



PACIFIC
ENVIRONMENTAL
GROUP, INC.

90,000-7 00 0 08

January 5, 1993
Project 305-85.01

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 fourth quarter 1992 monitoring program for Shell Oil Company (Shell) prepared by Pacific Environmental Group, Inc. (PACIFIC) for the above referenced site (Figures 1 and 2).

FINDINGS

Groundwater monitoring wells were gauged and sampled by Emcon Associates (Emcon) at the direction of PACIFIC on November 16, 1992. 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 November 1992 sampling event are shown on Figure 3. Emcon's groundwater sampling report is presented in Attachment A. The laboratory noted that concentrations reported as gasoline for the samples from Well MW-3 are primarily due to the presence of a discrete hydrocarbon peak not indicative of gasoline.

January 5, 1993

Page 2

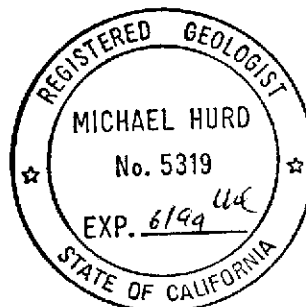
If you have any questions regarding the contents of this letter, please call.

Sincerely,

Pacific Environmental Group, Inc.



Michael Hurd
Project 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, 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 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		
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		
06/03/92	15.90	59.34		
08/19/92	16.72	58.52		
11/16/92	16.66	58.58		

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-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		
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
	06/03/92		14.33	59.50
	08/19/92		15.18	58.65
11/16/92	15.39	58.44		
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	
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
	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	

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

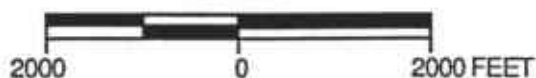


QUADRANGLE
LOCATION

REFERENCES:

