PACIFIC
ENVIRONMENTAL
GROUP INC.

May 8, 1992
Project 305-85.01

STID 3673

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

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

Dear Mr. Kirk:

This letter presents the results of the first quarter 1992 monitoring program prepared for Shell Oil Company (Shell) by Pacific Environmental Group, Inc. (PACIFIC) for the above referenced site (Figures 1 and 2). The scope of work included sampling and analysis of groundwater from four on-site monitoring wells (MW-1 through MW-4), construction of a groundwater elevation map and a gasoline/benzene concentration map, and preparation of this report.

SITE CONDITIONS

The site is currently operational. Three underground fuel storage tanks are located in the southern portion of the site. Figure 2 presents the service station layout, including storage tank locations and pump islands. There are currently four groundwater monitoring wells on site (MW-1 through MW-4).

GROUNDWATER MONITORING

The four on-site monitoring wells were sampled on March 13, 1992 by Emcon Associates (Emcon) at the direction of PACIFIC. Depth to groundwater in the four on-site wells ranged between 12.72 and 14.66 feet. Historically, the groundwater flow direction has been towards the west or northwest. This quarter the groundwater level data shows a groundwater trough trending north-south. The gradient in the eastern portion of the site is 0.012. Table 1 presents groundwater elevation data. Figure 2 presents groundwater contours for March 1992.

Groundwater samples from each well were analyzed for low-boiling hydrocarbons (calculated as gasoline) and for benzene, toluene, ethylbenzene and xylene isomers (BTEX compounds).

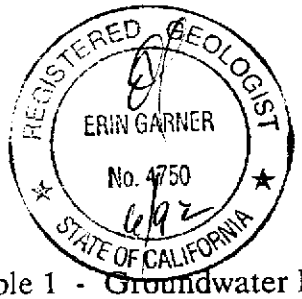
Gasoline and benzene was detected only in Well MW-4 at concentrations of 2,700 parts per billion (ppb) and 180 ppb, respectively. The hydrocarbon sheen noted during the previous quarterly event was not present during the current event. Figure 3 presents a gasoline/benzene concentration map and Table 2 presents groundwater analytical data. Emcon's groundwater sampling report is presented in Attachment A. The next quarterly sampling event is scheduled for June 1992.

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

Sincerely,

Pacific Environmental Group, Inc.

Michael Hurd
Project Geologist



Erin Garner
Senior Geologist
RG 4750

Attachments: Table 1 - Groundwater Elevation Data
Table 2 - Groundwater Analytical Data - Low-Boiling Hydrocarbons
Figure 1 - Site Location Map
Figure 2 - Groundwater Contour Map
Figure 3 - Gasoline/Benzene Concentration Map
Attachment A - Groundwater Sampling Report

cc: Ms. Lisa McCann, California Regional Water Quality Control Board Bay Area 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 Sampled	Well Elevation (feet, MSL)	Depth to Water (feet)	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
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
	06/03/91		16.65	58.59
	09/04/91		16.57	58.67
	03/13/92		14.66	60.58

Table 1 (continued)
Groundwater Elevation Data

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

Well Number	Date Sampled	Well Elevation (feet, MSL)	Depth To Water (feet)	Groundwater Elevation (feet, MSL)
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
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
	06/03/91		14.60	59.23
	09/04/91		15.25	58.58
	03/13/92		12.72	61.11

MSL = Mean sea level, measurements taken from top of casing.

