 5, 1994.

3.0 FIELD ACTIVITIES

On March 16, 1996 the monitoring wells were gauged for depth to first encountered ground water to the nearest hundredth of a foot using an electronic water sounder. Following gauging, monitoring wells MW-1, MW-2, MW-3 and MW-5 were purged of a minimum of three well volumes while pH, temperature and conductivity measurements were monitored for stabilization. Purged water was stored on-site in a 55-gallon DOT drum with a tight fitting lid. No separate phase product was detected in any of the wells. Gauging and purging data is included in Table 1 and Appendix A.

Following recovery of the water levels to at least 80% of their static level, ground water samples were collected from the monitoring wells using dedicated polyethylene bailers. Samples were then labeled, documented on a chain-of-custody form, and stored in a chilled cooler for transport to the analytical laboratory. Ground water samples were analyzed for total petroleum hydrocarbons as diesel (TPHd), total petroleum hydrocarbons as gasoline (TPHg) and benzene, toluene, ethylbenzene and total xylenes (BTEX) using the California Leaking Underground Fuel Tank (CA LUFT) Manual protocols and polynuclear aromatics (PNAs) by EPA Method 8310. Additionally, the ground water sample collected from wells MW-1 and MW-2 were analyzed for chromium by EPA Method 3010A. Sample analyses were performed by GTEL Environmental Laboratories, Inc. a state of California DHS-certified laboratory located in Wichita, Kansas.

4.0 RESULTS

4.1 Ground Water Elevation

On March 16, 1996, depth to first encountered ground water in the wells ranged between 0.90 to 3.93 feet below top of well casing. Depth to water measurements and calculated ground water elevations in the wells are presented on Table 1. The depth to water measurements and the wellhead elevation data were used to calculate ground water elevation contours. These contours are shown on Figure 4, the Ground Water Contour Map. Figure 4 shows that a ground water mound appears to exist around well MW-3. Ground water flows towards the northwest, north of well MW-3 and southeast, south of well MW-3. These results are consistent with last quarter's.

4.2 Ground Water Sample Analytical Results

Neither TPHd, TPHg nor BTEX compounds were detected above the indicated laboratory method detection limits in the ground water samples collected from wells MW-2, MW-3 and MW-5. Analytical results indicate that dissolved TPHd TPHg and benzene were present in the ground water sample collected from well MW-1 in concentrations of 2,700 micrograms per liter (µg/L), 270 µg/L and 1.3 µg/L, respectively. These results are shown on Figure 5, The Hydrocarbon Distribution Map.

Concentrations of polynuclear aromatics were detected above the indicated laboratory method detection limits in the ground water samples collected from wells MW-1 and MW-3. These results are shown on Figure 6, The Polynuclear Aromatics Distribution Map. Chromium was not detected above the indicated laboratory method detection limit in the water samples collected from wells MW-1 and MW-2. Cumulative analytical results are presented in Table 1. The certified laboratory analytical reports and the chain-of-custody for the ground water samples are presented in Appendix B.

5.0 CERTIFICATION

This report was prepared under the supervision of a registered geologist. All statements, conclusions and recommendations are based solely upon field observations and analytical analyses performed by a state-certified laboratory related to the work performed by Hydro-Environmental Technologies, Inc.

It is possible that variations in the soil or ground water conditions exist beyond the points explored in this investigation. Also, site conditions are subject to change at some time in the future due to variations in rainfall, temperature, regional water usage, or other factors.

The service performed by Hydro-Environmental Technologies, Inc. has been conducted in a manner consistent with the level of care and skill ordinarily exercised by members of our profession currently practicing under similar conditions in the area of the site. No other warranty, expressed or implied, is made.

Hydro-Environmental Technologies, Inc. includes in this report chemical analytical data from a state-certified laboratory. These analyses are performed according to procedures suggested by the U.S. EPA and the State of California. Hydro-Environmental Technologies, Inc. is not responsible for laboratory errors in procedure or result reporting.

Prepared by:

Frances Maroni
Staff Engineer

Reviewed by:

Gary Pischke, C.E.G.
Senior Geologist

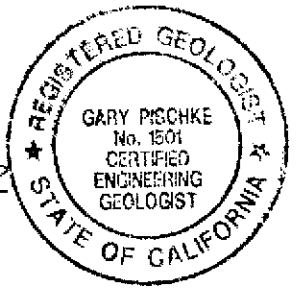


Table 1

GROUND WATER ELEVATONS AND SAMPLE ANALYTICAL RESULTS

Mariner Development
2203 and 2227 Mariner Square Loop
Alameda, CA

Notes:

TOC :	Top of well casing referenced to arbitrary elevation. Benchmark elevation approximately 11 feet above sea level.
DTW :	Depth to water.
GWE :	Ground water elevation.
TPHg :	Total petroleum hydrocarbons as gasoline by EPA Method 8015 (modified).
BTEX :	Benzene, toluene, ethylbenzene and total xylenes by EPA Method 8020.
TPHd :	Total petroleum hydrocarbons as diesel by EPA Method 8015 (modified).
TRPH :	Total Recoverable Petroleum Hydrocarbons by EPA Method 418.1.
Cr :	Chromium by EPA Method 3010A.
µg/L :	Micrograms per Liter.
ND :	Not detected above the indicated laboratory method detection limit.
(1) :	Result is estimated because the surrogate spike recovery is outside of acceptability limits.
(2) :	The material present is qualitatively uncertain. Therefore, all material in the C9 to C22 range was quantified against diesel fuel without respect to pattern.
(3) :	Qualitative identification is uncertain because the material present does not match laboratory standards.
(4) :	Data indicates the presence of hydrocarbon material heavier than diesel fuel.
--- :	Not analyzed.