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

SCALE

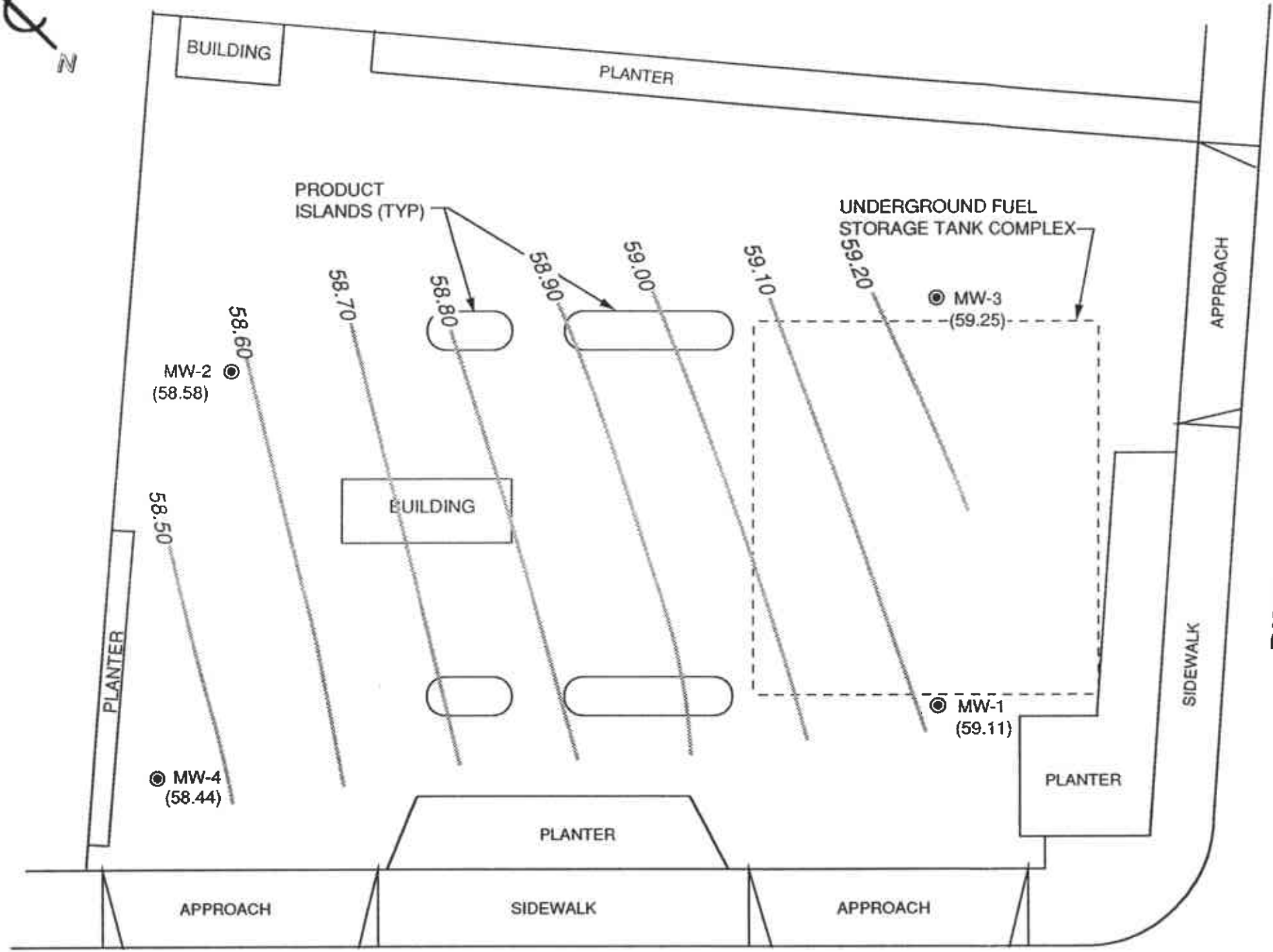


PACIFIC
 ENVIRONMENTAL
 GROUP, INC.

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

SITE LOCATION MAP

FIGURE:
1
PROJECT:
 305-85.01



- LEGEND**
- MW-1 ● GROUNDWATER MONITORING WELL LOCATION AND DESIGNATION
 - (59.25) GROUNDWATER ELEVATION IN FEET - MSL, 11-16-92
 - 58.70 — GROUNDWATER ELEVATION CONTOUR IN FEET - MSL, 11-16-92



