PACIFIC
ENVIRONMENTAL
GROUP INC.



January 24, 1994
Project 305-085.01

Mr. Dan Kirk
Shell Oil Company
P.O. Box 5278
Concord, California 94520

Re: Quarterly Report - Fourth Quarter 1993
Shell Service Station
230 West MacArthur Boulevard at Piedmont Avenue
Oakland, California
WIC No 204-5508-0703

Dear Mr. Kirk:

The following presents the results of the fourth quarter 1993 monitoring program and status of interim remediation for the site referenced above (Figure 1). This letter has been prepared for Shell Oil Company by Pacific Environmental Group, Inc. (PACIFIC).

## FINDINGS

Groundwater monitoring wells were gauged and sampled by Blaine Tech Services, Inc. (Blaine) at the direction of PACIFIC on December 13, 1993. Groundwater elevation contours for the sampling date are shown on Figure 2. Table 1 presents groundwater elevation data.

Groundwater analytical data are presented in Table 2. Total petroleum hydrocarbons calculated as gasoline (TPH-g) and benzene concentrations for the December 1993 sampling event are shown on Figure 3. Blaine's groundwater sampling report is presented as Attachment A. The laboratory noted that concentrations reported as TPH-g in Wells MW-2, MW-3, MW-4, and the duplicate sample are primarily due to the presence of a discrete hydrocarbon peak not indicative of gasoline.

If you have any questions regarding the contents of this letter, please call.

Sincerely,

**Pacific Environmental Group, Inc.**

Michael Hurd
Senior Geologist
RG 5319


Attachments: Table 1 - Groundwater Elevation Data
Table 2 - Groundwater Analytical Data - Total Petroleum Hydrocarbons (TPH as Gasoline and BTEX Compounds)
Figure 1 - Site Location Map
Figure 2 - Groundwater Elevation Contour Map
Figure 3 - TPH-g/Benzene Concentration Map
Attachment A - Groundwater Sampling Report

cc: Ms. Lisa McCann, Regional Water Quality Control Board - S.F. Bay Region
Mr. Craig Mayfield, Alameda County Flood Control and Water Conservation District
**Mr. Gil Wistar, Alameda County Health Department**

Table 1
**Groundwater Elevation Data**

Shell Service Station
230 West MacArthur Boulevard at Piedmont Avenue
Oakland, California

| Well Number | Date Gauged | Well Elevation (feet, MSL) | Depth to Water (feet, TOC) | Groundwater Elevation (feet, MSL) |
|---|---|---|---|---|
| MW-1 | 07/14/88 | 73.89 | 13.30 | 60.59 |
| | 10/04/88 | | 13.65 | 60.24 |
| | 11/10/88 | | 13.55 | 60.34 |
| | 12/09/88 | | 13.22 | 60.67 |
| | 01/10/89 | | 12.86 | 61.03 |
| | 01/20/89 | | 12.91 | 60.98 |
| | 02/06/89 | | 12.94 | 60.95 |
| | 03/10/89 | | 12.59 | 61.30 |
| | 06/06/89 | | 14.05 | 59.84 |
| | 09/07/89 | | 14.92 | 58.97 |
| | 12/18/89 | | 14.88 | 59.01 |
| | 03/08/90 | | 14.08 | 59.81 |
| | 06/07/90 | | 13.89 | 60.00 |
| | 09/05/90 | | 14.83 | 59.06 |
| | 12/03/90 | | 15.05 | 58.84 |
| | 03/01/91 | | 14.34 | 59.55 |
| | 06/03/91 | | 14.16 | 59.73 |
| | 09/04/91 | | 14.60 | 59.29 |
| | 03/13/92 | | 13.40 | 60.49 |
| | 06/03/92 | | 13.76 | 60.13 |
| | 08/19/92 | | 14.57 | 59.32 |
| | 11/16/92 | | 14.78 | 59.11 |
| | 02/18/93 | | 12.14 | 61.75 |
| | 06/01/93 | | 13.30 | 60.59 |
| | 08/30/93 | | 14.32 | 59.57 |
| | 12/13/93 | | 14.06 | 59.83 |
| MW-2 | 07/14/88 | 75.24 | 15.18 | 60.06 |
| | 10/04/88 | | 15.30 | 59.94 |
| | 11/10/88 | | 15.17 | 60.07 |
| | 12/09/88 | | 14.82 | 60.42 |
| | 01/20/89 | | 14.54 | 60.70 |
| | 02/06/89 | | 14.59 | 60.65 |
| | 03/10/89 | | 14.88 | 60.36 |
| | 06/06/89 | | 15.30 | 59.94 |
| | 09/07/89 | | 16.76 | 58.48 |
| | 12/18/89 | | 16.65 | 58.59 |
| | 03/08/90 | | 15.92 | 59.32 |
| | 06/07/90 | | 16.10 | 59.14 |
| | 09/05/90 | | 16.61 | 58.63 |
| | 12/03/90 | | 17.06 | 58.18 |
| | 03/01/91 | | 16.62 | 58.62 |

Table 1 (continued)
**Groundwater Elevation Data**

Shell Service Station
230 West MacArthur Boulevard at Piedmont Avenue
Oakland, California

| Well Number | Date Gauged | Well Elevation (feet, MSL) | Depth To Water (feet, TOC) | Groundwater Elevation (feet, MSL) |
|---|---|---|---|---|
| MW-2 (cont.) | 06/03/91 | | 16.65 | 58.59 |
| | 09/04/91 | | 16.57 | 58.67 |
| | 03/13/92 | | 14.66 | 60.58 |
| | 06/03/92 | | 15.90 | 59.34 |
| | 08/19/92 | | 16.72 | 58.52 |
| | 11/16/92 | | 16.66 | 58.58 |
| | 02/18/93 | | 13.88 | 61.36 |
| | 06/01/93 | | 14.74 | 60.50 |
| | 08/30/93 | | 15.85 | 59.39 |
| | 12/13/93 | | 15.83 | 59.41 |
| MW-3 | 07/14/88 | 74.68 | 14.05 | 60.63 |
| | 10/04/88 | | 14.60 | 60.08 |
| | 11/10/88 | | 14.35 | 60.33 |
| | 12/09/88 | | 14.04 | 60.64 |
| | 01/10/89 | | 13.70 | 60.98 |
| | 01/20/89 | | 13.72 | 60.96 |
| | 02/06/89 | | 13.75 | 60.93 |
| | 03/10/89 | | 13.42 | 61.26 |
| | 06/06/89 | | 14.52 | 60.16 |
| | 09/07/89 | | 15.52 | 59.16 |
| | 12/18/89 | | 19.59 | 55.09 |
| | 03/08/90 | | 14.72 | 59.96 |
| | 06/07/90 | | 14.65 | 60.03 |
| | 09/05/90 | | 15.51 | 59.17 |
| | 12/03/90 | | 14.85 | 59.83 |
| | 03/01/91 | | 14.92 | 59.76 |
| | 06/03/91 | | 14.75 | 59.93 |
| | 09/04/91 | | 15.14 | 59.54 |
| | 03/13/92 | | 13.50 | 61.18 |
| | 06/03/92 | | 14.39 | 60.29 |
| | 08/19/92 | | 15.08 | 59.60 |
| | 11/16/92 | | 15.43 | 59.25 |
| | 02/18/93 | | 12.96 | 61.72 |
| | 06/01/93 | | 13.98 | 60.70 |
| | 08/30/93 | | 14.82 | 59.86 |
| | 12/13/93 | | 14.70 | 59.98 |
| MW-4 | 01/23/90 | 73.83 | 14.68 | 59.15 |
| | 03/08/90 | | 14.38 | 59.45 |
| | 06/07/90 | | 14.27 | 59.56 |
| | 09/05/90 | | 15.40 | 58.43 |
| | 12/03/90 | | 15.90 | 57.93 |

