HYDRO ENVIRONMENTAL TECHNOLOGIES, INC.

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Alameda, California 94501
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Massachusetts
New York
Maryland

ENVIRONMENTAL PROTECTION

97 JAN 16 PM 3:

January 15, 1997

7285.1

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

Re: 2415 Mariner Square Drive, Alameda, California

Dear Ms. Shin:

Enclosed please find a final copy of Hydro-Environmental Technologies, Inc.'s (HETI's) Quarterly Monitoring Report, Second Quarter 1996 for sampling conducted on June 28, 1996 at the above-referenced site.

If you have any questions or require additional information, please feel free to call me at (510) 521-2684.

Sincerely,
HYDRO-ENVIRONMENTAL TECHNOLOGIES, INC.

Gary M. Pischke
Senior Geologist

enclosure

cc: Mr. John Beery, Mr. Ron Doll, Mariner Square & Associates
Mr. Randall Smith, Southern Pacific Lines, Inc.
Mr. Jeff Smith, Phillips Petroleum Company
Mr. J.J. Baldwin, Texaco, Inc.

HYDRO
ENVIRONMENTAL
TECHNOLOGIES, INC.

QUARTERLY MONITORING REPORT, Second Quarter 1996

2415 Mariner Square Drive
Alameda, California 94501

Sampling Dates: June 28, 1996

Prepared for:

Mariner Square & Associates
2900 Main Street, Suite 100
Alameda, California 94501

Southern Pacific Lines, Inc.
One Market Plaza
San Francisco, California

Phillips Petroleum Company
4th and Keeler Avenue
Bartlesville, California 74004

Texaco, Inc.
10 Universal City Plaza, Suite 830
Universal City, California 91608-7812

Prepared by:

HYDRO-ENVIRONMENTAL TECHNOLOGIES, INC.
2394 Mariner Square Drive, Suite 2
Alameda, CA 94501
HETI Job No. 7-285.1

January 14, 1997

HYDRO
ENVIRONMENTAL
TECHNOLOGIES, INC.

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1.0 INTRODUCTION

This report presents the results of work conducted in the second 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 is included as Appendix A.

2.0 BACKGROUND

The subject site is located in Alameda, California in an area of commercial, light manufacturing and military usage immediately adjacent to and east of the Fleet Industrial Supply Center, Alameda Annex and west of the Oakland Inner Harbor. 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). In the past, the site was used for bulk fuel storage and distribution of refined oils, motor lubricants and fuel oils for use by ships until 1972.

Currently, the site is occupied by railroad boxcars which have been converted to offices, a restaurant and several buildings housing companies catering to the marine industry such as boat sales, storage, repairs, painting and sail manufacturing.

The local geology consists primarily of clayey to sitly sand (hydraulic fill) from approximately 7 to 17 feet below ground surface (bgs). Below the hydraulic fill, which was mechanically placed prior to the development of this portion of Alameda, the sediment consists of olive-grey sandy to silty clay with sand lenses, shells and organic matter from approximately 13 to 30 feet bgs (bay mud). Regional ground water flow is predominantly westerly, towards San Francisco Bay.

On November 25, 1991, AllWest Environmental, Inc. (AllWest) performed a Phase I Site Assessment. AllWest recommended a soil and ground water investigation related to the fuel and oil storage, refining and distribution and for contaminants related to boat maintenance, painting and repair. For complete details see AllWest's *Environmental Assessment* report dated December 3, 1991.

In April 1992, AllWest supervised the placement of 24 geoprobes, collecting and analyzing 23 soil samples and four ground water samples. Elevated concentrations of petroleum hydrocarbons were detected in 20 of the soil samples and two of the ground water samples with maximum concentrations of 13,000 parts per million (ppm) and 1,200 ppm, respectively. For complete details see AllWest's *Subsurface Investigation Report* dated May 1, 1992.

In 1992 Subsurface Consultants, Inc. (SCI) supervised the drilling of six soil borings and the installation of six two-inch diameter monitoring wells designated MW-1

through MW-6. Petroleum hydrocarbon concentrations were detected in all soil samples collected and analyzed from the soil borings (Subsurface Consultants, Inc., *Quarterly Groundwater Monitoring Report*, dated December 23, 1992).

On June 14, 1994, Mclaren/Hart supervised the drilling of 13 soil borings, collecting and analyzing 28 soil samples and the installation of three four-inch diameter monitoring wells designated MW-7, MW-8, and MW-9. In the past, hydrocarbons have been detected in ground water samples collected from wells MW-1 through MW-6 and vinyl chloride and Freon-113 have been detected in groundwarer samples collected from wells MW-2 and MW-4. (Mclaren/Hart, *Supplemental Site Investigation and Limited Feasibility Study Report*, dated March 31, 1995). All monitoring well locations are shown on Figure 2, the Site Plan.

In a letter from Ms. Juliet Shin, Alameda County Environmental Protection Division, dated December 26, 1995, the County required a minimum of four quarterly ground water monitoring events to delineate the plume and assure that migration is not occurring off-site or in to the San Francisco Bay. This Quarterly Monitoring Report presents the results of the first sampling event.

3.0 FIELD ACTIVITIES

On June 28, 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, all monitoring wells, except well MW-6, were purged of a minimum of three well volumes or purged dry while pH, temperature and conductivity measurements were monitored for stabilization. Purged water was stored on-site in a 55-gallon DOT drums with tight fitting lids. **Separate phase petroleum hydrocarbons (SPH) were detected in well MW-6 with a measured thickness of 0.2 feet.** Gauging and purging data is included in Table 1 and Appendix B.

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), motor oil (TPHmo) and gasoline (TPHg); benzene, toluene, ethylbenzene and total xylenes (BTEX) using the California Leaking Underground Fuel Tank (CA LUFT) Manual protocols, polynuclear aromatics (PNAs) by EPA Method 8310 and vinyl chloride by EPA Method 524.2. Additionally, the ground water sample collected from well MW-2 was analyzed for Freon-113 by EPA Method 8010B. Sample analyses were performed by NEI/GTEL Environmental Laboratories, Inc. a state of California DHS-certified laboratory located in Wichita, Kansas.

4.0 RESULTS

4.1 Ground Water Elevation

On June 28, 1996, depth to first encountered ground water in the wells ranged between 4.25 to 6.00 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 3, the Ground Water Contour Map. Figure 3 shows that ground water flows towards the southeast, south of well MW-5 with a ground water gradient of 1.0% and ground water flows northwest north of well MW-5.

4.2 Ground Water Sample Analytical Results

Analytical results indicated that dissolved TPHd was present in the ground water samples collected from all the wells sampled, except well MW-1, in concentrations ranging from 58 (MW-8) to 610 micrograms per liter (µg/L) (MW-5).

TPHmo was not detected above the indicated laboratory method detection limit in the ground water samples collected from any of the wells except well MW-5 with a concentration of 790 µg/L.

TPHg was detected above the indicated laboratory method detection limit in the ground water samples collected from wells MW-2, MW-4, MW-5, MW-7 and MW-9 in concentrations ranging from 180 (MW-4) to 5,000 µg/L (MW-5). These results are shown on Figure 4, the TPHg Isoconcentration Map.

Benzene was detected above the indicated laboratory method detection limit in the ground water samples collected from wells MW-2, MW-4, MW-5, MW-7 and MW-9 in concentrations ranging from 0.5 (MW-2) to 5.2 µg/L (MW-9). These results are shown on Figure 5, the Benzene Isoconcentration Map. Vinyl chloride was not detected above the indicated laboratory method detection limit in any of the wells sampled except well MW-4 with a concentration of 2.5 µg/L.

Concentrations of polynuclear aromatics were detected above the indicated laboratory method detection limits in the ground water samples collected from wells MW-2, MW-4, MW-5 and MW-9. These results are shown on Figure 6, The Polynuclear Aromatics Distribution Map.

Freon was not detected above the indicated laboratory method detection limit in the water sample collected from well 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 C.

The California Department of Health Services and the U.S. Environmental Protection Agency's (EPA) Drinking Water Standards, primary maximum contaminant levels (MCLs) for benzene are 1 µg/l and 5 µg/l, respectively. The state and federal MCLs for vinyl chloride are 0.5 µg/l and 2 µg/l, respectively. There are no state or federal MCLs for TPHd, TPHmo, or TPHg. The MCLs are listed on Tables 1 and 2.

5.0 CONCLUSIONS

- TPHmo was detected in one of the eight wells sampled. TPHd was detected in seven of the eight wells sampled. TPHg was detected in five of the eight wells sampled.
- Benzene was detected in five of the eight wells sampled and exceeded the state MCLs in three of the five samples.
- Vinyl chloride was detected in one of the eight wells sampled and exceeded the state MCL in that sample.
- PNAs were detected in four of the eight wells sampled.
- Freon was not detected in the ground water sample collected from well MW-2.
- SPH was noted in well MW-6 in a thickness of 0.2 feet. Previously, SPH had been noted in well MW-6.
- The laboratory results from this sampling event are generally equivalent in magnitude with the results noted in the McLaren/Hart Supplemental Site Investigation report dated August 2, 1995.

60 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
Project Engineer

Reviewed by:

Gary Pischke, C.E.G.
Senior Geologist

REGISTERED GEOLOGIST
GARY PISCHKE
No. 1501
CERTIFIED
ENGINEERING
GEOLOGIST
STATE OF CALIFORNIA

Table 1

GROUND WATER ELEVATONS AND SAMPLE ANALYTICAL RESULTS

Mariner Square
2415 Mariner Square Drive
Alameda, CA

Well I.D. #	Sample Date	TOC (feet)	DTW (feet)	GWE (feet)	TPHd (µg/L)	TPHmo (µg/L)	TPHg (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)	Vinyl Cl (µg/L)
MW-1	6/13/94	11.99	5.69	6.30	--	--	--	--	--	--	--	--
	9/27/94	11.99	5.64	6.35	530	ND<50	ND<50	ND<0.3	ND<0.3	ND<0.3	ND<0.3	--
	10/25/94	11.99	5.86	6.13	--	--	--	--	--	--	--	--
	6/28/96	11.99	5.34	6.65	ND<50	ND<200 (1)	ND<100	ND<0.5	ND<1.0	ND<1.0	ND<2.0	ND<0.5
MW-2	6/13/94	15.21	5.92	9.29	--	--	--	--	--	--	--	--
	9/26/94	15.21	6.51	8.70	ND<50	240	320	ND<3.0	ND<3.0	ND<3.0	ND<3.0	--
	10/25/94	15.21	6.67	8.54	--	--	--	--	--	--	--	--
	6/28/96 (2)	15.21	5.68	9.53	100 (3,4)	ND<200 (1)	980	0.5	ND<1.0	2.3	3.1	ND<0.5
MW-3	6/13/94	14.19	4.91	9.28	--	--	--	--	--	--	--	--
	9/27/94	14.19	5.29	8.90	720	ND<50	ND<50	ND<3.0	ND<0.3	ND<0.3	ND<0.3	--
	10/25/94	14.19	5.42	8.77	--	--	--	--	--	--	--	--
	6/28/96	14.19	4.69	9.50	120 (3)	ND<200 (1)	ND<100	ND<0.5	ND<1.0	ND<1.0	ND<2.0	ND<0.5
MW-4	6/13/94	13.95	4.50	9.45	--	--	--	--	--	--	--	--
	9/27/94	13.95	5.39	8.56	890	ND<50	ND<50	12	0.43	ND<0.3	ND<0.3	--
	10/25/94	13.95	5.55	8.40	--	--	--	--	--	--	--	--
	6/28/96	13.95	4.25	9.70	170 (3,4)	ND<200 (1)	180	4	ND<1.0	ND<1.0	ND<2.0	2.5
MW-5	6/13/94	14.60	5.30	9.30	--	--	--	--	--	--	--	--
	9/26/94	14.60	5.82	8.78	780	ND<500	3,100	7.9	11	8.7	14	--
	10/25/94	14.60	5.95	8.65	--	--	--	--	--	--	--	--
	6/28/96	14.60	5.04	9.56	610 (3,4)	790 (1)	5,000	1.2	6.8	21	14	ND<0.5