Table 1

GROUND WATER ELEVATONS AND SAMPLE ANALYTICAL RESULTS

Mariner Development
2203 and 2227 Mariner Square Loop
Alameda, CA

Well I.D. #	Sample Date	TOC (feet)	DTW (feet)	GWE (feet)	TPHg (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)	TPHd (µg/L)	TRPH (µg/L)	Cr (µg/L)
MW-1	8/11/94	98.43	7.30	91.13	390	2.2	0.91	2.1	7.8	15,000	ND<1,000	—
	12/21/95	98.43	3.80	94.63	ND<100	ND<0.5	ND<1.0	ND<1.0	ND<2.0	7,200 (1) (2)	---	ND<30
	3/19/96	98.43	3.88	94.55	270	1.3	<1.0	1.2	3.7	2,700 (3)	---	ND<30
MW-2	8/11/94	96.68	4.59	92.09	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<1.5	ND<50	1200	---
	12/20/95	96.68	3.68	93.00	ND<100	ND<0.5	ND<1.0	ND<1.0	ND<2.0	390 (1) (2)	---	---
	3/19/96	96.68	3.93	92.75	ND<100	ND<0.5	ND<1.0	ND<1.0	ND<2.0	ND<200 (4)	---	ND<30
MW-3	8/11/94	96.58	2.63	93.95	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<1.5	ND<50	ND<1,000	—
	12/20/95	96.58	1.91	94.67	ND<100	ND<0.5	ND<1.0	ND<1.0	ND<2.0	320 (1) (2)	---	---
	3/16/96	96.58	0.90	95.68	ND<100	ND<0.5	ND<1.0	ND<1.0	ND<2.0	ND<150 (4)	---	---
MW-5	8/11/94	98.78	5.14	93.64	ND<50	ND<0.5	ND<0.5	ND<0.5	ND<1.5	ND<50	ND<1,000	---
	12/20/95	98.78	4.29	94.49	ND<100	ND<0.5	ND<1.0	ND<1.0	ND<2.0	90 (1) (2)	---	---
	3/16/96	98.78	3.93	94.85	ND<100	ND<0.5	ND<1.0	ND<1.0	ND<2.0	ND<50 (4)	---	---

Table 2

POLYNUCLEAR AROMATICS SAMPLE ANALYTICAL RESULTS

Mariner Development
2203 and 2227 Mariner Square Loop
Alameda, CA

Well I.D. #	Sample Date	Naphthalene b, c µg/L	Acenaphthalene ★ + µg/L	Acenaphthene ++ µg/L	Fluorene ★+ µg/L	Phenanthrene ★+ µg/L	Anthracene ★+ µg/L	Fluoranthene ++ a. µg/L	Pyrene ★+ µg/L
MW-1	12/20/95	390	33	93	57	31	6.1	9.8	7.4
MW-1	3/19/96	78	38	88	33	32	3.1	9.6	7.3
MW-2	12/20/95	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<1.0	ND<1.0	ND<0.5	0.59
MW-2	3/19/96	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<1.0	ND<1.0	ND<0.5	ND<0.5
MW-3	12/20/95	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<1.0	ND<1.0	ND<0.5	ND<0.5
MW-3	3/16/96	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<1.0	ND<1.0	1.0	1.5
MW-5	12/20/95	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<1.0	ND<1.0	ND<0.5	ND<0.5
MW-5	3/16/96	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<1.0	ND<1.0	ND<0.5	ND<0.5

0.031 (Enclosed Bays - Human Health Prot 30-day avg)

★ 0.031 ppb (Enclosed Bays + Estuaries Plan - Human Health Protection - 30 day avg)
+ 300 ppb - Acute - Saltwater Tox. to Aquatic
+ 710 ppb - Chronic and 500 ppb - Other - Saltwater Tox. to Aquatic
++ 42 ppb (Enclosed Bays + Estuaries Plan - Human Health Protection - 30 day avg)
a. 40 ppb (Acute) + 16 ppb (Chronic) - Saltwater Tox. to Aquatic
b. 2360 ppb (Acute) ~~+ 620 ppb (Chronic)~~ - Saltwater Tox. to Aquatic