Table 2
Groundwater Analytical Data
Low-Boiling Hydrocarbons

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

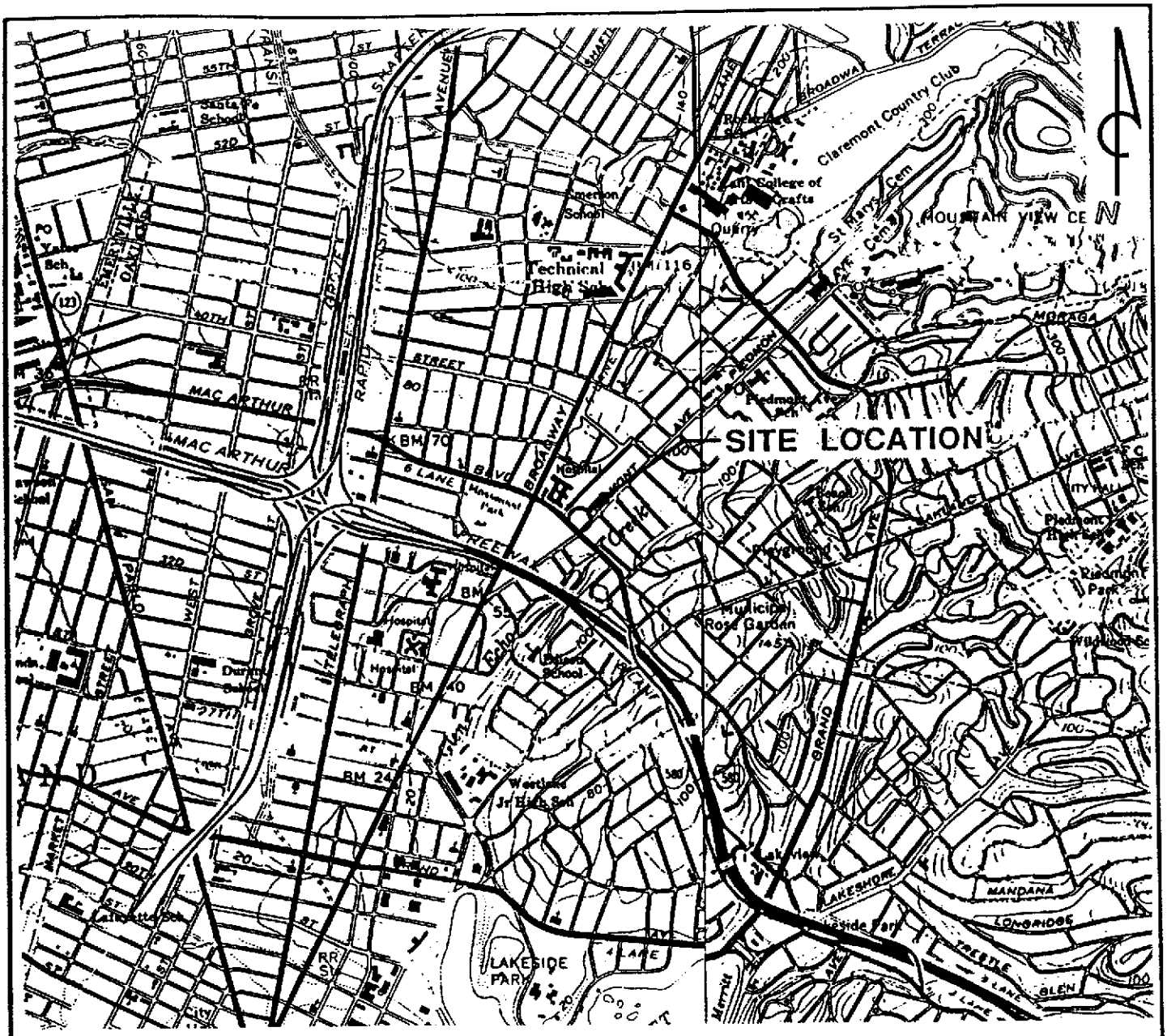
Well Number	Date Sampled	Gasoline (ppb)	Benzene (ppb)	Toluene (ppb)	Ethylbenzene (ppb)	Xylenes (ppb)
MW-1	07/14/88	ND	ND	ND	ND	ND
	10/04/88	ND	8	4.3	ND	9
	11/10/88	ND	ND	ND	ND	ND
	12/09/88	ND	ND	ND	ND	ND
	01/10/89	ND	ND	ND	ND	NA
	01/20/89	ND	ND	NA	NA	ND
	02/06/89	ND	ND	ND	ND	ND
	03/10/89	ND	ND	ND	ND	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
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
	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

Table 2 (continued)
Groundwater Analytical Data
Low-Boiling Hydrocarbons

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

Well Number	Date Sampled	Gasoline (ppb)	Benzene (ppb)	Toluene (ppb)	Ethylbenzene (ppb)	Xylenes (ppb)
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
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	NS	NS	NS	NS	NS
	03/13/92	2,700	180	70	5.9	29

ppb = Parts per billion
ND = Not detected
NA = Not analyzed
NS = Not sampled, hydrocarbon sheen observed
See certified analytical results 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