APPROXIMATE DIRECTION OF GROUNDWATER FLOW

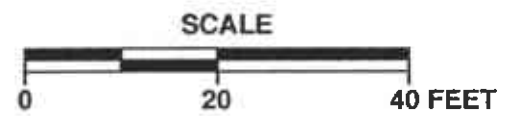
APPROXIMATE GRADIENT = 0.006

MAC ARTHUR BOULEVARD

PIEDMONT AVENUE



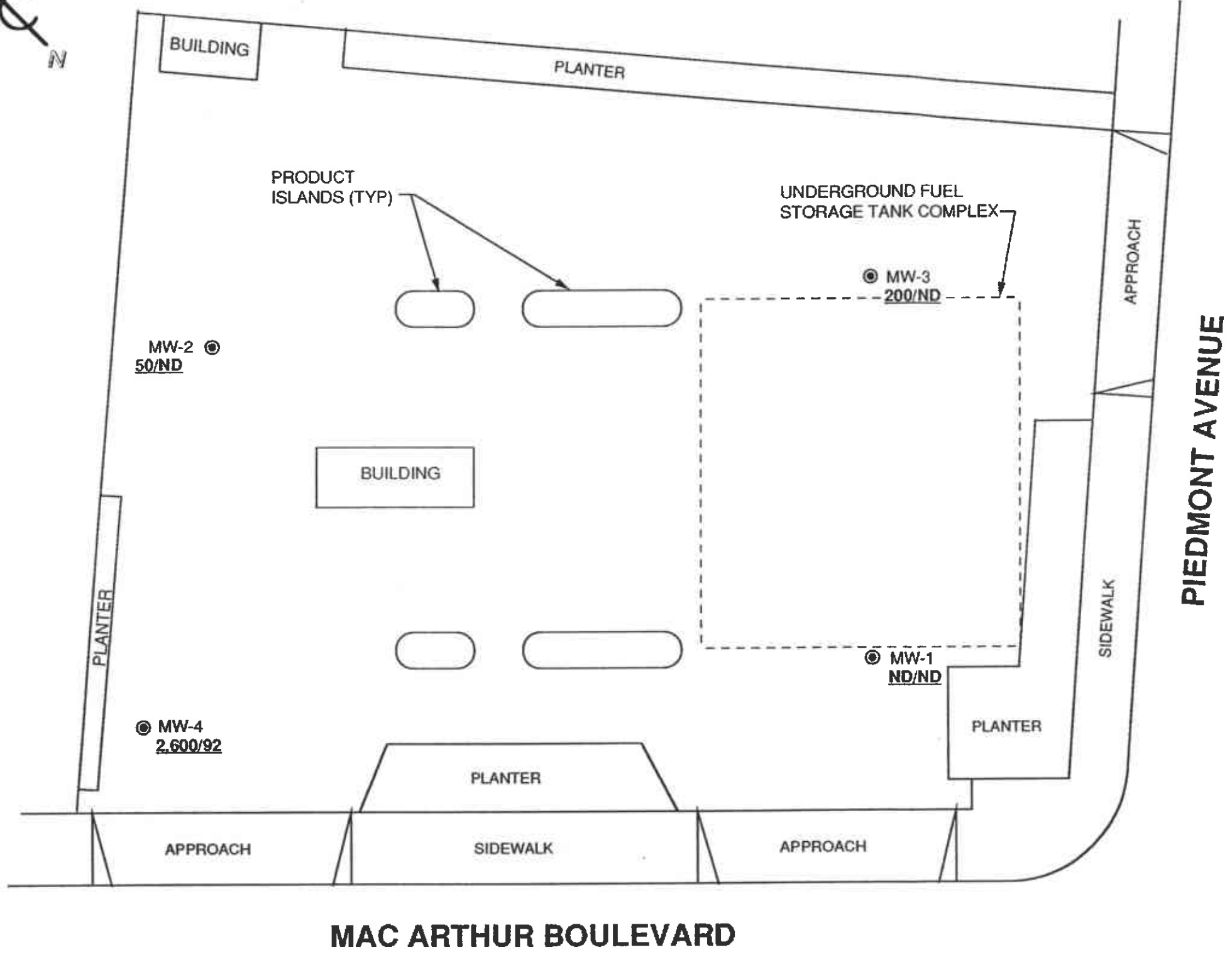
PACIFIC ENVIRONMENTAL GROUP, INC.



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

GROUNDWATER ELEVATION CONTOUR MAP

FIGURE: **2**
PROJECT: 305-85.01



LEGEND

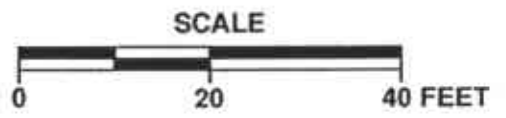
- MW-1 ● GROUNDWATER MONITORING WELL LOCATION AND DESIGNATION
- 200/ND TPH-g/BENZENE CONCENTRATION IN GROUNDWATER, IN PARTS PER BILLION, 11-16-92
- ND NOT DETECTED



APPROXIMATE DIRECTION OF GROUNDWATER FLOW



PACIFIC ENVIRONMENTAL GROUP, INC.



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

TPH-g/BENZENE CONCENTRATION MAP

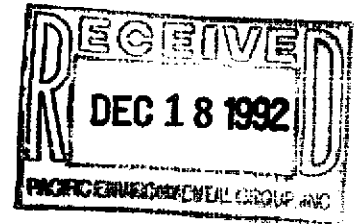
FIGURE: 3
PROJECT: 305-85.01

ATTACHMENT A
GROUNDWATER SAMPLING REPORT



EMCON
ASSOCIATES

Consultants in Wastes
Management and
Environmental Control



December 17, 1992
Project: 0G67-067.01
WIC#: 204-5508-0703

Ms. Rhonda Barrick
Pacific Environmental Group, Inc.
2025 Gateway Place, Suite 440
San Jose, California 95110

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

Dear Ms. Barrick:

This letter presents the results of the fourth quarter 1992 ground-water monitoring event for the Shell Oil Company (Shell) site located at 230 West MacArthur Boulevard, Oakland, California (figure 1). Fourth quarter monitoring was conducted on November 16, 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 2 (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 fourth 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 November 16, 1992. Prior to sample collection, the wells were purged with polyvinyl chloride bailers. 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-1 and MW-3 were evacuated to dryness before the removal of three casing volumes. The wells were allowed to recharge for up to 24 hours. Samples were collected after the wells had recharged to a sufficient level. Field measurements from fourth quarter monitoring, and available measurements from four previous

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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 Anametrix Inc. 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 with deionized water prior to use at each well.

Quality control samples for fourth quarter monitoring included a trip blank (TB), a field blank (FB), and a duplicate well sample (MW-3D) collected from well MW-3. All water samples collected during fourth quarter monitoring were analyzed for total petroleum hydrocarbons as gasoline (TPH-g), and benzene, toluene, ethylbenzene, and total xylenes (BTEX).

ANALYTICAL RESULTS

Analytical results for the fourth quarter 1992 monitoring event, and available results from four previous monitoring events, are summarized in table 2. The original certified analytical report and 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 location
Figure 2 - Site Map
Certified analytical report
Chain-of-custody document

Table 1
Monitoring Well Field Measurement Data
Fourth Quarter 1992

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

Date: 12/16/92
Project Number: G67-67.01

Well Designation	Water Level Field Date	TOC Elevation (ft-MSL)	Depth to Water (feet)	Ground-water 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	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	12.72	61.17	29.3	ND	03/13/92	6.55	522	64.3	>200
MW-1	06/03/92	73.89	13.76	60.13	29.4	ND	06/03/92	6.31	535	71.2	>1000
MW-1	08/19/92	73.89	14.57	59.32	29.4	ND	08/19/92	5.56	587	66.4	>200
MW-1	11/16/92	73.89	14.78	59.11	29.4	ND	11/16/92	6.25	536	67.4	>200
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-2	06/03/92	75.24	15.90	59.34	28.2	ND	06/03/92	6.18	630	68.3	>1000
MW-2	08/19/92	75.24	16.72	58.52	27.7	ND	08/19/92	6.42	630	66.0	>200
MW-2	11/16/92	75.24	16.66	58.58	27.7	ND	11/16/92	6.40	598	68.9	>200
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-3	06/03/92	74.68	14.39	60.29	28.1	ND	06/03/92	6.36	427	73.3	759
MW-3	08/19/92	74.68	15.08	59.60	28.2	ND	08/19/92	6.77	651	71.6	>200
MW-3	11/16/92	74.68	15.43	59.25	28.1	ND	11/16/92	6.33	543	69.2	>200
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	13.40	60.43	23.8	ND	03/13/92	6.68	743	66.7	>200
MW-4	06/03/92	73.83	14.33	59.50	23.9	ND	06/03/92	6.60	821	71.8	546
MW-4	08/19/92	73.83	15.18	58.65	23.9	ND	08/19/92	6.58	1034	65.0	>200
MW-4	11/16/92	73.83	15.39	58.44	23.9	ND	11/16/92	6.61	785	68.6	>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
 Fourth Quarter 1992
 milligrams per liter (mg/l) or parts per million (ppm)

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

Date: 12/16/92
 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	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-1	06/03/92	<0.05	<0.0005	<0.0005	<0.0005	<0.0005
MW-1	08/19/92	0.087	<0.0005	<0.0005	<0.0005	<0.0005
MW-1	11/16/92	<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-2	06/03/92	<0.05	<0.0005	<0.0005	<0.0005	<0.0005
MW-2	08/19/92	0.067	<0.0005	<0.0005	<0.0005	<0.0005
MW-2	11/16/92	0.050	<0.0005	<0.0005	<0.0005	0.0012
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-3	06/03/92	<0.05	<0.0005	<0.0005	<0.0005	<0.0005
MW-3	08/19/92	0.092	<0.0005	<0.0005	<0.0005	<0.0005
MW-3	11/16/92	0.20*	<0.0005	<0.0005	<0.0005	<0.0005
MW-3D	08/19/92	0.076	<0.0005	<0.0005	<0.0005	<0.0005
MW-3D	11/16/92	0.14*	<0.0005	<0.0005	<0.0005	<0.0005
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
MW-4	06/03/92	1.7	0.19	<0.0125	0.030	0.023
MW-4	08/19/92	0.17	0.0042	<0.0005	0.0006	0.0010
MW-4	11/16/92	2.6	0.092	0.049	0.050	0.081

