HYDRO
ENVIRONMENTAL
TECHNOLOGIES, INC.

# QUARTERLY MONITORING REPORT, Fourth Quarter 1996

**2415 Mariner Square Drive**
**Alameda, California 94501**

**Sampling Date: October 31, 1996**

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HYDRO ENVIRONMENTAL TECHNOLOGIES, INC.

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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 into the San Francisco Bay. This Quarterly Monitoring Report presents the results of the second sampling event.

## 3.0 FIELD ACTIVITIES

On October 31, 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 two 55-gallon DOT drums with tight fitting lids. Separate phase petroleum hydrocarbons (SPH) were detected in well MW-6 with a measured thickness of 0.02 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. 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 October 31, 1996, depth to first encountered ground water in the wells ranged between 5.04 to 6.37 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, with a ground water gradient of 0.625%.

## 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, in concentrations ranging from 93 (MW-1) to 4,900 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 wells MW-5 and MW-9 in concentrations of 860 and 720 µg/L, respectively.

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 110 (MW-4) to 6,800 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-4, MW-5, MW-7 and MW-9 in concentrations ranging from 1.1 (MW-7) to 20 µg/L (MW-5). 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 4.3 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.

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

- The general ground water flow direction across the site is towards the southeast with an approximate ground water gradient ranging from 0.625% to 0.73%.
- TPHmo was detected in two of the eight wells sampled. TPHd was detected in all of the wells sampled. TPHg was detected in five of the eight wells sampled.
- Benzene was detected in four of the eight wells sampled and exceeded the state MCLs in all the samples.
- Vinyl chloride was detected in one of the eight wells sampled and exceeded the state MCL in that sample.
- PNAs were detected in three of the eight wells sampled.
- SPH was noted in well MW-6 in a thickness of 0.02 feet. Previously, SPH had been noted in well MW-6 at a thickness of 0.16 feet.
- The ground water flow direction and laboratory results from this sampling event are consistent with the results noted in the Quarterly Monitoring Report Second Quarter 1996 dated January 15, 1997.

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## 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.

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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) | MTBE (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 |
| | 10/31/96 | 11.99 | 5.38 | 6.61 | 93 | ND<200 | ND<100 | ND<0.5 | ND<1.0 | ND<1.0 | ND<2.0 | ND<10 | ND<1.0 |
| 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 |
| | 10/31/96 | 15.21 | 6.37 | 8.84 | 180 | ND<200 | 220 | ND<0.5 | ND<1.0 | ND<1.0 | ND<2.0 | ND<10 | ND<1.0 |
| 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 |
| | 10/31/96 | 14.19 | 5.24 | 8.95 | 160 | ND<200 | ND<100 | ND<0.5 | ND<1.0 | ND<1.0 | ND<2.0 | ND<10 | ND<1.0 |
| 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 |
| | 10/31/96 | 13.95 | 5.05 | 8.90 | 330 | ND<200 | 110 | 6.2 | ND<1.0 | ND<1.0 | ND<2.0 | ND<10 | 4.3 |
| 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

Cone. in Well 5 increasing

| 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) | MTBE (µg/L) | Vinyl Cl (µg/L) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MW-5 | 10/31/96 | 14.60 | 5.73 | 8.87 | 4,900 | 860 | 6,800 | 20 | 5.9 | 15 | 19 | ND<10 | ND<1.0 |
| 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 (0.16') | SPH | SPH | SPH | SPH | SPH | SPH | SPH | SPH |
| | 10/31/96 | 14.81 | 5.17 | 9.64 | SPH (0.02') | 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 |
| | 10/31/96 | 13.61 | 5.90 | 7.71 | 420 | ND<200 | 200 | 1.1 | ND<1.0 | ND<1.0 | ND<2.0 | ND<10 | ND<1.0 |
| 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 |
| | 10/31/96 | 12.64 | 5.85 | 6.79 | 120 | ND<200 | ND<100 | ND<0.5 | ND<1.0 | ND<1.0 | ND<2.0 | ND<10 | ND<1.0 |
| 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 |
| | 10/31/96 | 14.92 | 6.37 | 8.55 | 590 | 720 | 300 | 5.9 | ND<1.0 | ND<1.0 | ND<2.0 | ND<10 | ND<1.0 |
| 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 |
| | 10/31/96 | 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 |
| | 10/31/96 | 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 | 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 |
| | 10/31/96 | 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 |
| | 10/31/96 | ND<2.0 | ND<2.0 | ND<2.0 | ND<2.0 | ND<1.0 | ND<1.0 | 0.92 | 1.6 |
| MW-5 | 6/28/96 | 2.0 | 96 (1) | 3.0 | ND<2.0 | 9.5 | 2.3 | 8.6 | 8.4 |
| | 10/31/96 | ND<2.0 | 150 | 8.3 | 2.4 | 14 | 2.9 | 11 | 15 |
| MW-6 | 6/28/96 | SPH | SPH | SPH | SPH | SPH | SPH | SPH | SPH |
| | 10/31/96 | 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 |
| | 10/31/96 | 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 |
| | 10/31/96 | 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 |
| | 10/31/96 | ND<2.0 | ND<2.0 | ND<2.0 | ND<2.0 | ND<1.0 | ND<1.0 | 0.69 | 1.10 |
| 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 |
| | 10/31/96 | 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 |
| | 10/31/96 | 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 |
| | 10/31/96 | 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 |
| | 10/31/96 | 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 |
| | 10/31/96 | 1.9 | 1.8 | 0.51 | ND<0.5 | 0.84 | ND<0.5 | ND<0.5 | ND<0.5 |
| MW-6 | 6/28/96 | SPH | SPH | SPH | SPH | SPH | SPH | SPH | SPH |
| | 10/31/96 | 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 |
| | 10/31/96 | 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 |
| | 10/31/96 | 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 |
| | 10/31/96 | 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. |

