



PACIFIC
ENVIRONMENTAL
GROUP, INC.

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January 26, 1994
Project 305-094.01

Mr. Lynn Walker
Shell Oil Company
P.O. Box 5278
Concord, California 94520

Re: Quarterly Report - Fourth Quarter 1993
Former Shell Service Station
2724 Castro Valley Boulevard at Lake Chabot Road
Castro Valley, California
WIC No 204-1381-0407

Dear Mr. Walker:

The following presents the results of the fourth quarter 1993 monitoring program for the site referenced above (Figures 1 and 2). This letter has been prepared for Shell Oil Company by Pacific Environmental Group, Inc. (PACIFIC).

FINDINGS

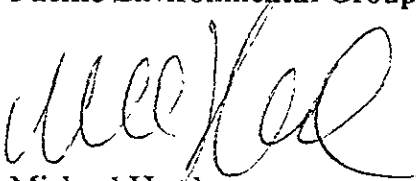
Groundwater monitoring wells were gauged and sampled by Blaine Tech Services, Inc. (Blaine) at the direction of PACIFIC on November 17, 1993. Groundwater elevation contours for the sampling date are shown on Figure 2. Table 1 presents groundwater elevation data.

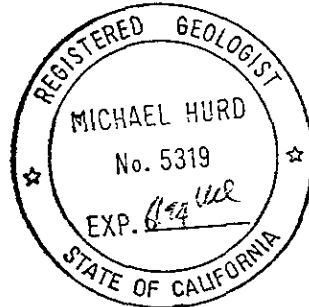
Groundwater analytical data are presented in Tables 2 and 3. Total petroleum hydrocarbons (TPH) calculated as gasoline, benzene, and TPH calculated as diesel concentrations for the November 1993 sampling event are shown on Figure 3. Well OMW-9 was paved over prior to the November sampling date; therefore, a sample was not obtained. PACIFIC plans to raise the well to ground surface before the next sampling event. Wells OMW-6, OMW-8, and OMW-9 are labeled as MW-6, MW-8, and MW-9 in the certified analytical report. Blaine's groundwater sampling report is presented as Attachment A.

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)
Table 3 - Groundwater Analytical Data -
Total Petroleum Hydrocarbons
(TPH as Diesel and Motor Oil)
Figure 1- Site Location Map
Figure 2- Groundwater Elevation Map
Figure 3- TPH-g/Benzene/TPH-d Concentration Map
Attachment A - Groundwater Sampling Report

cc: Mr. Scott Seery, Alameda County Department of Environmental Health
Mr. Rich Hiatt, Regional Water Quality Control Board
Dr. Mohsen Mehran, Owner Consultant
Mr. Richard Finn, Larson and Burnham
Mr. Matthew Righetti, Righetti Law Firm
Mr. Richard A. Schoenberger, Esq., Walkup, Shelby, Bastian, Melodia, Kelly,
Echeverria and Link
Mr. David Swope, Shell Oil Company
Mr. Jeff Holland, Shell Oil Company

Table 1
Groundwater Elevation Data

Former Shell Service Station
2724 Castro Valley Boulevard at Lake Chabot Road
Castro Valley, California

Well Number	Date Gauged	Well Elevation (feet, MSL)	Depth to Water (feet, TOC)	Groundwater Elevation (feet, MSL)	
MW-1	02/08/90	99.78	8.39	91.39	
	04/20/90		9.21	90.57	
	07/30/90		9.21	90.57	
	10/25/90		9.44	90.34	
	01/15/91		9.11	90.67	
	04/19/91		5.58	94.20	
	07/16/91		7.58	92.20	
	10/08/91		8.25	91.53	
	02/04/92		8.52	91.26	
	04/06/92		6.75	93.03	
	08/26/92		9.89	89.89	
	11/06/92		9.01	90.77	
	02/18/93		160.54	4.33	156.21
	06/04/93			8.26	152.28
	09/10/93	9.04		151.50	
11/17/93	9.15	151.39			
MW-2	02/08/90	100.83	7.33	93.50	
	04/20/90		8.63	92.20	
	07/30/90		8.78	92.05	
	10/25/90		9.50	91.33	
	01/15/91		8.52	92.31	
	04/19/91		6.90	93.93	
	07/16/91		9.01	91.82	
	10/08/91		8.82	92.01	
	02/04/92		7.46	93.37	
	04/06/92		6.91	93.92	
	08/26/92		9.28	91.55	
	11/06/92		8.59	92.24	
	02/18/93		----- Well Inaccessible -----		
	06/04/93	----- Well Inaccessible -----			
09/10/93	----- Well Inaccessible -----				
11/17/93	----- Well Inaccessible -----				
MW-3	02/08/90	101.48	8.91	92.57	
	04/20/90		10.20	91.28	
	07/30/90		10.61	90.87	
	10/25/90		10.00	91.48	
	01/15/91		9.74	91.74	
	04/19/91		7.92	93.56	
	07/16/91		9.40	92.08	
	10/08/91		9.62	91.86	
	02/04/92		8.74	92.74	
	04/06/92		7.12	94.36	
	08/26/92		9.58	91.90	
11/06/92	8.95	92.53			

Table 1 (continued)
Groundwater Elevation Data

Former Shell Service Station
 2724 Castro Valley Boulevard at Lake Chabot Road
 Castro Valley, California