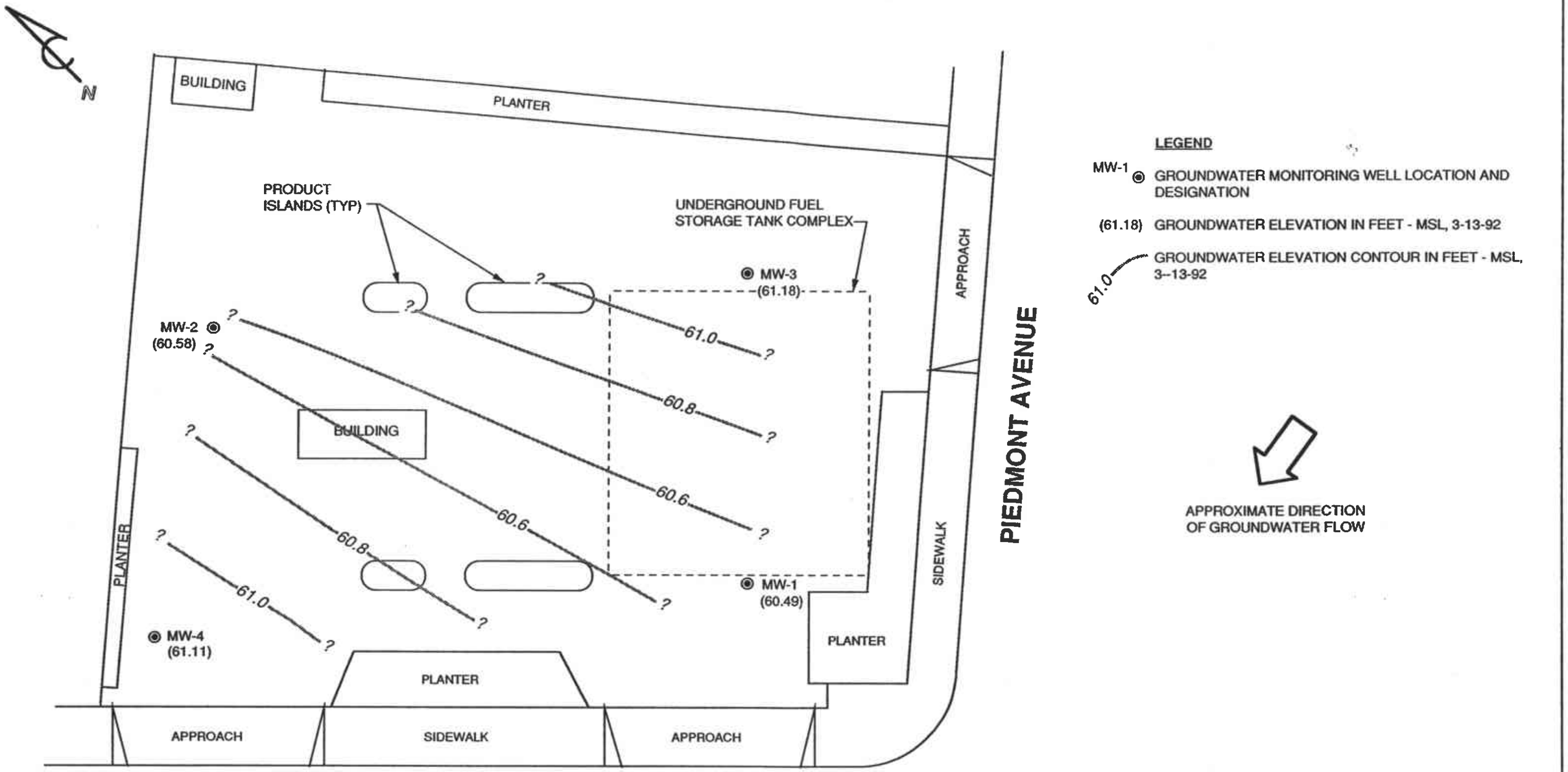
PACIFIC ENVIRONMENTAL GROUP INC.

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.