Table 1

GROUND WATER ELEVATONS AND SAMPLE ANALYTICAL RESULTS

Mariner Square
2415 Mariner Square Drive
Alameda, CA

Well I.D. #	Sample Date	TOC (feet)	DTW (feet)	GWE (feet)	TPHd (µg/L)	TPHmo (µg/L)	TPHg (µg/L)	B (µg/L)	T (µg/L)	E (µg/L)	X (µg/L)	Vinyl Cl (µg/L)
MW-6	6/13/94	14.81	5.96	8.85	--	--	--	--	--	--	--	--
	9/27/94	14.81	5.90	8.91	9,900	3,200	1,100	ND<3.0	ND<3.0	ND<3.0	ND<3.0	--
	10/7/94	14.81	5.82	8.99	--	--	--	--	--	--	--	--
	10/14/94	14.81	5.89	8.92	--	--	--	--	--	--	--	--
	10/21/94	14.81	5.90	8.91	--	--	--	--	--	--	--	--
	10/25/94	14.81	5.99	8.82	--	--	--	--	--	--	--	--
	6/28/96	14.81	5.33	9.48	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH
MW-7	9/27/94	13.61	5.95	7.66	1,800	ND<250	ND<250	ND<0.3	ND<0.3	ND<0.3	ND<0.3	--
	10/25/94	13.61	6.09	7.52	--	--	--	--	--	--	--	--
	6/28/96	13.61	5.42	8.19	490 (3,4)	ND<200 (1)	560	0.6	ND<1.0	ND<1.0	2.7	ND<0.5
MW-8	9/27/94	12.64	6.06	6.58	320	ND<50	ND<50	ND<0.3	ND<0.3	ND<0.3	ND<0.3	--
	10/25/94	12.64	6.26	6.38	--	--	--	--	--	--	--	--
	6/28/96	12.64	6.00	6.64	58 (3)	ND<200 (1)	ND<100	ND<0.5	ND<1.0	ND<1.0	ND<2.0	ND<0.5
MW-9	9/26/94	14.92	5.88	9.04	2,200	ND<500	ND<500	ND<0.3	ND<0.3	ND<0.3	ND<0.3	--
	10/25/94	14.92	6.04	8.88	--	--	--	--	--	--	--	--
	6/28/96	14.92	5.14	9.78	550 (3,4)	ND<200 (1)	390	5.2	ND<1.0	ND<1.0	ND<2.0	ND<0.5
CA Primary MCL (5)					--	--	--	1	100 (7)	680	1,750	0.5
Federal Primary MCL (6)					--	--	--	5	1,000	700	10,000	2

Table 1

GROUND WATER ELEVATONS AND SAMPLE ANALYTICAL RESULTS

Mariner Square
2415 Mariner Square Drive
Alameda, CA

Notes:

TOC :	Top of well casing referenced to mean sea level. Survey conducted by a state-licensed surveyor.
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.
Vinyl Cl :	Vinyl chloride by EPA Method 524.2.
µg/L :	Micrograms per Liter.
--- :	Not analyzed/sampled.
ND :	Not detected above the indicated laboratory method detection limit.
(SPH) :	Separate phase hydrocarbons - No sample collected.
(1) :	Lubricating oil can not be qualitatively identified by type of oil because of chromatographic likeness of different oil types. Due to non-volatility of certain oils, much of the oil present may never be quantified by this gas chromatographic method. Quantitation obtained for lubricating oil by this method should, therefore, be treated as an estimate. This method quantifies lubricating oil against 10-W-40 standards. For the most accurate analysis of lubricating oil, an infrared method is recommended.
(2) :	Water sample collected from MW-2 was analyzed for Freon 113 by EPA Method 8010A. Results were below the detection limit of 1.0 µg/L.
(3) :	**Qualitative identification is uncertain because the material present does not match laboratory standards.**
(4) :	**Quantitation uncertain due to matrix interferences.**
(5) :	Drinking Water Standards, California Department of Health Services, Primary Maximum Contaminant Level (MCL).
(6) :	Drinking Water Standards, U.S. Environmental Protection Agency, Primary Maximum Contaminant Level (MCL).
(7) :	California State Action Level, Department of Health Services.

Table 2

POLYNUCLEAR AROMATICS SAMPLE ANALYTICAL RESULTS

Mariner Development
2415 Mariner Square Drive
Alameda, CA

Well No.	Sample Date	Naph-thalene µg/L	Acenaph-thalene µg/L	Acenaph-thene µg/L	Fluorene µg/L	Phenan-threne µg/L	Anthra-cene µg/L	Fluoran-thene µg/L	Pyrene µg/L
MW-1	6/28/96	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-2	6/28/96	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<1.0	ND<1.0	0.82	0.77
MW-3	6/28/96	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-4	6/28/96	ND<2.0	2.5	2.3	ND<2.0	ND<1.0	ND<1.0	1.8	2.1
MW-5	6/28/96	2.0	96 (1)	3.0	ND<2.0	9.5	2.3	8.6	8.4
MW-6	6/28/96	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH
MW-7	6/28/96	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-8	6/28/96	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-9	6/28/96	ND<2.0	ND<2.0	ND<2.0	ND<2.0	ND<1.0	ND<1.0	0.73	ND<0.5
CA Primary MCLs (2)		--	--	--	--	--	--	--	--
EPA Primary MCLs (3)		--	--	--	--	--	--	--	--

Table 2

POLYNUCLEAR AROMATICS SAMPLE ANALYTICAL RESULTS

Mariner Development
2415 Mariner Square Drive
Alameda, CA

Well No.	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	6/28/96	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-2	6/28/96	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	6/28/96	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-4	6/28/96	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	6/28/96	1.0	0.68	ND<0.5	ND<0.5	0.78	ND<0.5	0.57	ND<0.5
MW-6	6/28/96	SPH	SPH	SPH	SPH	SPH	SPH	SPH	SPH
MW-7	6/28/96	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-8	6/28/96	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-9	6/28/96	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5	ND<0.5
CA Primary MCLs (2)		–	--	–	--	--	--	--	--
EPA Primary MCLs (3)		0.1	0.2	0.2	0.2	0.2	0.3	–	0.4

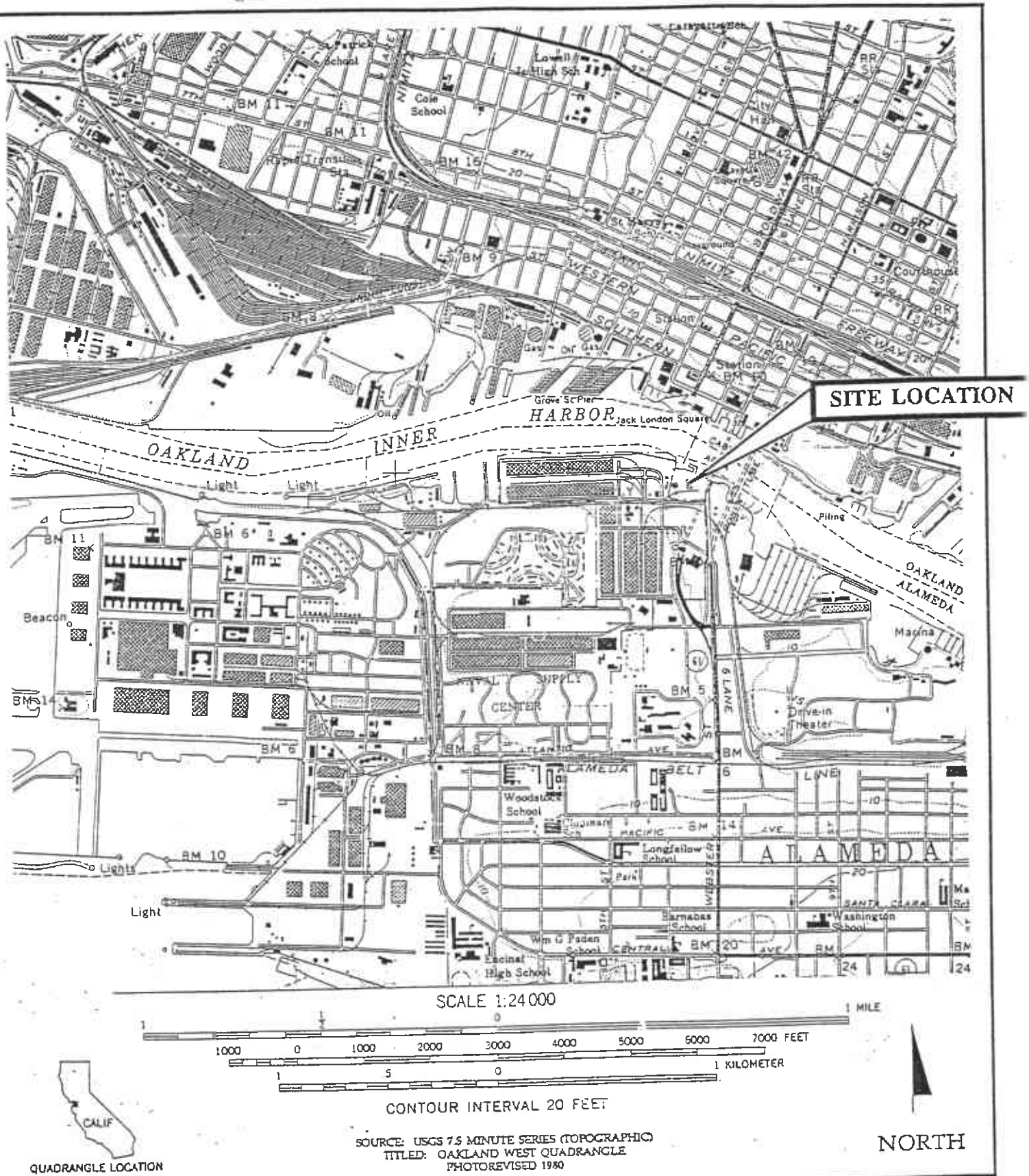
Table 2

POLYNUCLEAR AROMATICS SAMPLE ANALYTICAL RESULTS

Mariner Development
2415 Mariner Square Drive
Alameda, CA

Notes:

Polynuclear Aromatics:	Polynuclear Aromatics by EPA Method 8310.
Well No. :	Well identification number used by HETI.
Date:	Date ground water sample was collected.
µg/L :	Micrograms per liter (ppb).
ND :	Not detected in concentrations exceeding the laboratory method detection limit.
(1) :	The qualitative identification for Acenaphthylene is uncertain due to matrix interferences.
(2) :	Drinking Water Standards, California Department of Health Services, Primary Maximum Contaminant Level (MCL).
(3) :	Drinking Water Standards, U.S. Environmental Protection Agency, Primary Maximum Contaminant Level (MCL).
SPH :	Separate phase hydrocarbons - No sample collected.



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

HYDRO-
ENVIRONMENTAL
TECHNOLOGIES, INC.