TPH-g = total petroleum hydrocarbons as gasoline

* = Concentration reported as gasoline is primarily due to the presence of a discrete hydrocarbon peak not indicative of gasoline

NA = Not analyzed

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

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

Date: 12/16/92
 Project Number: G87-87.01

Sample Designation	Water Sample Field Date	TPH-g	Benzene	Toluene	Ethylbenzene	Total Xylenes
		(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)
FB	08/19/92	<0.05	<0.0005	<0.0005	<0.0005	<0.0005
FB	11/16/92	<0.05	<0.0005	<0.0005	<0.0005	<0.0005
TB	03/13/92	<0.05	<0.0005	<0.0005	<0.0005	<0.0005
TB	06/03/92	<0.05	<0.0005	<0.0005	<0.0005	<0.0005
TB	08/19/92	<0.05	<0.0005	<0.0005	<0.0005	<0.0005
TB	11/16/92	<0.05	<0.0005	<0.0005	<0.0005	<0.0005

TPH-g = total petroleum hydrocarbons as gasoline

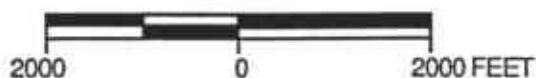


QUADRANGLE
LOCATION

REFERENCES:

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

SCALE

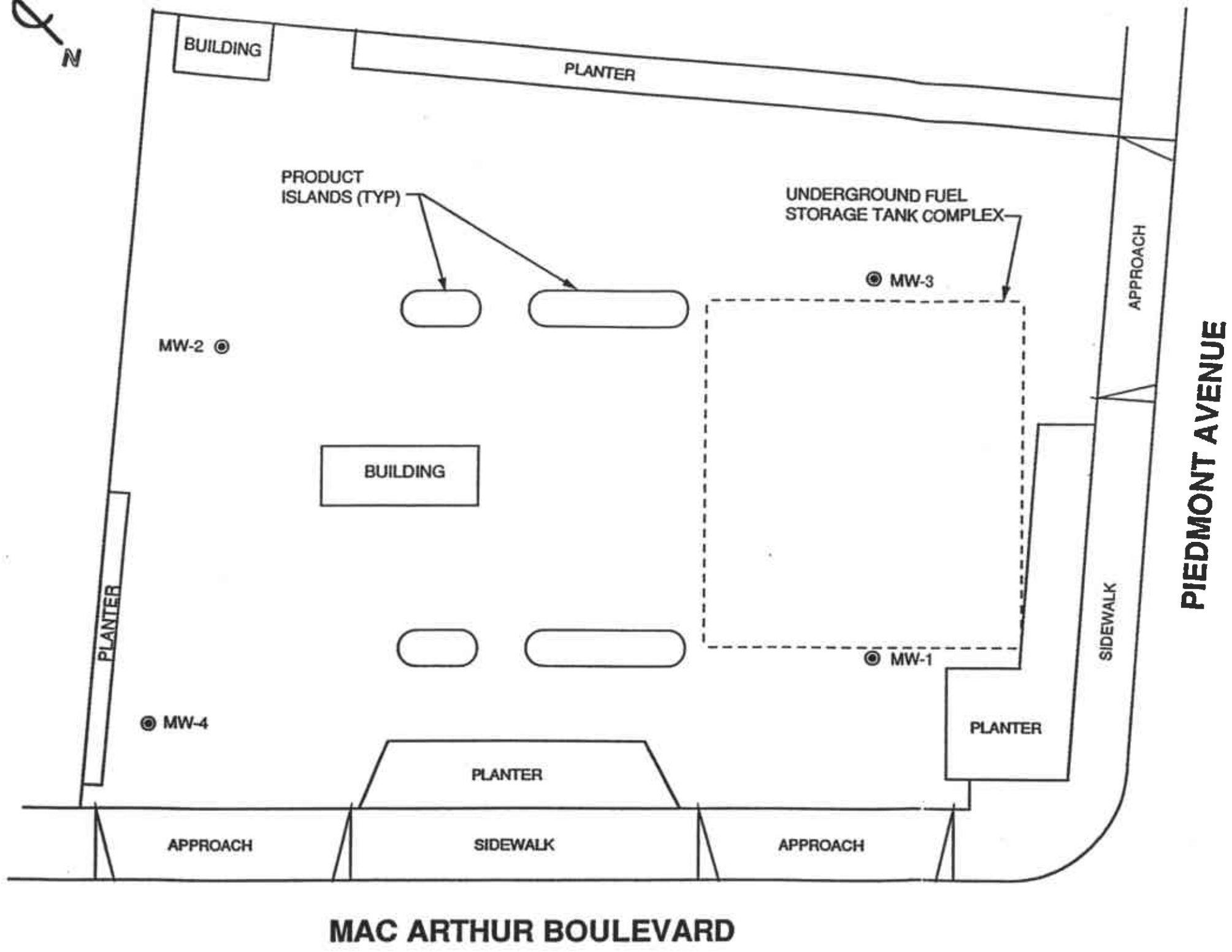


PACIFIC
ENVIRONMENTAL
GROUP, INC.

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

SITE LOCATION MAP

FIGURE:
1
PROJECT:
305-85.01



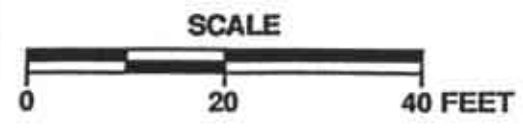
LEGEND
 MW-1 ● GROUNDWATER MONITORING WELL LOCATION AND DESIGNATION

MAC ARTHUR BOULEVARD

PIEDMONT AVENUE



PACIFIC ENVIRONMENTAL GROUP, INC.



SHELL SERVICE STATION
 230 Mac Arthur Boulevard
 Oakland, California

SITE MAP

FIGURE: 12
 PROJECT: 305-85.01



SHELL OIL COMPANY 9211252
RETAIL ENVIRONMENTAL ENGINEERING - WEST

CHAIN OF CUSTODY RECORD
 Serial No: 1500-C