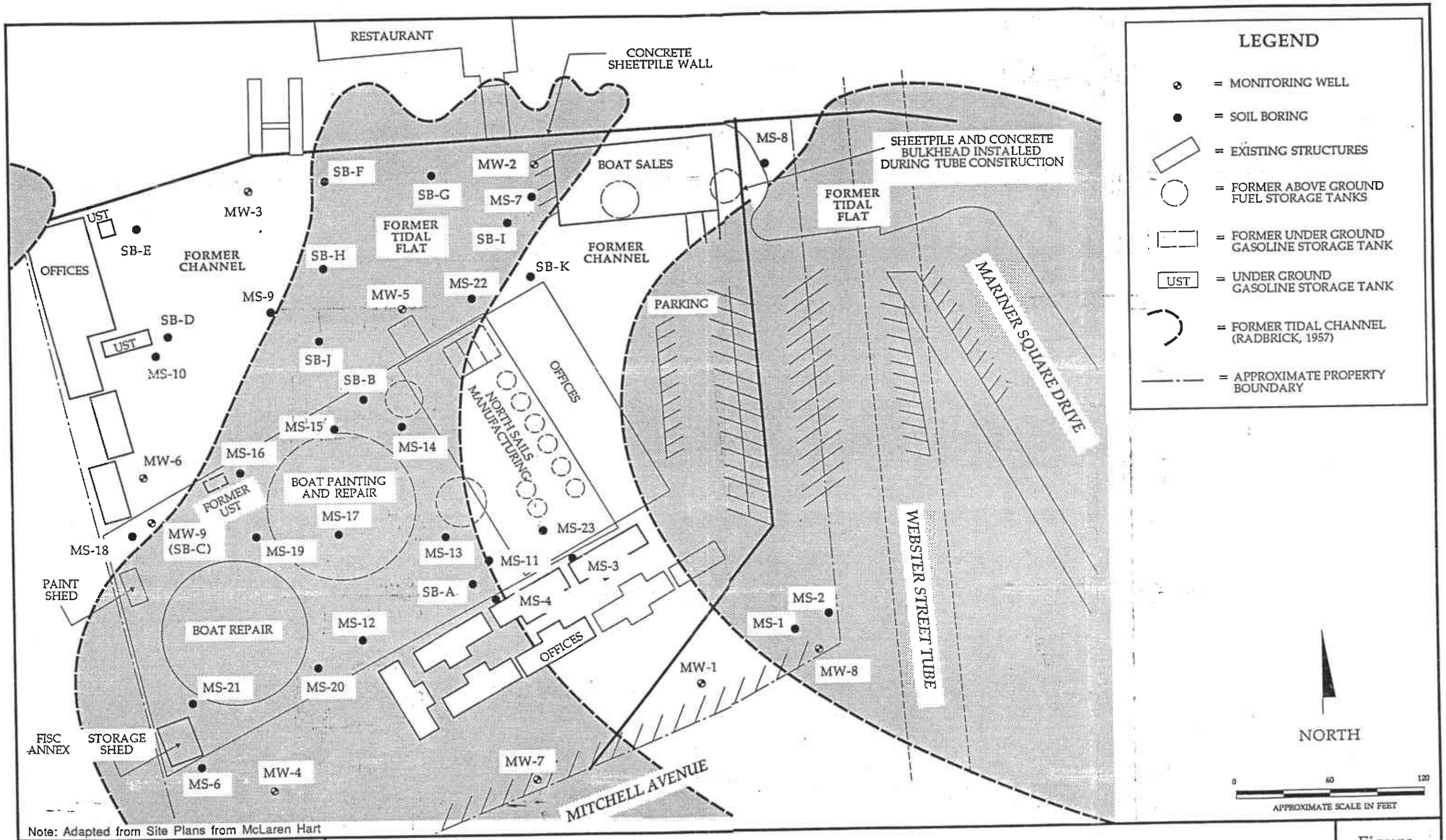

HYDRO-ENVIRONMENTAL TECHNOLOGIES, INC.

# SITE LOCATION MAP

Mariner Square
2415 Mariner Square Drive
Alameda, California

Figure 1

7-285 11/96




Note: Adapted from Site Plans from McLaren Hart

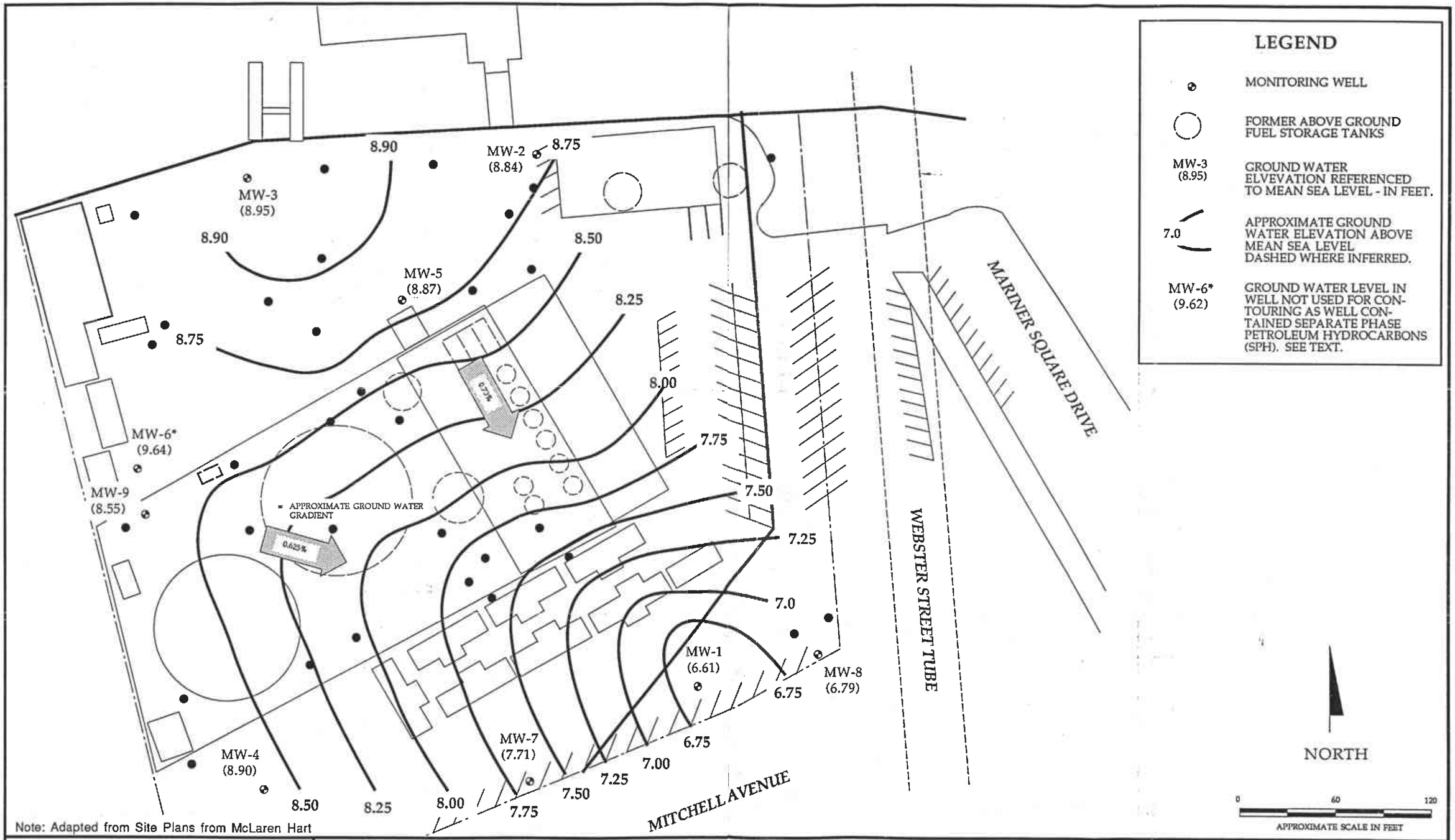
HYDRO-ENVIRONMENTAL TECHNOLOGIES, INC.