SITE LOCATION MAP
Mariner Square
2415 Mariner Square Drive
Alameda, California

Figure
1

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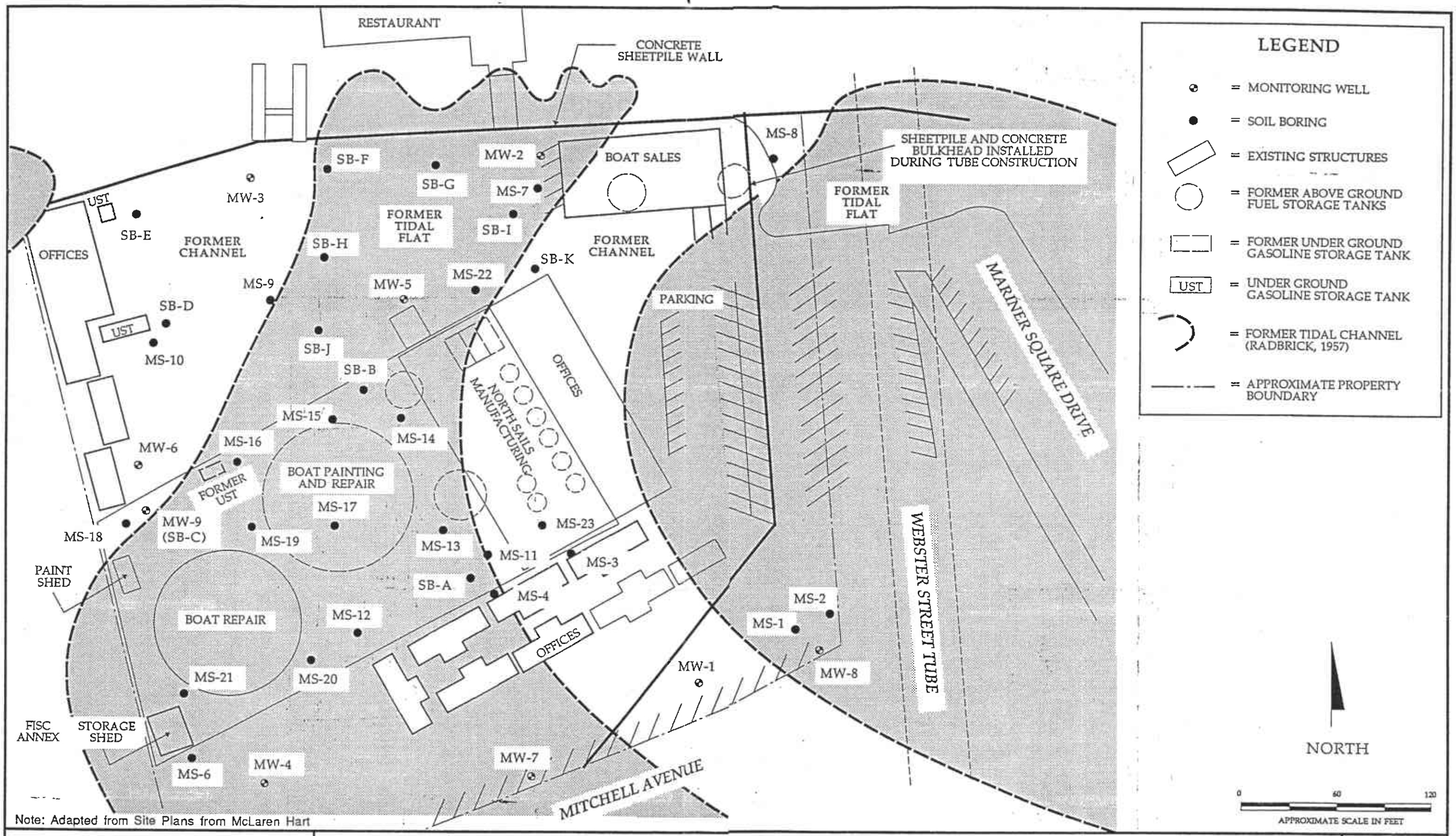

Note: Adapted from Site Plans from McLaren Hart

HYDRO-ENVIRONMENTAL TECHNOLOGIES, INC.

SITE PLAN

Mariner Square
2415 Mariner Square Drive
Alameda, California

Figure 2

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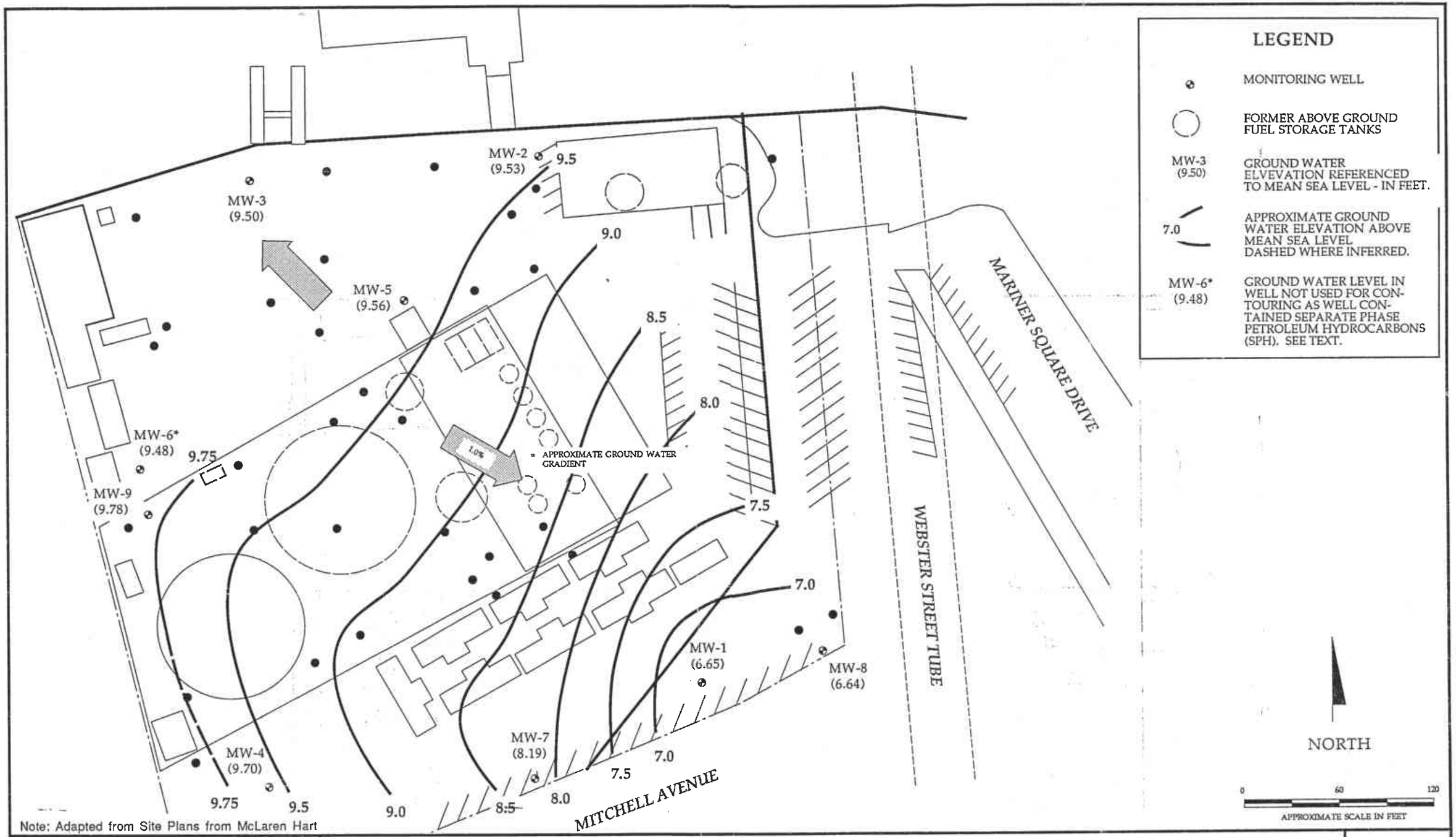

Note: Adapted from Site Plans from McLaren Hart

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GROUND WATER CONTOUR MAP

Mariner Square
2415 Mariner Square Drive
Alameda, California

Figure
3

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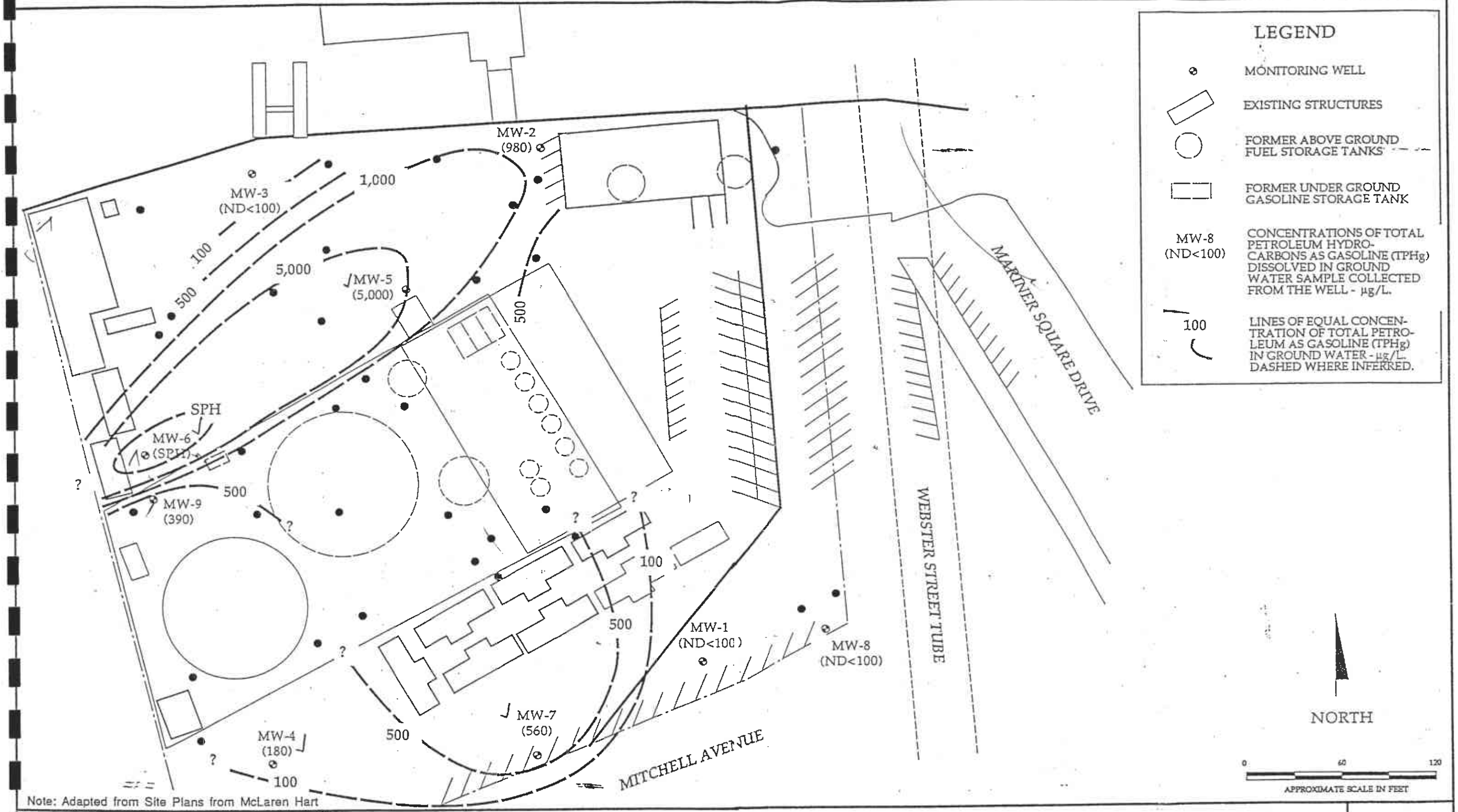