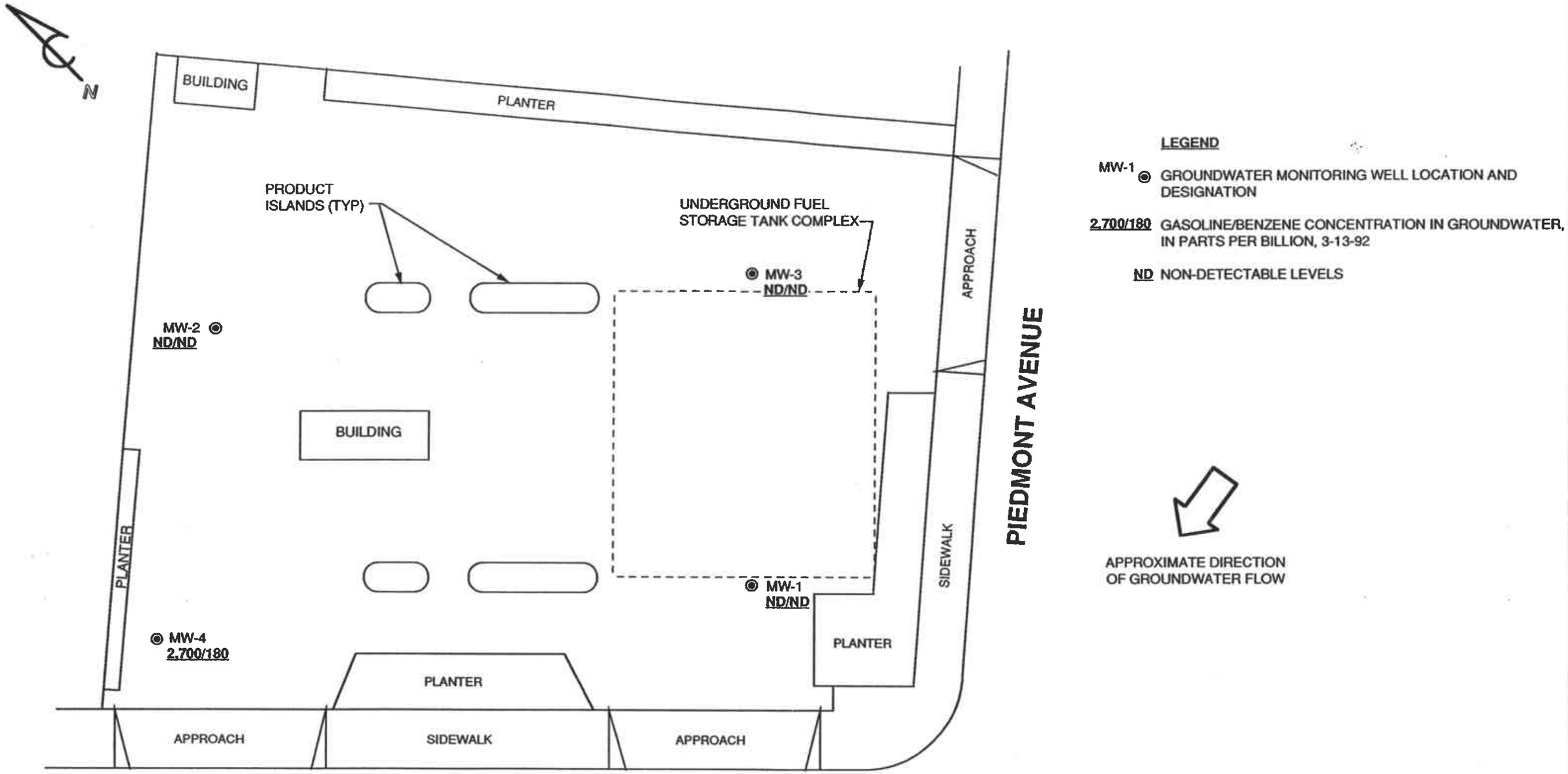
SCALE
0 20 40 FEET

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

GROUNDWATER CONTOUR MAP

FIGURE:
2
PROJECT:
305-85.01

05/08/92



PACIFIC ENVIRONMENTAL GROUP, INC.

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

GASOLINE/BENZENE CONCENTRATION MAP

FIGURE: 3
PROJECT: 305-85.01

05/08/92

ATTACHMENT A

GROUNDWATER SAMPLING REPORT

EMCON
ASSOCIATES
Consultants in Wastes
Management and
Environmental Control

March 27, 1992
Project: G67-67.01
WIC#: 204-5508-0703

Mr. Gerald O'Regan
Pacific Environmental Group, Inc.
1601 Civic Center Drive, Suite 202
Santa Clara, California 95050

Re: First quarter 1992 ground-water monitoring report, Shell Oil Company, 230 West MacArthur Boulevard, Oakland, California

Dear Mr. O'Regan:

This letter presents the results of the first quarter 1992 ground-water monitoring event for the Shell Oil Company (Shell) service station located at 230 West MacArthur Boulevard, Oakland, California. First quarter monitoring was conducted on March 13, 1992. The site is monitored quarterly.

GROUND-WATER LEVEL SURVEY

A water-level survey preceded the purging and sampling of the monitoring wells. The wells included in the survey are identified in figure 1 (supplied by Pacific Environmental Group, Inc.). During the survey, wells MW-1 through MW-4 were measured for depth to water, floating product thickness, and total depth. Depth to water and floating product thickness were measured to the nearest 0.01 foot with an oil/water interface probe. No floating product was observed in any wells. Total depth was measured to the nearest 0.1 foot. Results of the first quarter water-level survey, and available data from four previous surveys, are summarized in table 1.

SAMPLING AND ANALYSIS

Ground water samples were collected from wells MW-1 through MW-4 on March 13, 1992. Prior to sample collection, the wells were purged with a polyvinyl chloride (PVC) bailer. During the purging operation, ground water was monitored for pH, electrical conductivity, and temperature as a function of volume of water removed. Purging continued until these parameters were stable and a minimum of three casing volumes of ground water were removed. Wells MW-3 and MW-4 were evacuated to dryness before three casing volumes were removed. The wells were allowed to recharge for up to 24 hours. Samples were collected after the wells had recharged to a level sufficient for sample collection. Field measurements

1938 Junction Avenue, San Jose, California 95131-2102, (408) 453-0719, Fax (408) 453-0452

from first quarter monitoring, and available measurements from four previous monitoring events, are summarized in table 1. Purge water from the monitoring wells was contained in 55-gallon drums. The drums were identified with Shell-approved labels and secured for on-site storage.

Ground water samples were collected with a Teflon® bailer, labeled, placed on ice, and transported to a Shell-approved and state-certified analytical laboratory for analysis. Shell chain-of-custody documents accompanied all samples to the laboratory.

All equipment that was placed down a well or that came in contact with ground water was steam cleaned on site with steaming hot deionized water prior to use at each well.

Quality control (QC) samples for first quarter monitoring included a trip blank (TB). All water samples from first quarter monitoring were analyzed for total petroleum hydrocarbons (TPH) as gasoline, and benzene, toluene, ethylbenzene, and total xylenes (BTEX).

ANALYTICAL RESULTS

Analytical results from the first quarter 1992 monitoring event, and available results from four previous monitoring events, are summarized in table 2. The original certified analytical report and a copy of the final chain-of-custody document are attached.

If you have any questions, please call.