# SITE PLAN

Mariner Square
2415 Mariner Square Drive
Alameda, California

Figure 2

7-285.1 11/96




Note: Adapted from Site Plans from McLaren Hart

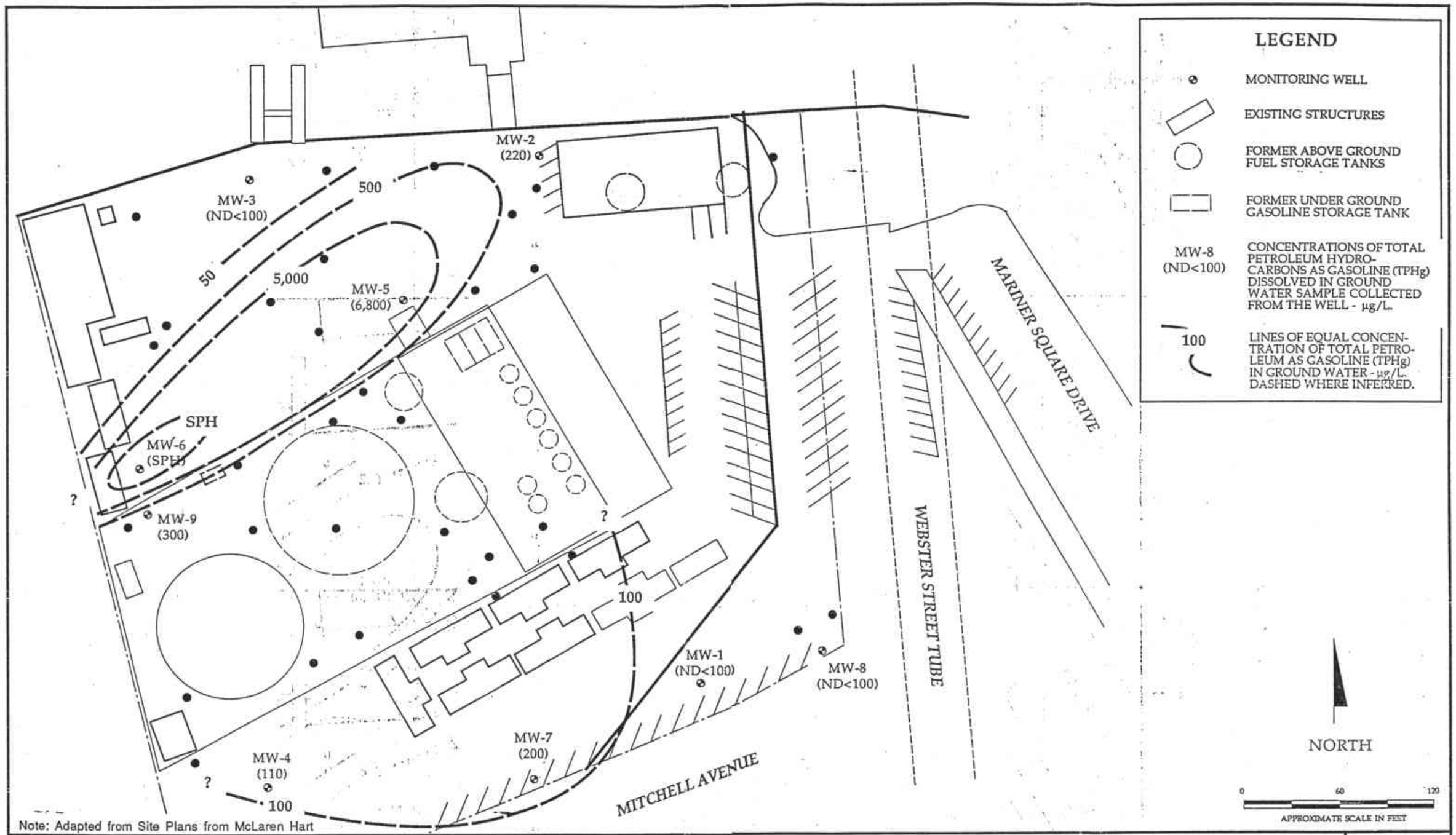
HYDRO-ENVIRONMENTAL TECHNOLOGIES, INC.