Table 1 (continued)
**Groundwater Elevation Data**

Shell Service Station
230 West MacArthur Boulevard at Piedmont Avenue
Oakland, California

| Well Number | Date Gauged | Well Elevation (feet, MSL) | Depth To Water (feet, TOC) | Groundwater Elevation (feet, MSL) |
|---|---|---|---|---|
| MW-4 (cont.) | 06/03/91 | | 14.60 | 59.23 |
| | 09/04/91 | | 15.25 | 58.58 |
| | 03/13/92 | | 12.72 | 61.11 |
| | 06/03/92 | | 14.33 | 59.50 |
| | 08/19/92 | | 15.18 | 58.65 |
| | 11/16/92 | | 15.39 | 58.44 |
| | 02/18/93 | | 12.62 | 61.21 |
| | 06/01/93 | | 13.68 | 60.15 |
| | 08/30/93 | | 14.83 | 59.00 |
| | 12/13/93 | | 14.50 | 59.33 |

MSL = Mean sea level
TOC = Top of casing

Table 2
**Groundwater Analytical Data**
Total Petroleum Hydrocarbons
(TPH as Gasoline and BTEX Compounds)

Shell Service Station
230 West MacArthur Boulevard at Piedmont Avenue
Oakland, California

| Well Number | Date Sampled | TPH as Gasoline (ppb) | Benzene (ppb) | Toluene (ppb) | Ethylbenzene (ppb) | Xylenes (ppb) |
|---|---|---|---|---|---|---|
| MW-1 | 07/14/88 | ND | ND | ND | ND | ND |
| | 10/04/88 | ND | 8 | 4.3 | ND | 9 |
| | 11/10/88 | ND | ND | ND | ND | ND |
| | 12/09/88 | ND | ND | ND | ND | ND |
| | 01/10/89 | ND | ND | ND | ND | NA |
| | 01/20/89 | ND | ND | NA | NA | ND |
| | 02/06/89 | ND | ND | ND | ND | ND |
| | 03/10/89 | ND | ND | ND | ND | ND |
| | 06/06/89 | ND | ND | ND | ND | ND |
| | 09/07/89 | ND | ND | ND | ND | ND |
| | 12/18/89 | ND | ND | ND | ND | ND |
| | 03/08/90 | ND | ND | ND | ND | ND |
| | 06/07/90 | ND | ND | ND | ND | ND |
| | 09/05/90 | ND | ND | ND | ND | ND |
| | 12/03/90 | ND | ND | ND | ND | ND |
| | 03/01/91 | ND | ND | ND | ND | ND |
| | 06/03/91 | ND | ND | ND | ND | ND |
| | 09/04/91 | ND | ND | ND | ND | ND |
| | 03/13/92 | ND | ND | ND | ND | ND |
| | 06/03/92 | ND | ND | ND | ND | ND |
| | 08/19/92 | 87 | ND | ND | ND | ND |
| | 11/16/92 | ND | ND | ND | ND | ND |
| | 02/18/93 | 59* | ND | ND | ND | ND |
| | 06/01/93 | ND | ND | ND | ND | ND |
| | 08/30/93 | ND | ND | ND | ND | ND |
| | 12/13/93 | ND | ND | ND | ND | ND |
| MW-2 | 07/14/88 | ND | 7.9 | 2.6 | 1.1 | 4 |
| | 10/04/88 | 90 | ND | 1.3 | 2.3 | 12 |
| | 11/10/88 | ND | ND | ND | ND | 2 |
| | 12/09/88 | ND | ND | 0.6 | ND | 3 |
| | 01/20/89 | ND | ND | ND | ND | ND |
| | 02/06/89 | NA | ND | ND | ND | ND |
| | 03/10/89 | ND | ND | ND | ND | ND |
| | 06/06/89 | ND | ND | 0.5 | ND | ND |
| | 09/07/89 | ND | ND | ND | ND | ND |
| | 12/18/89 | ND | ND | ND | ND | ND |
| | 03/08/90 | ND | ND | ND | ND | ND |
| | 06/07/90 | ND | ND | ND | ND | ND |
| | 09/05/90 | ND | ND | ND | ND | ND |
| | 12/03/90 | ND | ND | ND | ND | ND |

Table 2 (continued)
**Groundwater Analytical Data**
Total Petroleum Hydrocarbons
(TPH as Gasoline and BTEX Compounds)

Shell Service Station
230 West MacArthur Boulevard at Piedmont Avenue
Oakland, California