Surface water

c. JRIS - 28 ppb

Table 2

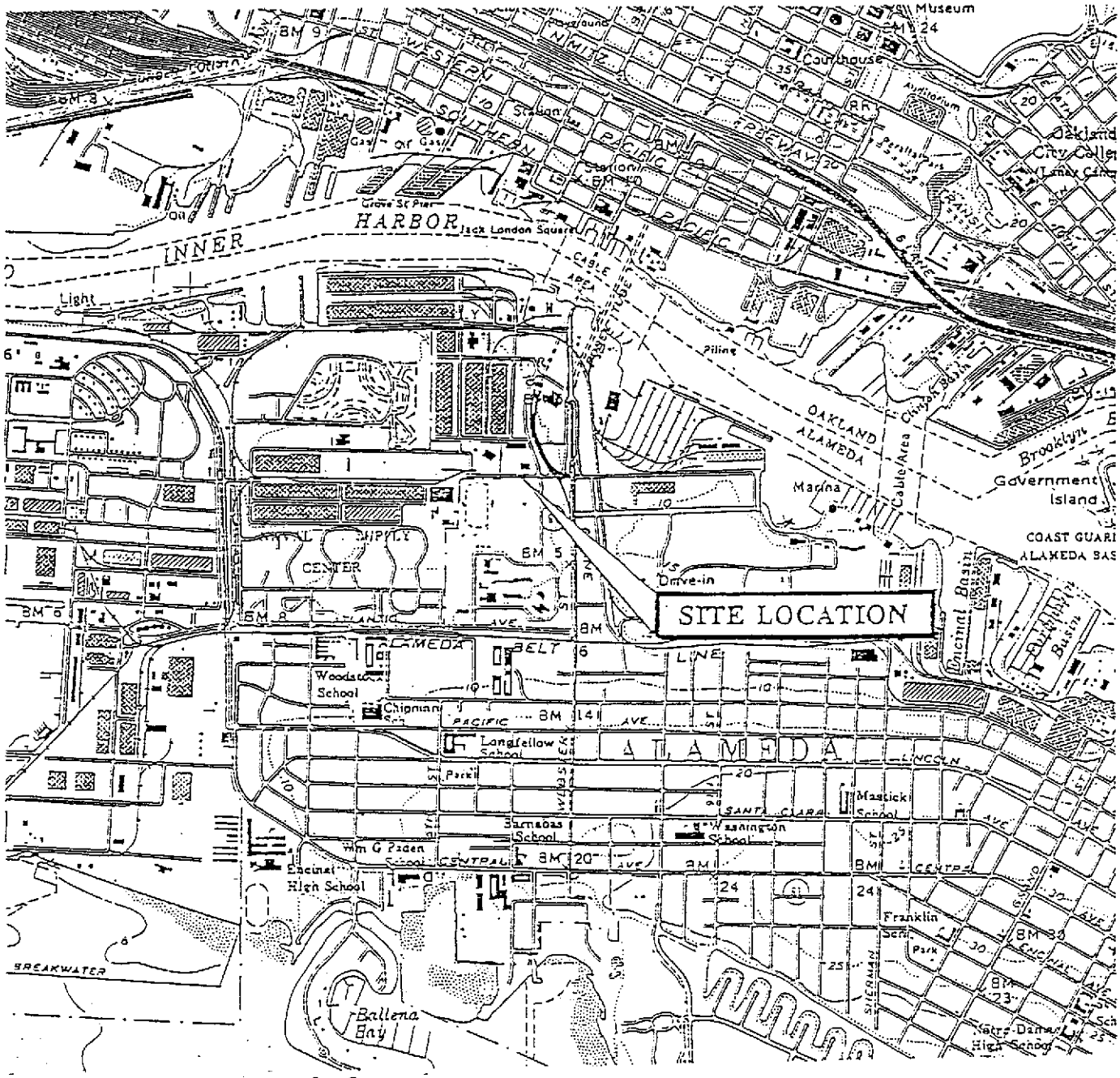
POLYNUCLEAR AROMATICS SAMPLE ANALYTICAL RESULTS

Mariner Development
2203 and 2227 Mariner Square Loop
Alameda, CA

Well I.D. #	Sample Date	Benzo[a]-anthracene µg/L	Chrysene µg/L	Benzo[b]fluor-anthene µg/L	Benzo[k]fluor-anthene µg/L	Benzo[a]-pyrene µg/L	Dibenzo[a,h]-anthracene µg/L	Benzo[g,h,i]-perylene µg/L	Indeno[1,2,3-cd pyrene µg/L
MW-1	12/20/95	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5
MW-1	3/19/96	0.69	ND<0.5	0.57	ND<0.5	0.97	ND<0.5	1.3	1.1
MW-2	12/20/95	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5
MW-2	3/19/96	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5
MW-3	12/20/95	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5
MW-3	3/16/96	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5
MW-5	12/20/95	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5
MW-5	3/16/96	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5

Notes:

Well I.D. # : Well identification number used by HETI.
Date: Date ground water sample was collected.
µg/L : Micrograms per liter.
ND : Not detected in concentrations exceeding the laboratory method detection limit.
Polynuclear Aromatics: Polynuclear Aromatics by EPA Method 8310.



SCALE 1:24 000

1 MILE

1000 0 1000 2000 3000 4000 5000 6000 7000 FEET

1 KILOMETER

CALIF

QUADRANGLE LOCATION

SOURCE: USGS 7.5 MINUTE SERIES (TOPOGRAPHIC)
TITLED: OAKLAND WEST QUADRANGLE
PHOTOREVISED 1980

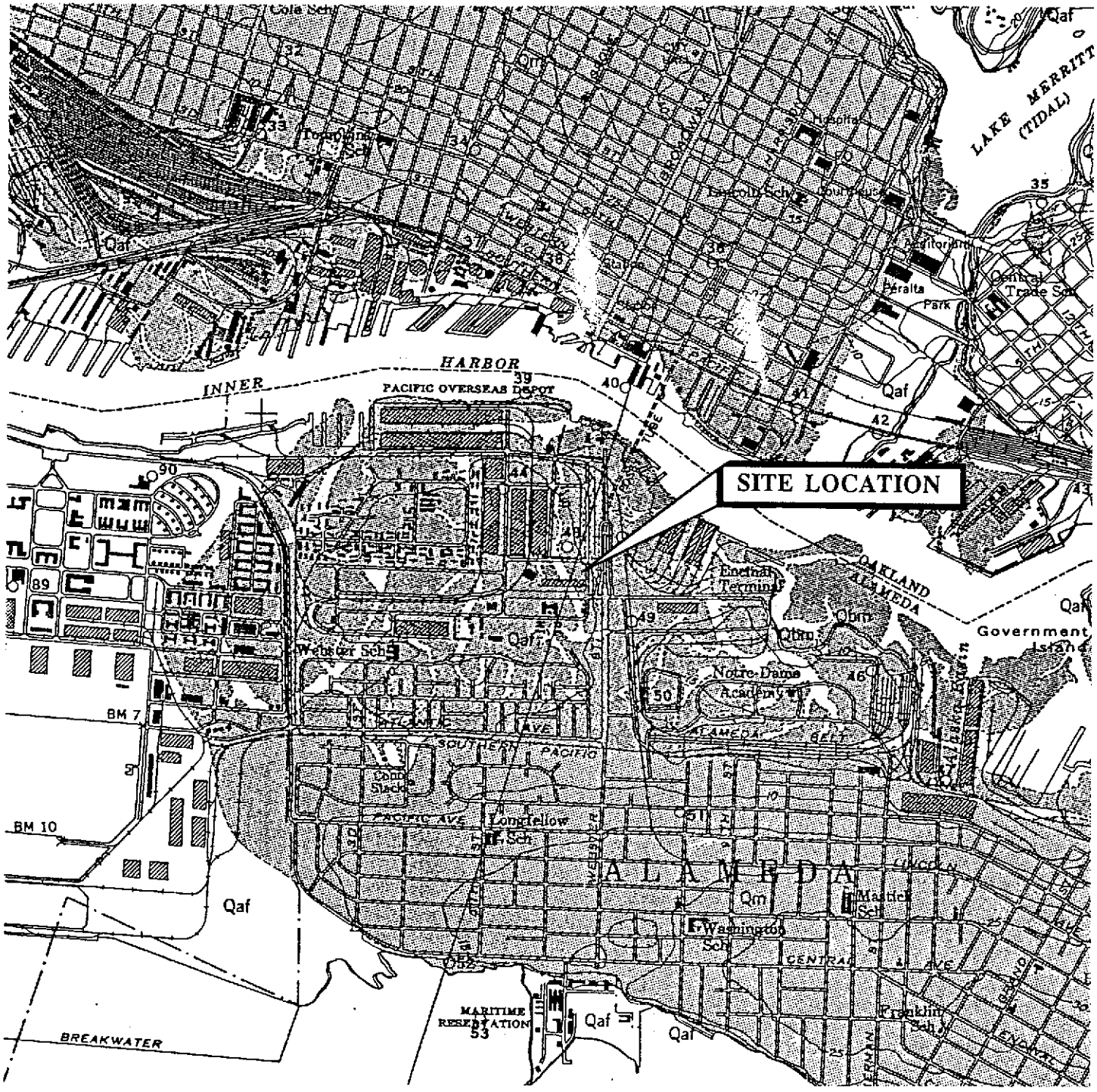
NORTH

HYDRO-ENVIRONMENTAL TECHNOLOGIES, INC.

SITE LOCATION MAP
Mariner Development Company
2203 and 2227 Mariner Square Loop
Alameda, California