Well Number	Date Gauged	Well Elevation (feet, MSL)	Depth to Water (feet, TOC)	Groundwater Elevation (feet, MSL)
MW-3 (cont.)	02/18/93	162.24	6.79	155.45
	06/04/93		8.48	153.76
	09/10/93		9.84	152.40
	11/17/93		9.78	152.46
MW-5	02/08/90	99.90	8.80	91.10
	04/20/90		9.35	90.55
	07/30/90		9.49	90.41
	10/25/90		10.12	89.78
	01/15/91		9.26	90.64
	04/19/91		6.52	93.38
	07/16/91		9.12	90.78
	10/08/91		9.22	90.68
	02/04/92		8.13	91.77
	04/06/92		5.53	94.37
	08/26/92	9.25	90.65	
	11/06/92	9.02	90.88	
	02/18/93	160.68	3.60	157.08
	06/04/93		7.08	153.60
09/10/93	9.92		150.76	
11/17/93	9.86		150.82	
OMW-6	07/16/91	101.48	8.60	92.88
	10/08/91		8.82	92.66
	02/04/92		7.47	94.01
	04/06/92		5.80	95.68
	08/26/92		9.18	92.30
	11/06/92		8.29	93.19
	02/18/93	162.22	5.83	156.39
	06/04/93		7.14	155.08
	09/10/93		8.78	153.44
	11/17/93		8.74	153.48
MW-7	07/16/91	99.54	8.70	90.84
	10/08/91		8.74	90.80
	02/04/92		7.78	91.76
	04/06/92		5.87	93.67
	08/26/92		8.93	90.61
	11/06/92		8.51	91.03
	02/18/93		----- Well Inaccessible -----	
	06/04/93		----- Well Inaccessible -----	
	09/10/93		----- Well Inaccessible -----	
	11/17/93		----- Well Inaccessible -----	

Table 1 (continued)
Groundwater Elevation Data

Former Shell Service Station
 2724 Castro Valley Boulevard at Lake Chabot Road
 Castro Valley, California

Well Number	Date Gauged	Well Elevation (feet, MSL)	Depth to Water (feet, TOC)	Groundwater Elevation (feet, MSL)
OMW-8	07/16/91	100.18	8.40	91.78
	10/08/91		8.74	91.44
	02/04/92		8.22	91.96
	04/06/92		6.82	93.36
	08/26/92		9.15	91.03
	11/06/92		8.69	91.49
	02/18/93	160.92	7.59	153.33
	06/04/93		7.88	153.04
	09/10/93		8.58	152.34
	11/17/93		8.72	152.20
OMW-9	03/03/93	158.81	9.16	149.65
	06/04/93		9.52	149.29
	09/10/93		9.23	149.58
	11/17/93	----- Well Paved Over -----		
MSL = Mean sea level TOC = Top of casing Elevations prior to February 18, 1993 are to a temporary bench mark. Elevations after February 18, 1993 are to MSL.				

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

Former Shell Service Station
 2724 Castro Valley Boulevard at Lake Chabot Road
 Castro Valley, California

Well Number	Date Sampled	TPH as Gasoline (ppb)	Benzene (ppb)	Toluene (ppb)	Ethylbenzene (ppb)	Xylenes (ppb)
MW-1	02/09/90	<1,000	0.58	0.63	<0.5	<0.5
	04/20/90	<50	<0.5	<0.5	<0.5	<0.5
	07/31/90	<50	<0.5	<0.5	<0.5	<0.5
	10/25/90	100	<0.5	<0.5	<0.5	<0.6
	01/15/91	60	<0.5	<0.5	<0.5	<0.5
	01/15/91	<50	<0.5	<0.5	<0.5	<0.5
	04/19/91	<50	7.7	<0.5	<0.5	<0.5
	04/19/91	<50	7.4	<0.5	<0.5	<0.5
	07/16/91	<50	<0.5	<0.5	<0.5	<0.5
	10/08/91	<50	<0.5	<0.5	<0.5	<0.5
	02/04/92	<50	<0.5	<0.5	<0.5	<0.5
	04/06/92	50	<0.5	<0.5	<0.5	<0.5
	08/26/92	<50	<0.5	<0.5	<0.5	<0.5
	11/12/92	<50	<0.5	<0.5	<0.5	<0.5
	02/18/93	<50	<0.5	<0.5	<0.5	<0.5
	06/04/93	<50	<0.5	<0.5	<0.5	<0.5
	09/10/93	<50	<0.5	<0.5	<0.5	<0.5
11/17/93	<50	<0.5	<0.5	<0.5	<0.5	
MW-2	02/09/90	8,600	360	410	6.5	670
	04/20/90	9,100	500	330	110	900
	07/31/90	5,300	550	38	<0.5	280
	10/25/90	4,800	490	22	21	156
	01/15/91	5,700	320	29	120	530
	04/19/91	3,900	100	77	100	93
	07/16/91	1,800	100	5.8	41	31
	07/16/91	2,700	130	7.6	62	45
	10/08/91	1,000	17	<0.5	25	25
	02/04/92	1,700	190	5.8	18	110
	04/06/92	3,800	930	50	110	190
	05/03/92	2,400	610	8.8	90	<0.5
	08/26/92	520	36	2.0	12	7.9
	08/26/92(D)	450	33	1.7	11	3.4
	11/12/92	310	30	6.2	5.1	4.3
	11/12/92(D)	360	31	6.5	5.1	4.4
	02/18/93	----- Well Inaccessible -----				
06/04/93	----- Well Inaccessible -----					
09/10/93	----- Well Inaccessible -----					
11/17/93	----- Well Inaccessible -----					

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

Former Shell Service Station
 2724 Castro Valley Boulevard at Lake Chabot Road
 Castro Valley, California