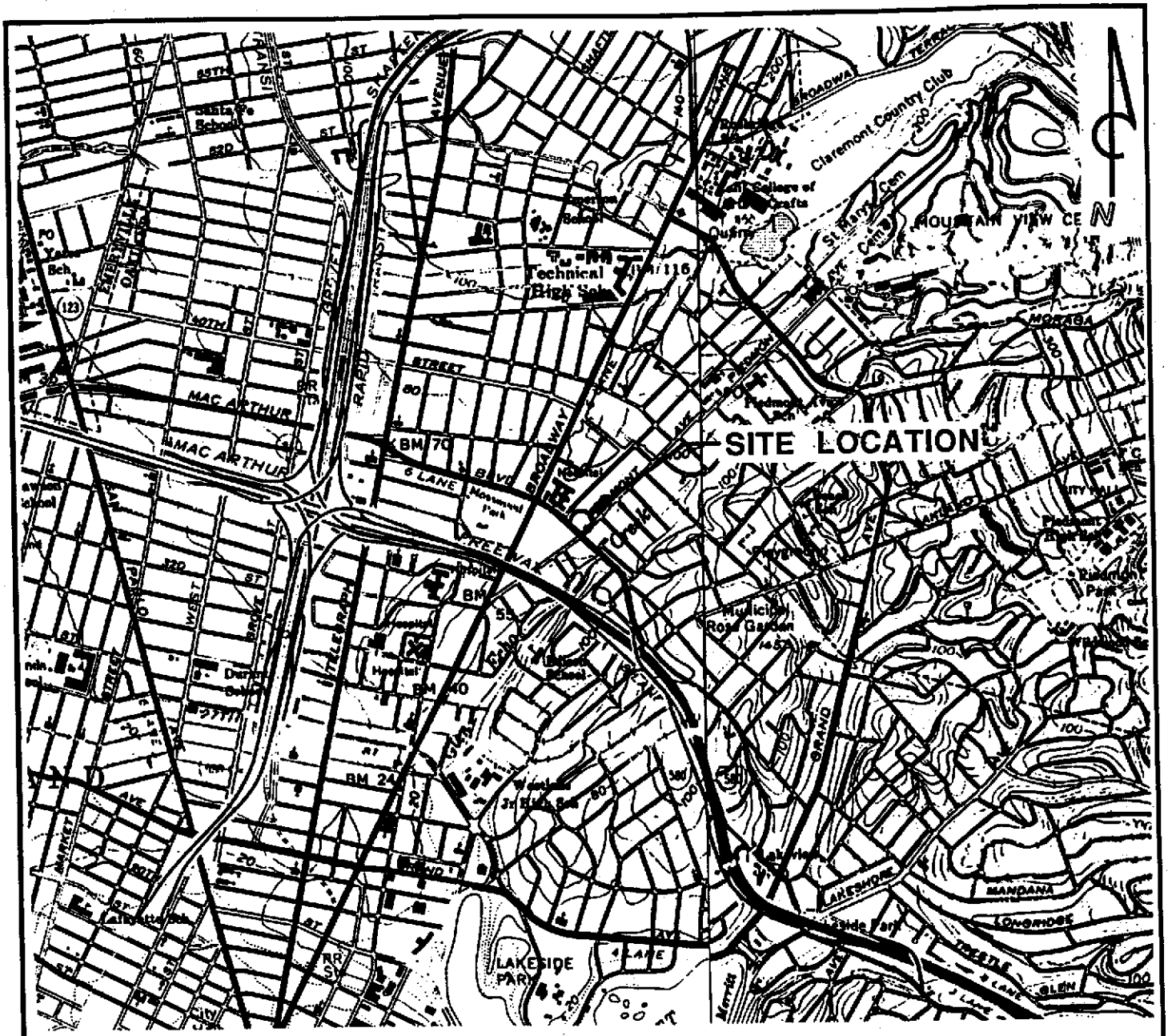
| Well Number | Date Sampled | TPH as Gasoline (ppb) | Benzene (ppb) | Toluene (ppb) | Ethylbenzene (ppb) | Xylenes (ppb) |
|---|---|---|---|---|---|---|
| MW-2 (cont.) | 03/01/91 | ND | ND | ND | ND | ND |
| | 06/03/91 | ND | ND | ND | ND | ND |
| | 09/04/91 | ND | ND | ND | ND | ND |
| | 03/13/92 | ND | ND | ND | ND | ND |
| | 06/03/92 | ND | ND | ND | ND | ND |
| | 08/19/92 | 67 | ND | ND | ND | ND |
| | 11/16/92 | 50 | ND | ND | ND | 1.2 |
| | 02/18/93 | 52* | ND | ND | ND | ND |
| | 02/18/93(D) | 52* | ND | ND | ND | ND |
| | 06/01/93 | ND | ND | ND | ND | ND |
| | 08/30/93 | 70* | ND | ND | ND | ND |
| | 12/13/93 | 68* | ND | ND | ND | ND |
| MW-3 | 07/14/88 | ND | ND | ND | ND | ND |
| | 10/04/88 | ND | ND | ND | ND | 5 |
| | 11/10/88 | ND | ND | ND | ND | ND |
| | 12/09/88 | ND | ND | ND | ND | ND |
| | 01/10/89 | ND | ND | ND | ND | NA |
| | 01/20/89 | NA | NA | ND | ND | ND |
| | 02/06/89 | 70 | ND | ND | ND | ND |
| | 03/10/89 | 150 | ND | ND | ND | ND |
| | 06/06/89 | ND | ND | ND | ND | ND |
| | 09/07/89 | ND | 0.65 | ND | ND | ND |
| | 12/06/89 | 46 | 1.3 | ND | 0.44 | 0.66 |
| | 03/08/90 | ND | ND | ND | ND | ND |
| | 06/07/90 | ND | ND | ND | ND | ND |
| | 09/05/91 | ND | ND | ND | ND | ND |
| | 12/03/90 | ND | ND | ND | ND | ND |
| | 03/01/91 | 1.9 | 59 | ND | 22 | ND |
| | 06/03/91 | ND | ND | ND | ND | ND |
| | 09/04/91 | ND | ND | ND | ND | ND |
| | 03/13/92 | ND | ND | ND | ND | ND |
| | 06/03/92 | ND | ND | ND | ND | ND |
| | 08/19/92 | 92 | ND | ND | ND | ND |
| | 08/19/92(D) | 76 | ND | ND | ND | ND |
| | 11/16/92 | 200* | ND | ND | ND | ND |
| | 11/16/92(D) | 140* | ND | ND | ND | ND |
| | 02/18/93 | 680* | ND | ND | ND | ND |
| | 06/01/93 | 160* | ND | ND | ND | ND |
| | 06/01/93(D) | 150* | ND | ND | ND | ND |

Table 2 (continued)
**Groundwater Analytical Data**
Total Petroleum Hydrocarbons
(TPH as Gasoline and BTEX Compounds)