Note: Adapted from Site Plans from McLaren Hart

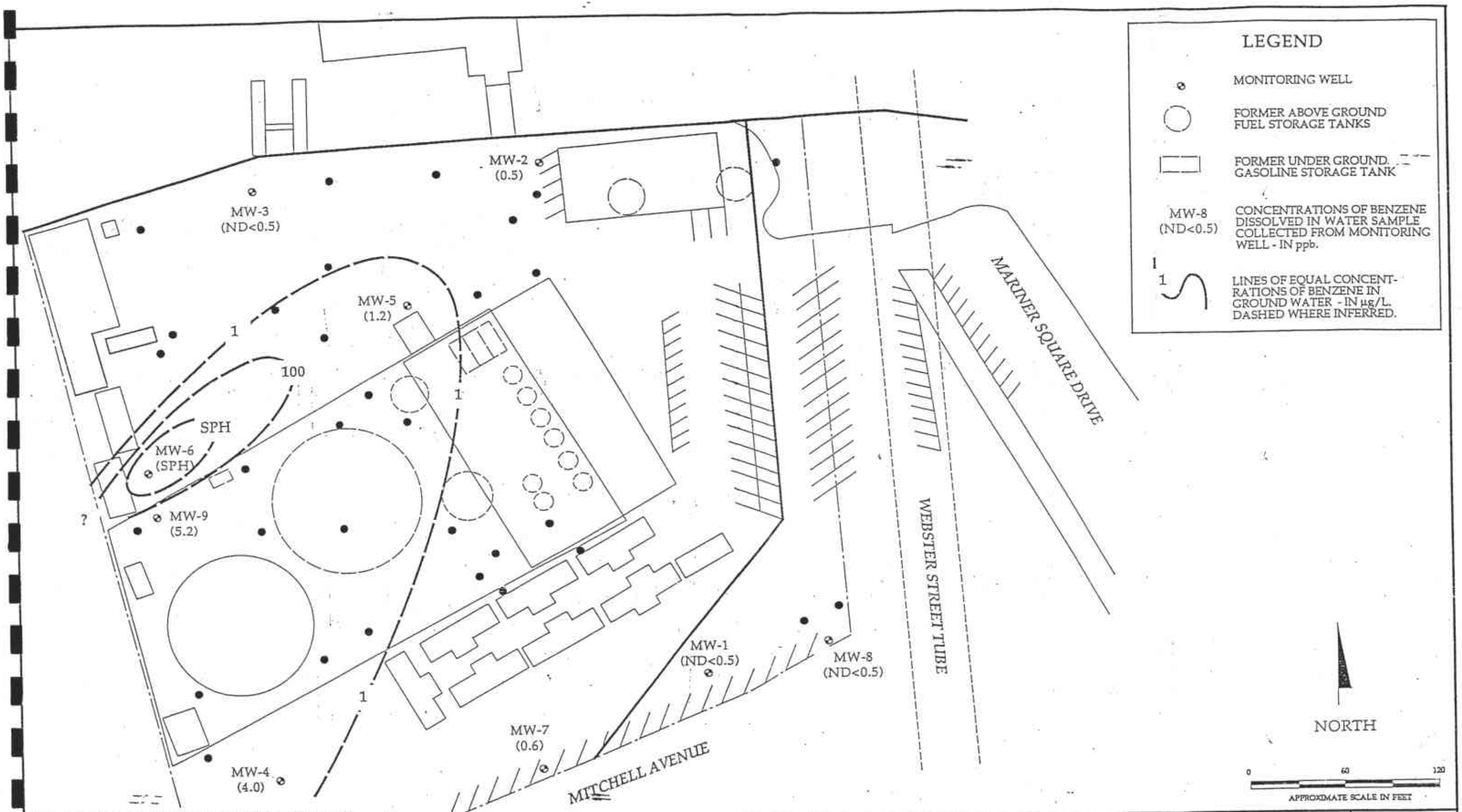
HYDRO-ENVIRONMENTAL TECHNOLOGIES, INC.

TPHg ISOCONCENTRATION MAP

Mariner Square
2415 Mariner Square Drive
Alameda, California

Figure 4

7-285.1 11/96



Note: Site plan from base map of McLaren Hart 11/94

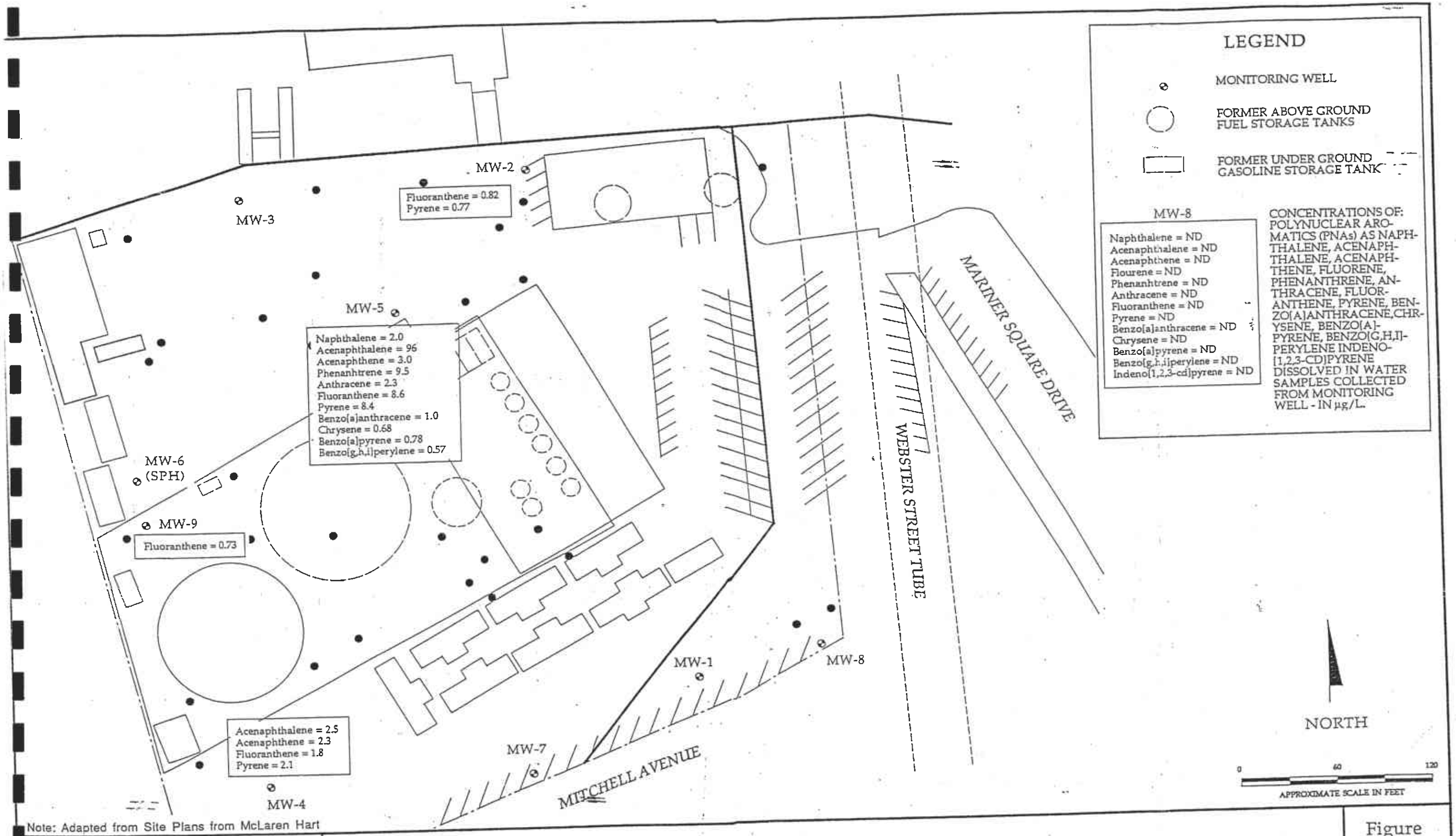
HYDRO-ENVIRONMENTAL TECHNOLOGIES, INC.

BENZENE ISOCONCENTRATION MAP

Mariner Square
2415 Mariner Square Drive
Alameda, California

Figure 5

7-285.1 11/96



Note: Adapted from Site Plans from McLaren Hart

HYDRO-ENVIRONMENTAL TECHNOLOGIES, INC.

POLYNUCLEAR AROMATICS DISTRIBUTION MAP

Mariner Square
2415 Mariner Square Drive
Alameda, California

Figure 6

7-285.1 11/96

HYDRO-ENVIRONMENTAL TECHNOLOGIES, INC.
CALIFORNIA

GROUND WATER SAMPLING PROTOCOLS

November 1992

GROUNDWATER SAMPLING AND ANALYSIS

Quality Assurance/Quality Control Objectives

The sampling and analysis procedures employed by HETI for groundwater sampling and monitoring follow specific Quality Assurance/Quality Control (QA/QC) guidelines. Quality Assurance (QA) objectives have been established by HETI to develop and implement procedures for obtaining field data and evaluating water quality in an accurate, precise and complete manner so that sampling procedures and field measurements provide information that is comparable and representative of the actual field conditions. Quality Control (QC) is maintained by HETI by using specific field protocols and requiring the analytical laboratory to perform internal and external QC checks. It is the goal of HETI to provide data that are accurate, precise, complete, comparable, and representative. The definitions for accuracy, precision, completeness, comparability, and representativeness are as follows:

1. Accuracy - the degree of agreement of a measurement with an accepted reference or true value.

2. Precision - a measure of agreement among individual measurements under similar conditions. Usually expressed in terms of standard deviation.

3. Completeness - the amount of valid data obtained from a measurement system compared to the amount that was expected to meet the project data goals.

4. Comparability - the confidence with which one data set can be compared with another.

5. Representativeness - the degree to which a sample or group of samples reflect the characteristics of a media at a given sampling point. Also includes the degree to which a sampling point represents the actual parameter variations which are under study.

As part of the HETI QA/QC program, applicable federal, state and local reference documents are to be followed. The procedures outlined in these regulations, manuals, handbooks, guidance documents and journals are incorporated into the HETI sampling procedures to assure that: (1) groundwater samples are properly collected, (2) groundwater samples are identified, preserved, and transported in a manner such that they are representative of field conditions, and (3) chemical analyses of samples are accurate and reproducible.

GUIDANCE AND REFERENCE DOCUMENTS USED TO COLLECT GROUNDWATER SAMPLES

U.S.E.P.A. - 339/9-51-002	NEIC Manual for Groundwater/ Subsurface Investigation at Hazardous Waste Sites
U.S.E.P.A. - 503/SW611	Procedures Manual for Groundwater Monitoring at Solid Waste Disposal Facilities (August, 1977)
U.S.E.P.A. - 600/4-79-020	Methods for Chemical Analysis of Water and Wastes (1983)
U.S.E.P.A. - 600/4-82-029	Handbook for Sampling and Sample Preservation of Water and Wastewater (1982)
U.S.E.P.A. - SW-846#, 3rd Edition	Test Methods for Evaluating Solid Waste - Physical/Chemical Methods (November, 1986) and latter additions
40 CFR 136.3e Table II	Required Containers, Preservation Techniques, and Holding Times
Resources Conservation and Recovery Act (OSWER 9950.1)	Groundwater Monitoring Technical Enforcement Guidance Document (September, 1986)
California Regional Water Quality Control Board (Central Valley Region)	A Compilation of Water Quality Goals (September, 1988); Updates (October, 1988)
California Regional Water Quality Control Board (North Coast, San Francisco Bay, and Central Valley)	Regional Board Staff Recommendations for Initial Evaluations and Investigation of Underground Tanks: Tri-Regional Recommendations (June, 1988)
California Regional Water Quality Control Board (Central Valley Region)	Memorandum: Disposal, Treatment, and Refuse of Soils Contaminated with Petroleum Fractions (August, 1986)
State of California Department of Health Services	Hazardous Waste Testing Laboratory Certification List (March, 1987)
State of California Water Resources Board	Leaking Underground Fuel Tank Control (LUFT) Field Manual (May, 1988), and LUFT Field Manual Revision (April, 1989)

State of California Water Resources 85), Control Board	Title 23 (Register #85.#33-8-17- Subchapter 16: Underground Tank Regulations; Article 3, Sections 2632 and 2634; Article 4, Section 2647 (October, 1986)
Santa Clara Valley Water District	Guidelines for Investigating Fuel Leaks (March, 1989)
Santa Clara Valley Water District	Guidelines for Preparing or Reviewing Sampling Plans for Soil and Groundwater Investigation of Fuel Contamination Sites (January, 1989)
Alameda County Water District	Groundwater Protection Program: Guidelines for Groundwater and Soil Investigations at Leaking Underground Fuel Tank Sites (most recent revision)
American Public Health Association	Standard Methods for the Examination of Water and Wastewaters, 16th Edition
Analytical Chemistry (journal)	Principles of Environmental Analysis Volume 55, pages 2212-18,December, 1983
American Petroleum Institute Environmental Affairs Dept., June, 1983	Groundwater Monitoring & Sample Bias
The Bay Area Air Quality Management District	Regulation 8 - Rule 40 & Rule 48

Because groundwater samples collected by HETI are analyzed in the parts per billion (ppb) range for many analytes, care is exercised to prevent contamination of samples. When volatile or semivolatile organic compounds are included for analysis, HETI sampling crew members will adhere to the following precautions in the field:

1. A new pair of clean, disposable, latex (or comparable material) gloves are to be worn for each well to be sampled.

2. When possible, samples will first be collected from wells known or suspected to contain the fewest contaminants, followed by wells in increasing order of degree of contamination.