Well Number	Date Sampled	TPH as Gasoline (ppb)	Benzene (ppb)	Toluene (ppb)	Ethylbenzene (ppb)	Xylenes (ppb)
MW-3	02/09/90	<1,000	<0.5	<0.5	<0.5	<0.5
	04/20/90	<50	<0.5	<0.5	<0.5	<0.5
	07/31/90	<50	<0.5	<0.5	<0.5	<0.5
	10/25/90	<50	<0.5	<0.5	<0.6	<0.6
	01/15/91	<50	<0.5	<0.5	<0.5	<0.5
	04/19/91	<50	<0.5	<0.5	<0.5	<0.5
	07/16/91	<50	<0.5	<0.5	<0.5	<0.5
	10/08/91	<50	<0.5	<0.5	<0.5	<0.5
	02/04/92	<50	4	2	7	3.2
	04/06/92	<50	<0.5	<0.5	<0.5	<0.5
	08/26/92	<50	<0.5	<0.5	<0.5	<0.5
	11/12/92	<50	<0.5	<0.5	<0.5	<0.5
	02/18/93	<50	<0.5	<0.5	<0.5	<0.5
	06/04/93	<50	<0.5	<0.5	<0.5	<0.5
	06/04/93(D)	<50	<0.5	<0.5	<0.5	<0.5
	09/10/93	<50	<0.5	<0.5	<0.5	<0.5
	09/10/93(D)	<50	<0.5	<0.5	<0.5	<0.5
	11/17/93	<50	<0.5	<0.5	<0.5	<0.5
11/17/93(D)	<50	<0.5	<0.5	<0.5	<0.5	
MW-5	02/09/90	<1,000	<0.5	<0.5	<0.5	<0.5
	04/20/90	<50	<0.5	<0.5	<0.5	<0.5
	07/31/90	<50	<0.5	<0.5	<0.5	<0.5
	10/25/90	<50	<0.5	<0.7	<0.6	<0.6
	01/15/91	<50	<0.5	<0.5	<0.5	<0.5
	04/19/91	<50	<0.5	<0.5	<0.5	<0.5
	07/16/91	<50	<0.5	<0.5	<0.5	<0.5
	10/08/91	<50	<0.5	<0.5	<0.5	<0.5
	02/04/92	<50	<0.5	<0.5	<0.5	<0.5
	04/06/92	<50	<0.5	<0.5	<0.5	<0.5
	08/26/92	<50	<0.5	<0.5	<0.5	<0.5
	11/12/92	<50	<0.5	<0.5	<0.5	<0.5
	02/18/93	<50	<0.5	<0.5	<0.5	<0.5
	06/04/93	<50	<0.5	<0.5	<0.5	<0.5
	09/10/93	<50	<0.5	<0.5	<0.5	<0.5
11/17/93	<50	<0.5	<0.5	<0.5	<0.5	

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

Former Shell Service Station
 2724 Castro Valley Boulevard at Lake Chabot Road
 Castro Valley, California

Well Number	Date Sampled	TPH as Gasoline (ppb)	Benzene (ppb)	Toluene (ppb)	Ethylbenzene (ppb)	Xylenes (ppb)	
OMW-6	07/16/91	<50	<0.5	<0.5	<0.5	<0.5	
	10/08/91	<50	<0.5	<0.5	<0.5	<0.5	
	02/04/92	<50	<0.5	<0.5	<0.5	<0.5	
	04/06/92	<50	<0.5	<0.5	<0.5	<0.5	
	08/26/92	<50	<0.5	<0.5	<0.5	<0.5	
	11/12/92	<50	<0.5	<0.5	<0.5	<0.5	
	02/18/93	<50	<0.5	<0.5	<0.5	<0.5	
	02/18/93(D)	<50	<0.5	<0.5	<0.5	<0.5	
	06/04/93	<50	<0.5	<0.5	<0.5	<0.5	
	09/10/93	50**	<0.5	<0.5	<0.5	<0.5	
	11/17/93	<50	<0.5	<0.5	<0.5	<0.5	
MW-7	07/16/91	1,300	440	140	6.9	160	
	10/08/91	520	230	36	26	54	
	02/04/92	640	130	51	26	79	
	04/06/92	80	32	1.7	2.3	4.4	
	05/13/92	<50	3.1	1.7	0.9	3.8	
	08/26/92	63	1.0	<0.5	2.6	<0.5	
	11/12/92	73	11	<0.5	3.7	<0.5	
	02/18/93	----- Well Inaccessible -----					
	06/04/93	----- Well Inaccessible -----					
	09/10/93	----- Well Inaccessible -----					
	11/17/93	----- Well Inaccessible -----					
OMW-8	07/16/91	<50	<0.5	0.8	<0.5	<0.5	
	10/08/91	<50	<0.5	<0.5	<0.5	<0.5	
	02/04/92	<50	0.9	1.9	0.6	3.6	
	04/06/92	<50	<0.5	<0.5	<0.5	<0.5	
	08/26/92	<50	<0.5	<0.5	<0.5	<0.5	
	11/12/92	<50	<0.5	<0.5	<0.5	<0.5	
	02/18/93	180*	<0.5	<0.5	<0.5	<0.5	
	06/04/93	<50	<0.5	<0.5	<0.5	<0.5	
	09/10/93	<50	<0.5	<0.5	<0.5	<0.5	
	11/17/93	<50	<0.5	<0.5	<0.5	<0.5	

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

Former Shell Service Station
 2724 Castro Valley Boulevard at Lake Chabot Road
 Castro Valley, California

Well Number	Date Sampled	TPH as Gasoline (ppb)	Benzene (ppb)	Toluene (ppb)	Ethylbenzene (ppb)	Xylenes (ppb)
OMW-9	03/03/93	<50	<0.5	<0.5	<0.5	<0.5
	06/04/93	<50	<0.5	<0.5	<0.5	<0.5
	09/10/93	<50	<0.5	<0.5	<0.5	<0.5
	11/17/93	----- Well Paved Over -----				

ppb = Parts per billion
 < = Denotes minimum laboratory detection limits.
 (D) = Duplicate sample
 * = Concentration due to the presence of a heavier petroleum hydrocarbon range.
 ** = Concentration due to the presence of a discrete peak not indicative of gasoline.

Table 3
Groundwater Analytical Data
Total Petroleum Hydrocarbons
(TPH as Diesel and Motor Oil)

Former Shell Service Station
 2724 Castro Valley Boulevard at Lake Chabot Road
 Castro Valley, California

Well Number	Date Sampled	TPH as Diesel (ppb)	Motor Oil (ppb)
MW-1	02/09/90	NA	NA
	04/20/90	NA	NA
	07/31/90	NA	NA
	10/25/90	<50	NA
	01/15/91	<50	NA
	01/15/91	<50	NA
	04/19/91	<50	NA
	04/19/91	<50	NA
	07/16/91	<50	<50
	10/08/91	<50	<50
	02/04/92	<50	NA
	04/06/92	<50	NA
	08/26/92	51	NA
	11/12/92	<50	NA
	02/18/93	57*	NA
	06/04/93	85	NA
	09/10/93	<50	NA
	11/17/93	<50	NA
MW-2	02/09/90	4,100	NA
	04/20/90	1,800	NA
	07/31/90	60	NA
	10/25/90	300	NA
	01/15/91	680	NA
	04/19/91	306	NA
	07/16/91	430	<50
	07/16/91	540	<50
	10/08/91	110	<50
	02/04/92	870	NA
	04/06/92	1,000	NA
	05/13/92	570	NA
	08/26/92	63	NA
	08/26/92(D)	63	NA
	11/12/92	160	NA
	11/12/92(D)	180	NA
	02/18/93	----- Well Inaccessible -----	
	06/04/93	----- Well Inaccessible -----	
09/10/93	----- Well Inaccessible -----		
11/17/93	----- Well Inaccessible -----		