Figure 1

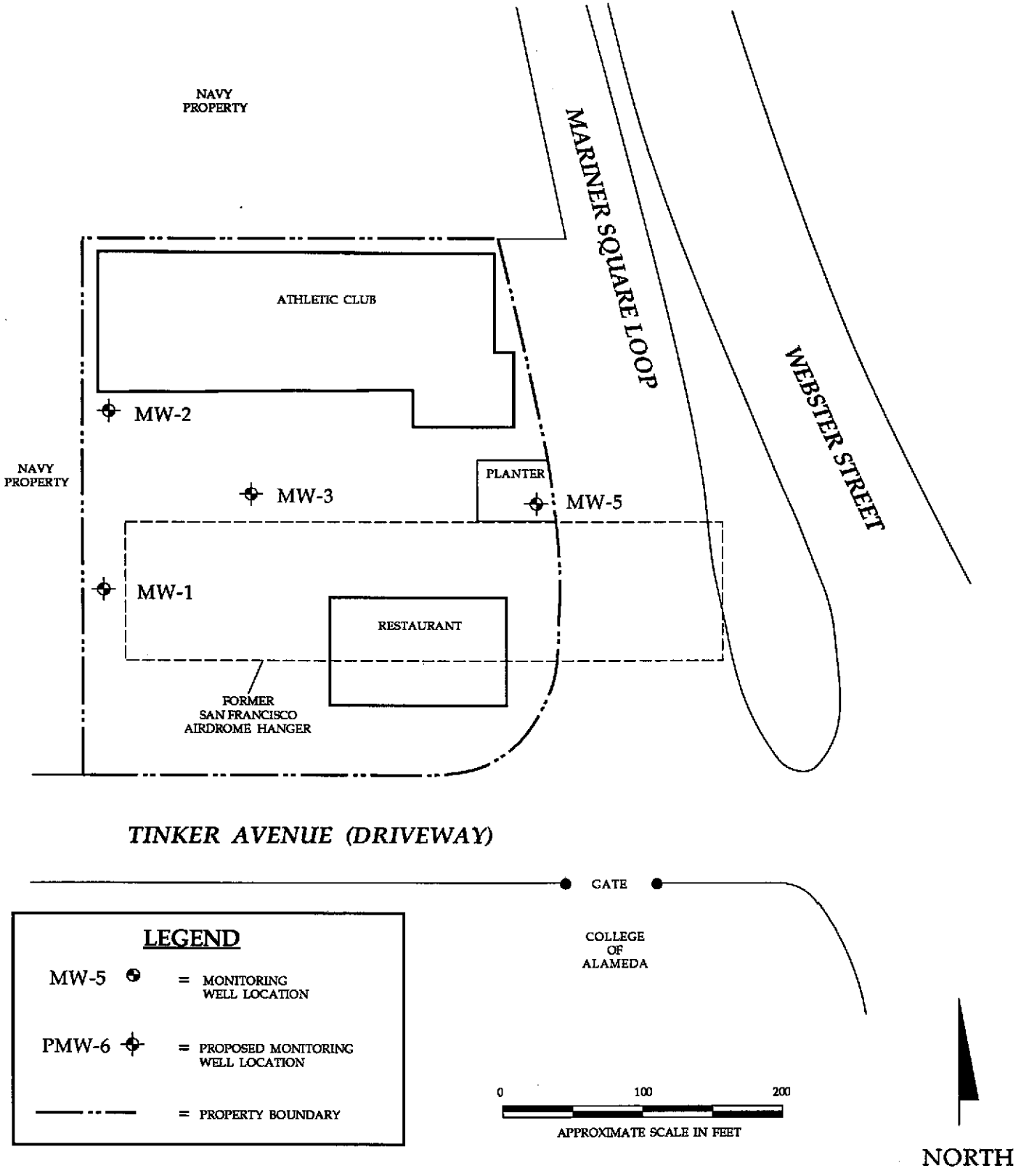
7-284 1/94



Source: Radbruch, 1957

NORTH

HYDRO-ENVIRONMENTAL TECHNOLOGIES, INC.	FORMER TIDAL CHANNELS MAP Mariner Development Company 2203 and 2227 Mariner Square Loop Alameda, California	Figure 2 7-284.1 3/96

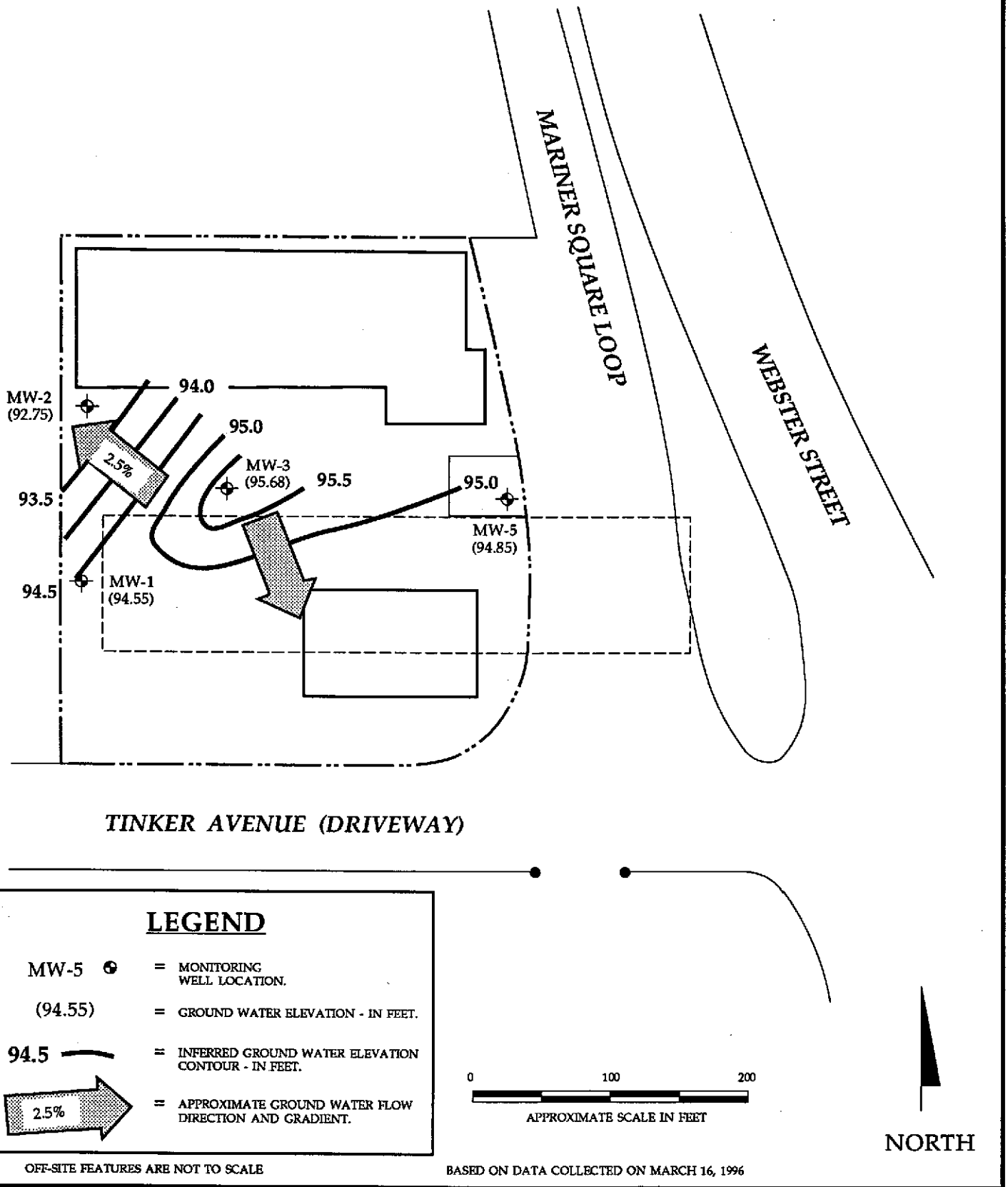


HYDRO-ENVIRONMENTAL TECHNOLOGIES, INC.

