

PACIFIC
ENVIRONMENTAL
GROUP, INC.

92 007 10 11:23 23

October 8, 1992
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 third 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 August 19, 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 August 1992 sampling event are shown on Figure 3. Emcon's groundwater sampling report is presented in Attachment A.


October 8, 1992

Page 2

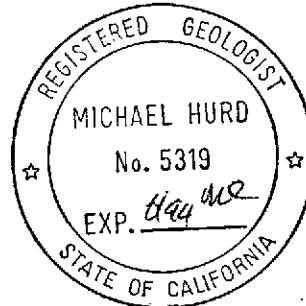
If you have any questions regarding the contents of this letter, please call.

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
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


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, 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		
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

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, 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		
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
MSL = Mean sea level TOC = Top of casing				

Table 2
Groundwater Analytical Data
 Total Petroleum Hydrocarbons

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

Well Number	Date Sampled	TPH-g (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	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

Table 2 (continued)
Groundwater Analytical Data
Total Petroleum Hydrocarbons

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

Well Number	Date Sampled	TPH-g (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	
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
	06/03/92	1,700	190	ND	30	23
	08/19/92	170	4.2	ND	0.6	1.0

TPH-g = Total petroleum hydrocarbons calculated as gasoline
 ppb = Parts per billion
 ND = Not detected
 NA = Not analyzed
 NS = Not sampled, hydrocarbon sheen observed
 (D) = Duplicate sample
 See certified analytical results for detection limits.

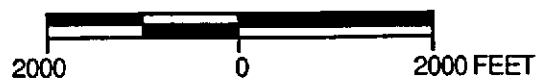


QUADRANGLE LOCATION

REFERENCES:

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

SCALE

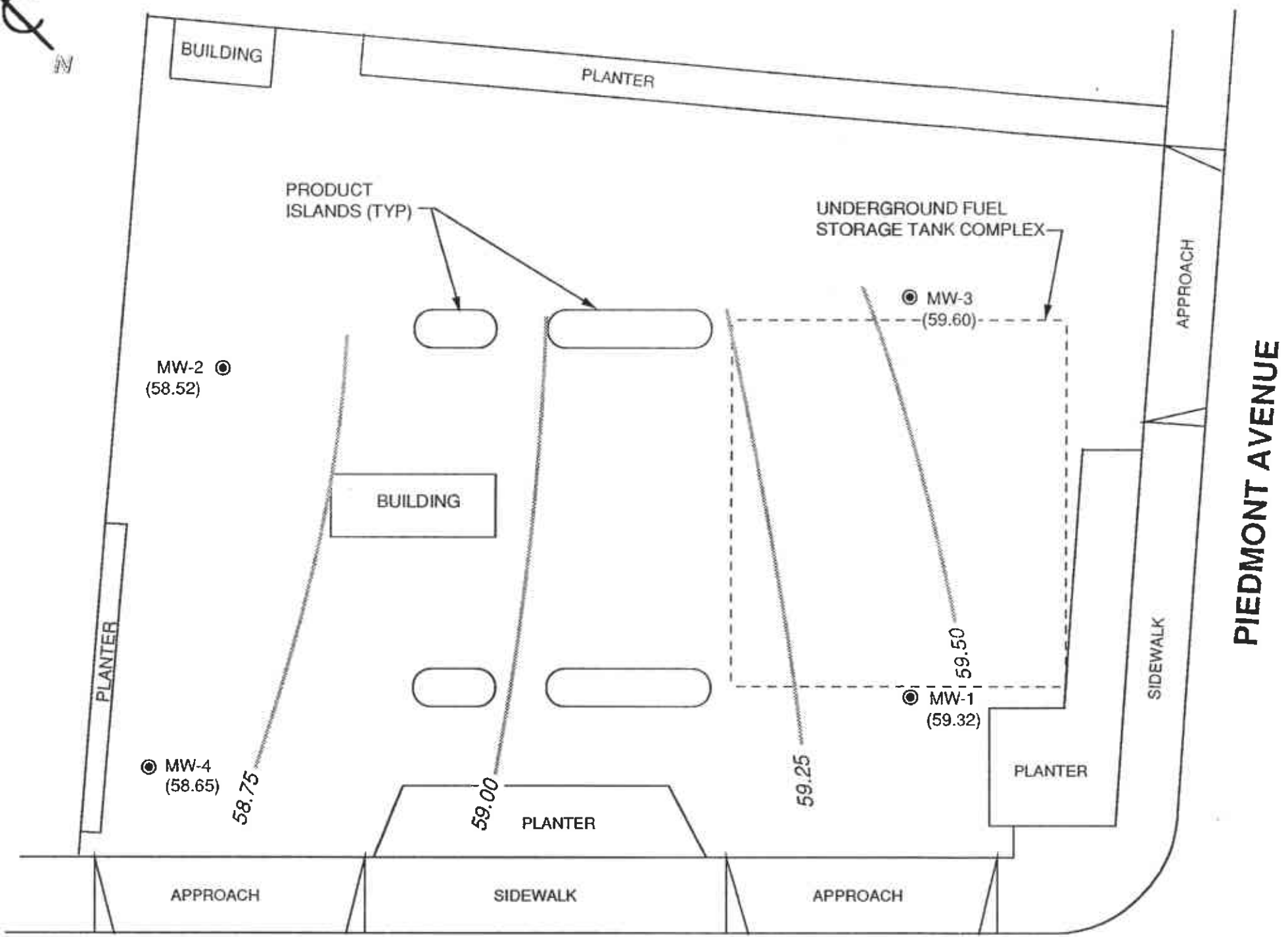


PACIFIC ENVIRONMENTAL GROUP INC.

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

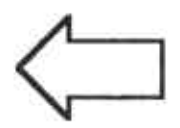
SITE LOCATION MAP

FIGURE:
1
PROJECT:
 305-85.01



LEGEND

- MW-1 ● GROUNDWATER MONITORING WELL LOCATION AND DESIGNATION
- (59.60) GROUNDWATER ELEVATION IN FEET - MSL, 8-19-92
- 59.50 — GROUNDWATER ELEVATION CONTOUR IN FEET - MSL, 8-19-92



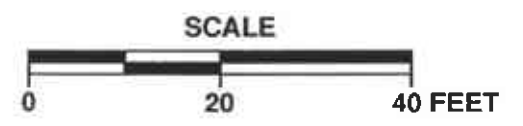
APPROXIMATE DIRECTION OF GROUNDWATER FLOW
 APPROXIMATE GRADIENT = 0.007

MAC ARTHUR BOULEVARD

PIEDMONT AVENUE



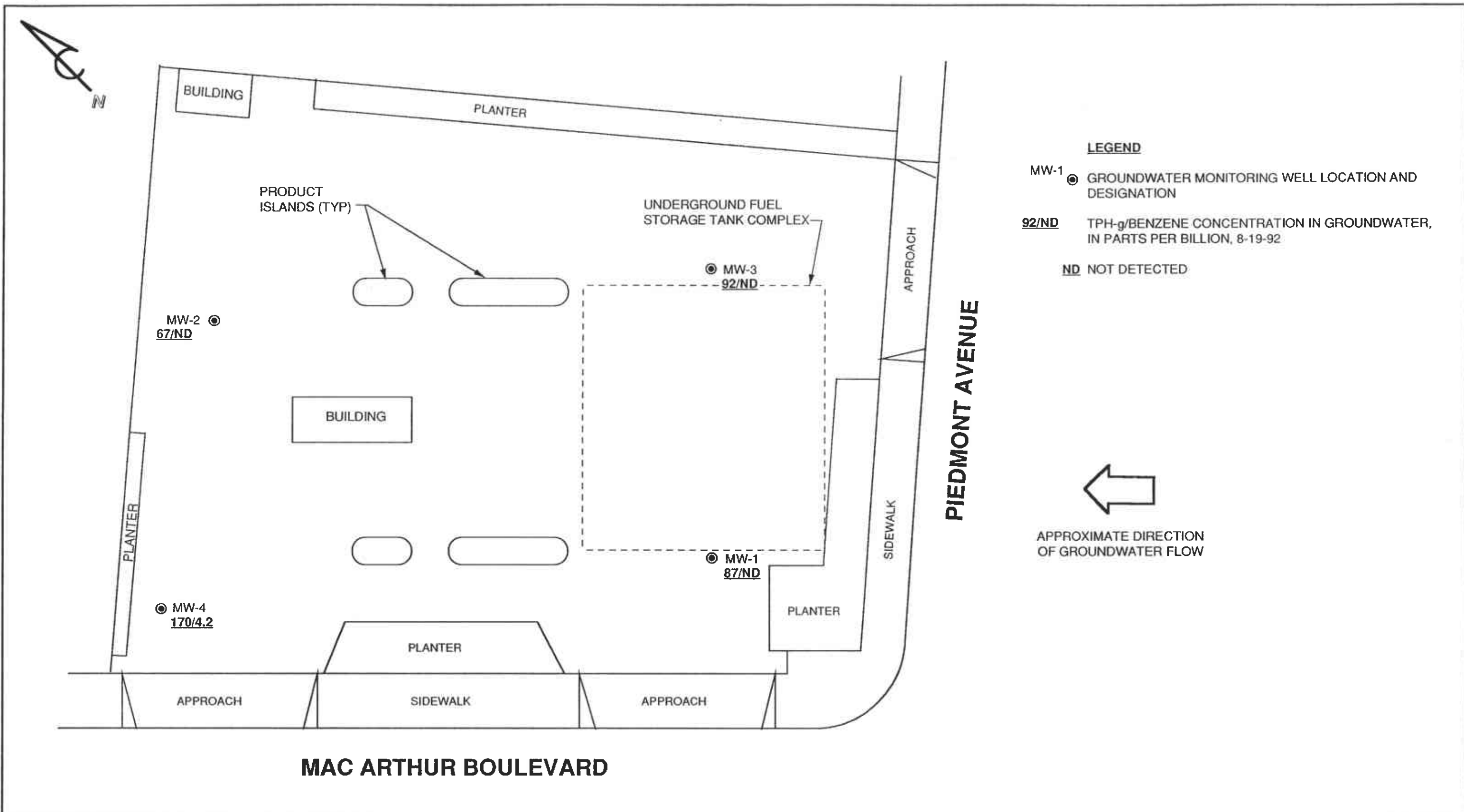
PACIFIC ENVIRONMENTAL GROUP, INC.