Table 3 (continued)
Groundwater Analytical Data
Total Petroleum Hydrocarbons
(TPH as Diesel and Motor Oil)

Former Shell Service Station
 2724 Castro Valley Boulevard at Lake Chabot Road
 Castro Valley, California

Well Number	Date Sampled	TPH as Diesel (ppb)	Motor Oil (ppb)
MW-3	02/09/90	NA	NA
	04/20/90	NA	NA
	07/31/90	NA	NA
	10/25/90	<50	NA
	01/15/91	<50	NA
	04/19/91	<50	NA
	07/16/91	<50	1,400
	10/08/91	<50	<50
	02/04/92	<50	NA
	04/06/92	<50	NA
	08/24/92	<50	NA
	11/12/92	<50	NA
	02/18/93	<50	NA
	06/04/93	200	NA
	06/04/93(D)	<50	NA
	09/10/93	<50	NA
	09/10/93(D)	<50	NA
	11/17/93	<50	NA
	11/17/93(D)	<50	NA
MW-5	02/09/90	NA	NA
	04/20/90	NA	NA
	07/31/90	NA	NA
	10/25/90	<50	NA
	01/15/91	<50	NA
	04/19/91	<50	NA
	07/16/91	<50	<50
	10/08/91	<50	<50
	02/04/92	<50	NA
	04/06/92	<50	NA
	08/26/92	<50	NA
	11/12/92	<50	NA
	02/18/93	80*	NA
	06/04/93	170	NA
	09/10/93	<50	NA
11/17/93	<50	NA	

Table 3 (continued)
Groundwater Analytical Data
Total Petroleum Hydrocarbons
(TPH as Diesel and Motor Oil)

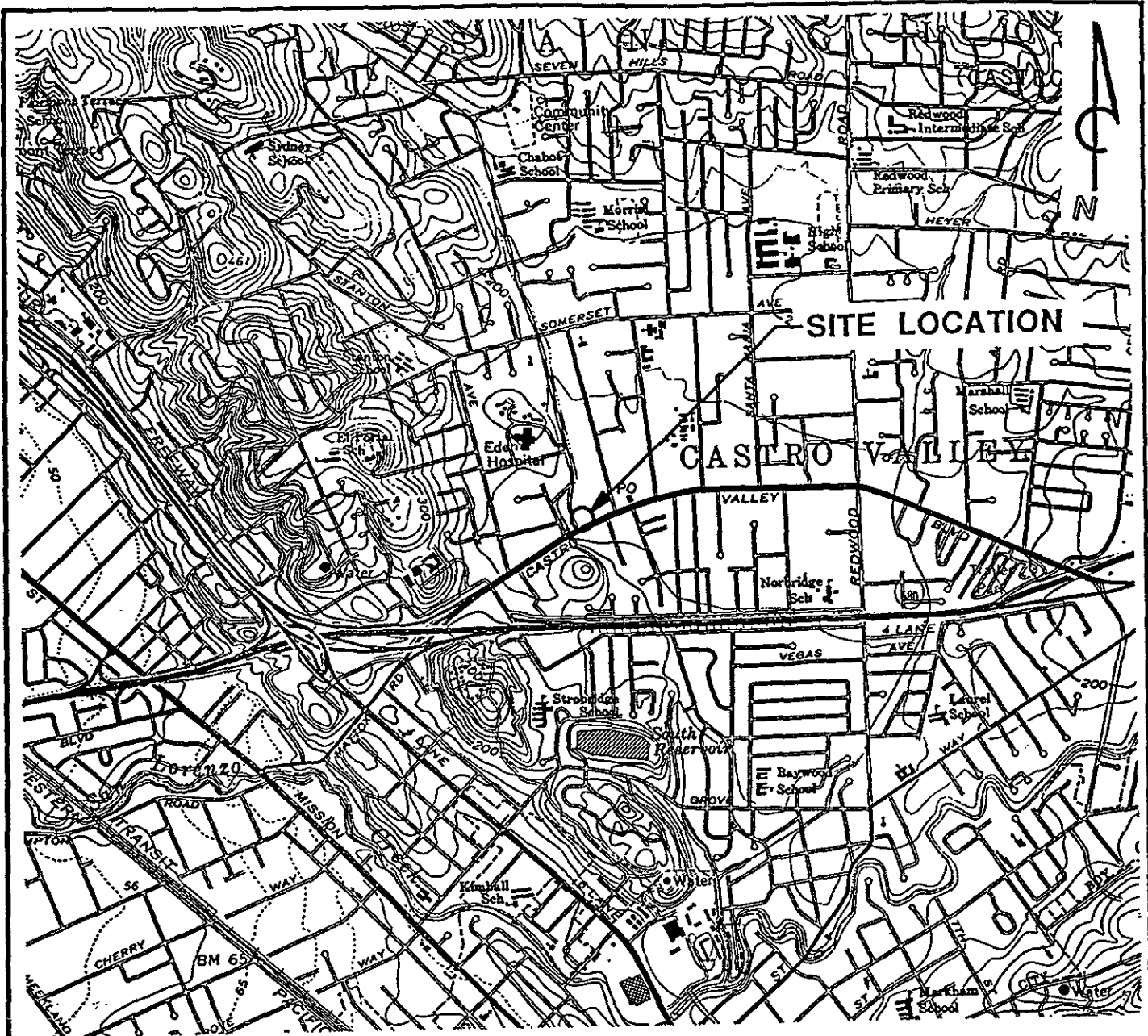
Former Shell Service Station
 2724 Castro Valley Boulevard at Lake Chabot Road
 Castro Valley, California