# GROUND WATER CONTOUR MAP

Mariner Square
2415 Mariner Square Drive
Alameda, California

Figure 3

7-285.1 1/97




Note: Adapted from Site Plans from McLaren Hart

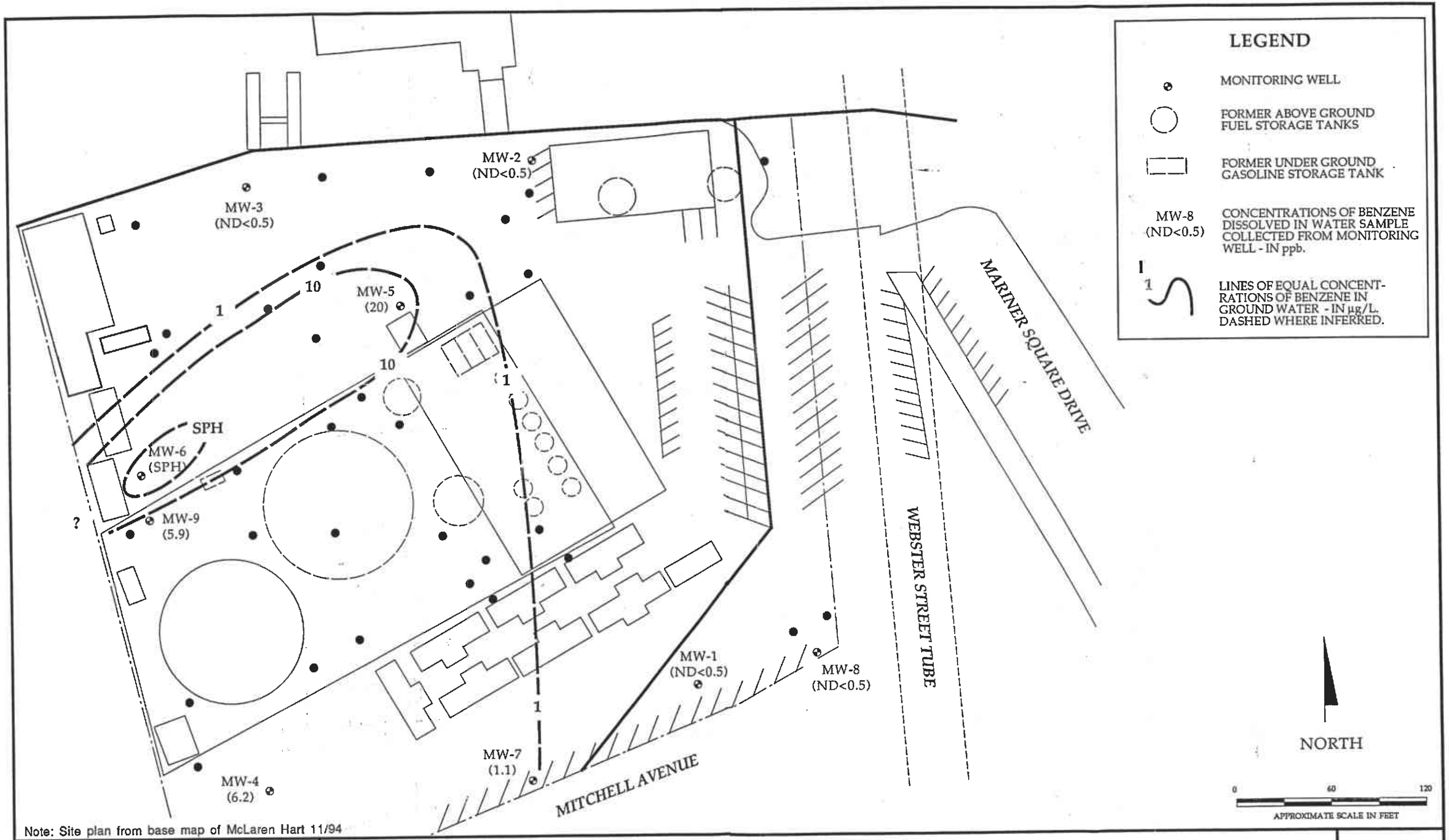
HYDRO-ENVIRONMENTAL TECHNOLOGIES, INC.

# TPHg ISOCONCENTRATION MAP

Mariner Square
2415 Mariner Square Drive
Alameda, California

Figure 4

7-285.1 1/97




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

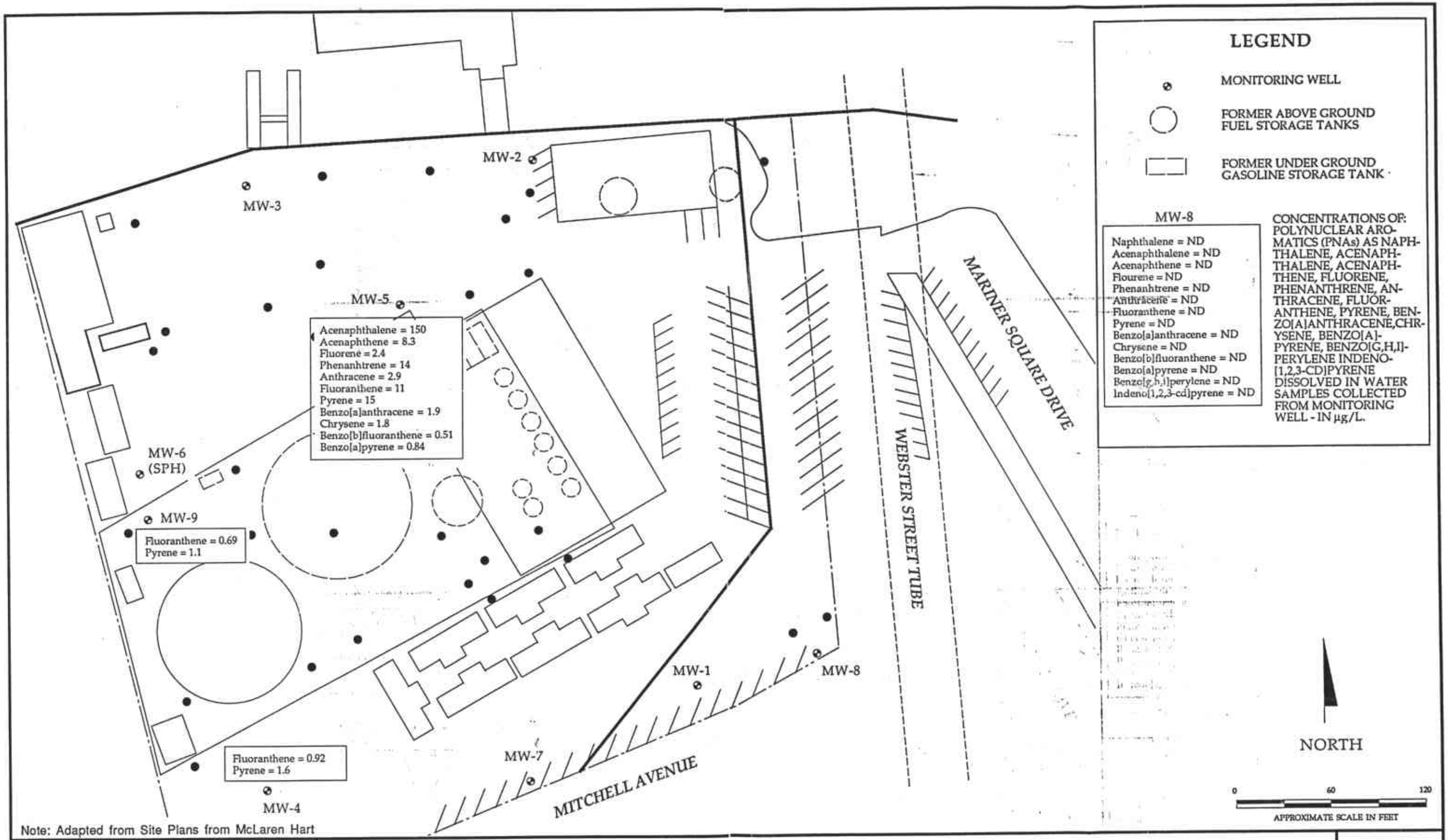
HYDR◆-
ENVIR◆NMENTAL
TECHN◆LOGIES, INC.