Very truly yours,

EMCON Associates

David Larsen
Environmental Sampling Coordinator

Orrin Childs
Environmental Sampling Supervisor

DL/OC:dl

Attachments: Table 1 - Monitoring well field measurement data
Table 2 - Summary of analytical results
Figure 1 - Site map
Certified analytical report
Chain-of-custody document

Table 1
Monitoring Well Field Measurement Data
First Quarter 1992

Shell Station: 230 West Mc Arthur Boulevard
Oakland, California
WIC #: 204-5508-0703

Date: 03/27/92
Project Number: G67-67.01

Well Designation	Water Level Field Date	TOC Elevation (ft-MSL)	Depth to Water (feet)	Groundwater Elevation (ft-MSL)	Total Well Depth (feet)	Floating Product Thickness (feet)	Water Sample Field Date	pH (std. units)	Electrical Conductivity (micromhos/cm)	Temperature (degrees F)	Turbidity (NTU)
MW-1	12/03/90	73.89	15.05	58.84	NR	NR	12/03/90	NR	NR	NR	NR
MW-1	03/01/91	73.89	14.34	59.55	NR	NR	03/01/91	NR	NR	NR	NR
MW-1	06/03/91	73.89	14.16	59.73	NR	NR	06/03/91	NR	NR	NR	NR
MW-1	09/04/91	73.89	14.60	59.29	NR	NR	09/04/91	NR	NR	NR	NR
MW-1	03/13/92	73.89	13.40	60.49	23.8	ND	03/13/92	6.55	522	64.3	>200
MW-2	12/03/90	75.24	17.06	58.18	NR	NR	12/03/90	NR	NR	NR	NR
MW-2	03/01/91	75.24	16.62	58.62	NR	NR	03/01/91	NR	NR	NR	NR
MW-2	06/03/91	75.24	16.65	58.59	NR	NR	06/03/91	NR	NR	NR	NR
MW-2	09/04/91	75.24	16.57	58.67	NR	NR	09/04/91	NR	NR	NR	NR
MW-2	03/13/92	75.24	14.66	60.58	27.6	ND	03/13/92	6.35	548	64.4	>200
MW-3	12/03/90	74.68	14.85	59.83	NR	NR	12/03/90	NR	NR	NR	NR
MW-3	03/01/91	74.68	14.92	59.76	NR	NR	03/01/91	NR	NR	NR	NR
MW-3	06/03/91	74.68	14.75	59.93	NR	NR	06/03/91	NR	NR	NR	NR
MW-3	09/04/91	74.68	15.14	59.54	NR	NR	09/04/91	NR	NR	NR	NR
MW-3	03/13/92	74.68	13.50	61.18	28.0	ND	03/13/92	6.54	557	67.6	>200
MW-4	12/03/90	73.83	15.90	57.93	NR	NR	12/03/90	NR	NR	NR	NR
MW-4	03/01/91	73.83	NR	NR	NR	NR	03/01/91	NR	NR	NR	NR
MW-4	06/03/91	73.83	14.60	59.23	NR	NR	06/03/91	NR	NR	NR	NR
MW-4	09/04/91	73.83	15.25	58.58	NR	NR	09/04/91	NR	NR	NR	NR
MW-4	03/13/92	73.83	12.72	61.11	29.3	ND	03/13/92	6.68	743	66.7	>200

TOC = top of casing
ft-MSL = elevation in feet, relative to mean sea level
std. units = standard pH units
micromhos/cm = micromhos per centimeter
degrees F = degrees Fahrenheit
NTU = nephelometric turbidity units
NR = not reported; data not available
ND = none detected

Table 2
Summary of Analytical Results
First Quarter 1992
milligrams per liter (mg/l) or parts per million (ppm)