Shell Service Station
230 West MacArthur Boulevard at Piedmont Avenue
Oakland, California

| Well Number | Date Sampled | TPH as Gasoline (ppb) | Benzene (ppb) | Toluene (ppb) | Ethylbenzene (ppb) | Xylenes (ppb) |
|---|---|---|---|---|---|---|
| MW-3 (cont.) | 08/30/93 | 110* | ND | ND | ND | ND |
| | 12/13/93 | 140* | ND | ND | ND | ND |
| | 12/13/93(D) | 110* | ND | ND | ND | ND |
| MW-4 | 01/23/90 | 1,600 | 100 | 10 | 30 | 20 |
| | 03/08/90 | 4,200 | 260 | 18 | 88 | 39 |
| | 06/07/90 | 2,000 | 150 | 6.9 | 14 | 17 |
| | 09/05/90 | 1,700 | 130 | 10 | 7.2 | 19 |
| | 12/03/90 | 2,600 | 108 | 41 | 17 | 59 |
| | 06/03/91 | 2,800 | 160 | 15 | 8.8 | 32 |
| | 09/04/91 | ---------- Separate-Phase Hydrocarbon Sheen ---------- | | | | |
| | 03/13/92 | 2,700 | 180 | 70 | 5.9 | 29 |
| | 06/03/92 | 1,700 | 190 | ND | 30 | 23 |
| | 08/19/92 | 170 | 4.2 | ND | 0.6 | 1.0 |
| | 11/16/92 | 2,600 | 92 | 49 | 50 | 81 |
| | 02/18/93 | 7,400 | 120 | 38 | 51 | 87 |
| | 06/01/93 | 7,000 | 1,800 | 1,700 | 1,600 | 1,700 |
| | 08/30/93 | 2,100 | 80 | 11 | ND | 11 |
| | 08/30/93(D) | 2,100 | 77 | 5.6 | ND | 5.5 |
| | 12/13/93 | 2,000* | 20 | ND | 21 | 52 |

ppb = Parts per billion
ND = Not detected
NA = Not analyzed
(D) = Duplicate sample
* = The concentration reported as gasoline is primarily due to the presence of a discrete hydrocarbon peak not indicative of gasoline.
See certified analytical reports for detection limits.





QUADRANGLE LOCATION

**REFERENCES:**

USGS 7.5 MIN. TOPOGRAPHIC MAP
TITLED: OAKLAND WEST, CALIFORNIA
DATED: 1959 REVISED: 1980
TITLED: OAKLAND EAST, CALIFORNIA
DATED: 1959 REVISED: 1980

SCALE

2000 0 2000 FEET

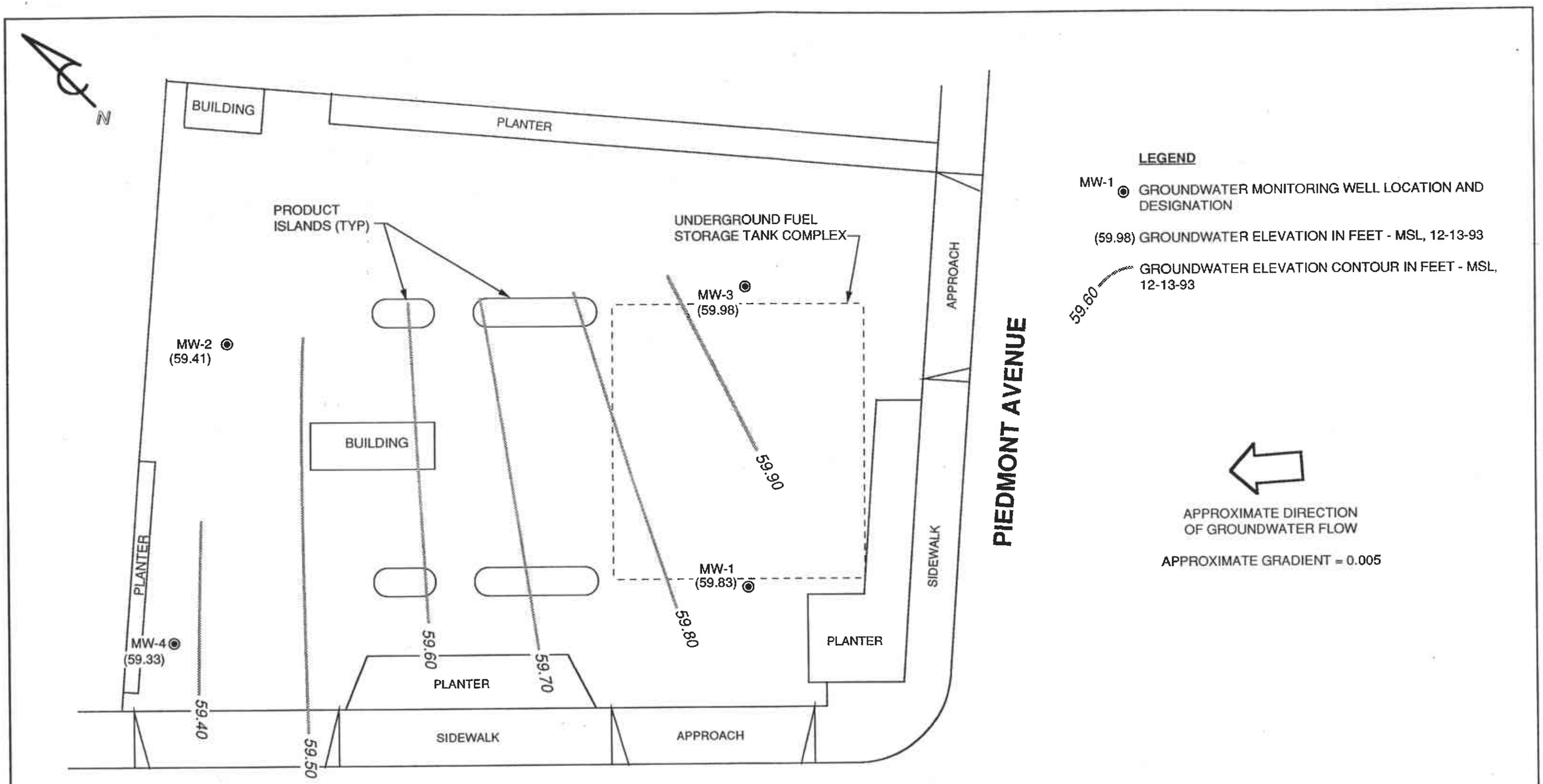
PACIFIC ENVIRONMENTAL GROUP, INC.

**SHELL SERVICE STATION**
230 Mac Arthur Boulevard at Piedmont Avenue
Oakland, California

**SITE LOCATION MAP**

FIGURE: 1

PROJECT: 305-85.01




PACIFIC ENVIRONMENTAL GROUP, INC.