SITE PLAN
Mariner Development Company
2203 and 2227 Mariner Square Loop
Alameda, California

Figure 3

7-284.1 12/95

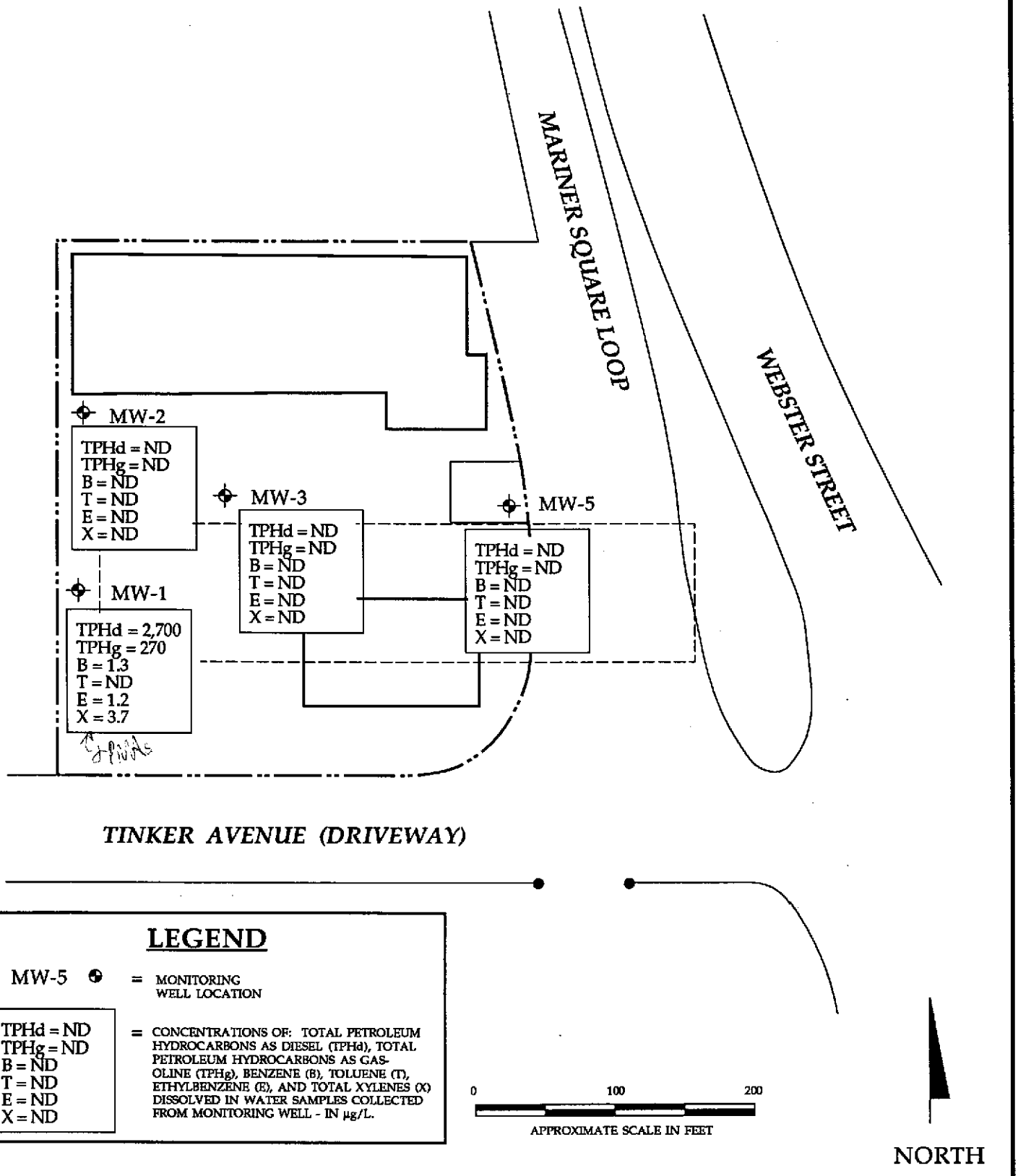


HYDR-ENVIR NMENTAL TECHN LOGIES, INC.

GROUND WATER CONTOUR MAP
Mariner Development Company
2203 and 2227 Mariner Square Loop
Alameda, California