3. All sample bottles and equipment are to be kept away from fuels and solvents. When possible, gasoline (used in generators and water pumps) is to be shipped to the project site in separate compartments of the same vehicle or in a separate vehicle as that in which sample bottles are shipped.

4. Sampling bailers are to be composed of polyethylene (when dedicated to the well), Teflon or stainless steel. Other materials, such as acrylic, may contain phthalate esters which can interfere with gas chromatography (GC) analyses. Well purging may be performed with PVC bailers.

5. Volatile organic groundwater samples are collected so that air passage through the sample does not occur or is minimal (to prevent volatiles from being stripped from the samples). Sample bottles are filled by slowly running the sample down the side of the bottle until there is a positive convex meniscus over the neck of the bottle. The Teflon side of the septum (in cap) is positioned against the meniscus and the cap is screwed on tightly. The sample is then inverted and lightly tapped while the sampler inspects the contents of the bottle for an air bubble. The absence of an air bubble indicates a successful seal. If a bubble is evident, the cap is removed and more water is added to the sample. The inspection procedure is repeated and if bubbles persist, the vial is discarded in a container designated for used and broken vials and bottles and the sample filling procedure is repeated with another vial.

6. Extra vials shall be available for use in the event of dropped bottles and/or caps. Any bottle which has come in contact with the ground shall be considered contaminated and shall not be used. When replacing septa, or if septa become inverted, care shall be taken to assure that the Teflon seal faces the interior of the bottle.

7. All preservatives shall be provided by the contract analytical laboratory.

Laboratory and field handling procedures of samples may be monitored by including QC samples for analysis with sample lots from a project site. QC samples may include any combination of the following:

1. Trip Blank - Used for purgable organic compounds only; QC samples shall be collected in 40 milliliter (ml) sample vials filled in the analytical laboratory with organic free water. Trip blanks should be sent to the project site, and travel with the samples from the project site. Trip blanks are <u>not</u> opened, and are returned from the project site with the samples from the project site for analysis.

2 Field Blank - Prepared in the field using steam-distilled water. Field blank QC samples shall accompany project site samples to the laboratory and shall be analyzed for the same chemical parameters as those samples taken from the project site.

3. Equipment Blank - Equipment Blank QC samples shall be prepared in the field using field equipment rinsate between two different wells after the equipment has been washed and rinsed. The equipment blank will consist of deionized water retained in the sampling equipment. These QC samples will only be taken when a dedicated bailer is not used for sampling.

4. Duplicates - Duplicate QC samples shall be collected "second samples" from a selected well and project site. Duplicates shall be collected as either split samples or second-run samples (i.e. later date) from the same well.

The number and types of QC samples shall be determined by HETI on a site-specific basis.

GROUNDWATER SAMPLE COLLECTION

This section describes the routine procedures followed by HETI while collecting groundwater samples for chemical analysis. These procedures include decontamination, water level measurements, well purging, physical parameter measurements, sample collection, sample preservation, and sample handling. Critical sampling objectives for HETI are to:

1. Collect groundwater samples which are representative of the sampled matrix.

2. Maintain sample integrity from the time of sample collection to delivery to the analytical laboratory.

Sample analyses, methods, containers, preservation, and holding times are presented in Table A-1.

Decontamination Procedures

All physical parameter measuring and sampling equipment shall be decontaminated prior to measurement and sample collection using a trisodium phosphate or Alconox solution wash, followed by two separate rinses in tap water, followed by one rinse in steam-distilled water. Any sampling equipment surfaces or parts that might absorb specific contaminants, such as plastic pump valves, impellers, etc., are to be cleaned in the same manner.

Sample bottles, bottle caps, and septa used for sampling volatile organics are thoroughly pre-cleaned in either the laboratory or the factory. All appropriate measures shall be taken to assure continued sterility of the containers issued by the contract laboratory prior to usage at the project site.

During field sampling, equipment which has been placed in a well shall be decontaminated by washing with a trisodium-phosphate or Alconox solution followed by two rinses in tap water and one rinse in steam-distilled water.

Water Level Measurements

Prior to purging and sampling any wells, the static-water level shall be measured by use of an electronic sounder and/or calibrated portable oil-water interface probe. Both static water level and separate phase product thickness shall be measured and noted to the nearest ± 0.01 foot. Interface probe results shall be confirmed by sampling the top of the water column with a clear bailer and measuring any floating product thickness to the nearest ± 0.01 foot with an engineers scale tape. In all cases a clear bailer sample will be taken from each well to check for color, sheen and undetected floating product. If floating product of any measureable thickness is observed, no sampling will be performed for that well. If visible product sheen is observed, sampling shall proceed under normal protocols.

The line used to lower the bailer shall be discarded after each use to preclude the possibility of cross contamination. Field observations (e.g., well integrity, product odor, turbidity, water color, odors, etc.) shall be recorded on the HETI Purge/Sample Sheet (Plate A-2). Before and after the use of the electric sounder, interface probe, non-dedicated bailer, or any other down well equipment, each will be decontaminated by washing in a trisodium phosphate or Alconox solution, followed by a double rinse with tap water, followed by a rinse with steam-distilled water.

Well Purging

Before sampling commences, well casing storage water and interstitial water in the artificial sand pack shall be purged from the well using: (1) a positive displacement bladder pump constructed of inert non-wetting Teflon and stainless steel; (2) a pneumatic-airlift pumping system; (3) a centrifugal pumping system; or (4) a PVC, Teflon or stainless steel bailer. Methods of purging will be assessed based on the well size, location, depth, accessibility, and known chemical conditions. Individual well purge volumes are calculated from the casing volumes. In general, a minimum of 3 to 5 casing volumes will be purged. Wells which dewater or demonstrate slow recharge capacities (i.e., low yield wells which only recover to 70 percent of initial water column height after 1 hour) during purging activities may be sampled after fewer than 3 to 5 purging cycles. If a low yield well is to be sampled, sampling shall not take place until at least 70 percent of the previously measured water column has been replaced by recharge. Monitoring wells shall be purged according to the protocol flowchart presented in Plate A-3. Water removed from the wells will either be disposed or stored in 55-gallon DOT drums for future disposal according to proceedures outlined for contaminated soil cuttings in the Soil Sampling Protocol section above. Where appropriate, physical parameters (pH, specific conductance, and temperature) will be monitored by HETI field crew during well purging operations. If necessary, purging may continue until all three physical parameters have stabilized. Stability shall be defined as a change of less than 0.2 pH units, less than 10 percent in micro mhos, and less than 1.0 degree Centigrade. The pH meters shall be read to the nearest $\pm$ 0.1 pH units. Specific conductance meters shall be read to the nearest $\pm$ 10 micro-mhos per centimeter. Both types of meters shall be calibrated daily to manufacturer's specifications. Temperature shall be read to the nearest $\pm$ 0.1 degree centigrade. Field data collected while developing, purging and sampling the wells will be entered onto the HETI Purge/Sample Sheet (Plate A-2). Copies of the Purge/Sample Sheets will be reviewed for accuracy and completeness for each well sampled.

DOCUMENTATION

Sample Container Labels

Each sample container shall be labeled immediately after the sample is collected and sealed. The label shall include:

- Company Name (HETI)
- Source (i.e., well number or code)
- Sampler's identification
- Project number
- Date and time of collection
- Type of preservation (if any) used

Field Sampling Data Sheets

In the field, the HETI sampling crew will record the following information on the Purge/Sample Sheet (Plate A-2) for each well sampled:

- Project number
- Client
- Location
- Source (i.e., well number or code)
- Time and date of development, purging and sampling
- Well accessibility and integrity
- Pertinent well data (e.g., total depth, product thickness, static water level)
- Physical parameters when appropriate (e.g., specific conductance, pH, temperature) - may be more than one reading
- Gallons and well casing volumes purged

Chain-of-Custody

A chain-of-custody record shall be completed and will accompany every shipment of samples to the analytical laboratory in order to establish documentation tracing sample possession from the time of collection until delivery to the laboratory. The record will contain the following information:

- Sample or station number or code (ID)
- Signature of the collector, sampler, or recorder
- Date and time of collection
- Place of collection (project address and name of business)
- Sample type (soil or water)
- Type of analysis requested
- Signatures of persons involved in chain of possession (in chronological order)
- Dates and times of individual possession (inclusive)
- Laboratory comments regarding the sample receptacle conditions

Samples will always be accompanied by a Chain-of-Custody record. When transferring the samples, the individuals relinquishing and receiving the samples will sign, date and note the time on the Chain-of-Custody record.

Sample Collection, Handling, Storage and Transport

All water samples will be collected in an order such that those parameters most sensitive to volatilization will be sampled first. A general order of collection for some common groundwater parameters is as follows:

- Volatile Organic Compounds (VOC's)
- Total Organic Halogens (TOH)
- Total Organic Carbon (TOC)
- Extractable Organics
- Total Metals
- Dissolved Metals
- Phenols
- Sulfate and Chloride
- Nitrate and Ammonia
- Turbidity

All samples from the same well shall be collected immediately after purging or when the well recovers to 70 percent of the original water column height. All samples from one sampling set from a single well should be collected on the same day.

All chemical sample handling and storage will be conducted under the direction of HETI's consulting analytical chemist. All laboratory chemical testing will be accomplished by a state approved analytical laboratory.

All water samples will be held at 4°C by packing them in a water-tight container inside an ice chest and covering with hard shelled "blue ice™". In no event shall the time between sample collection and delivery to the contract laboratory be greater than 72 hours. Preservatives will not be added to any sample by the sampling crew, unless instructed by the consulting analytical chemist. If added in the field, preservatives shall be supplied by the contract analytical laboratory. No one will open the samples other than laboratory personnel who will perform the specified chemical analyses.

If it is necessary for samples or sample ice chests to leave the immediate control of the sampling crew prior to delivery to the laboratory or laboratory courier, such as shipment by a common carrier (e.g., UPS™), a custody seal will be placed on each sample container and/or sample chest. Custody seals will be placed to ensure that the samples have not been tampered with during shipment and will contain the samplers signature, the date and time the seal was emplaced.