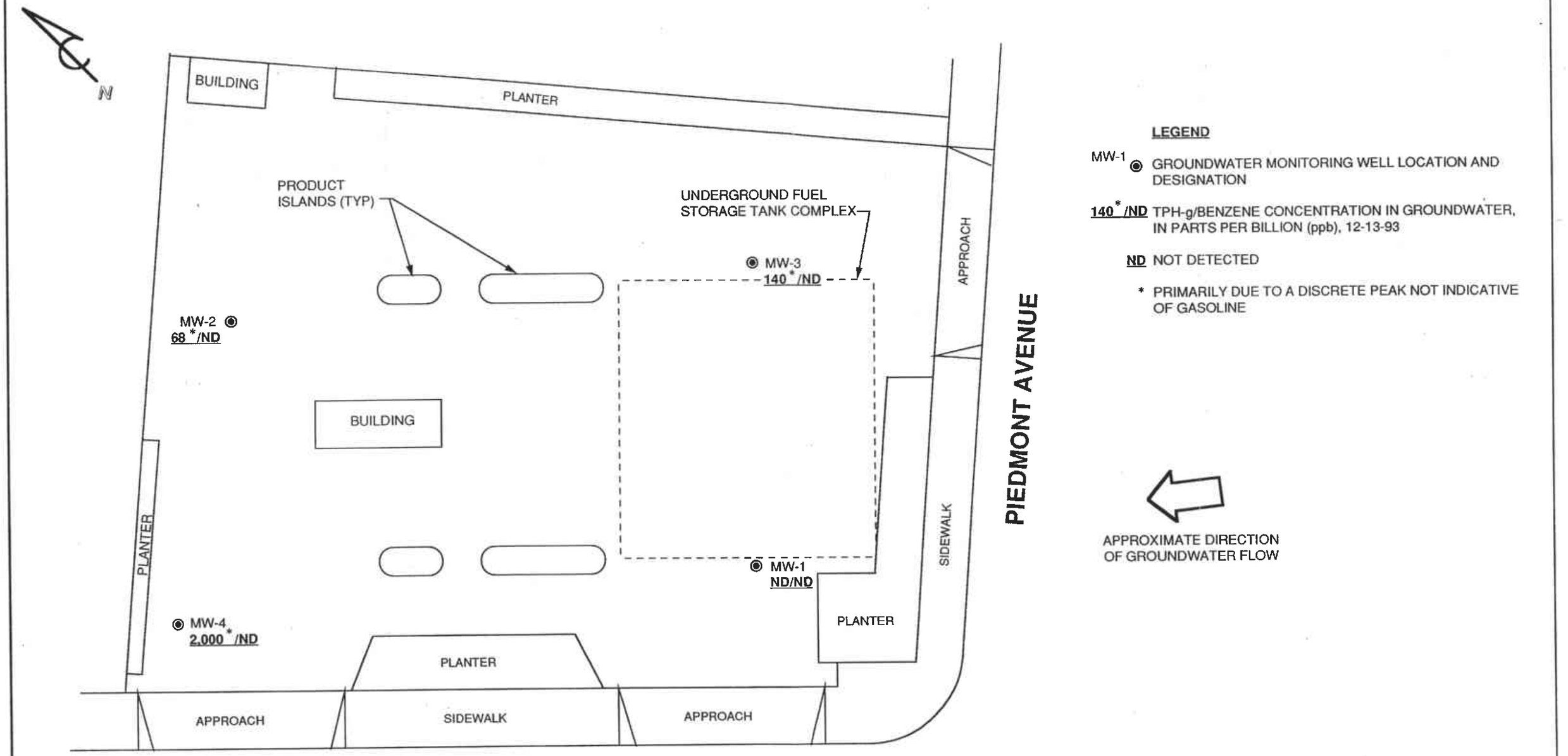
SCALE
0 20 40 FEET

**SHELL SERVICE STATION**
230 West MacArthur Boulevard at Piedmont Avenue
Oakland, California

**GROUNDWATER ELEVATION CONTOUR MAP**

FIGURE: 2
PROJECT: 305-085.01

01/24/94




**LEGEND**

MW-1 ◉ GROUNDWATER MONITORING WELL LOCATION AND DESIGNATION

140 */ND TPH-g/BENZENE CONCENTRATION IN GROUNDWATER, IN PARTS PER BILLION (ppb), 12-13-93

ND NOT DETECTED

* PRIMARILY DUE TO A DISCRETE PEAK NOT INDICATIVE OF GASOLINE

APPROXIMATE DIRECTION OF GROUNDWATER FLOW

PACIFIC ENVIRONMENTAL GROUP, INC.

SCALE
0 20 40 FEET

**SHELL SERVICE STATION**
230 West MacArthur Boulevard at Piedmont Avenue
Oakland, California

**TPH-g/BENZENE CONCENTRATION MAP**

FIGURE: 3
PROJECT: 305-085.01

01/24/94

# ATTACHMENT A

# GROUNDWATER SAMPLING REPORT

BLAINE
TECH SERVICES INC.

985 TIMOTHY DRIVE
SAN JOSE, CA 95133
(408) 995-5535
FAX (408) 293-8773

January 10, 1993

Shell Oil Company
P.O. Box 5278
Concord, CA 94520-9998

Attn: Daniel T. Kirk



SITE:
Shell WIC #204-5508-0703
230 West MacArthur Blvd.
Oakland, California

QUARTER:
4th quarter of 1993

## QUARTERLY GROUNDWATER SAMPLING REPORT 931213-F-2

This report contains data collected during routine inspection, gauging and sampling of groundwater monitoring wells performed by Blaine Tech Services, Inc. in response to the request of the consultant who is overseeing work at this site on behalf of our mutual client, Shell Oil Company. Data collected in the course of our field work is presented in a TABLE OF WELL GAUGING DATA. The field information was collected during our preliminary gauging and inspection of the wells, the subsequent evacuation of each well prior to sampling, and at the time of sampling.

Measurements taken include the total depth of the well and the depth to water. The surface of water was further inspected for the presence of immiscibles which may be present as a thin film (a sheen on the surface of the water) or as a measurable free product zone (FPZ). At intervals during the evacuation phase, the purge water was monitored with instruments that measure electrical conductivity (EC), potential hydrogen (pH), temperature (degrees Fahrenheit), and turbidity (NTU). In the interest of simplicity, fundamental information is tabulated here, while the bulk of the information is turned over directly to the consultant who is making professional interpretations and evaluations of the conditions at the site.

## STANDARD PROCEDURES

### Evacuation

Groundwater wells are thoroughly purged before sampling to insure that the sample is collected from water that has been newly drawn into the well from the surrounding geologic formation. The selection of equipment to evacuate each well is based on the physical characteristics of the well and what is known about the performance of the formation in which the well has been installed. There are several suitable devices which can be used for evacuation. The most commonly employed devices are air or gas actuated pumps, electric submersible pumps, and hand or mechanically actuated bailers. Our personnel frequently employ USGS/Middleburg positive displacement pumps or similar air actuated pumps which do not agitate the water standing in the well.