Figure
4

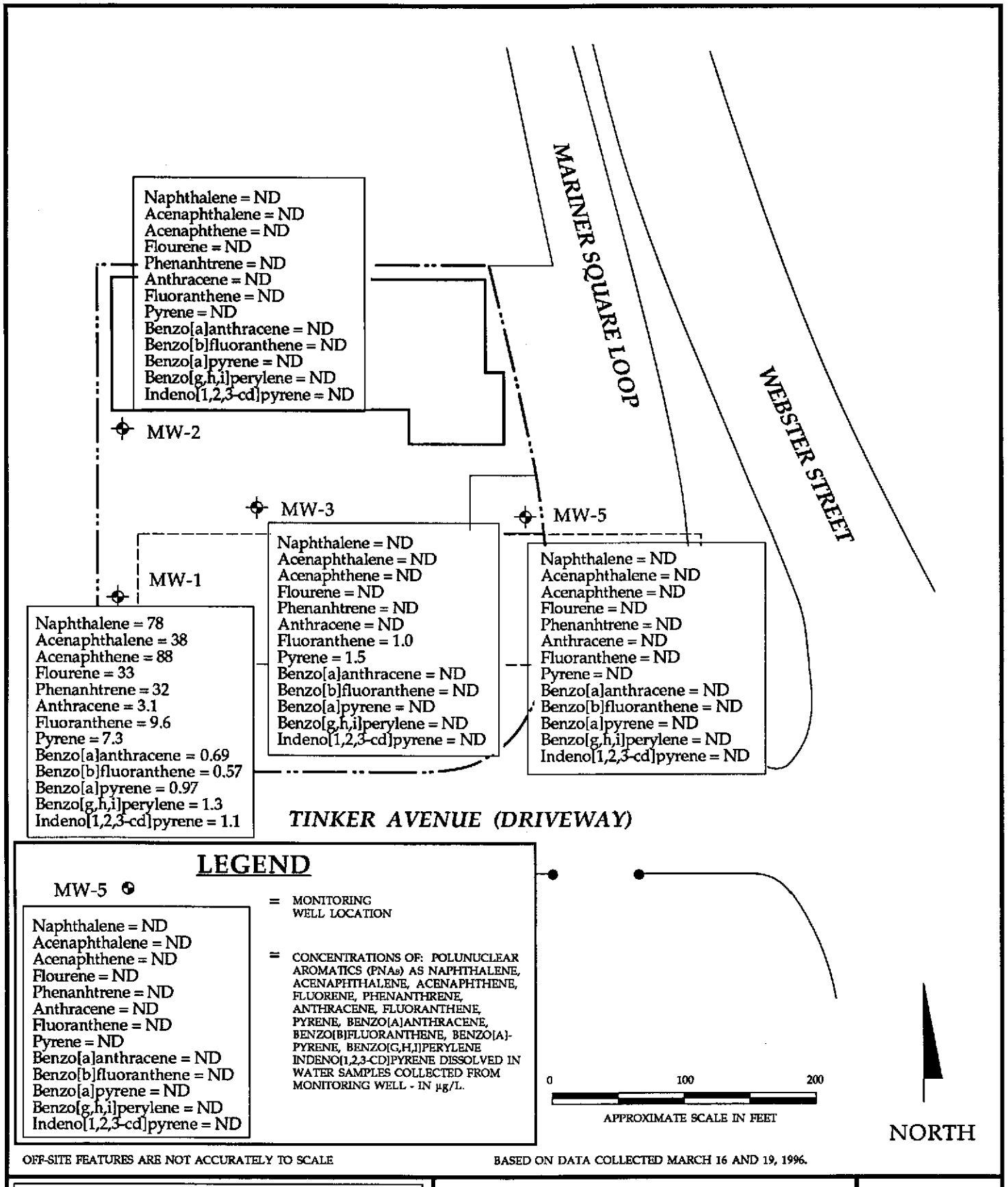
7-284.1 4/96



OFF-SITE FEATURES ARE NOT ACCURATELY TO SCALE

BASED ON DATA COLLECTED MARCH 16 AND 19, 1995.

HYDR◆- ENVIR◆NMENTAL TECHN◆LOGIES, INC.	HYDROCARBON DISTRIBUTION MAP Mariner Development Company 2203 and 2227 Mariner Square Loop Alameda, California	Figure 5 7-284.1 4/96



HYDR-ENVIRONMENTAL TECHNOLOGIES, INC.

POLYNUCLEAR AROMATICS DISTRIBUTION MAP
Mariner Development Company
2203 and 2227 Mariner Square Loop
Alameda, California

Figure 6

7-284.1 4/96

MONITORING WELL GAUGING DATA SHEET

GAUGED BY: Frances Marconi DATE: 3/6.96

GAUGED USING: MMC I/P, ORS I/P, Solinst: (#1,) #2, #3

Monitoring Well I.D.	Depth to Water (feet)	Depth to Bottom (feet)	Separate-phase hydrocarbons thickness (feet)	Replacements		Condition/ Comments
				Lock	Bailer	
MW-1	3.88	13.96	—	✓	✓	ROAD BOX FLOODED
MW-2	3.93	14.11	—	✓	✓	ROADBOX FLOODED
MW-3	0.90	14.07	—	✓	✓	
MW-5	3.93	14.15	—	✓	✓	

HYDRO-
ENVIRONMENTAL
TECHNOLOGIES, INC.

LOCATION: Mariner Develop.
2203 & 2227 Mariner Sq. Loop
Alameda, CA

Job No. 7-284.1

SHEET 1 of 1

PURGED/SAMPLED BY: FM   DATE: 3.18.96 (19 written above 18)

GAUGING DATA:

Depth to bottom: 13.96 ft.

Depth to water: 3.88 ft.

Saturated Thickness: 10.08 ft.

Conversion	
diam.	gals/ft.
2 in. (circled)	x 0.16
4 in.	x 0.65
6 in.	x 1.44

Well casing volume 1.61 gallons

volumes to purge x 3 vols.

*Total volume to purge = 4.83 gallons

* unless chemical parameters do not stabilize

PURGING DATA:

Purge method: PVC bailer/ Submersible pump (circled)/ Suction lift pump/ ______ (circle one)

Temp/Conductivity/pH Instrument: X1000 µS/cm

10.08
x.16
6048
10080
1.6128

Time	Volume (gallons)	Temp. (°F)	Conductivity (mS/cm)	pH
2:30	0	—	—	—
↓	2.5	72.2	13.84	6.39
4:15	5.0	69.5	14.75	6.62

Color: Yellow-Brown   Turbidity: Slight

Recharge: ______   SPP — ft.   Sheen —

SAMPLING DATA:

Sampling method: Dedicated bailer (circled)/ Disposable bailer

Sample for: (circle)

TPHg/BTEX (circled) METALS (circled) TOG 8010
TPHd (circled) O-Pb TEL 8020
TPH mo Total Pb EDB 8240
601 602 Nitrates 8260
Other: PNAs

HYDRO-ENVIRONMENTAL TECHNOLOGIES, INC.

PURGE/SAMPLE DATA SHEET

WELL # MW-1

LOCATION: Maurier Dev.

Job No. 7-284.1

SHEET 1 of 1

PURGED/SAMPLED BY: FM DATE: 3/18/96

GAUGING DATA:

Depth to bottom: 14.11 ft.

Depth to water: 3.93 ft.

Saturated Thickness: 10.18 ft.

Conversion	
diam	gals/ft.
2 in.	x 0.16
4 in.	x 0.65
6 in.	x 1.44

Well casing volume 1.63 gallons

volumes to purge x 3 vols.

*Total volume to purge = 4.89 gallons

* unless chemical parameters do not stabilize

PURGING DATA:

Purge method: PVC bailer / (Submersible pump) / Suction lift pump / _____ (circle one)

Temp/Conductivity/pH Instrument: _____

10.18
x .16
6108
0180
1.6288
x3
4.89

Time	Volume (gallons)	Temp. (°F)	Conductivity (mS/cm)	pH
7:40	0	—	—	—
↓	2.5	17.7°C	17.7	6.85
9:00	5.0	18.1	18.8	6.91

Color: BROWN Turbidity: LOW

Recharge: POOR SPP — ft. Sheen —

SAMPLING DATA:

Sampling method: (Dedicated bailer) / Disposable bailer

Sample for: (circle)

(TPHg/BTEX) METALS TOG 8010

(TPHd) O-Pb TEL 8020

TPH mo Total Pb EDB 8240

601 602 Nitrates 8260

Other: PNAs & Chromium

HYDRO-ENVIRONMENTAL TECHNOLOGIES, INC.

PURGE/SAMPLE DATA SHEET

WELL # MW-2

LOCATION: Mariner Develop.

Job No. 7-284.1

SHEET 1 of 1

PURGED/SAMPLED BY: FM DATE: 3.16.96

GAUGING DATA:

Depth to bottom: 14.07 ft.