Well Number	Date Sampled	TPH as Diesel (ppb)	Motor Oil (ppb)
OMW-6	07/16/91	<50	<50
	10/08/91	<50	<50
	02/04/92	<50	NA
	04/06/92	<50	NA
	08/26/92	<50	NA
	11/12/92	<50	NA
	02/18/93	<50	NA
	02/18/93(D)	84*	NA
	06/04/93	<50	NA
	09/10/93	<50	NA
	11/17/93	<50	NA
	MW-7	07/16/92	270
10/08/92		<50	<50
02/04/92		140**	NA
04/06/92		<50	NA
05/13/92		<50	NA
08/26/92		<50	NA
11/12/92		<50	NA
02/18/93		----- Well Inaccessible -----	
06/04/93		----- Well Inaccessible -----	
09/10/93		----- Well Inaccessible -----	
11/17/93	----- Well Inaccessible -----		
OMW-8	07/16/91	<50	<50
	10/08/91	<50	<50
	02/04/92	<50	NA
	04/06/92	<50	NA
	08/26/92	<50	NA
	11/12/92	<50	NA
	02/18/93	<50	NA
	06/04/93	53	NA
	09/10/93	<50	NA
	11/17/93	<50	NA

Table 3 (continued)
Groundwater Analytical Data
Total Petroleum Hydrocarbons
(TPH as Diesel and Motor Oil)

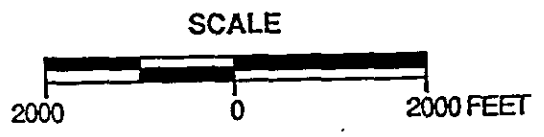
Former Shell Service Station
 2724 Castro Valley Boulevard at Lake Chabot Road
 Castro Valley, California

Well Number	Date Sampled	TPH as Diesel (ppb)	Motor Oil (ppb)
OMW-9	03/03/93	71*	NA
	06/04/93	<50	NA
	09/10/93	<50	NA
	11/17/93	----- Well Paved Over -----	
ppb = Parts per billion NA = Not analyzed < = Denotes minimum laboratory detection limits. (D) = Duplicate sample * = Concentration primarily due to the presence of a heavier petroleum hydrocarbon product. ** = The positive result for TPH-d analysis on this sample appears to be lighter hydrocarbon than diesel.			



QUADRANGLE LOCATION

REFERENCES:
 USGS 7.5 MIN. TOPOGRAPHIC MAP
 TITLED: HAYWARD, CALIFORNIA
 DATED: 1959 REVISED: 1980



PACIFIC ENVIRONMENTAL GROUP, INC.

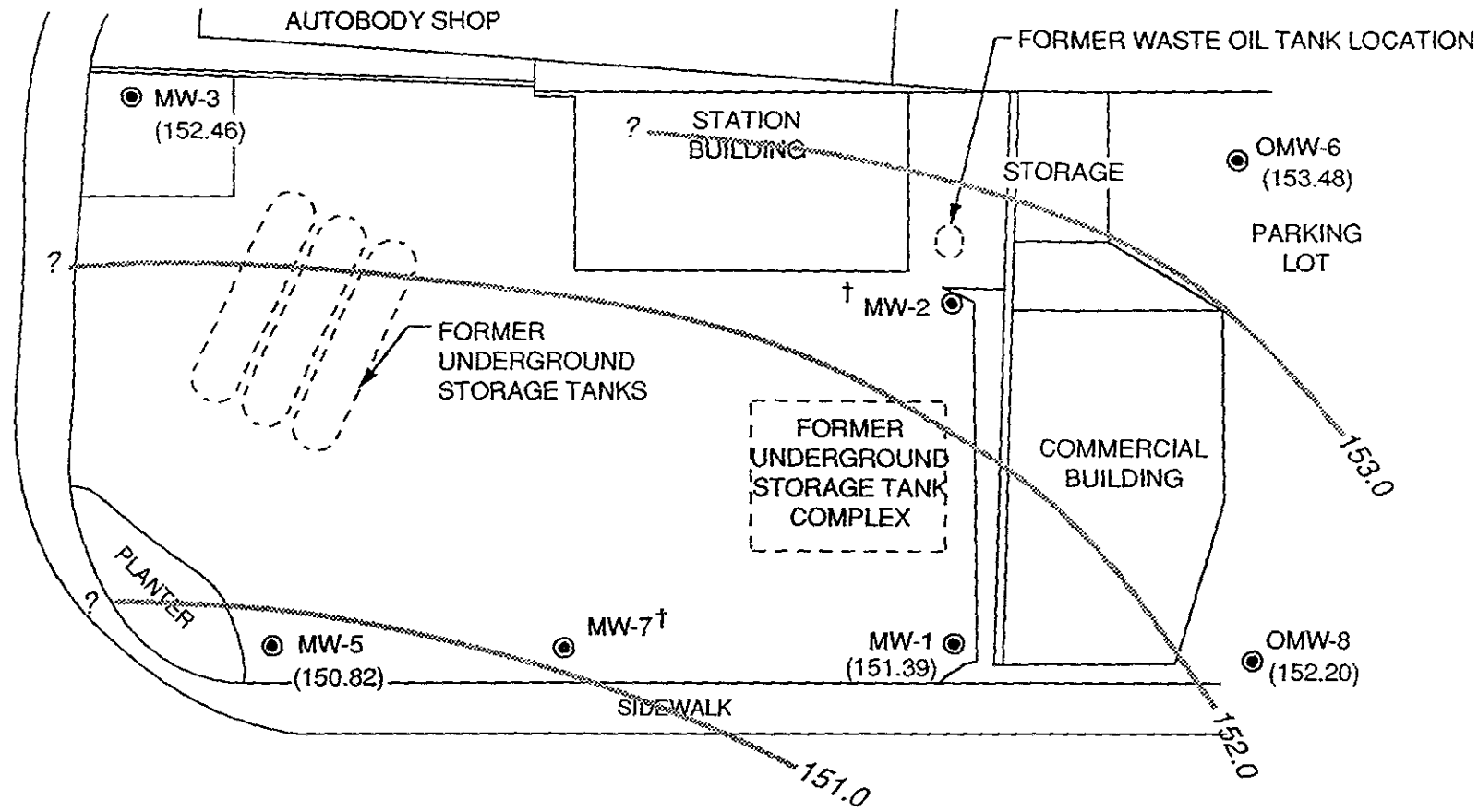
FORMER SHELL SERVICE STATION
 2724 Castro Valley Boulevard at Lake Chabot Road
 Castro Valley, California