Normal evacuation removes three case volumes of water from the well. More than three case volumes of water are removed in cases where more evacuation is needed to achieve stabilization of water parameters and when requested by the local implementing agency. Less water may be removed in cases where the well dewaters and does not recharge to 80% of its original volume within two hours and any additional time our personnel have reason to remain at the site. In such cases, our personnel return to the site within twenty four hours and collect sample material from the water which has recharged into the well case.

### Decontamination

All apparatus is brought to the site in clean and serviceable condition. The equipment is decontaminated after each use and before leaving the site. Effluent water from purging and on-site equipment cleaning is collected and transported to Shell's Martinez Manufacturing Complex in Martinez, California.

### Free Product Skimmer

The column headed, VOLUME OF IMMISCIBLES REMOVED (ml) is included in the TABLE OF WELL GAUGING DATA to cover situations where a free product skimming device must be removed from the well prior to gauging. Skimmers are installed in wells with a free product zone on the surface of the water. The skimmer is a free product recovery device which often prevents normal well gauging and free product zone measurements. The 2.0" and 3.0" PetroTraps fall into the category of devices that obstruct normal gauging. In cases where the consultant elects to have our personnel pull the skimmers out of the well and gauge the well, our personnel perform the additional task of draining the accumulated free product out of the PetroTrap before putting it back in the well. This

recovered free product is measured and logged in the VOLUME OF IMMISCIBLES REMOVED column. Gauging at such sites is performed in accordance with specific directions from the professional consulting firm overseeing work at the site on Shell's behalf.

**Sample Containers**

Sample material is collected in specially prepared containers which are provided by the laboratory that performs the analyses.

**Sampling**

Sample material is collected in stainless steel bailer type devices normally fitted with both a top and a bottom check valve. Water is promptly decanted into new sample containers in a manner which reduces the loss of volatile constituents and follows the applicable EPA standard for handling volatile organic and semi-volatile compounds.

Following collection, samples are promptly placed in an ice chest containing prefrozen blocks of an inert ice substitute such as Blue Ice or Super Ice. The samples are maintained in either an ice chest or a refrigerator until delivered into the custody of the laboratory.

**Sample Designations**

All sample containers are identified with a site designation and a discrete sample identification number specific to that particular groundwater well. Additional standard notations (e.g. time, date, sampler) are also made on the label.

**Chain of Custody**

Samples are continuously maintained in an appropriate cooled container while in our custody and until delivered to the laboratory under a standard Shell Oil Company chain of custody. If the samples are taken charge of by a different party (such as another person from our office, a courier, etc.) prior to being delivered to the laboratory, appropriate release and acceptance records are made on the chain of custody (time, date, and signature of the person releasing the samples followed by the time, date and signature of the person accepting custody of the samples).

**Hazardous Materials Testing Laboratory**

The samples obtained at this site were delivered to Anametrix, Inc. in San Jose, California. Anametrix, Inc. is a California Department of Health Services certified Hazardous Materials Testing Laboratory and is listed as DOHS HMTL #1234.

**Objective Information Collection**

Blaine Tech Services, Inc. performs specialized environmental sampling and documentation as an independent third party. In order to avoid compromising the objectivity necessary for the proper and disinterested performance of this work, Blaine Tech Services, Inc. performs no consulting and does not become involved in the marketing or installation of remedial systems of any kind. Blaine Tech Services, Inc. is concerned only with the generation of objective information, not with the use of that information to support evaluations and recommendations concerning the environmental condition of the site. Even the straightforward interpretation of objective analytical data is better performed by interested regulatory agencies, and those engineers and geologists who are engaged in the work of providing professional opinions about the site and proposals to perform additional investigation or design remedial systems.

**Reportage**

Submission of this report and the attached laboratory report to interested regulatory agencies is handled by the consultant in charge of the project. Any professional evaluations or recommendations will be made by the consultant under separate cover.

Please call if we can be of any further assistance.

Richard C. Blaine

RCB/mla

attachments: table of well gauging data
chain of custody
certified analytical report

cc: Pacific Environmental Group, Inc.
2025 Gateway Place, Suite #440
San Jose, CA 95110
ATTN: Rhonda Barrick

# TABLE OF WELL GAUGING DATA

| WELL I.D. | DATA COLLECTION DATE | MEASUREMENT REFERENCED TO | QUALITATIVE OBSERVATIONS (sheen) | DEPTH TO FIRST IMMISCIBLES LIQUID (FPZ) (feet) | THICKNESS OF IMMISCIBLES LIQUID ZONE (feet) | VOLUME OF IMMISCIBLES REMOVED (ml) | DEPTH TO WATER (feet) | DEPTH TO WELL BOTTOM (feet) |
|---|---|---|---|---|---|---|---|---|
| MW-1 | 12/13/93 | TOC | -- | NONE | -- | -- | 14.06 | 29.39 |
| MW-2 | 12/13/93 | TOC | -- | NONE | -- | -- | 15.83 | 27.66 |
| MW-3 * | 12/13/93 | TOC | -- | NONE | -- | -- | 14.70 | 28.10 |
| MW-4 | 12/13/93 | TOC | ODOR | NONE | -- | -- | 14.50 | 23.96 |

* Sample DUP was a duplicate sample taken from welll MW-3.

#513 93121166 (18) 19:40 PD

# SHELL OIL COMPANY
RETAIL ENVIRONMENTAL ENGINEERING - WEST

## CHAIN OF CUSTODY RECORD
Serial No: 931213F2

Date: 12/13/93
Page 1 of 1

Site Address: 230 West MacArthur Blvd., Oakland
WIC#: 204-5508-0703

Shell Engineer: Dan Kirk — Phone No.: (510) 675-6168 Fax #: 675-6160

Consultant Name & Address: Blaine Tech Services, Inc. 985 Timothy Drive San Jose, CA 95133

Consultant Contact: Jim Keller — Phone No.: (408) 995-5535 Fax #: 293-8773

Comments:

Sampled by:

Printed Name: Tom Flory

LAB: Anametrix

CHECK ONE (1) BOX ONLY — C1/D1

- Quarterly Monitoring ☒ $441
- Site Investigation ☐ $441
- Soil Classify/Disposal ☐ $442
- Water Classify/Disposal ☐ $443
- Soil/Air Rem. or Syt. O & M ☐ $462
- Water Rem. or Syt. O & M ☐ $463
- Other ☐

TURN AROUND TIME

- 24 hours ☐
- 48 hours ☐
- 15 days ☒ (Normal)
- Other ☐

NOTE: Notify Lab as soon as Possible of 24/48 hrs. TAT.