Depth to water: 0.90 ft.

Saturated Thickness: 13.17 ft.

Conversion	
diam.	gals/ft.
2 in.	x 0.16
4 in.	x 0.65
6 in.	x 1.44

Well casing volume 2.11 gallons

volumes to purge x 3 vols.

*Total volume to purge = 6.33 gallons

* unless chemical parameters do not stabilize

PURGING DATA:

Purge method: PVC bailer/(Submersible pump) Suction lift pump/ _____ (circle one)

Temp/Conductivity/pH Instrument: YSI

Time	Volume (gallons)	Temp. (°F)	Conductivity (mS/cm)	pH
12:00p	0	—	—	—
↓	2	88.6	6.0	6.38
↓	4	88.0	5.15	6.39
1:00p	6.5	87.0	3.91	6.56

Color: Yellow-Brown Turbidity: SLIGHT

Recharge: FAIR-POOR SPP — ft. Sheen —

SAMPLING DATA:

Sampling method: (Dedicated bailer) / Disposable bailer

Sample for: (circle)

(TPHg/BTEX) METALS TDG 8010

(TPHd) O-Pb TEL 8020

TPH mo Total Pb EDB 8240

601 602 Nitrates 8260

Other: DNAS

HYDRO-ENVIRONMENTAL TECHNOLOGIES, INC.

PURGE/SAMPLE DATA SHEET

WELL # MW-3

LOCATION: Mariner Dev.

Job No. 7-284.1

SHEET 1 of 1

PURGED/SAMPLED BY: FM DATE: 3/16/96

GAUGING DATA:

Depth to bottom: 14.15 ft.

Depth to water: 3.93 ft.

Saturated Thickness: 10.22 ft.

Conversion	
diam.	gals/ft.
2 in.	x 0.16
4 in.	x 0.65
6 in.	x 1.44

Well casing volume 1.64 gallons

volumes to purge x 3 vols.

*Total volume to purge = 4.92 gallons

* unless chemical parameters stabilize earlier

PURGING DATA:

Purge method: PVC bailer / (Submersible pump) / Suction lift pump / _____
(circle one)

x1000 µS/cm

Time	Volume (gallons)	Temp. (°F)	Conductivity (mS/cm)	pH
1:30	0	—	—	—
↓	2.5	81.1	0.19	7.79
3:00	5.0	79.3	0.10	6.47

Color: TAN Turbidity: SLIGHT

Recharge: FAIR-POOR SPP — ft.

SAMPLING DATA:

Sampling method: (Dedicated bailer) / _____

Sample for: (circle)

(TPHg/BTEX) (METALS) TOG 8010

(TPHd) O-Pb TEL 8020

TPH mo Total Pb EDB 8240

601 602 Nitrates 8260 8270

Other: PNAS

HYDRO-ENVIRONMENTAL TECHNOLOGIES, INC.

MONITORING WELL PURGE/SAMPLE SHEET

WELL # MW-5

LOCATION Mariner Develop.

Job No. 7-284.1

SHEET 1 of 1

GTEL
ENVIRONMENTAL
LABORATORIES, INC.

Midwest Region
4211 May Avenue
Wichita, KS 67209
(316) 945-2624
(800) 633-7936
(316) 945-0506 (FAX)

March 29, 1996

Hydro-Environmental Technologies, Inc.
2363 Mariner Square Driver
Suite 243
Alameda, CA 94501

RE: GTEL Client ID: HYT01HYT01
Login Number: W6030413
Project ID (number): 7-284-1
Project ID (name): MARINER DEVELOPMENT/ALAMEDA/CA

Dear :

Enclosed please find the analytical results for the samples received by GTEL Environmental Laboratories, Inc. on 03/22/96.

A formal Quality Assurance/Quality Control (QA/QC) program is maintained by GTEL, which is designed to meet or exceed the EPA requirements. Analytical work for this project met QA/QC criteria unless otherwise stated in the footnotes. This report is to be reproduced only in full.

GTEL is certified by the Department of Health Service under Certification Number 1845.

If you have any questions regarding this analysis, or if we can be of further assistance, please call our Customer Service Representative.

Sincerely,
GTEL Environmental Laboratories, Inc.

Terry R. Loucks
Laboratory Director

ANALYTICAL RESULTS
Polynuclear Aromatics

GTEL Client ID: HYT01HYT01
Login Number: W6030413
Project ID (number): 7-284-1
Project ID (name): MARINER DEVELOPMENT/ALAMEDA/CA

Method: EPA 8310
Matrix: Aqueous

GTEL Sample Number	W6030413-01	W6030413-02	W6030413-03	W6030413-04
Client ID	MW-1	MW-2	MW-3	MW-5
Date Sampled	03/19/96	03/19/96	03/16/96	03/16/96
Date Prepared	03/25/96	03/25/96	03/25/96	03/25/96
Date Analyzed	03/28/96	03/28/96	03/29/96	03/29/96
Dilution Factor	1.00	1.00	1.00	1.00

Analyte	Reporting Limit	Units	Concentration:			
Naphthalene	2.0	ug/L	78.	< 2.0	< 2.0	< 2.0
Acenaphthylene	2.0	ug/L	38.	< 2.0	< 2.0	< 2.0
Acenaphthene	2.0	ug/L	88.	< 2.0	< 2.0	< 2.0
Fluorene	2.0	ug/L	33.	< 2.0	< 2.0	< 2.0
Phenanthrene	1.0	ug/L	32.	< 1.0	< 1.0	< 1.0
Anthracene	1.0	ug/L	3.1	< 1.0	< 1.0	< 1.0
Fluoranthene	0.50	ug/L	9.6	< 0.50	1.0	< 0.50
Pyrene	0.50	ug/L	7.3	< 0.50	1.5	< 0.50
Benzo[a]anthracene	0.50	ug/L	0.69	< 0.50	< 0.50	< 0.50
Chrysene	0.50	ug/L	< 0.50	< 0.50	< 0.50	< 0.50
Benzo[b]fluoranthene	0.50	ug/L	0.57	< 0.50	< 0.50	< 0.50
Benzo[k]fluoranthene	0.50	ug/L	< 0.50	< 0.50	< 0.50	< 0.50
Benzo[a]pyrene	0.50	ug/L	0.97	< 0.50	< 0.50	< 0.50
Dibenzo[a,h]anthracene	0.50	ug/L	< 0.50	< 0.50	< 0.50	< 0.50
Benzo[g,h,i]perylene	0.50	ug/L	1.3	< 0.50	< 0.50	< 0.50
Indeno[1,2,3-cd]pyrene	0.50	ug/L	1.1	< 0.50	< 0.50	< 0.50

Notes:

Dilution Factor:

Dilution factor indicates the adjustments made for sample dilution.