SITE LOCATION MAP

FIGURE:
 1
PROJECT:
 305-94.01



LAKE CHABOT ROAD



CASTRO VALLEY BOULEVARD

- LEGEND**
- MW-1 ● GROUNDWATER MONITORING WELL LOCATION AND DESIGNATION
 - (153.48) GROUNDWATER ELEVATION IN FEET - MSL, 11-17-93
 - 152.0 — GROUNDWATER ELEVATION CONTOUR IN FEET - MSL, 11-17-93
 - † WELL INACCESSIBLE



APPROXIMATE DIRECTION OF GROUNDWATER FLOW

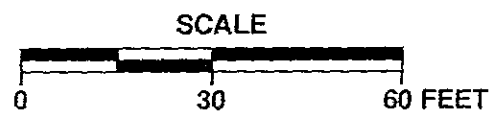
APPROXIMATE GRADIENT = 0.02

† OMW-9 ●

SIDEWALK



PACIFIC ENVIRONMENTAL GROUP, INC.



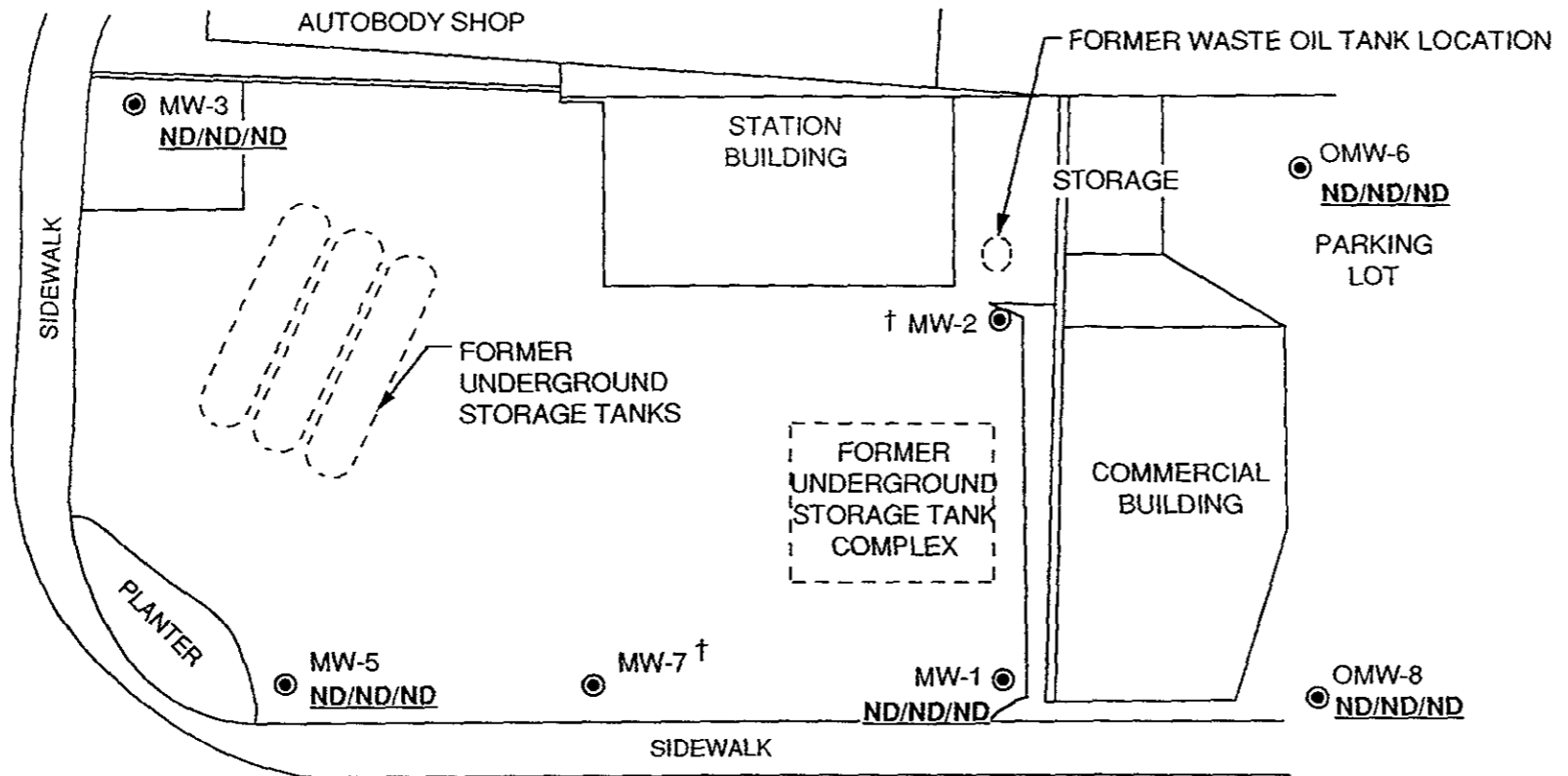
FORMER SHELL SERVICE STATION
 2724 Castro Valley Boulevard at Lake Chabot Road,
 Castro Valley, California

GROUNDWATER ELEVATION CONTOUR MAP

FIGURE:
2
 PROJECT:
 305-94.01



LAKE CHABOT ROAD



CASTRO VALLEY BOULEVARD

- LEGEND**
- MW-1 ● GROUNDWATER MONITORING WELL LOCATION AND DESIGNATION
 - ND/ND/ND TPH-g/BENZENE/TPH-d CONCENTRATION IN GROUNDWATER, IN PARTS PER BILLION, 11-17-93
 - ND NOT DETECTED
 - † WELL INACCESSIBLE

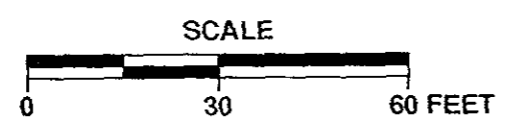


APPROXIMATE DIRECTION OF GROUNDWATER FLOW

† OMW-9 ●



PACIFIC ENVIRONMENTAL GROUP, INC.