# BENZENE ISOCONCENTRATION MAP

Mariner Square
2415 Mariner Square Drive
Alameda, California

Figure
5

7-285.1 1/97




Note: Adapted from Site Plans from McLaren Hart

HYDR◆-
ENVIR◆NMENTAL
TECHN◆LOGIES, INC.

# POLYNUCLEAR AROMATICS DISTRIBUTION MAP

Mariner Square
2415 Mariner Square Drive
Alameda, California

Figure 6

7-285.1 1/97

# MONITORING WELL GAUGING DATA SHEET

GAUGED BY: FM DATE: 10-31-96

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 | 5.85 | 13.57 | — | OK | OK | |
| MW-1 | 5.38 | 14.73 | — | OK | OK | |
| MW-7 | 5.90 | 13.28 | — | OK | OK | |
| MW-3 | 5.24 | 10.56 | — | OK | OK | |
| MW-2 | 6.37 | 12.25 | — | OK | OK | |
| MW-4 | 5.05 | 12.21 | — | OK | OK | |
| MW-9 | 6.37 | 13.08 | — | OK | OK | |
| MW-5 | 5.73 | 9.86 | — | OK | OK | ST. SHEEN ON GROUNDWATER |
| MW-6 | SPH 5.17 | ~~5.17~~ | 0.02' | OK | OK | |

HYDRO-ENVIRONMENTAL TECHNOLOGIES, INC.

LOCATION: MARINER SQUARE

Job No. 7-285.1

SHEET 1 of 1

PURGED/SAMPLED BY: FM DATE: 10.31.96

GAUGING DATA:

Depth to bottom: 9.86 ft.

Depth to water: 5.73 ft.

Saturated Thickness: 4.13 ft.

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

Well casing volume 0.660 gallons

# volumes to purge x 3 vols.

*Total volume to purge = 1.98 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 |
|---|---|---|---|---|
| 305 | 0 | — | — | — |
| 309 | 1.00 | 68.5 | 1.17 | 15.27 |
| 312 | 2.00 | 700 | 1.17 | 15.27 |
| | | | | |
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| | | | | |

Color: DARK GREY 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 / MTBE'S

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: EM DATE: 10.31.96

GAUGING DATA:

Depth to bottom: 13.08 ft.

Depth to water: 6.37 ft.

Saturated Thickness: 6.71 ft.

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

Well casing volume 4.36 gallons

# volumes to purge x 3 vols.

*Total volume to purge = 13.08 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 |
|---|---|---|---|---|
| 2:15 | 0 | — | — | — |
| 2:20 | 5 | 72.1 | 1.14 | 15.54 |
| 2:25 | 10 | 70.7 | 1.47 | 15.55 |
| 2:30 | 13.25 | 69.6 | 1.19 | 15.50 |
| | | | | |
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| | | | | |

Color: GREY

Turbidity: SLIGHT - MOD

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 / MTBE

HYDRO-ENVIRONMENTAL TECHNOLOGIES, INC.

MONITORING WELL PURGE/SAMPLE SHEET

WELL # MW9

LOCATION MARINER SQUARE

Job No. 7285.1

SHEET 1 of 1

PURGED/SAMPLED BY: FM DATE: 10-31-96

GAUGING DATA:

Depth to bottom: 12.25 ft.

Depth to water: 6.37 ft.

Saturated Thickness: 5.88 ft.

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

Well casing volume 0.94 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 |
|---|---|---|---|---|
| 1400 | 0 | — | — | — |
| 1403 | 1.50 | 74.0 | 0.95 | 15.53 |
| 1406 | 3.00 | 73.3 | 0.55 | 15.53 |
| | | | | |
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Color: GRAY Turbidity: SLIGHT-SANDY

Recharge: 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: PNA's / MTBE

HYDRO-ENVIRONMENTAL TECHNOLOGIES, INC.

MONITORING WELL PURGE/SAMPLE SHEET

WELL # MW-2

LOCATION MARINE SQUARE

Job No. 7285.1

SHEET 1 of

PURGED/SAMPLED BY: FM DATE: 10.31.96

GAUGING DATA:

Depth to bottom: 10.50 ft.

Depth to water: 5.24 ft.

Saturated Thickness: 5.32 ft.

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

Well casing volume 0.85 gallons

# volumes to purge x 3 vols.

*Total volume to purge = 2.55 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 |
|---|---|---|---|---|
| 1:09 | 0 | — | — | — |
| 1:12 | 1.30 | 77.1 | 2.46 | 15.72 |
| 1:15 | 2.60 | 75.7 | 2.98 | 15.70 |
| | | | | |
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Color: GREY 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/MTBE

HYDRO-ENVIRONMENTAL TECHNOLOGIES, INC.

MONITORING WELL PURGE/SAMPLE SHEET

WELL # MW-3

LOCATION MARINER SQUARE

Job No. 7285.1

SHEET 1 of 1

PURGED/SAMPLED BY: FM DATE: 10-31-96

GAUGING DATA:

Depth to bottom: 12.21 ft.

Depth to water: 5.05 ft.

Saturated Thickness: 7.16 ft.

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

Well casing volume 1.15 gallons

# volumes to purge x 3 vols.

*Total volume to purge = 3.45 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 |
|---|---|---|---|---|
| 1200 | 0 | — | — | — |
| 1207 | 2 | 74.4 | 2.09 | 15.51 |
| 1220 | 4 | 75.5 | 3.18 | 15.60 |
| | | | | |
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Color: GREY Turbidity: SLIGHT

Recharge: FAIR 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: DCA's/MTBE

HYDRO-ENVIRONMENTAL TECHNOLOGIES, INC.