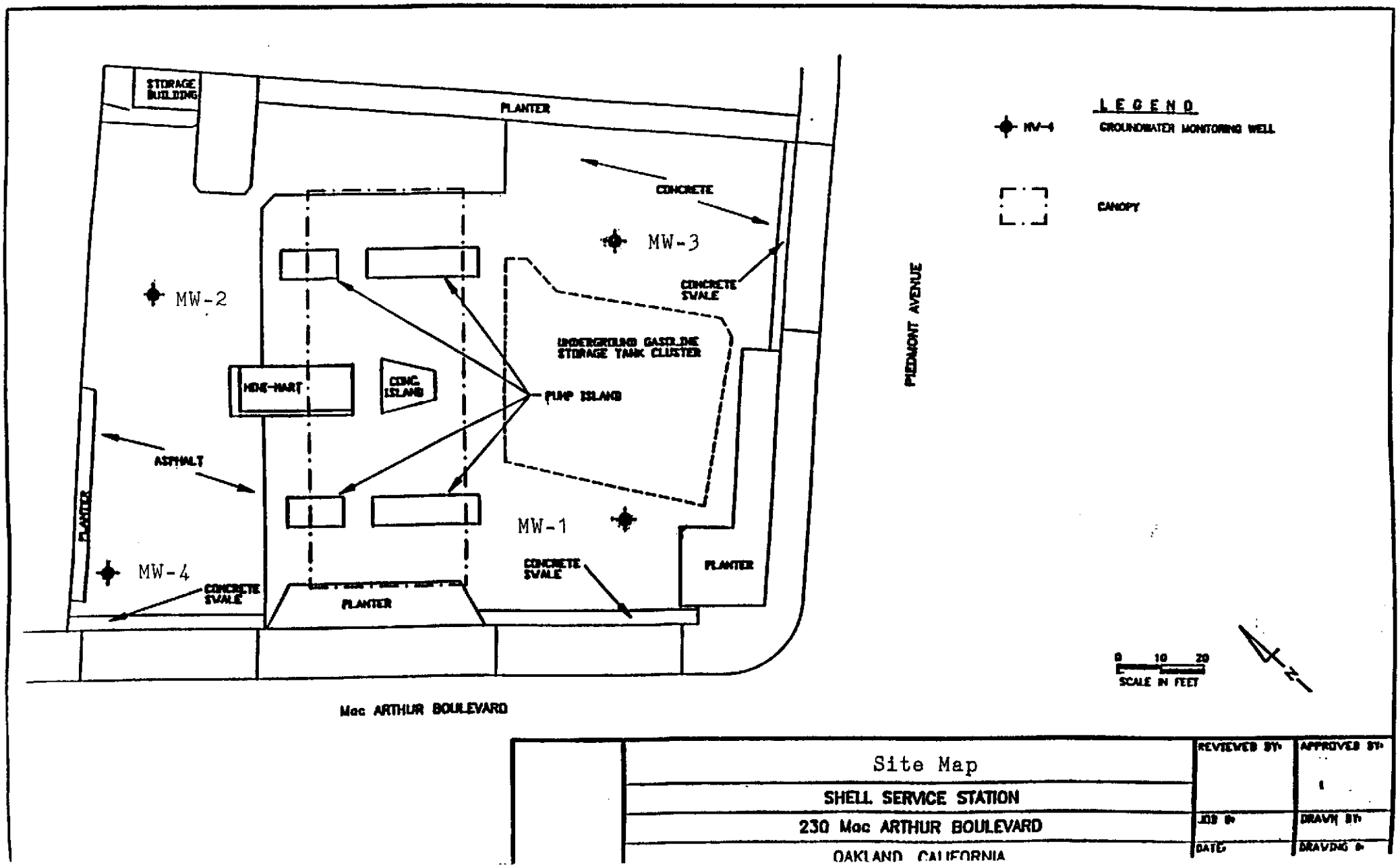
Shell Station: 230 West Mc Arthur Boulevard
Oakland, California
WIC #: 204-5508-0703

Date: 03/27/92
Project Number: G67-67.01

Sample Designation	Water Sample Field Date	TPH-g (mg/l)	Benzene (mg/l)	Toluene (mg/l)	Ethyl-benzene (mg/l)	Total Xylenes (mg/l)
MW-1	12/03/90	ND	ND	ND	ND	ND
MW-1	03/01/91	ND	ND	ND	ND	ND
MW-1	06/03/91	<0.05	<0.0005	<0.0005	<0.0005	<0.0005
MW-1	09/04/91	<0.05	<0.0005	<0.0005	<0.0005	<0.0005
MW-1	03/13/92	<0.05	<0.0005	<0.0005	<0.0005	<0.0005
MW-2	12/03/90	ND	ND	ND	ND	ND
MW-2	03/01/91	ND	ND	ND	ND	ND
MW-2	06/03/91	<0.05	<0.0005	<0.0005	<0.0005	<0.0005
MW-2	09/04/91	<0.05	<0.0005	<0.0005	<0.0005	<0.0005
MW-2	03/13/92	<0.05	<0.0005	<0.0005	<0.0005	<0.0005
MW-3	12/03/90	ND	ND	ND	ND	ND
MW-3	03/01/91	1.9	0.059	ND	0.022	ND
MW-3	06/03/91	<0.05	<0.0005	<0.0005	<0.0005	<0.0005
MW-3	09/04/91	<0.05	<0.0005	<0.0005	<0.0005	<0.0005
MW-3	03/13/92	<0.05	<0.0005	<0.0005	<0.0005	<0.0005
MW-4	12/03/90	2.6	0.1	0.041	0.017	0.059
MW-4	03/01/91	NR	NR	NR	NR	NR
MW-4	06/03/91	2.8	0.16	0.015	0.088	0.032
MW-4	09/04/91	NA	NA	NA	NA	NA
MW-4	03/13/92	2.7	0.180	0.0059	0.070	0.029
TB	03/13/92	<0.05	<0.0005	<0.0005	<0.0005	<0.0005

TPH-g = total petroleum hydrocarbons as gasoline
ND = none detected
NR = not reported; data not available
NA = not analyzed

Figure 1
(Supplied by Pacific Environmental Group)



NATIONAL ENVIRONMENTAL TESTING, INC.

NET Pacific, Inc.
435 Tesconi Circle
Santa Rosa, CA 95401
Tel: (707) 526-7200
Fax: (707) 526-9623

David Larsen
EMCON Assoc.
1938 Junction Ave.
San Jose, CA 95131

Date: 03/25/1992
NET Client Acct. No: 1822
NET Pacific Log No: 92.1374
Received: 03/17/1992

Client Reference Information

SHELL 230 West MacArthur Blvd, Oakland

Sample analysis in support of the project referenced above has been completed and results are presented on following pages. Please refer to the enclosed "Key to Abbreviations" for definition of terms. Should you have questions regarding procedures or results, please feel welcome to contact Client Services.