EPA 8310:

"Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW-846, Third Edition including Update 1.

W6030413-01:

The recovery for Indole was outside of control limits due to probable matrix effects. However, the method recommended surrogate, p-Terphenyl, is within acceptability limits, therefore demonstrating method control. The qualitative identification for Acenaphthylene is uncertain due to matrix interferences.

ANALYTICAL RESULTS
Total Petroleum Hydrocarbons By GC

GTEL Client ID: HYT01HYT01
Login Number: W6030413
Project ID (number): 7-284-1
Project ID (name): MARINER DEVELOPMENT/ALAMEDA/CA

Method: GC
Matrix: Aqueous

GTEL Sample Number	W6030413-01	W6030413-02	W6030413-03	W6030413-04
Client ID	MW-1	MW-2	MW-3	MW-5
Date Sampled	03/19/96	03/19/96	03/16/96	03/16/96
Date Prepared	03/26/96	03/26/96	03/26/96	03/26/96
Date Analyzed	03/27/96	03/27/96	03/27/96	03/28/96
Dilution Factor	1.00	4.00	3.00	1.00

Analyte	Reporting Limit	Units	Concentration:			
TPH as Diesel	50	ug/L	2700	< 200	< 150	< 50.

Notes:

Dilution Factor:

Dilution factor indicates the adjustments made for sample dilution.

GC:

Extraction by EPA Method 3510 (liquid/liquid). ASTM Method D3328(modified) is used for qualitative identification of fuel patterns. The method has been modified to include quantitation by applying calibration and quality assurance guidelines outlined in "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW-846, Third Edition including promulgated Update 1. This method is equivalent to California State Water Resources Board LUFT Manual protocols, May 1988 revision.

W6030413-01:

Qualitative identification is uncertain because the material present does not match laboratory standards.

W6030413-02:

The reporting limit was elevated due to matrix interferences from hydrocarbons which are heavier than diesel fuel, yet overlap into a significant portion of the diesel fuel range.

W6030413-03:

The reporting limit was elevated due to matrix interferences from hydrocarbons which are heavier than diesel fuel, yet overlap into a significant portion of the diesel fuel range.

W6030413-04:

Chromatographic data indicates the presence of hydrocarbon material heavier than diesel fuel.

ANALYTICAL RESULTS
Volatile Organics

GTEL Client ID: HYT01HYT01
Login Number: W6030413
Project ID (number): 7-284-1
Project ID (name): MARINER DEVELOPMENT/ALAMEDA/CA

Method: EPA 8020
Matrix: Aqueous

GTEL Sample Number	W6030413-01	W6030413-02	W6030413-03	W6030413-04
Client ID	MW-1	MW-2	MW-3	MW-5
Date Sampled	03/19/96	03/19/96	03/16/96	03/16/96
Date Analyzed	03/28/96	03/28/96	03/28/96	03/28/96
Dilution Factor	1.00	1.00	1.00	1.00

Analyte	Reporting Limit	Units	Concentration:			
Benzene	0.5	ug/L	1.3	< 0.5	< 0.5	< 0.5
Toluene	1.0	ug/L	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	1.0	ug/L	1.2	< 1.0	< 1.0	< 1.0
Xylenes (total)	2.0	ug/L	3.7	< 2.0	< 2.0	< 2.0
TPH as Gas	100	ug/L	270	< 100	< 100	< 100

Notes:

Dilution Factor:

Dilution factor indicates the adjustments made for sample dilution.

EPA 8020:

Gasoline range hydrocarbons (TPH) quantitated by GC/FID with purge and trap and modified EPA Method 8015. "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW-846, Third Edition including Update 1.

ANALYTICAL RESULTS
Metals

GTEL Client ID: HYT01HYT01
Login Number: W6030413
Project ID (number): 7-284-1
Project ID (name): MARINER DEVELOPMENT/ALAMEDA/CA

Method: EPA 6010A
Matrix: Aqueous

GTEL Sample Number	W6030413-01	W6030413-02	--	--
Client ID	MW-1	MW-2	--	--
Date Sampled	03/19/96	03/19/96	--	--
Date Prepared	03/25/96	03/25/96		
Date Analyzed	03/25/96	03/25/96	--	--
Dilution Factor	1.00	1.00	--	--

Analyte	Reporting Limit	Units	Concentration:			
Chromium	30	ug/L	< 30	< 30	--	--

Notes:

Dilution Factor:

Dilution factor indicates the adjustments made for sample dilution.

EPA 6010A:

Digestion for Total Metals by EPA Method 3010A. "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW-846, Third Edition including Update 1.

CHAIN OF CUSTODY RECORD

SAMPLER
Printed Name: FRANCES MADONI
Signature: FRANCES MADONI

DELIVER TO:
GTEL
CONCORD
ATTENTION: SAMPLE RECEIVING

SEND RESULTS TO:
HYDRO-ENVIRONMENTAL TECHNOLOGIES, INC.
2363 MARINER SQUARE DR., SUITE 243
ALAMEDA, CA 94501
(510) 521-2684, (FAX) 521-5078
ATTENTION:

SEND INVOICE TO:
ABOVE

HETICAL JOB No.: 7-284.1

Relenquished by: (Signature)	Received by: (Signature)	Date	Time
FRANCES MADONI/HETI	Caroline McKenna	3-20-96	11:28
Relenquished by: Caroline McKenna HETI	Received by: John Weber	3-20-96	11:38
Relenquished by: John Weber	Received by: LABORATORY	3/22/96	0830

PROJECT NAME: MARINER SQ. DEVELOPMENT, ALAMEDA — PAGE 1 OF 1

	Sample Number	DATE & TIME	No. & Type Container	Analysis Requested: TPH g+BTEX (DHS mod)	TPH d (DHS mod)	Organic Lead	8810 PAHs	Dissolved Chromium			Lab Remarks
	W 6030413										
01	mw-1	3-19-96 430p	1L (AMBER) 2 VOAs	X	X						
	mw-1	3-19-96 430p	1L (GLASS)				X				
	mw-1	3-19-96 430p	1L (PLASTIC)					X			
02	mw-2	3-19-96 330p	1L (AMBER) 2 VOAs	X	X						
	mw-2	3-19-96 330p	1L (GLASS)				X				
	mw-2	3-19-96 330p	1L (PLASTIC)					X			
03	mw-3	3-16-96 130p	1L (AMBER) 2 VOAs	X	X						
	mw-3	3-16-96 130p	1L (GLASS)				X				
04	mw-5	3-16-96 230p	1L (AMBER) 2 VOAs	X	X						
	mw-5	3-16-96 230p	1L (GLASS)				X				

Special Instructions:

Turnaround:
- ☐ 5 DAY
- ☐ 72 HOURS
- ☑ 10 DAY
- ☐ 24 HOURS