MONITORING WELL PURGE/SAMPLE SHEET

WELL # MW-4

LOCATION MARINER SQUARE

Job No. 7-285.1

SHEET 1 of 1

PURGED/SAMPLED BY: EM DATE: 10.31.96

GAUGING DATA:

Depth to bottom: 13.28 ft.

Depth to water: 5.90 ft.

Saturated Thickness: 7.38 ft.

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

Well casing volume 4.80 gallons

# volumes to purge x 3 vols.

*Total volume to purge = 14.4 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 |
|---|---|---|---|---|
| 1135 | 0 | — | — | — |
| 1240 | 5 | 72.8 | 7.11 | ~~9.8~~ 10.29 |
| 1245 | 10 | 74.5 | 6.61 | 11.94 |
| 1150 | 15 | 69.9 | 5.45 | 8.99 |
| | | | | |
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| | | | | |

Color: GREY-GREEN Turbidity: SLIGHT

Recharge: FAIR SPP ____ ft.

SAMPLING DATA:

Sampling method: Dedicated bailer / _____

Sample for: (circle)

| | | | |
|---|---|---|---|
| TPHg/BTEX | METALS | TOG | 8010 |
| TPHd | O-Pb | TEL | 8021 |
| TPH mb | Total Pb | EDB | 8240 |
| 601 | 602 | Nitrates | 8260 8270 |

Other: DNAS/MTBE

HYDRO-ENVIRONMENTAL TECHNOLOGIES, INC.

MONITORING WELL PURGE/SAMPLE SHEET

WELL # MW-7

LOCATION MARINER SQUARE

Job No. 7285.1

SHEET 1 of 1

PURGED/SAMPLED BY: EM DATE: 10.31.96

GAUGING DATA:

Depth to bottom: 14.73 ft.

Depth to water: 5.38 ft.

Saturated Thickness: 9.35 ft.

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

Well casing volume 1.49 gallons

# volumes to purge x 3 vols.

*Total volume to purge = 4.48 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 |
|---|---|---|---|---|
| 1055 | 0 | — | — | — |
| 1058 | 2.5 | 70.6 | 8.91 | 7.18 |
| 1101 | 5.0 | 73.4 | 6.48 | 7.28 |
| | | | | |
| | | | | |
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| | | | | |
| | | | | |
| | | | | |

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, MTBE

HYDRO-ENVIRONMENTAL TECHNOLOGIES, INC.

MONITORING WELL PURGE/SAMPLE SHEET

WELL # MW-1

LOCATION MARINER SQUARE

Job No. 7285.1

SHEET 1 of 1

PURGED/SAMPLED BY: EM DATE: 10-31-96

GAUGING DATA:

Depth to bottom: 13.57 ft.

Depth to water: 5.85 ft.

Saturated Thickness: 7.72 ft.

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

Well casing volume 5.02 gallons

# volumes to purge x 3 vols.

*Total volume to purge = 15.06 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 |
|---|---|---|---|---|
| 1015 | 0 | — | — | — |
| 1020 | 5 | 71.5 | 10.48 | 6.90 |
| 1025 | 10 | 67.3 | 8.77 | 6.88 |
| 1030 | 15.10 | 69.0 | 8.93 | 6.90 |
| | | | | |
| | | | | |
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| | | | | |
| | | | | |
| | | | | |

Color: GREY 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: DUP/MTBE

HYDRO-ENVIRONMENTAL TECHNOLOGIES, INC.

MONITORING WELL PURGE/SAMPLE SHEET

WELL # MW-8

LOCATION MARINER SQUARE

Job No. 1285.1

SHEET 1 of 1

NEI/GTEL
ENVIRONMENTAL LABORATORIES, INC.

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

RECEIVED NOV 2 5 1996

November 19, 1996

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

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| | |
|---|---|
| RE: GTEL Client ID: | HYE01HYE01 |
| Login Number: | W6110029 |
| Project ID (number): | 7-285.1 |
| 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 11/01/96.

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.

Justin Ware, Project Coordinator for
Terry R. Loucks
Laboratory Director

ANALYTICAL RESULTS
Polynuclear Aromatics

GTEL Client ID: HYE01HYE01
Login Number: W6110029
Project ID (number): 7-285.1
Project ID (name): MARINER SQUARE/ALAMEDA/CA

Method: EPA 8310
Matrix: Aqueous

| GTEL Sample Number | W6110029-01 | W6110029-02 | W6110029-03 | W6110029-04 |
|---|---|---|---|---|
| Client ID | MW-1 | MW-2 | MW-3 | MW-4 |
| Date Sampled | 10/31/96 | 10/31/96 | 10/31/96 | 10/31/96 |
| Date Prepared | 11/05/96 | 11/05/96 | 11/05/96 | 11/05/96 |
| Date Analyzed | 11/14/96 | 11/14/96 | 11/14/96 | 11/14/96 |
| 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 | < 2.0 |
| Acenaphthene | 2.0 | ug/L | < 2.0 | < 2.0 | < 2.0 | < 2.0 |
| Fluorene | 2.0 | ug/L | < 2.0 | < 2.0 | < 2.0 | < 2.0 |
| Phenanthrene | 1.0 | ug/L | < 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 | < 0.50 | < 0.50 | 0.92 |
| Pyrene | 0.50 | ug/L | < 0.50 | < 0.50 | < 0.50 | 1.6 |
| 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.

ANALYTICAL RESULTS
Polynuclear Aromatics

GTEL Client ID: HYE01HYE01
Login Number: W6110029
Project ID (number): 7-285.1
Project ID (name): MARINER SQUARE/ALAMEDA/CA

Method: EPA 8310
Matrix: Aqueous

| GTEL Sample Number | W6110029-05 | W6110029-06 | W6110029-07 | W6110029-08 |
|---|---|---|---|---|
| Client ID | MW-5 | MW-7 | MW-8 | MW-9 |
| Date Sampled | 10/31/96 | 10/31/96 | 10/31/96 | 10/31/96 |
| Date Prepared | 11/05/96 | 11/05/96 | 11/05/96 | 11/05/96 |
| Date Analyzed | 11/16/96 | 11/14/96 | 11/13/96 | 11/14/96 |
| 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 | 150 | < 2.0 | < 2.0 | < 2.0 |
| Acenaphthene | 2.0 | ug/L | 8.3 | < 2.0 | < 2.0 | < 2.0 |
| Fluorene | 2.0 | ug/L | 2.4 | < 2.0 | < 2.0 | < 2.0 |
| Phenanthrene | 1.0 | ug/L | 14. | < 1.0 | < 1.0 | < 1.0 |
| Anthracene | 1.0 | ug/L | 2.9 | < 1.0 | < 1.0 | < 1.0 |
| Fluoranthene | 0.50 | ug/L | 11. | < 0.50 | < 0.50 | 0.69 |
| Pyrene | 0.50 | ug/L | 15. | < 0.50 | < 0.50 | 1.1 |
| Benzo[a]anthracene | 0.50 | ug/L | 1.9 | < 0.50 | < 0.50 | < 0.50 |
| Chrysene | 0.50 | ug/L | 1.8 | < 0.50 | < 0.50 | < 0.50 |
| Benzo[b]fluoranthene | 0.50 | ug/L | 0.51 | < 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 | 0.84 | < 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.