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

GROUNDWATER ELEVATION CONTOUR MAP

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



PACIFIC ENVIRONMENTAL GROUP, INC.

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

TPH-g/BENZENE CONCENTRATION MAP

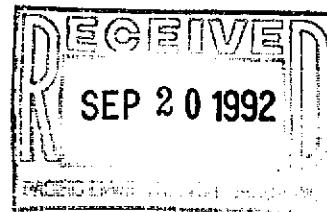
FIGURE: **3**
PROJECT: 305-85.01

ATTACHMENT A
GROUNDWATER SAMPLING REPORT



EMCON
ASSOCIATES

Consultants in Wastes
Management and
Environmental Control



September 18, 1992
Project: G67-67.01
WIC#: 204-5508-0703

Ms. Rhonda Barrick
Pacific Environmental Group, Inc.
1601 Civic Center Drive, Suite 202
Santa Clara, California 95050

Re: Third 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 third quarter 1992 ground-water monitoring event for the Shell Oil Company (Shell) site located at 230 West MacArthur Boulevard, Oakland, California (figure 1). Third quarter monitoring was conducted on August 19, 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 third 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 August 19, 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. Well MW-3 was evacuated to dryness before the removal of three casing volumes. The well was allowed to recharge for up to 24 hours. Samples were collected after the well had recharged to a sufficient level. Field measurements from third quarter monitoring, and available measurements from four previous monitoring events, are summa-

G676701C.DOC



rized 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 third 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 third 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 third 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
Third Quarter 1992

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

Date: 09/16/92
Project Number: G67-67.01

Well Desig- nation	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	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	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-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-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-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-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-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	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

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
 Third 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: 09/16/92
 Project Number: G67-67.01

Sample Design- nation	Water Sample Field Date	TPH-g	Benzene	Toluene	Ethyl- benzene	Total Xylenes
		(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)
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-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-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-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-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-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-3D	08/19/92	0.076	<0.0005	<0.0005	<0.0005	<0.0005
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
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
FB	08/19/92	<0.05	<0.0005	<0.0005	<0.0005	<0.0005

TPH-g = total petroleum hydrocarbons as gasoline
 NA = Not analyzed

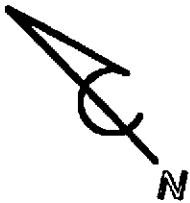
Table 2
 Summary of Analytical Results
 Third Quarter 1992
 milligrams per liter (mg/l) or parts per million (ppm)