Date: _____
 Page 1 of 1

Site Address: 230 West MacArthur Blvd.
 Oakland, CA

WIC#: 204-5508-0703

Shell Engineer: Dan Kirk Phone No.: (510) 675-6168

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

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

Comments: 3-VOLATILES for gas, BTEX

Sampled by: Steve Horton

Printed Name: Steve Horton

Analysis Required

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
					X		40 ml	HU	No
					X				
					X				
					X				
					X				
					X				
					X				

LAB: Anametrix

CHECK ONE (1) BOX ONLY	CI/DI	TURN AROUND TIME
Quarterly Monitoring <input checked="" type="checkbox"/>	6441	24 hours <input type="checkbox"/>
Site Investigation <input type="checkbox"/>	6441	48 hours <input type="checkbox"/>
Soil Classify/Disposal <input type="checkbox"/>	6442	15 days <input checked="" type="checkbox"/> (Normal)
Water Classify/Disposal <input type="checkbox"/>	6443	Other <input type="checkbox"/>
Soil/Air Rem. or Sys. O & M <input type="checkbox"/>	6462	
Water Rem. or Sys. O & M <input type="checkbox"/>	6463	
Other <input type="checkbox"/>		

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

MATERIAL DESCRIPTION	SAMPLE CONDITION/ COMMENTS

- ①
- ②
- ③
- ④
- ⑤
- ⑥
- ⑦

Relinquished By (signature): <i>Steve Horton</i>	Printed Name: Steve Horton	Date: 11/12/92	Received (signature): <i>Maria Barojas</i>	Printed Name: Maria Barojas	Date: 11/12/92
Relinquished By (signature):	Printed Name:	Date:	Received (signature):	Printed Name:	Date:
Relinquished By (signature):	Printed Name:	Date:	Received (signature):	Printed Name:	Date:

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



MR. DAVID LARSEN
EMCON ASSOCIATES
1938 JUNCTION AVE.
SAN JOSE, CA 95131

Workorder # : 9211252
Date Received : 11/17/92
Project ID : 204-5508-0703
Purchase Order: MOH-B813

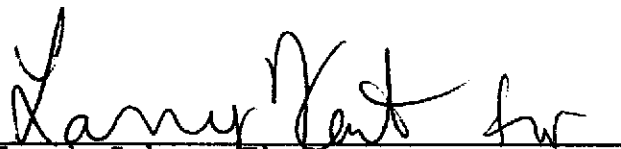
The following samples were received at Anamatrix, Inc. for analysis :

ANAMETRIX ID	CLIENT SAMPLE ID
9211252- 1	MW-1
9211252- 2	MW-2
9211252- 3	MW-3
9211252- 4	MW-4
9211252- 5	MW-3D
9211252- 6	TB
9211252- 7	FB

This report consists of 6 pages not including the cover letter, and is organized in sections according to the specific Anamatrix 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 Anamatrix 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.

Anamatrix 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 Anamatrix.


Sarah Schoen, Ph.D.
Laboratory Director

11-30-92
Date

EMCON ASSOCIATES

DEC 01 1992

RECEIVED

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

MR. DAVID LARSEN
EMCON ASSOCIATES
1938 JUNCTION AVE.
SAN JOSE, CA 95131

Workorder # : 9211252
Date Received : 11/17/92
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
9211252- 1	MW-1	WATER	11/16/92	TPHg/BTEX
9211252- 2	MW-2	WATER	11/16/92	TPHg/BTEX
9211252- 3	MW-3	WATER	11/16/92	TPHg/BTEX
9211252- 4	MW-4	WATER	11/16/92	TPHg/BTEX
9211252- 5	MW-3D	WATER	11/16/92	TPHg/BTEX
9211252- 6	TB	WATER	11/16/92	TPHg/BTEX
9211252- 7	FB	WATER	11/16/92	TPHg/BTEX

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

MR. DAVID LARSEN
EMCON ASSOCIATES
1938 JUNCTION AVE.
SAN JOSE, CA 95131

Workorder # : 9211252
Date Received : 11/17/92
Project ID : 204-5508-0703
Purchase Order: MOH-B813
Department : GC
Sub-Department: TPH

QA/QC SUMMARY :

- The concentrations reported as gasoline for sample MW-3 and MW-3D are primarily due to the presence of a discrete hydrocarbon peak not indicative of gasoline.
- The matrix spike duplicate is not reported due to an error in the injection of spike solution.

Cheryl Balmer
Department Supervisor

11/30/92
Date

Charles Burch
Chemist

11.30.92
Date

ANALYSIS DATA SHEET - TOTAL PETROLEUM HYDROCARBONS
(GASOLINE WITH BTEX)
ANAMETRIX, INC. - (408) 432-8192

Anamatrix W.O.: 9211252
Matrix : WATER
Date Sampled : 11/16/92

Project Number : 204-5508-0703
Date Released : 11/25/92

Reporting Limit	Sample I.D.# MW-1	Sample I.D.# MW-2	Sample I.D.# MW-3	Sample I.D.# MW-4	Sample I.D.# MW-3D	
COMPOUNDS (mg/L)	-01	-02	-03	-04	-05	
Benzene	0.0005	ND	ND	ND	0.092	ND
Toluene	0.0005	ND	ND	ND	0.049	ND
Ethylbenzene	0.0005	ND	ND	ND	0.050	ND
Total Xylenes	0.0005	ND	0.0012	ND	0.081	ND
TPH as Gasoline	0.050	ND	0.050	0.20	2.6	0.14
% Surrogate Recovery	111%	106%	70%	98%	61%	
Instrument I.D.	HP4	HP4	HP4	HP4	HP4	
Date Analyzed	11/19/92	11/19/92	11/19/92	11/19/92	11/19/92	
RLMF	1	1	1	25	1	

ND - Not detected at or above the practical quantitation limit for the method.