TABLE A-1

SAMPLE ANALYSIS METHODS, CONTAINERS, PRESERVATIVES, AND HOLDING TIMES

Parameter	Analytical Method	Reporting Units	Container*	Preservation†	Maximum Holding Time
Total Petroleum Hydrocarbons (low to med. b.p. i.e. gasoline)	EPA 8015 (DHS modified)	ppb ug/l	40ml glass vial, Teflon lined septum	4°C HCl to pH<2**	14 days
Benzene Toluene Ethylbenzene Xylenes (BTEX)	EPA 8020	ppb ug/l	40ml glass vial, Teflon lined septum	4°C HCl to pH<2**	7 days(w/o preservative) 14 days (w/preservative)
Oil & Grease	SM 503A&E	ppb ug/l	1L glass jar, Teflon lined cap	4°C H2SO4 to pH<2	28 days
Total Petroleum Hydrocarbons (high. b.p. i.e. diesel)	EPA 8015 (DHS modified)	ppb ug/l	1L glass jar, Teflon lined cap	4°C	14 days
Halogenated Volatile Organics (chlorinated solvents)	EPA 8010	ppb ug/l	40ml glass vial, Teflon lined septum	4°C	14 days
Non-Chlorinated Solvents	EPA 8020	ppb ug/l	as above	4°C	14 days
Volatile Organics (GC/MS)	EPA 8240	ppb ug/l	as above	4°C	14 days
Semi-Volatile Organics (GC/MS)	EPA 8270	ppb ug/l	as above	4°C	14 days
Metals	ICP-EPA 200.7 or A.A.EPA-	ppb ug/l	100 ml	4°C HNO3 to pH<2	6 months

* Containers listed are for water - soil containers are to be brass or stainless steel tubes with plastic end caps.

† Applies only to liquid samples.

** May vary depending on lab requirements.

PURGED/SAMPLED BY: FM DATE: _____

GAUGING DATA:

Depth to bottom: _____ ft.

Depth to water: _____ ft.

Saturated Thickness: _____ ft.

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

Well casing volume _____ gallons

volumes to purge x 3 vols.

*Total volume to purge = _____ gallons

* unless chemical parameters do not stabilize

PURGING DATA:

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

Temp/Conductivity/pH Instrument: Hydac #1_____

Time	Volume (gallons)	Temp. (°F)	Conductivity (mS/cm)	pH
	0	____	____	____

SAMPLE

Color: _____ Turbidity: _____

Recharge: _____ 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: _____

HYDRO-ENVIRONMENTAL TECHNOLOGIES, INC.

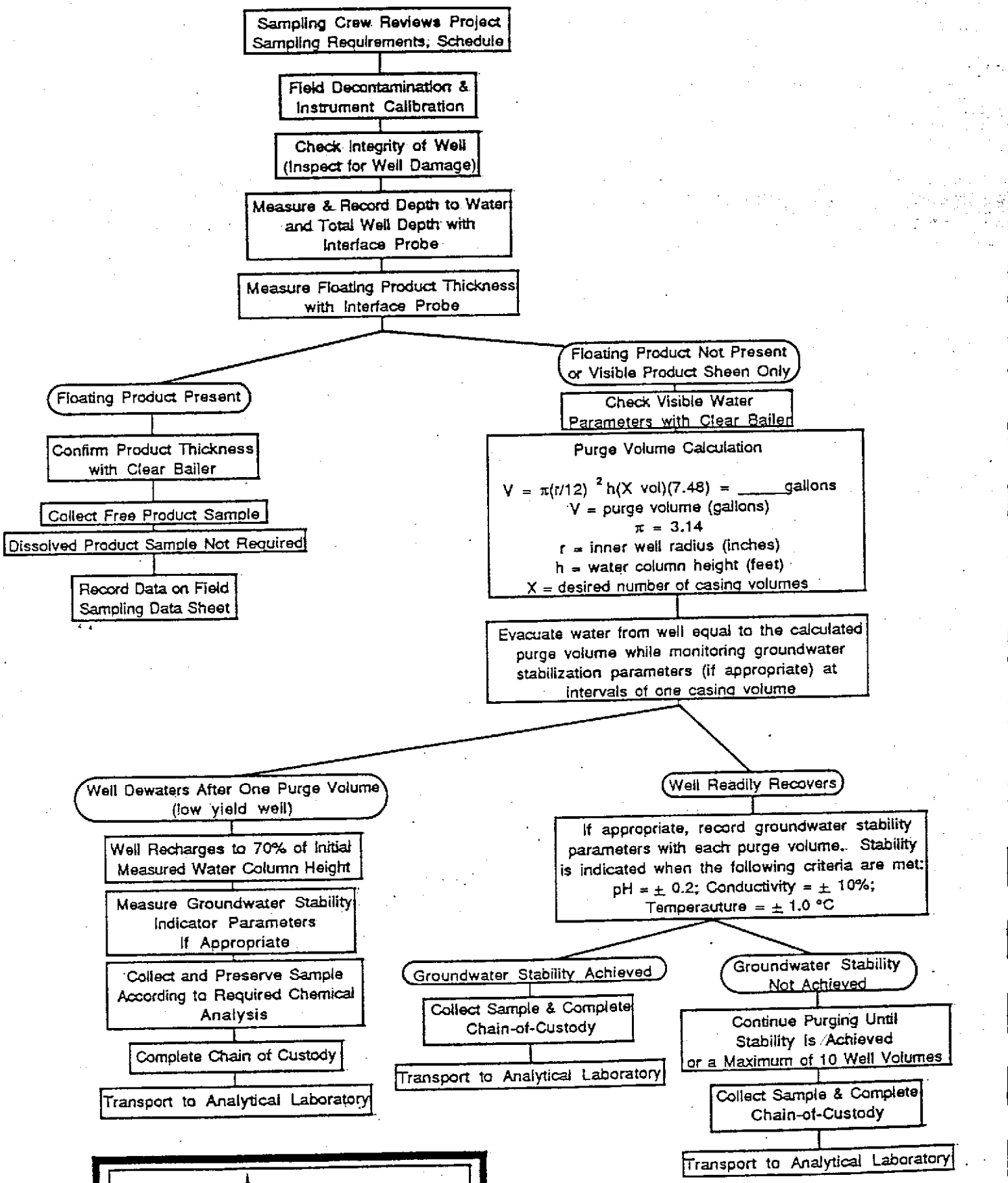
PURGE/SAMPLE DATA SHEET

WELL # _____

LOCATION: _____

Job No.

SHEET of



HYDRO-ENVIRONMENTAL TECHNOLOGIES, INC.

PLATE A-3
WATER SAMPLING FLOWCHART

MONITORING WELL GAUGING DATA SHEET

GAUGED BY: EM DATE: 6/28-96

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

Monitoring Well I.D.	Depth to Water (feet)	Depth to Bottom (feet)	Seperate-phase hydrocarbons thickness (feet)	Replacements		Condition/ Comments
				Lock	Bailer	
MW-8	6.0	13.57	—	NO	NO	
MW-1	5.34	14.73	—	YES	NO	
MW-7	5.42	13.28	—	YES	NO	
MW-3	4.69	10.56	—	YES	NO	
MW-2	5.68	12.25	—	YES	NO	
MW-4	4.25	12.21	—	YES	NO	
MW-9	5.14	13.08	—	YES	NO	
MW-6	5.33	5.17 →	YES	YES	NO	0.16 SPH
MW-5	5.04	9.86		YES	NO	

HYDRO-ENVIRONMENTAL TECHNOLOGIES, INC.

LOCATION: MARINER SQUARE

Job No. 7285.1

SHEET 1 of 1

PURGED/SAMPLED BY: FM DATE: 6/28/96

GAUGING DATA:

Depth to bottom: 14.73 ft.

Depth to water: 5.34 ft.

Saturated Thickness: 9.39 ft.

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

Well casing volume 1.5 gallons

volumes to purge x 3 vols.

*Total volume to purge = 4.5 gallons

* unless chemical parameters stabilize earlier

PURGING DATA:

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

Time	Volume (gallons)	Temp. (°F)	Conductivity (mS/cm)	pH
10:45	0	—	—	—
10:47	2.25	73.6	17.04	6.74
10:49	4.50	77.4	4.70	6.69

Color: GRAY Turbidity: SLIGHT

Recharge: GOOD 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-1

LOCATION MACINTOSH SQUARE

Job No. 7285-1

SHEET 1 of 1

PURGED/SAMPLED BY: EM DATE: 6/28/96

GAUGING DATA:

Depth to bottom: 12.25 ft.

Depth to water: 5.68 ft.

Saturated Thickness: 6.57 ft.

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

Well casing volume 1.05 gallons

volumes to purge x 3 vols.

*Total volume to purge = 3.15 gallons

* unless chemical parameters stabilize earlier

PURGING DATA:

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

Time	Volume (gallons)	Temp. (°F)	Conductivity (mS/cm)	pH
11:47	0	—	—	—
11:50	1.5	73.6	0.77	7.86
11:53	3.25	72.7	0.63	8.00

Color: LT. BROWN Turbidity: SLIGHT

Recharge: GOOD SPP ____ ft.

SAMPLING DATA:

Sampling method: Dedicated bailer

Sample for: (circle)

(TPH-g/BTEX) METALS TOC 8010

(TPH-d) 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-2

LOCATION MACLIER SQUARE

Job No. 7285.1

SHEET 1 of 1

PURGED/SAMPLED BY: FM DATE: 02/28/96

GAUGING DATA:

Depth to bottom: 10.56 ft.

Depth to water: 4.69 ft.

Saturated Thickness: 5.87 ft.

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

Well casing volume 0.93 gallons

volumes to purge x 3 vols.

*Total volume to purge = 2.82 gallons

* unless chemical parameters stabilize earlier

PURGING DATA:

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

Time	Volume (gallons)	Temp. (°F)	Conductivity (mS/cm)	pH
11:30	0	—	—	—
11:32	1.5	74.7	2.78	7.75
11:35	3.0	73.5	2.95	7.18

Color: GRAY Turbidity: SLIGHT

Recharge: GOOD SPP — ft.

SAMPLING DATA:

Sampling method: Dedicated bailer / _____

Sample for: (circle)

TPHg/BTEX METALS TOC 8010

TPHd O-Pb TEL 8020

TPH mo Total Pb EDB 8240

601 602 Nitrates 8260 8270

Other: PAHS

HYDRO-ENVIRONMENTAL TECHNOLOGIES, INC.

MONITORING WELL PURGE/SAMPLE SHEET

WELL # MW-3

LOCATION MACIDEL SQUARE

Job No. 7285.1

SHEET 1 of 1

PURGED/SAMPLED BY: CM DATE: 6/28/96

GAUGING DATA:

Depth to bottom: 12.21 ft.

Depth to water: 4.25 ft.

Saturated Thickness: 7.96 ft.

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

Well casing volume 1.27 gallons

volumes to purge x 3 vols.

*Total volume to purge = 3.82 gallons

* unless chemical parameters stabilize earlier

PURGING DATA:

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

Time	Volume (gallons)	Temp. (°F)	Conductivity (mS/cm)	pH
12:07	0	—	—	—
12:10	2	78.4	2.860	7.75
12:18	4	78.4	2.78	7.14

Color: GRAY Turbidity: SLIGHT

Recharge: FAIR SPP ____ ft.

SAMPLING DATA:

Sampling method: Dedicated bailer / _____

Sample for: (circle)

TPHg/BTEX METALS TOC 8010

TPHd Cr-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-4

LOCATION MARINER SQUARE

Job No. 7285.1

SHEET 1 of 1

PURGED/SAMPLED BY: FM DATE: 6-28-96

GAUGING DATA:

Depth to bottom: 9.86 ft.

Depth to water: 5.04 ft.

Saturated Thickness: 4.82 ft.