W6110029-05:

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

W6110029-08:

The recovery for the method recommended surrogate, p-Terphenyl, is outside of control limits due to probable matrix effects, therefore any reported value should be considered an estimate of the true value.

ANALYTICAL RESULTS
Volatile Organics

GTEL Client ID: HYE01HYE01
Login Number: W6110029
Project ID (number): 7-285.1
Project ID (name): MARINER SQUARE/ALAMEDA/CA

Method: EPA 8020A
Matrix: Aqueous

| GTEL Sample Number | W6110029-01 | W6110029-02 | W6110029-03 | W6110029-04 |
|---|---|---|---|---|
| Client ID | MW-1 | MW-2 | MW-3 | MW-4 |
| Date Sampled | 10/31/96 | 10/31/96 | 10/31/96 | 10/31/96 |
| Date Analyzed | 11/07/96 | 11/07/96 | 11/07/96 | 11/07/96 |
| Dilution Factor | 1.00 | 1.00 | 1.00 | 1.00 |

| Analyte | Reporting Limit | Units | Concentration: | | | |
|---|---|---|---|---|---|---|
| MTBE | 10 | ug/L | < 10 | < 10 | < 10 | < 10 |
| Benzene | 0.5 | ug/L | < 0.5 | < 0.5 | < 0.5 | 6.2 |
| Toluene | 1.0 | ug/L | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| Ethylbenzene | 1.0 | ug/L | < 1.0 | < 1.0 | < 1.0 | < 1.0 |
| Xylenes (total) | 2.0 | ug/L | < 2.0 | < 2.0 | < 2.0 | < 2.0 |
| TPH as Gas | 100 | ug/L | < 100 | 220 | < 100 | 110 |

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. Analyte list modified to include additional compounds. "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW-846, Third Edition including promulgated Update II.

W6110029-03:

Sample was received at pH 7.

ANALYTICAL RESULTS
Volatile Organics

GTEL Client ID: HYE01HYE01
Login Number: W6110029
Project ID (number): 7-285.1
Project ID (name): MARINER SQUARE/ALAMEDA/CA

Method: EPA 8020A
Matrix: Aqueous

| GTEL Sample Number | W6110029-05 | W6110029-06 | W6110029-07 | W6110029-08 |
|---|---|---|---|---|
| Client ID | MW-5 | MW-7 | MW-8 | MW-9 |
| Date Sampled | 10/31/96 | 10/31/96 | 10/31/96 | 10/31/96 |
| Date Analyzed | 11/07/96 | 11/07/96 | 11/07/96 | 11/07/96 |
| Dilution Factor | 1.00 | 1.00 | 1.00 | 1.00 |

| Analyte | Reporting Limit | Units | Concentration: | | | |
|---|---|---|---|---|---|---|
| MTBE | 10. | ug/L | < 10. | < 10. | < 10. | < 10. |
| Benzene | 0.5 | ug/L | 20. | 1.1 | < 0.5 | 5.9 |
| Toluene | 1.0 | ug/L | 5.9 | < 1.0 | < 1.0 | < 1.0 |
| Ethylbenzene | 1.0 | ug/L | 15. | < 1.0 | < 1.0 | < 1.0 |
| Xylenes (total) | 2.0 | ug/L | 19. | < 2.0 | < 2.0 | < 2.0 |
| TPH as Gas | 100 | ug/L | 6800 | 200 | < 100 | 300 |

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. Analyte list modified to include additional compounds. "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: W6110029
Project ID (number): 7-285.1
Project ID (name): MARINER SQUARE/ALAMEDA/CA

Method: EPA 8010B
Matrix: Aqueous

| GTEL Sample Number | W6110029-01 | W6110029-02 | W6110029-03 | W6110029-04 |
|---|---|---|---|---|
| Client ID | MW-1 | MW-2 | MW-3 | MW-4 |
| Date Sampled | 10/31/96 | 10/31/96 | 10/31/96 | 10/31/96 |
| Date Analyzed | 11/06/96 | 11/06/96 | 11/06/96 | 11/06/96 |
| Dilution Factor | 1.00 | 1.00 | 1.00 | 1.00 |

| Analyte | Reporting Limit | Units | Concentration: | | | |
|---|---|---|---|---|---|---|
| Vinyl Chloride | 1.0 | ug/L | < 1.0 | < 1.0 | < 1.0 | 4.3 |

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.

ANALYTICAL RESULTS
Volatile Organics

GTEL Client ID: HYE01HYE01
Login Number: W6110029
Project ID (number): 7-285.1
Project ID (name): MARINER SQUARE/ALAMEDA/CA

Method: EPA 8010B
Matrix: Aqueous

| | GTEL Sample Number | W6110029-05 | W6110029-06 | W6110029-07 | W6110029-08 |
|---|---|---|---|---|---|
| | Client ID | MW-5 | MW-7 | MW-8 | MW-9 |
| | Date Sampled | 10/31/96 | 10/31/96 | 10/31/96 | 10/31/96 |
| | Date Analyzed | 11/06/96 | 11/06/96 | 11/06/96 | 11/06/96 |
| | Dilution Factor | 1.00 | 1.00 | 1.00 | 1.00 |
| Analyte | Reporting Limit | Units | Concentration: | | | |
| Vinyl Chloride | 1.0 | ug/L | < 1.0 | < 1.0 | < 1.0 | < 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.