Approved by:

Jules Skamarack
Laboratory Manager

Enclosure(s)

Ref: SHELL 230 West MacArthur Blvd, Oakland

SAMPLE DESCRIPTION: MW-1
Date Taken: 03/13/1992
Time Taken:
LAB Job No: (-116583)

Parameter	Method	Reporting Limit	Results	Units
TPH (Gas/BTXE,Liquid)				
METHOD 5030 (GC,FID)			--	
DATE ANALYZED			03-19-92	
DILUTION FACTOR*			1	
as Gasoline	5030	0.05	ND	mg/L
METHOD 8020 (GC,Liquid)			--	
DATE ANALYZED			03-19-92	
DILUTION FACTOR*			1	
Benzene	8020	0.0005	ND	mg/L
Ethylbenzene	8020	0.0005	ND	mg/L
Toluene	8020	0.0005	ND	mg/L
Xylenes (Total)	8020	0.0005	ND	mg/L
SURROGATE RESULTS			--	
Bromofluorobenzene	5030		94	% Rec.

Ref: SHELL 230 West MacArthur Blvd, Oakland

SAMPLE DESCRIPTION: MW-2
Date Taken: 03/13/1992
Time Taken:
LAB Job No: (-116584)

Parameter	Method	Reporting Limit	Results	Units
TPH (Gas/BTXE,Liquid)				
METHOD 5030 (GC,FID)			--	
DATE ANALYZED			03-19-92	
DILUTION FACTOR*			1	
as Gasoline	5030	0.05	ND	mg/L
METHOD 8020 (GC,Liquid)			--	
DATE ANALYZED			03-19-92	
DILUTION FACTOR*			1	
Benzene	8020	0.0005	ND	mg/L
Ethylbenzene	8020	0.0005	ND	mg/L
Toluene	8020	0.0005	ND	mg/L
Xylenes (Total)	8020	0.0005	ND	mg/L
SURROGATE RESULTS			--	
Bromofluorobenzene	5030		94	% Rec.

Ref: SHELL 230 West MacArthur Blvd, Oakland

SAMPLE DESCRIPTION: MW-3
Date Taken: 03/13/1992
Time Taken:
LAB Job No: (-116585)

Parameter	Method	Reporting Limit	Results	Units
TPH (Gas/BTXE,Liquid)				
METHOD 5030 (GC,FID)			--	
DATE ANALYZED			03-19-92	
DILUTION FACTOR*			1	
as Gasoline	5030	0.05	ND	mg/L
METHOD 8020 (GC,Liquid)			--	
DATE ANALYZED			03-19-92	
DILUTION FACTOR*			1	
Benzene	8020	0.0005	ND	mg/L
Ethylbenzene	8020	0.0005	ND	mg/L
Toluene	8020	0.0005	ND	mg/L
Xylenes (Total)	8020	0.0005	ND	mg/L
SURROGATE RESULTS			--	
Bromofluorobenzene	5030		101	% Rec.

Ref: SHELL 230 West MacArthur Blvd, Oakland

SAMPLE DESCRIPTION: MW-4
Date Taken: 03/13/1992
Time Taken:
LAB Job No: (-116586)

Parameter	Method	Reporting Limit	Results	Units
TPH (Gas/BTXE,Liquid)				
METHOD 5030 (GC,FID)			--	
DATE ANALYZED			03-19-92	
DILUTION FACTOR*			10	
as Gasoline	5030	0.05	2.7	mg/L
METHOD 8020 (GC,Liquid)			--	
DATE ANALYZED			03-19-92	
DILUTION FACTOR*			10	
Benzene	8020	0.0005	0.18	mg/L
Ethylbenzene	8020	0.0005	0.070	mg/L
Toluene	8020	0.0005	0.0059	mg/L
Xylenes (Total)	8020	0.0005	0.029	mg/L
SURROGATE RESULTS			--	
Bromofluorobenzene	5030		112	% Rec.

Ref: SHELL 230 West MacArthur Blvd, Oakland

SAMPLE DESCRIPTION: TB-1
Date Taken: 03/13/1992
Time Taken:
LAB Job No: (-116587)

Parameter	Method	Reporting Limit	Results	Units
TPH (Gas/BTXE,Liquid)			--	
METHOD 5030 (GC,FID)			03-19-92	
DATE ANALYZED			1	
DILUTION FACTOR*				
as Gasoline	5030	0.05	ND	mg/L
METHOD 8020 (GC,Liquid)			--	
DATE ANALYZED			03-19-92	
DILUTION FACTOR*			1	
Benzene	8020	0.0005	ND	mg/L
Ethylbenzene	8020	0.0005	ND	mg/L
Toluene	8020	0.0005	ND	mg/L
Xylenes (Total)	8020	0.0005	ND	mg/L
SURROGATE RESULTS			--	
Bromofluorobenzene	5030		103	% Rec.