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

Date: 09/16/92
 Project Number: G67-67.01

Sample Designation	Water Sample Field Date	TPH-g	Benzene	Toluene	Ethylbenzene	Total Xylenes
		(mg/l)	(mg/l)	(mg/l)	(mg/l)	(mg/l)
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

TPH-g = total petroleum hydrocarbons as gasoline



BUILDING

D

GROUNDWATER MONITORING WELL LOCATION AND IDENTIFICATION

PRODUCT ISLANDS (TYP)

MW-2

BUILDING

PLANTER

MW-4

APPROACH

MAC A



PACIFIC ENVIRONMENTAL GROUP, INC.



FIGURE: 1200
PROJECT: 305-85.01

ANAMETRIX INC

Environmental & Analytical Chemistry
 1961 Concourse Drive, Suite E, San Jose, CA 95131
 (408) 432-8192 • Fax (408) 432-8198

**REPORT**

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

Workorder # : 9208227
 Date Received : 08/19/92
 Project ID : 204-5508-0703
 Purchase Order: MOH-B813

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

ANAMETRIX ID	CLIENT SAMPLE ID
9208227- 1	MW-1
9208227- 2	MW-2
9208227- 3	MW-3
9208227- 4	MW-4
9208227- 5	MW-3D
9208227- 6	TB
9208227- 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

9-3-92

Date

EMCON ASSOCIATES

SEP 04 1992

RECEIVED

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

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

Workorder # : 9208227
Date Received : 08/19/92
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
9208227- 1	MW-1	WATER	08/19/92	TPHg/BTEX
9208227- 2	MW-2	WATER	08/19/92	TPHg/BTEX
9208227- 3	MW-3	WATER	08/19/92	TPHg/BTEX
9208227- 4	MW-4	WATER	08/19/92	TPHg/BTEX
9208227- 5	MW-3D	WATER	08/19/92	TPHg/BTEX
9208227- 6	TB	WATER	08/19/92	TPHg/BTEX
9208227- 7	FB	WATER	08/19/92	TPHg/BTEX

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

MR. DAVID LARSEN
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1938 JUNCTION AVE.
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Workorder # : 9208227
Date Received : 08/19/92
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Department : GC
Sub-Department: TPH

QA/QC SUMMARY :

- No QA/QC problems encountered for these samples.

Cheryl Balmer
Department Supervisor

9/2/92
Date

Jesse Shor 9/2/92
Chemist Date

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

Anamatrix W.O.: 9208227
Matrix : WATER
Date Sampled : 08/19/92

Project Number : 204-5508-0703
Date Released : 09/02/92

COMPOUNDS	Reporting Limit (mg/L)	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
Benzene	0.0005	ND	ND	ND	0.0042	ND
Toluene	0.0005	ND	ND	ND	ND	ND
Ethylbenzene	0.0005	ND	ND	ND	0.0006	ND
Total Xylenes	0.0005	ND	ND	ND	0.0010	ND
TPH as Gasoline	0.050	0.087	0.067	0.092	0.17	0.076
% Surrogate Recovery		116%	104%	119%	128%	123%
Instrument I.D.		HP21	HP21	HP21	HP21	HP21
Date Analyzed		08/21/92	08/21/92	08/21/92	08/21/92	08/21/92
RLMF		1	1	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.

Lucia Shu 9/2/92
Analyst Date

Cheryl Bauman 9/2/92
Supervisor Date

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

Anamatrix W.O.: 9208227
Matrix : WATER
Date Sampled : 08/19/92

Project Number : 204-5508-0703
Date Released : 09/02/92

	Reporting Limit	Sample I.D.# TB	Sample I.D.# FB	Sample I.D.# BG2101E3
COMPOUNDS	(mg/L)	-06	-07	BLANK
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		118%	136%	101%
Instrument I.D.		HP21	HP21	HP21
Date Analyzed		08/21/92	08/21/92	08/21/92
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.