TPHg - Total Petroleum Hydrocarbons as gasoline is determined by GCFID using modified EPA Method 8015 following sample purge and trap by EPA Method 5030.

BTEX - Benzene, Toluene, Ethylbenzene, and Total Xylenes are determined by modified EPA Method 8020 following sample purge and trap by EPA Method 5030.

RLMF - Reporting Limit Multiplication Factor.

Anamatrix control limits for surrogate p-Bromofluorobenzene recovery are 53-147%.

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

Reggie Dawson 11-30-92
Analyst Date

Cheryl Balmer 11/30/92
Supervisor Date

ANALYSIS DATA SHEET - TOTAL PETROLEUM HYDROCARBONS
(GASOLINE WITH BTEX)
ANAMETRIX, INC. - (408) 432-8192

Anamatrix W.O.: 9211252
Matrix : WATER
Date Sampled : 11/16/92

Project Number : 204-5508-0703
Date Released : 11/25/92

COMPOUNDS	Reporting Limit (mg/L)	Sample I.D.# TB	Sample I.D.# FB	Sample I.D.# BN1901E3
Benzene	0.0005	ND	ND	ND
Toluene	0.0005	ND	ND	ND
Ethylbenzene	0.0005	ND	ND	ND
Total Xylenes	0.0005	ND	ND	ND
TPH as Gasoline	0.050	ND	ND	ND
% Surrogate Recovery		96%	99%	109%
Instrument I.D.		HP4	HP4	HP4
Date Analyzed		11/19/92	11/19/92	11/19/92
RLMF		1	1	1

- ND - Not detected at or above the practical quantitation limit for the method.
- TPHg - Total Petroleum Hydrocarbons as gasoline is determined by GCFID using modified EPA Method 8015 following sample purge and trap by EPA Method 5030.
- BTEX - Benzene, Toluene, Ethylbenzene, and Total Xylenes are determined by modified EPA Method 8020 following sample purge and trap by EPA Method 5030.
- RLMF - Reporting Limit Multiplication Factor.

Anamatrix control limits for surrogate p-Bromofluorobenzene recovery are 53-147%.

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

Charles M. Buch 11-30-92
Analyst Date

Charles Balmer 11/30/92
Supervisor Date

TOTAL VOLATILE HYDROCARBON MATRIX SPIKE REPORT
 EPA METHOD 5030 WITH GC/FID
 ANAMETRIX, INC. (408) 432-8192

Sample I.D. : 204-5508-0703 MW-3D
 Matrix : WATER
 Date Sampled : 11/16/92
 Date Analyzed : 11/19/92

Anamatrix I.D. : 9211252-05
 Analyst : *CMB*
 Supervisor : *-C*
 Date Released : 11/30/92
 Instrument ID : HP4

COMPOUND	SPIKE AMT (mg/L)	SAMPLE AMT (mg/L)	REC MS (mg/L)	% REC MS	% REC LIMITS
GASOLINE	0.50	0.14	0.72	116%	48-145
P-BFB				98%	53-147

* Limits established by Anamatrix, Inc.

TOTAL VOLATILE HYDROCARBON LABORATORY CONTROL SAMPLE REPORT
 EPA METHOD 5030 WITH GC/FID
 ANAMETRIX, INC. (408) 432-8192

Sample I.D. : LAB CONTROL SAMPLE
 Matrix : WATER
 Date Sampled : N/A
 Date Analyzed : 11/19/92

Anamatrix I.D. : LCSW1119
 Analyst : *AMS*
 Supervisor : *CS*
 Date Released : 11/30/92
 Instrument ID : HP4

COMPOUND	SPIKE AMT (mg/L)	REC LCS (mg/L)	% REC LCS	REC LCSD (mg/L)	% REC LCSD	RPD	% REC LIMITS
GASOLINE	0.50	0.44	88%	0.53	106%	19%	48-145
P-BFB			86%		98%		53-147

* Limits established by Anamatrix, Inc.