Ref: SHELL 230 West MacArthur Blvd, Oakland

QUALITY CONTROL DATA

Parameter	Reporting Limits	Units	Cal Verf Stand % Recovery	Blank Data	Spike % Recovery	Duplicate Spike % Recovery	RPD
Gasoline	0.05	mg/L	93	ND	96	101	5.1
Benzene	0.0005	mg/L	94	ND	101	105	4.3
Toluene	0.0005	mg/L	90	ND	103	105	2.0

COMMENT: Blank Results were ND on other analytes tested.

NET Pacific, Inc

KEY TO ABBREVIATIONS and METHOD REFERENCES

<	:	Less than; When appearing in results column indicates analyte not detected at the value following. This datum supercedes the listed Reporting Limit.
*	:	Reporting Limits are a function of the dilution factor for any given sample. To obtain the actual reporting limits for this sample, multiply the stated Reporting Limits by the dilution factor (but do not multiply reported values).
ICVS	:	Initial Calibration Verification Standard (External Standard).
mean	:	Average; sum of measurements divided by number of measurements.
mg/Kg (ppm)	:	Concentration in units of milligrams of analyte per kilogram of sample, wet-weight basis (parts per million).
mg/L	:	Concentration in units of milligrams of analyte per liter of sample.
mL/L/hr	:	Milliliters per liter per hour.
MPN/100 mL	:	Most probable number of bacteria per one hundred milliliters of sample.
N/A	:	Not applicable.
NA	:	Not analyzed.
ND	:	Not detected; the analyte concentration is less than applicable listed reporting limit.
NTU	:	Nephelometric turbidity units.
RPD	:	Relative percent difference, 100 [Value 1 - Value 2]/mean value.
SNA	:	Standard not available.
ug/Kg (ppb)	:	Concentration in units of micrograms of analyte per kilogram of sample, wet-weight basis (parts per billion).
ug/L	:	Concentration in units of micrograms of analyte per liter of sample.
umhos/cm	:	Micromhos per centimeter.

Method References

Methods 100 through 493: see "Methods for Chemical Analysis of Water & Wastes", U.S. EPA, 600/4-79-020, rev. 1983.

Methods 601 through 625: see "Guidelines Establishing Test Procedures for the Analysis of Pollutants" U.S. EPA, 40 CFR, Part 136, rev. 1988.

Methods 1000 through 9999: see "Test Methods for Evaluating Solid Waste", U.S. EPA SW-846, 3rd edition, 1986.

SM: see "Standard Methods for the Examination of Water & Wastewater, 17th Edition, APHA, 1989.

SHELL OIL COMPANY
RETAIL ENVIRONMENTAL ENGINEERING - WEST

CHAIN OF CUSTODY RECORD
Serial No.: 4537

Date: 3/13/92
Page 1 of 1

Site Address: 230 West MacArthur Boulevard, Oakland, CA

WIC#: 204-5508-0703

Shell Engineer: Kurt Miller
Phone No. (510)
Fax #: 685-3853

Consultant Name & Address: EMCON Assoc. 1938 Junction Ave. San Jose, CA 95131

Consultant Contact: David Larsen
Phone No. (408)
Fax #: 453-2269

Comments: 3 - 40 ml VOA HCL for TPH-gasoline/BTXE

Sampled By: S Horton / Jim Butera
Printed Name: Steve Horton

LAB: NET Pacific

Analysis Required

CHECK ONE (1) BOX ONLY		CT/DT
Quarterly Monitoring	XXX	5461
Site Investigation	[ ]	5441
Soil for disposal	[ ]	5442
Water for disposal	[ ]	5443
Air Sample - Sys O&M	[ ]	5452
Water Sample - Sys O&M	[ ]	5453
Other	[ ]	

TURN AROUND TIME
- 24 hours [ ]
- 48 hours [ ]
- 15 days XXX (Normal)
- Other [ ] ____

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

Sample ID	Date	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	[illegible]	[illegible]	Container Size	Preparation Used	Composite Y/N	MATERIAL DESCRIPTION	SAMPLE CONDITION/ COMMENTS
MW-1	3/13/92		X		3	X		X					40 ml	HCl	No		
MW-2	3/13/92		X		3	X		X					↓	↓	↓		
MW-3	3/13/92		X		3	X		X					↓	↓	↓		
MW-4	3/13/92		X		3	X		X					↓	↓	↓		
TB-1	3/13/92		X		[illegible] 3	X		X					↓	↓	↓		

Relinquished By (signature):	Printed name:	Date / Time	Received (signature):	Printed name:	Date / Time
[signature]	Steve Horton	Date: 3/13/92 Time: 17:15	[signature]	D Larsen	Date: 3-13-92 Time: 17:15
[signature]	D Larsen	Date: 3-16-92 Time: 13:25	[signature]	M. TAVANI	Date: 3/16/92 Time: 13:25
[signature]	M. TAVANI	Date: 3/16/92 Time: 1900	[signature]	Kelly Temple	Date: 3/17/92 Time: 0800

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

Last Revision Date: 10/15/91