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

Well casing volume 0.77 gallons

volumes to purge x 3 vols.

*Total volume to purge = 2.31 gallons

* unless chemical parameters stabilize earlier

PURGING DATA:

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

Time	Volume (gallons)	Temp. (°F)	Conductivity (mS/cm)	pH
1:22	0	—	—	—
1:25	1.25	73.7	1.29	7.90
1:30	2.50	73.6	1.28	7.60

Color: GRAY Turbidity: SLIGHT

Recharge: GOOD RATE SPP _____ ft.

SAMPLING DATA:

Sampling method: Dedicated bailer / _____

Sample for: (circle)

TPHg/BTEX METALS TOG 8010

TPHd O-Pb TEL 8021

TPH mo Total Pb EDB 8240

601 602 Nitrates 8250 8270

Other: PNAs

HYDRO-ENVIRONMENTAL TECHNOLOGIES, INC.

MONITORING WELL PURGE/SAMPLE SHEET

WELL # MW-5

LOCATION MARINER SQUARE

Job No. 7285.1

SHEET 1 of 1

PURGED/SAMPLED BY: FM DATE: 6.28.96

GAUGING DATA:

Depth to bottom: 13.28 ft.

Depth to water: 5.42 ft.

Saturated Thickness: 7.86 ft.

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

Well casing volume 5.11 gallons

volumes to purge x 3 vols.

*Total volume to purge = 15.33 gallons

* unless chemical parameters stabilize earlier

PURGING DATA:

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

Time	Volume (gallons)	Temp. (°F)	Conductivity (mS/cm)	pH
11:05	0	—	—	—
11:10	5	76.0	6.81	7.29
11:13	10	76.2	6.41	7.04
11:16	15.5	74.7	7.28	6.59

Color: CLEAR-LT.GRAY Turbidity: SLIGHT-[illegible]

Recharge: GOOD-FAIR SPP ___ ft.

SAMPLING DATA:

Sampling method: Dedicated bailer / _____

Sample for: (circle)

TPHg/BTEX METALS TOC 8010

TPHd O-Pb TEL 8020

TPH ext Total Pb EDB 8240

601 602 Nitrates 8260 8270

Other: _____

HYDRO-ENVIRONMENTAL TECHNOLOGIES, INC.

MONITORING WELL PURGE/SAMPLE SHEET

WELL # MW-7

LOCATION MARINER SQUARE

Job No. 7-285.1

SHEET 1 of 1

PURGED/SAMPLED BY: EM DATE: 02896

GAUGING DATA:

Depth to bottom: 13.57 ft.

Depth to water: 6.00 ft.

Saturated Thickness: 7.57 ft.

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

Well casing volume 4.92 gallons

volumes to purge x 3 vols.

*Total volume to purge = 14.76 gallons

* unless chemical parameters stabilize earlier

PURGING DATA:

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

Time	Volume (gallons)	Temp. (°F)	Conductivity (mS/cm)	pH
10:15	0	—	—	—
10:20	5	71.8	9.30	6.88
10:25	10	71.6	7.70	6.85
10:30	15	68.0	7.86	6.72

Color: CLEAR Turbidity: SLIGHT - NONE

Recharge: GOOD SPP ____ ft.

SAMPLING DATA:

Sampling method: Dedicated bailer

Sample for: (circle)

TPH-g/BTEX METALS TOG 8010

TPH-d O-Pb TEL 8020

TPH mo Total Pb EDB 8240

601 602 Nitrates 8260 8270

Other: PAHS

HYDRO-ENVIRONMENTAL TECHNOLOGIES, INC.

MONITORING WELL PURGE/SAMPLE SHEET

WELL # MW-8

LOCATION MARINER SQUARE

Job No. 7-285-1

SHEET 1 of 1

PURGED/SAMPLED BY: EM DATE: 10-28-96

GAUGING DATA:

Depth to bottom: 13.08 ft.

Depth to water: 5.14 ft.

Saturated Thickness: 7.94 ft.

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

Well casing volume 5.16 gallons

volumes to purge x 3 vols.

*Total volume to purge = 155 gallons

* unless chemical parameters stabilize earlier

PURGING DATA:

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

Time	Volume (gallons)	Temp. (°F)	Conductivity (mS/cm)	pH
12:36	0	—	—	—
12:39	5	76.6	1.27	6.64
12:43	10	74.2	1.22	6.64
12:58	16.5	73.9	1.17	6.63

Color: GRAY Turbidity: SL-MOD

Recharge: FAIR SPP — ft.

SAMPLING DATA:

Sampling method: Dedicated bailer / _____

Sample for: (circle)

TPHg/BTEX METALS TOC 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-9

LOCATION MARINER SQUARE

Job No. 7-2851

SHEET 1 of 1

APPENDIX C

7-285.1
lab.

RECEIVED JUL 2 2 1996

NEI/GTEL
ENVIRONMENTAL LABORATORIES, INC.

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

July 17, 1996

Gary Piscki
HYDRO-ENVIRONMENTAL TECHNOLOGIES, INC
2394 Mariner Square Dr.
Suite 2
Alameda, CA 94501

RE: GTEL Client ID: HYE01HYE01
Login Number: W6070038
Project ID (number): 7285.1
Project ID (name): MARINER SQUARE/ALAMEDA/CA

Dear Gary Piscki:

Enclosed please find the analytical results for the samples received by GTEL Environmental Laboratories, Inc. on 07/03/96.

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.

NEI/GTEL is certified by the California 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

Project Number: 7285.1
Project Name: Hydro-Environmental Technologies, Inc.
2394 Mariner Square Dr.
Suite 2
Alameda, CA
Work Order Number: W6-07-0038
Date Reported: 07-17-96

Table 1
ANALYTICAL RESULTS
Hydrocarbon Screen in Water
GC/FID[a]

GTEL Sample Number		01	02	03	04
Client Identification		MW-1	MW-2	MW-3	MW-4
Date Sampled		06-28-96	06-29-96	06-29-96	06-28-96
Date Extracted		07-05-96	07-05-96	07-05-96	07-05-96
Date Analyzed		07-11-96	07-11-96	07-11-96	07-11-96
Analyte	RL[b] ug/L	Concentration, ug/L			
TPH as Gasoline[c]	50	<50	350	<50	110
TPH as Mineral Spirits	50	<50	<150[g]	<50	<50
TPH as Diesel Fuel	50	<50	100[ef]	120[e]	170[ef]
TPH as Lubricating Oil[d]	200	<200	<200	<200	<200
QL[b] Multiplier		1	1	1	1

a 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 EPA's publication, Test Methods for Evaluating Solid Waste, SW846, Third Edition, Revision 0, November 1986. Extraction per EPA 3510. Silica gel cleanup was performed on the sample extracts using (modified) EPA 3630. This method is equivalent to the California LUFT manual DHS method for diesel fuel.

b Reporting Limit

c Due to potential loss of volatile components during sample extraction and concentration, quantitation of gasoline by this method should be treated as an estimate. For the most accurate gasoline analysis, a purge-and-trap procedure is recommended.

d Lubricating oil can not be qualitatively identified by type of oil because of chromatographic likeness of different oil types. Due to non-volatility of certain oils, much of the oil present may never be quantified by this gas chromatographic method. Quantitation obtained for lubricating oil by this method should, therefore, be treated as an estimate. This method quantifies lubricating oil against 10-W-40 standards. For the most accurate analysis of lubricating oil, an infrared method is recommended.

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

f Quantitation uncertain due to matrix interferences.

g The reporting limit was elevated due to the presence of other petroleum hydrocarbons.

Project Number: 7285.1
Project Name: Hydro-Environmental Technologies, Inc.
2394 Mariner Square Dr.
Suite 2
Alameda, CA
Work Order Number: W6-07-0038
Date Reported: 07-17-96

Table 1
ANALYTICAL RESULTS
Hydrocarbon Screen in Water
GC/FID[a]

GTEL Sample Number		05	06	07	08
Client Identification		MW-5	MW-7	MW-8	MW-9
Date Sampled		06-29-96	06-28-96	06-28-96	06-28-96
Date Extracted		07-05-96	07-05-96	07-05-96	07-05-96
Date Analyzed		07-11-96	07-12-96	07-12-96	07-12-96
Analyte	RL[b] ug/L	Concentration, ug/L			
TPH as Gasoline[c]	50	5300	250	<50	230
TPH as Mineral Spirits	50	<1000[g]	<50	<50	<50
TPH as Diesel Fuel	50	610[ef]	490[ef]	58[e]	550[e]
TPH as Lubricating Oil[d]	200	790	<200	<200	<200
QL[b] Multiplier		1	1	1	1

a 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 EPA's publication, Test Methods for Evaluating Solid Waste, SW846, Third Edition, Revision 0, November 1986. Extraction per EPA 3510. Silica gel cleanup was performed on the sample extracts using (modified) EPA 3630. This method is equivalent to the California LUFT manual DHS method for diesel fuel.

b Reporting Limit

c Due to potential loss of volatile components during sample extraction and concentration, quantitation of gasoline by this method should be treated as an estimate. For the most accurate gasoline analysis, a purge-and-trap procedure is recommended.

d Lubricating oil can not be qualitatively identified by type of oil because of chromatographic likeness of different oil types. Due to non-volatility of certain oils, much of the oil present may never be quantified by this gas chromatographic method. Quantitation obtained for lubricating oil by this method should, therefore, be treated as an estimate. This method quantifies lubricating oil against 10-W-40 standards. For the most accurate analysis of lubricating oil, an infrared method is recommended.

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

f Quantitation uncertain due to matrix interferences.

g The reporting limit was elevated due to the presence of other petroleum hydrocarbons.

ANALYTICAL RESULTS
Polynuclear Aromatics

GTEL Client ID: HYE01HYE01
Login Number: W6070038
Project ID (number): 7285.1
Project ID (name): MARINER SQUARE/ALAMEDA/CA

Method: EPA 8310
Matrix: Aqueous

GTEL Sample Number	W6070038-01	W6070038-02	W6070038-03	W6070038-04
Client ID	MW-1	MW-2	MW-3	MW-4
Date Sampled	06/28/96	06/29/96	06/29/96	06/28/96
Date Prepared	07/05/96	07/05/96	07/05/96	07/05/96
Date Analyzed	07/15/96	07/15/96	07/15/96	07/15/96
Dilution Factor	1.00	1.00	1.00	1.00

Analyte	Reporting Limit	Units	Concentration:			
Naphthalene	2.0	ug/L	< 2.0	< 2.0	< 2.0	< 2.0
Acenaphthylene	2.0	ug/L	< 2.0	< 2.0	< 2.0	2.5
Acenaphthene	2.0	ug/L	< 2.0	< 2.0	< 2.0	2.3
Fluorene	2.0	ug/L	< 2.0	< 2.0	< 2.0	< 2.0
Phenanthrene	1.0	ug/L	< 1.0	< 1.0	< 1.0	< 1.0
Anthracene	1.0	ug/L	< 1.0	< 1.0	< 1.0	< 1.0
Fluoranthene	0.50	ug/L	< 0.50	0.82	< 0.50	1.8
Pyrene	0.50	ug/L	< 0.50	0.77	< 0.50	2.1
Benzo[a]anthracene	0.50	ug/L	< 0.50	< 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	< 0.50	< 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	< 0.50	< 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	< 0.50	< 0.50	< 0.50	< 0.50
Indeno[1,2,3-cd]pyrene	0.50	ug/L	< 0.50	< 0.50	< 0.50	< 0.50

Notes:

Dilution Factor:
Dilution factor indicates the adjustments made for sample dilution.

EPA 8310:
Extraction by EPA Method 3510 (liquid/liquid). "Test Methods for Evaluating Solid Waste. Physical/Chemical Methods". SW-846. Third Edition including Update 2.