| | Sample ID | Time | Date | Sludge | Soil | Water | Air | No. of conts. | TPH (EPA 8015 Mod. Gas) | TPH (EPA 8015 Mod. Diesel) | BTEX (EPA 8020/602) | Volatile Organics (EPA 8240) | Test for Disposal | Combination TPH 8015 & BTEX 8020 | Asbestos | Container Size | Preparation Used | Composite Y/N | MATERIAL DESCRIPTION | SAMPLE CONDITION/ COMMENTS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | MW-1 | 1355 | 12/13/93 | | | X | | 3 | | | | | | X | | 40 mL VOA | HCl | N | | |
| 2 | MW-2 | 1410 | | | | X | | 3 | | | | | | X | | | | | | |
| 3 | MW-3 | 1435 | | | | X | | 3 | | | | | | X | | | | | | |
| 4 | MW-4 | 1510 | | | | X | | 3 | | | | | | X | | | | | | |
| 5 | DUP | — | | | | X | | 3 | | | | | | X | | | | | | |
| 6 | EB | 1400 | | | | X | | 6 | | | | | | X | | | | | | |
| 7 | TB | LAB | | | | X | | 2 | | | | | | X | | | | | | |

| Relinquished By (signature) | Printed Name | Date | Time | Received (signature) | Printed Name | Date | Time |
|---|---|---|---|---|---|---|---|
| | TOM FLORY | 12-14-93 | 0720 | | BENNY S. CARREDSA | 12-14-93 | 0720 |
| | BENNY S. CARREDSA | 12-14-93 | 0940 | | Maria Ramos | 12/14/93 | 09:40 |
| | | Date: | Time: | | | Date: | Time: |

THE LABORATORY MUST PROVIDE A COPY OF THIS CHAIN-OF-CUSTODY WITH INVOICE AND RESULTS

# Inchcape Testing Services
## Anametrix Laboratories

1961 Concourse Drive
Suite E
San Jose, CA 95131
Tel: 408-432-8192
Fax: 408-432-8198


MR. JIM KELLER
BLAINE TECH
985 TIMOTHY DRIVE
SAN JOSE, CA 95133

Workorder # : 9312166
Date Received : 12/14/93
Project ID : 204-5508-0703
Purchase Order: MOH-B813

The following samples were received at Anametrix, Inc. for analysis :

| ANAMETRIX ID | CLIENT SAMPLE ID |
|---|---|
| 9312166- 1 | MW-1 |
| 9312166- 2 | MW-2 |
| 9312166- 3 | MW-3 |
| 9312166- 4 | MW-4 |
| 9312166- 5 | DUP |
| 9312166- 6 | EB |
| 9312166- 7 | TB |

This report consists of 7 pages not including the cover letter, and is organized in sections according to the specific Anametrix laboratory group or section which performed the analysis(es) and generated the data. The Report Summary that precedes each section will help you determine which Anametrix group is responsible for those test results, and will bear the signatures of the department supervisor and the chemist who have reviewed the analytical data. Please refer all questions to the department supervisor who signed the form.

Anametrix is certified by the California Department of Health Services (DHS) to perform environmental testing under Certificate Number 1234. A detailed list of the approved fields of testing can be obtained by calling our office, or the DHS Environmental Laboratory Accreditation Program at (415)540-2800.

If you have any further questions or comments on this report, please give us a call as soon as possible. Thank you for using Anametrix.

Sarah Schoen, Ph.D.
Laboratory Director

12-27-93
Date

REPORT SUMMARY
ANAMETRIX, INC. (408)432-8192

MR. JIM KELLER
BLAINE TECH
985 TIMOTHY DRIVE
SAN JOSE, CA 95133

Workorder # : 9312166
Date Received : 12/14/93
Project ID : 204-5508-0703
Purchase Order: MOH-B813
Department : GC
Sub-Department: TPH

SAMPLE INFORMATION:

| ANAMETRIX SAMPLE ID | CLIENT SAMPLE ID | MATRIX | DATE SAMPLED | METHOD |
|---|---|---|---|---|
| 9312166- 1 | MW-1 | WATER | 12/13/93 | TPHgBTEX |
| 9312166- 2 | MW-2 | WATER | 12/13/93 | TPHgBTEX |
| 9312166- 3 | MW-3 | WATER | 12/13/93 | TPHgBTEX |
| 9312166- 4 | MW-4 | WATER | 12/13/93 | TPHgBTEX |
| 9312166- 5 | DUP | WATER | 12/13/93 | TPHgBTEX |
| 9312166- 6 | EB | WATER | 12/13/93 | TPHgBTEX |
| 9312166- 7 | TB | WATER | 12/13/93 | TPHgBTEX |

REPORT SUMMARY
ANAMETRIX, INC. (408)432-8192

MR. JIM KELLER
BLAINE TECH
985 TIMOTHY DRIVE
SAN JOSE, CA 95133

Workorder # : 9312166
Date Received : 12/14/93
Project ID : 204-5508-0703
Purchase Order: MOH-B813
Department : GC
Sub-Department: TPH

QA/QC SUMMARY :

- The concentrations reported as gasoline for samples MW-3, MW-2, MW-4 and DUP are primarily due to the presence of a discrete peak not indicative of gasoline.

Irma Shor 12/23/93
Department Supervisor Date

Kamal A. Kamel 12/23/93
Chemist Date

# Organic Analysis Data Sheet
## Total Petroleum Hydrocarbons as Gasoline with BTEX
## ITS - Anametrix Laboratories - (408)432-8192

Lab Workorder : 9312166
Matrix : WATER

Client Project ID : 204-5508-0703
Units : ug/L

| Compound Name | Method Reporting Limit* | Client ID<br>MW-1<br>Lab ID<br>9312166-01 | Client ID<br>MW-2<br>Lab ID<br>9312166-02 | Client ID<br>MW-3<br>Lab ID<br>9312166-03 | Client ID<br>MW-4<br>Lab ID<br>9312166-04 | Client ID<br>DUP<br>Lab ID<br>9312166-05 |
|---|---|---|---|---|---|---|
| Benzene | 0.50 | ND | ND | ND | 20 | ND |
| Toluene | 0.50 | ND | ND | ND | ND | ND |
| Ethylbenzene | 0.50 | ND | ND | ND | 21 | ND |
| Total Xylenes | 0.50 | ND | ND | ND | 52 | ND |
| TPH as Gasoline | 50 | ND | 68 | 140 | 2000 | 110 |
| Surrogate Recovery | | 111% | 105% | 113% | 116% | 108% |
| Instrument ID | | HP21 | HP21 | HP21 | HP4 | HP21 |
| Date Sampled | | 12/13/93 | 12/13/93 | 12/13/93 | 12/13/93 | 12/13/93 |
| Date Analyzed | | 12/17/93 | 12/17/93 | 12/17/93 | 12/17/93 | 12/17/93 |
| RLMF | | 1 | 1 | 1 | 10 | 1 |
| Filename Reference | | FPD16601.D | FPD16602.D | FPD16603.D | FRD16604.D | FPD16605.D |

* The Method Reporting Limit must be multiplied by the Reporting Limit Multiplication Factor (RLMF) to achieve the compound's reporting limit in the analysis.