Project ID (Number): 7-285.1
Project ID (Name): Mariner Square
Almeda, CA
Work Order Number: W6-11-0029
Date Reported: 11-14-96

## ANALYTICAL RESULTS

### TPH as Diesel Fuel in Water
### GC/FID[a]

| GTEL Sample Number | | 01 | 02 | 03 | 04[e] |
|---|---|---|---|---|---|
| Client Identification | | MW-1 | MW-2 | MW-3 | MW-4 |
| Date Sampled | | 10-31-96 | 10-31-96 | 10-31-96 | 10-31-96 |
| Date Extracted | | 11-04-96 | 11-04-96 | 11-04-96 | 10-04-96 |
| Date Analyzed | | 11-13-96 | 11-13-96 | 11-13-96 | 11-13-96 |
| Analyte | RL[b] ug/L | Concentration, ug/L | | | |
| TPH as Diesel Fuel (Silica gel cleaned)[b] | 50 | 93[d] | 180[d] | 160[d] | 330[d] |
| TPH as Lubricating Oil (Silica gel cleaned)[b] | 200 | <200 | <200 | <200 | <200 |
| RL[c] 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. Liquid-liquid extraction with methylene chloride. This method is equivalent to the California LUFT manual DHS method for diesel fuel.

b Extracts were silica gel cleaned per (modified) EPA 3630.

c Reporting Limit

d Due to qualitative uncertainty, all material in the C9 to C22 range was quantitated as diesel fuel.

e The surrogate percent recovery for this sample is outside of acceptability limits. Therefore, ther reported concentrations should be considered as an estimate.

Project ID (Number): 7-285.1
Project ID (Name): Mariner Square
Almeda, CA
Work Order Number: W6-11-0029
Date Reported: 11-14-96

## ANALYTICAL RESULTS

### TPH as Diesel Fuel in Water
### GC/FID[a]

| GTEL Sample Number | | 05 | 06 | 07 | 08 |
|---|---|---|---|---|---|
| Client Identification | | MW-5 | MW-7 | MW-8 | MW-9 |
| Date Sampled | | 10-31-96 | 10-31-96 | 10-31-96 | 10-31-96 |
| Date Extracted | | 11-04-96 | 11-04-96 | 11-04-96 | 10-04-96 |
| Date Analyzed | | 11-14-96 | 11-14-96 | 11-14-96 | 11-14-96 |
| Analyte | RL[b] ug/L | Concentration, ug/L | | | |
| TPH as Diesel Fuel (Silica gel cleaned)[b] | 50 | 4900[d] | 420[d] | 120[d] | 590[d] |
| TPH as Lubricating Oil (Silica gel cleaned)[b] | 200 | 860 | <200 | <200 | 720 |
| RL[c] Multiplier | | 3 | 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. Liquid-liquid extraction with methylene chloride. This method is equivalent to the California LUFT manual DHS method for diesel fuel.

b Extracts were silica gel cleaned per (modified) EPA 3630.

c Reporting Limit

d Due to qualitative uncertainty, all material in the C9 to C22 range was quantitated as diesel fuel.

# CHAIN OF CUSTODY RECORD

SAMPLER
Printed Name: FRANCES MARONI
Signature: FRANCES MARONI

DELIVER TO: HETI/COTEL

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:
HETI
GARY PISCHKE

HETICAL JOB No.: 7-285.1

| Relinquished by: (Signature) | Received by: (Signature) | Date | Time |
|---|---|---|---|
| FRANCES MARONI | | 10/31/96 | 4:50 pm |
| Relinquished by: | Received by: | 10/31/96 | 5:05p |
| Relinquished by: | Received by: LABORATORY | 11/1/96 | 0845 |

PROJECT NAME: MARINER SQUARE

PAGE 1 OF 2

| Sample Number | DATE & TIME | No. & Type Container | Analysis Requested: TPH g + BTEX (DHS mod) | TPH d (DHS mod) | Organic Lead | MTBE | MOD GOIL | VINYL CL | PNAs | Lab Remarks |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | No sea 1°C |
| | | | | | | | | | | 110 912 4973 |
| 1 mw-1 | 10/31/96 11:00 AM | 6 VOAs | X | | | X | | X | | 01 |
| mw-1 | 11:20 AM | 4 AMBER | | X | | | X | | X | 1 |
| 2 mw-2 | 2:15 pm | 6 VOAs | X | | | X | | X | | 02 |
| mw-2 | 2:18 pm | 4 AMBER | | X | | | X | | X | 1 |
| 3 mw-3 | 1:30 p | 6 VOAs | X | | | X | | X | | 03 |
| mw-3 | 1:38 p | 4 AMBER | | X | | | X | | X | 1 |
| 4 mw-4 | 12:30 p | 6 VOAs | X | | | X | | X | | 04 |
| mw-4 | 12:38 p | 4 AMBER | | X | | | X | | X | 1 |
| 5 mw-5 | 3:40 p | 6 VOAs | X | | | X | | X | | 05 |
| mw-5 | 3:40 p | 4 AMBER | | X | | | X | | X | 1 |
| mw-6 | 2 p | 6 VOAs | X | | | X | | X | | 06 |
| 6 mw-7 | 2 p | 4 AMBER | | X | | | X | | X | 1 |
| 7 mw-8 | 10:40 AM | 6 VOAs | X | | | X | | X | | 07 |

Special Instructions: SILICA GEL
CLEAN-UP

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

# CHAIN OF CUSTODY RECORD

SAMPLER
Printed Name: FRANCES MACOLI
Signature: FRANCES MACOLI
DELIVER TO: HEI/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:
HETI
CATEY FISCHER

HETICAL JOB No.: 7-2857.1

| Relinquished by: (Signature) | Received by: (Signature) | Date | Time |
|---|---|---|---|
| FRANCES MACOLI | | 10/3/96 | 4:30pm |
| | Received by: | 10/3/96 | 5:05p. |
| | Received by: LABORATORY | 10/4/96 | 0845 |

PROJECT NAME: MARINER SQUARE

PAGE 2 OF 2

| Sample Number | DATE & TIME | No. & Type Container | TPH (gas) LUFTEX (DHS mod) | TPH (D) (DHS mod) | Organic Lead | MTBE | MOTOR OIL | VINYL CHLORIDE | PAHs |
|---|---|---|---|---|---|---|---|---|---|
| 7 MW-8 | 10.3.96 10AM | 4 AMBER | | X | | | X | | X |
| 8 MW-9 | 4pm | 6 VOAs | X | | | X | | X | |
| MW-9 | 4pm | 4 AMBER | | X | | | X | | X |

Lab Remarks
NO seals
1°C
110 912 4973
07
08
1 0
0
0
0
1
1
9
3

Special Instructions: SILICA GEL CLEAN-UP

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