W6070038-04:
The qualitative identification for Acenaphthylene is uncertain due to matrix interferences.

ANALYTICAL RESULTS
Polynuclear Aromatics

GTEL Client ID: HYE01HYE01
Login Number: W6070038
Project ID (number): 7285.1
Project ID (name): MARINER SQUARE/ALAMEDA/CA

Method: EPA 8310
Matrix: Aqueous

GTEL Sample Number	W6070038-05	W6070038-06	W6070038-07	W6070038-08
Client ID	MW-5	MW-7	MW-8	MW-9
Date Sampled	06/29/96	06/28/96	06/28/96	06/28/96
Date Prepared	07/05/96	07/05/96	07/05/96	07/05/96
Date Analyzed	07/15/96	07/15/96	07/15/96	07/15/96
Dilution Factor	1.00	1.00	1.00	1.00

Analyte	Reporting Limit	Units	Concentration:			
Naphthalene	2.0	ug/L	2.0	< 2.0	< 2.0	< 2.0
Acenaphthylene	2.0	ug/L	96.	< 2.0	< 2.0	< 2.0
Acenaphthene	2.0	ug/L	3.0	< 2.0	< 2.0	< 2.0
Fluorene	2.0	ug/L	< 2.0	< 2.0	< 2.0	< 2.0
Phenanthrene	1.0	ug/L	9.5	< 1.0	< 1.0	< 1.0
Anthracene	1.0	ug/L	2.3	< 1.0	< 1.0	< 1.0
Fluoranthene	0.50	ug/L	8.6	< 0.50	< 0.50	0.73
Pyrene	0.50	ug/L	8.4	< 0.50	< 0.50	< 0.50
Benzo[a]anthracene	0.50	ug/L	1.0	< 0.50	< 0.50	< 0.50
Chrysene	0.50	ug/L	0.68	< 0.50	< 0.50	< 0.50
Benzo[b]fluoranthene	0.50	ug/L	< 0.50	< 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	0.78	< 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	0.57	< 0.50	< 0.50	< 0.50
Indeno[1,2,3-cd]pyrene	0.50	ug/L	< 0.50	< 0.50	< 0.50	< 0.50

Notes:

Dilution Factor:

Dilution factor indicates the adjustments made for sample dilution.

EPA 8310:

Extraction by EPA Method 3510 (liquid/liquid). "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW-846, Third Edition including Update 2.

W6070038-05:

The qualitative identification for Acenaphthylene is uncertain due to matrix interferences.

ANALYTICAL RESULTS
Volatile Organics

GTEL Client ID: HYE01HYE01
Login Number: W6070038
Project ID (number): 7285.1
Project ID (name): MARINER SQUARE/ALAMEDA/CA

Method: EPA 8020A
Matrix: Aqueous

	GTEL Sample Number	W6070038-01	W6070038-02	W6070038-03	W6070038-04
	Client ID	MW-1	MW-2	MW-3	MW-4
	Date Sampled	06/28/96	06/29/96	06/29/96	06/28/96
	Date Analyzed	07/08/96	07/08/96	07/08/96	07/08/96
	Dilution Factor	1.00	1.00	1.00	1.00
Analyte	Reporting Limit	Units	Concentration:			
Benzene	0.5	ug/L	< 0.5	0.5	< 0.5	4.0
Toluene	1.0	ug/L	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	1.0	ug/L	< 1.0	2.3	< 1.0	< 1.0
Xylenes (total)	2.0	ug/L	< 2.0	3.1	< 2.0	< 2.0
TPH as Gas	100	ug/L	< 100	980	< 100	180

Notes:

Dilution Factor:

Dilution factor indicates the adjustments made for sample dilution.

EPA 8020A:

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 promulgated Update II.

ANALYTICAL RESULTS
Volatile Organics

GTEL Client ID: HYE01HYE01
Login Number: W6070038
Project ID (number): 7285.1
Project ID (name): MARINER SQUARE/ALAMEDA/CA

Method: EPA 8020A
Matrix: Aqueous

GTEL Sample Number	W6070038-05	W6070038-06	W6070038-07	W6070038-08
Client ID	MW-5	MW-7	MW-8	MW-9
Date Sampled	06/29/96	06/28/96	06/28/96	06/28/96
Date Analyzed	07/09/96	07/09/96	07/09/96	07/09/96
Dilution Factor	1.00	1.00	1.00	1.00

Analyte	Reporting Limit	Units	Concentration:			
Benzene	0.5	ug/L	1.2	0.6	< 0.5	5.2
Toluene	1.0	ug/L	6.8	< 1.0	< 1.0	< 1.0
Ethylbenzene	1.0	ug/L	21.	< 1.0	< 1.0	< 1.0
Xylenes (total)	2.0	ug/L	14.	2.7	< 2.0	< 2.0
TPH as Gas	100	ug/L	5000	560	< 100	390

Notes:

Dilution Factor:

Dilution factor indicates the adjustments made for sample dilution.

EPA 8020A:

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 promulgated Update II.

ANALYTICAL RESULTS
Volatile Organics

GTEL Client ID: HYE01HYE01
Login Number: W6070038
Project ID (number): 7285.1
Project ID (name): MARINER SQUARE/ALAMEDA/CA

Method: EPA 524.2
Matrix: Aqueous

GTEL Sample Number		W6070038-01	W6070038-02	W6070038-03	W6070038-04
Client ID		MW-1	MW-2	MW-3	MW-4
Date Sampled		06/28/96	06/29/96	06/29/96	06/28/96
Date Analyzed		07/11/96	07/11/96	07/11/96	07/11/96
Dilution Factor		1.00	1.00	1.00	1.00
Analyte	Reporting Limit / Units	Concentration:			
Vinyl chloride	0.5 ug/L	< 0.5	< 0.5	< 0.5	2.5

Notes:

Dilution Factor:
Dilution factor indicates the adjustments made for sample dilution.

EPA 524.2:
Methods for the Determination of Organic Compounds in Drinking Water. Rev. 2.0. USEPA 1989

W6070038-01:
GC/MS Data indicates the presence of non-target compounds.

W6070038-02:
GC/MS Data indicates the presence of non-target compounds.

W6070038-03:
GC/MS Data indicates the presence of non-target compounds.

W6070038-04:
GC/MS Data indicates the presence of non-target compounds.

ANALYTICAL RESULTS
Volatile Organics

GTEL Client ID: HYE01HYE01
Login Number: W6070038
Project ID (number): 7285.1
Project ID (name): MARINER SQUARE/ALAMEDA/CA

Method: EPA 524.2
Matrix: Aqueous

	GTEL Sample Number	W6070038-05	W6070038-06	W6070038-07	W6070038-08
	Client ID	MW-5	MW-7	MW-8	MW-9
	Date Sampled	06/29/96	06/28/96	06/28/96	06/28/96
	Date Analyzed	07/11/96	07/11/96	07/11/96	07/12/96
	Dilution Factor	1.00	1.00	1.00	1.00
Analyte	Reporting Limit	Units	Concentration:			
Vinyl chloride	0.5	ug/L	< 0.5	< 0.5	< 0.5	< 0.5

Notes:

Dilution Factor:
Dilution factor indicates the adjustments made for sample dilution.

EPA 524.2:
Methods for the Determination of Organic Compounds in Drinking Water. Rev. 2.0. USEPA 1989

W6070038-05:
GC/MS Data indicates the presence of non-target compounds.

W6070038-06:
GC/MS Data indicates the presence of non-target compounds.

W6070038-08:
GC/MS Data indicates the presence of non-target compounds.

ANALYTICAL RESULTS
Volatile Organics

GTEL Client ID: HYE01HYE01
Login Number: W6070038
Project ID (number): 7285.1
Project ID (name): MARINER SQUARE/ALAMEDA/CA

Method: EPA 8010B
Matrix: Aqueous

GTEL Sample Number	W6070038-02	--	--	--
Client ID	MW-2	--	--	--
Date Sampled	06/29/96	--	--	--
Date Analyzed	07/13/96	--	--	--
Dilution Factor	1.00	--	--	--

Analyte	Reporting Limit	Units	Concentration:			
Trichlorotrifluoroethane	1.0	ug/L	< 1.0	--	--	--

Notes:

Dilution Factor:

Dilution factor indicates the adjustments made for sample dilution.

EPA 8010B:

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

CHAIN OF CUSTODY RECORD

SAMPLER
Printed Name: FRANCES MARONI
Signature: FRANCES MARONI
DELIVER TO: GTEL
ATTENTION: JOHN

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:
GARY PISCHKE
HETI

USE QUO #QW9601 JW

HETICAL JOB No.: 7285.1

Relinquished by: (Signature)	Received by: (Signature)	Date	Time
FRANCES MARONI	Gary Pischke	6/29/96	6:00p
Gary Pischke	John Weber	7/1/96	11:12
John Weber 7/1/96 16:30	LABORATORY Sammy Sullivan	7/2/96	0835

PROJECT NAME: MARINER SQUARE — PAGE 1 OF 2

Sample Number	DATE & TIME	No. & Type Container	Analysis Requested: TPH (gas+BTEX (DHS mod))	TPH (DHS mod)	Organic Lead	TPH-MO	BTEX	VOA+GRO	FREON 113	Lab Remarks
1 HTT ✓	MW-1	6/28/96 15:10	6 VOAs	X					X	01
2 III ✓	MW-1	↓ 15:10	4 LAMBER		X		X	X		
3 HTT ✓	MW-2	6/29/96 16:30	6 VOAs	X					X	02
4 III ✓	MW-2	16:30	4 LAMBER		X		X	X	X	
5 HTT ✓	MW-3	17:30	6 VOAs	X					X	03
6 III ✓	MW-3	↓ 17:30	4 LAMBER		X		X	X		
7 HTT ✓	MW-4	6/28/96 15:45	6 VOAs	X					X	04
8 III ✓	MW-4	↓ 15:45	4 LAMBER		X		X	X		
9 HTT ✓	MW-5	6/29/96 18:00	6 VOAs	X					X	05
10 III ✓	MW-5	↓ 18:00	4 LAMBER		X		X	X		
11 HTT ✓	MW-7	6/28/96 15:00	6 VOAs	X					X	06
12 III ✓	MW-7	↓ 15:00	4 LAMBER		X		X	X		No Se Le
13 HTT ✓	MW-8	↓ 14:45	6 VOAs	X					X	07

702 650 7670

Special Instructions: SILICA GEL CLEANUP
<MW-5 not in cooler>

Turnaround:
☒ 5 DAY ☒ 10 DAY ☐ 72 HOURS ☐ 24 HOURS

CHAIN OF CUSTODY RECORD

SAMPLER
Printed Name: FRANCES MARONI
Signature: FRANCES MARONI

DELIVER TO: GTEL

ATTENTION: JOHN

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

SEND INVOICE TO:
GARY DISCHLER
HETI

HETICAL JOB No.: 728S1

Relinquished by: (Signature)	Received by: (Signature)	Date	Time
FRANCES MARONI		6/28/96	
Relinquished by:	Received by: John Weber	7/1/96	11:12
Relinquished by: John Weber 7/1/96 16:30	Received by: LABORATORY Tammy Dodson	7/2/96	0835

PAGE 1 OF 2

PROJECT NAME: MARINER SQUARE

Sample Number	DATE & TIME	No. & Type Container	Analysis Requested: TPH Fuel (DHS mod)	TPH Fuel (DHS mod)	Organic Lead	TPH-MO	BTEX	VINYL CHLORIDE	Lab Remarks
14 (1) ✓ MW-8	6/28/96 1445	4 OLAMBER		X		X	X		07
5 HH ✓ MW-9	1620	6 VOAS	X					X	08
16 (1) ✓ MW-9	1620	4 OLAMBER		X		X	X		

Special Instructions: SILICA GEL CLEAN-UP

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