Lucia Shor 9/2/92
Analyst Date

Cheryl Baerman 9/2/92
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-1
 Matrix : WATER
 Date Sampled : 08/19/92
 Date Analyzed : 08/21/92

Anamatrix I.D. : 9208227-01
 Analyst : IS
 Supervisor : CS
 Date Released : 09/02/92

COMPOUND	SPIKE AMT. (mg/L)	MS (mg/L)	%REC MS	MD (mg/L)	%REC MD	RPD	%REC LIMITS
BENZENE	0.010	0.008	77%	0.008	77%	0%	49-159
TOLUENE	0.010	0.009	90%	0.010	95%	5%	53-156
ETHYLBENZENE	0.010	0.009	94%	0.009	92%	-2%	54-151
M+P-XYLENES	0.0067	0.0064	96%	0.0066	99%	3%	56-157
O-XYLENE	0.0033	0.0031	94%	0.0033	100%	6%	56-157
p-BFB			104%		107%		53-147

* Quality control established by Anamatrix, Inc.

BTEX LABORATORY CONTROL SAMPLE REPORT
 EPA METHOD 5030 WITH GC/PID
 ANAMETRIX, INC. (408) 432-8192

Sample I.D. : LAB CONTROL SAMPLE	Anamatrix I.D.: LCSW0821
Matrix : WATER	Analyst : <i>TS</i>
Date Sampled : N/A	Supervisor : <i>CS</i>
Date Analyzed : 08/21/92	Date Released : 09/02/92
	Instrument ID : HP21

COMPOUND	SPIKE AMT. (mg/L)	LCS (mg/L)	REC LCS	%REC LIMITS
<hr style="border-top: 1px dashed black;"/>				
Benzene	0.010	0.007	67%	49-159
Toluene	0.010	0.008	78%	53-156
Ethylbenzene	0.010	0.008	80%	54-151
M+P-Xylenes	0.0067	0.0057	85%	56-157
O-Xylene	0.0033	0.0025	76%	58-154
P-BFB			100%	53-147

* Limits established by Anamatrix, Inc.



SHELL OIL COMPANY
RETAIL ENVIRONMENTAL ENGINEERING - WEST

CHAIN OF CUSTODY RECORD

Serial No.: 8115

Date: 8-19-92

Page 1 of 1

9208227

(18)

17:45 MA

Site Address: 230 West MacArthur Blvd.

Oakland, CA

Analysis Required

LAB: Anametrix

WIC#: 204-5508-0703

Shell Engineer: Dan Kirk

Phone No. (510) 675-6168
Fax #: (510) 675-6168

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

Consultant Contact: David Larsen

Phone No. (408) 453-2269
Fax #: (408) 453-2269

Comments: 3-VOAS (HCL) for gas, BTEX

Sampled By: Bart Stafford
Printed Name: Bart Stafford

CHECK ONE (1) BOX ONLY	CT/DT	TURN AROUND TIME
Quarterly Monitoring <input checked="" type="checkbox"/>	5461	24 hours <input type="checkbox"/>
Site Investigation <input type="checkbox"/>	5441	48 hours <input type="checkbox"/>
Soil for disposal <input type="checkbox"/>	5442	15 days <input checked="" type="checkbox"/> (Normal)
Water for disposal <input type="checkbox"/>	5443	Other <input type="checkbox"/>
Air Sample- Sys O&M <input type="checkbox"/>	5452	NOTE: Notify Lab as soon as possible of 24/48 hrs. TAT.
Water Sample - Sys O&M <input type="checkbox"/>	5453	
Other <input type="checkbox"/>		

Sample ID	Date	Soil	Water	Air	No. of conds.	TPH (EPA 8015 Mod. Gas)	TPH (EPA 8015 Mod. Diesel)	BTEX (EPA 8020/602)	Volatile Organics (EPA 8240)	Test for Disposal	Container Size	Preparation Used	Composite Y/N	MATERIAL DESCRIPTION	SAMPLE CONDITION/ COMMENTS
① MW-1	8-19-92		X		3	X	X				40 ml	HCL	NO		
② MW-2															
③ MW-3															
④ MW-4															
⑤ MW-3D															
⑥ TB															3 VOAS BUBBLES
⑦ FB			X			X	X								

Relinquished By (signature): Bart Stafford
Printed name: Bart Stafford

Date: 8-19-92
Time: 16:25

Received (signature): Kathy Pfaffle
Printed name: KATHY PFAFFLE
Date: 8-19-92
Time: 16:25

Relinquished By (signature):
Printed name:

Date:
Time:

Received (signature):
Printed name:

Relinquished By (signature):
Printed name:

Date:
Time:

Received (signature):
Printed name:

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