ND : Not detected at or above the reporting limit for the analysis as performed.
TPHg : Determined by GC/FID following sample purge & trap by EPA Method 5030.
BTEX : Determined by modified EPA Method 8020 following sample purge & trap by EPA Method 5030.

Lab Control Limits for surrogate compound p-Bromofluorobenzene are 61-139%.

All testing procedures follow California Department of Health Services (Cal-DHS) approved methods.

Kamel G. Kamel 12/27/93
Analyst Date

Supervisor 12/27/93
Date



Issued on 12/27/93 @ 8:24 AM

# Organic Analysis Data Sheet
## Total Petroleum Hydrocarbons as Gasoline with BTEX
## ITS - Anametrix Laboratories - (408)432-8192

Lab Workorder : 9312166
Matrix : WATER

Client Project ID : 204-5508-0703
Units : ug/L

| Compound Name | Method Reporting Limit* | Client ID | Client ID | Client ID | Client ID | Client ID |
|---|---|---|---|---|---|---|
| | | EB | TB | | | |
| | | Lab ID | Lab ID | Lab ID | Lab ID | Lab ID |
| | | 9312166-06 | 9312166-07 | METHOD BLANK | METHOD BLANK | |
| Benzene | 0.50 | ND | ND | ND | ND | |
| Toluene | 0.50 | ND | ND | ND | ND | |
| Ethylbenzene | 0.50 | ND | ND | ND | ND | |
| Total Xylenes | 0.50 | ND | ND | ND | ND | |
| TPH as Gasoline | 50 | ND | ND | ND | ND | |
| Surrogate Recovery | | 115% | 104% | 117% | 79% | |
| Instrument ID | | HP21 | HP21 | HP21 | HP4 | |
| Date Sampled | | 12/13/93 | 12/13/93 | N/A | N/A | |
| Date Analyzed | | 12/17/93 | 12/17/93 | 12/16/93 | 12/17/93 | |
| RLMF | | 1 | 1 | 1 | 1 | |
| Filename Reference | | FPD16606.D | FPD16607.D | BD1602E1.D | BD1701E1.D | |

* The Method Reporting Limit must be multiplied by the Reporting Limit Multiplication Factor (RLMF) to achieve the compound's reporting limit in the analysis.

ND : Not detected at or above the reporting limit for the analysis as performed.
TPHg : Determined by GC/FID following sample purge & trap by EPA Method 5030.
BTEX : Determined by modified EPA Method 8020 following sample purge & trap by EPA Method 5030.

Lab Control Limits for surrogate compound p-Bromofluorobenzene are 61-139%.

All testing procedures follow California Department of Health Services (Cal-DHS) approved methods.

Kamel G. Kamel 12/23/93
Analyst Date

Corinne Khan 12/23/93
Supervisor Date



Issued on 12/23/93 @ 2:46 PM

# Matrix Spike Report
## Total Petroleum Hydrocarbons as BTEX
## ITS - Anametrix Laboratories - (408)432-8192

Project ID : 204-5508-0703
Sample ID : MW-2
Matrix : WATER
Date Sampled : 12/13/93

Laboratory ID : 9312166-02
Analyst : KK
Supervisor : [signature]
Instrument ID : HP21
Units : ug/L

| COMPOUND NAME | SPIKE AMOUNT | SAMPLE RESULTS | MS RECOVERY | MSD RECOVERY | RECOVERY LIMITS | RPD | RPD LIMITS |
|---|---|---|---|---|---|---|---|
| Benzene | 20 | ND | 125% | 120% | 45-139 | 4% | 30 |
| Toluene | 20 | ND | 130% | 130% | 51-138 | 0% | 30 |
| Ethylbenzene | 20 | ND | 135% | 130% | 48-146 | 4% | 30 |
| Total Xylenes | 20 | ND | 135% | 135% | 50-139 | 0% | 30 |
| Surrogate Recovery | | 105% | 103% | 103% | | | |
| Date Analyzed | | 12/17/93 | 12/17/93 | 12/17/93 | | | |
| Multiplier | | 1 | 1 | 1 | | | |
| Filename Reference | | FPD16602.D | FMD16602.D | FDD16602.D | | | |

* Limits established by Inchcape Testing Services, Anametrix Laboratories.

# Laboratory Control Spike Report
## Total Petroleum Hydrocarbons as BTEX
## ITS - Anametrix Laboratories - (408)432-8192

Instrument ID : HP21
Matrix : LIQUID

Analyst : KK
Supervisor : JS
Units : ug/L

| COMPOUND NAME | SPIKE AMOUNT | LCS RECOVERY | RECOVERY LIMITS |
|---|---|---|---|
| Benzene | 20 | 120% | 52-133 |
| Toluene | 20 | 120% | 57-136 |
| Ethylbenzene | 20 | 125% | 56-139 |
| Total Xylenes | 20 | 130% | 56-141 |
| Surrogate Recovery | | 102% | 61-139 |
| Date Analyzed | | 12/17/93 | |
| Multiplier | | 1 | |
| Filename Reference | | MD1601E1.D | |

* Limits established by Inchcape Testing Services, Anametrix Laboratories.

# Laboratory Control Spike Report
## Total Petroleum Hydrocarbons as BTEX
## ITS - Anametrix Laboratories - (408)432-8192

Instrument ID : HP4
Matrix : LIQUID

Analyst : KK
Supervisor : CP
Units : ug/L

| COMPOUND NAME | SPIKE AMOUNT | LCS RECOVERY | RECOVERY LIMITS |
|---|---|---|---|
| Benzene | 20 | 95% | 52-133 |
| Toluene | 20 | 95% | 57-136 |
| Ethylbenzene | 20 | 100% | 56-139 |
| Total Xylenes | 20 | 100% | 56-141 |
| Surrogate Recovery | | 113% | 61-139 |
| Date Analyzed | | 12/17/93 | |
| Multiplier | | 1 | |
| Filename Reference | | MD1701E1.D | |

* Limits established by Inchcape Testing Services, Anametrix Laboratories.

1.

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City of Oakland

Building

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771-6000