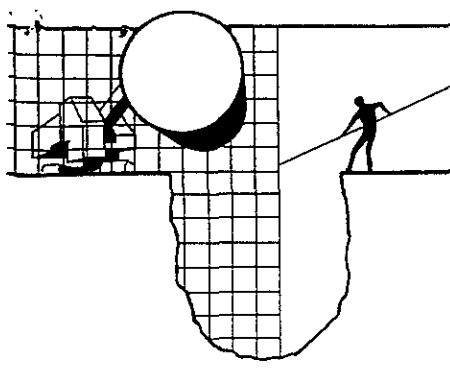


FORMER SHELL SERVICE STATION
2724 Castro Valley Boulevard at Lake Chabot Road,
Castro Valley, California

TPH-g/BENZENE/TPH-g CONCENTRATION MAP

FIGURE:
3
PROJECT:
305-094.01

ATTACHMENT A
GROUNDWATER SAMPLING REPORT



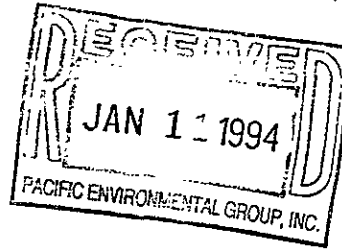
BLAINE TECH SERVICES INC.

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

December 23, 1993

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

Attn: Lynn Walker



SITE:

Shell WIC #204-1381-0407
2724 Castro Valley Blvd.
Castro Valley, California

QUARTER:

4th quarter of 1993

QUARTERLY GROUNDWATER SAMPLING REPORT 931117-A-1

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 obtained in cases where the well dewateres 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 site 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.

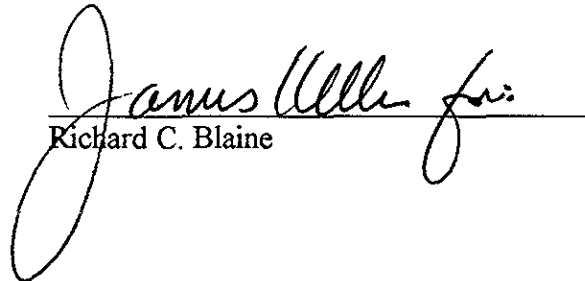
Objective Information Collection

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	11/17/93	TOC	--	NONE	--	--	9.15	14.67
MW-2	11/17/93	WELL WAS BURIED.						
MW-3 *	11/17/93	TOC	--	NONE	--	--	9.78	25.40
MW-5	11/17/93	TOC	--	NONE	--	--	9.86	22.10
OMW-6	11/17/93	TOC	--	NONE	--	--	8.74	22.08
MW-7	11/17/93	WELL WAS BURIED.						
OMW-8	11/17/93	TOC	--	NONE	--	--	8.72	20.01
OMW-9	11/17/93	UNABLE TO LOCATE						

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



SHELL OIL COMPANY
RETAIL ENVIRONMENTAL ENGINEERING - WEST

CHAIN OF CUSTODY RECORD

Serial No: 9311242

Date: 11-17-93

Page 1 of 1

Silo Address: 2724 Castro Valley Blvd., Castro Valley

Analysis Required

LAB: ANAMETRIX

WICK#: 204-1381-0407

Shell Engineer: Lynn Walker Phone No.: (510)-675-6169
Fax #: 675-6169

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

Commons:

Sampled by: Jeff Curtis

Printed Name: JEFF CURTIS

CHECK ONE (1) BOX ONLY	CI/DI	TURN AROUND TIME
Quadrant Monitoring <input checked="" type="checkbox"/>	6441	24 hours <input type="checkbox"/>
Site Investigation <input type="checkbox"/>	6441	48 hours <input type="checkbox"/>
Soil Classfy/Disposal <input type="checkbox"/>	6442	16 days <input checked="" type="checkbox"/> (Normal)
Water Classfy/Disposal <input type="checkbox"/>	6443	Other <input type="checkbox"/>
Soil/Air Rem. or Sys. O & M <input type="checkbox"/>	6444	
Water Rem. or Sys. O & M <input type="checkbox"/>	6445	
Other <input type="checkbox"/>		

Sample ID	Date	Sludge	Soil	Water	Alr	No. of conls.	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 MW1	11/17/93			W		5	X					X					ground	
② MW3						5	X					X					water	
③ MW5						5	X					X						
④ MW6						5	X					X						
⑤ MW8						5	X					X						
⑥ DWP						5	X					X						
⑦ EB						9	X					X						
⑧ TRIP						2						X						

Relinquished By (signature): <u>Jeff Curtis</u>	Printed Name: <u>JEFF CURTIS</u>	Date: <u>11-18-93</u>	Received (signature): <u>Benny S. Carrizosa</u>	Printed Name: <u>BENNY S. CARRIZOSA</u>	Date: <u>11-18-93</u>
Relinquished By (signature): <u>Benny S. Carrizosa</u>	Printed Name: <u>BENNY S. CARRIZOSA</u>	Date: <u>11-18-93</u>	Received (signature): <u>Maria Barajas</u>	Printed Name: <u>Maria Barajas</u>	Date: <u>11/18/93</u>
Relinquished By (signature):	Printed Name:	Date:	Received (signature):	Printed Name:	Date:



Inchcape Testing Services

Anamatrix 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 # : 9311242
 Date Received : 11/18/93
 Project ID : 204-1381-0407
 Purchase Order: MOH-B813

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

ANAMATRIX ID	CLIENT SAMPLE ID
9311242- 1	MW1
9311242- 2	MW3
9311242- 3	MW5
9311242- 4	MW6
9311242- 5	MW8
9311242- 6	DUP
9311242- 7	EB
9311242- 8	TRIP

This report consists of 8 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

12-14-93

Date

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

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

Workorder # : 9311242
Date Received : 11/18/93
Project ID : 204-1381-0407
Purchase Order: MOH-B813
Department : GC
Sub-Department: TPH

SAMPLE INFORMATION:

ANAMETRIX SAMPLE ID	CLIENT SAMPLE ID	MATRIX	DATE SAMPLED	METHOD
9311242- 1	MW1	WATER	11/17/93	TPHd
9311242- 2	MW3	WATER	11/17/93	TPHd
9311242- 3	MW5	WATER	11/17/93	TPHd
9311242- 4	MW6	WATER	11/17/93	TPHd
9311242- 5	MW8	WATER	11/17/93	TPHd
9311242- 6	DUP	WATER	11/17/93	TPHd
9311242- 7	EB	WATER	11/17/93	TPHd
9311242- 1	MW1	WATER	11/17/93	TPHgBTEX
9311242- 2	MW3	WATER	11/17/93	TPHgBTEX
9311242- 3	MW5	WATER	11/17/93	TPHgBTEX
9311242- 4	MW6	WATER	11/17/93	TPHgBTEX
9311242- 5	MW8	WATER	11/17/93	TPHgBTEX
9311242- 6	DUP	WATER	11/17/93	TPHgBTEX
9311242- 7	EB	WATER	11/17/93	TPHgBTEX
9311242- 8	TRIP	WATER	11/17/93	TPHgBTEX

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

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

Workorder # : 9311242
Date Received : 11/18/93
Project ID : 204-1381-0407
Purchase Order: MOH-B813
Department : GC
Sub-Department: TPH

QA/QC SUMMARY :

- No QA/QC problems encountered for these samples.

Cheryl Balmer 12/8/93
Department Supervisor Date

Peggie Dawson 12/9/93
Chemist Date

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

Anamatrix W.O.: 9311242
Matrix : WATER
Date Sampled : 11/17/93

Project Number : 204-1381-0407
Date Released : 11/29/93

COMPOUNDS	Reporting Limit (ug/L)	Sample I.D.# MW1	Sample I.D.# MW3	Sample I.D.# MW5	Sample I.D.# MW6	Sample I.D.# MW8
Benzene	0.5	ND	ND	ND	ND	ND
Toluene	0.5	ND	ND	ND	ND	ND
Ethylbenzene	0.5	ND	ND	ND	ND	ND
Total Xylenes	0.5	ND	ND	ND	ND	ND
TPH as Gasoline	50	ND	ND	ND	ND	ND
% Surrogate Recovery		96%	104%	98%	102%	115%
Instrument I.D.		HP12	HP12	HP12	HP12	HP12
Date Analyzed		11/19/93	11/19/93	11/20/93	11/20/93	11/20/93
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 (Dilution).

Anamatrix control limits for surrogate p-Bromofluorobenzene recovery are 61-139%.

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

Reggie Davison 12/9/93
Analyst Date

Cheyl Balma 12/8/93
Supervisor Date

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

Anamatrix W.O.: 9311242
Matrix : WATER
Date Sampled : 11/17/93

Project Number : 204-1381-0407
Date Released : 11/29/93

Reporting Limit	Sample I.D.# DUP	Sample I.D.# EB	Sample I.D.# TRIP	Sample I.D.# BN1901E2
COMPOUNDS (ug/L)	-06	-07	-08	BLANK
Benzene	0.5	ND	ND	ND
Toluene	0.5	ND	0.7	ND
Ethylbenzene	0.5	ND	ND	ND
Total Xylenes	0.5	ND	ND	ND
TPH as Gasoline	50	ND	ND	ND
% Surrogate Recovery	103%	98%	100%	94%
Instrument I.D.	HP12	HP12	HP12	HP12
Date Analyzed	11/20/93	11/19/93	11/19/93	11/19/93
RLMF	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 (Dilution).

Anamatrix control limits for surrogate p-Bromofluorobenzene recovery are 61-139%.

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

Peggie Dawson 12/9/93
Analyst Date

Cheryl Belmer 12/6/93
Supervisor Date

ANALYSIS DATA SHEET - TOTAL PETROLEUM HYDROCARBONS AS DIESEL
ANAMETRIX, INC. (408) 432-8192

Anamatrix W.O.: 9311242
Matrix : WATER
Date Sampled : 11/17/93
Date Extracted: 11/19/93

Project Number : 204-1381-0407
Date Released : 12/08/93
Instrument I.D.: HP23

Anamatrix I.D.	Client I.D.	Date Analyzed	Reporting Limit (ug/L)	Amount Found (ug/L)	Surrogate %Rec
9311242-01	MW1	12/02/93	50	ND	34%
9311242-02	MW3	11/25/93	50	ND	59%
9311242-03	MW5	12/07/93	50	ND	68%
9311242-04	MW6	11/25/93	50	ND	60%
9311242-05	MW8	11/25/93	50	ND	57%
9311242-06	DUP	11/25/93	50	ND	56%
9311242-07	EB	11/25/93	50	ND	30%
BN1911F1	METHOD BLANK	11/25/93	50	ND	40%

Note : Reporting limit is obtained by multiplying the dilution factor times 50 ug/L.
The surrogate recovery limits for C25 are 30-130%.

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

TPHd - Total Petroleum Hydrocarbons as diesel is determined by GCFID following sample extraction by EPA Method 3510.

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

Luina Sher 12/14/93
Analyst Date

Cheryl Balmer 12/14/93
Supervisor Date

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

Sample I.D. : 204-1381-0407 MW5
 Matrix : WATER
 Date Sampled : 11/17/93
 Date Analyzed : 11/20/93

Anamatrix I.D. : 11242-03
 Analyst : RD
 Supervisor : *AS*
 Date Released : 11/29/93
 Instrument ID : HP12

COMPOUND	SPIKE AMT (ug/L)	SAMPLE AMT (ug/L)	REC MS (ug/L)	% REC MS	REC MD (ug/L)	% REC MD	RPD	% REC LIMITS *
GASOLINE	500	0	400	80%	380	76%	-5%	48-149
P-BFB				129%		117%		61-139

* Quality control 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 : 11/20/93

Anamatrix I.D. : MN1902E1
 Analyst : RD
 Supervisor : *CS*
 Date Released : 11/24/93
 Instrument I.D.: HP12

COMPOUND	SPIKE AMT. (ug/L)	REC LCS (ug/L)	%REC LCS	% REC LIMITS *
GASOLINE	500	490	98%	67-127
p-BFB			91%	61-139

* Quality control limits established by Anamatrix, Inc.

TOTAL EXTRACTABLE HYDROCARBON LABORATORY CONTROL SAMPLE REPORT
 EPA METHOD 3510 WITH GC/FID
 ANAMETRIX, INC. (408) 432-8192

Sample I.D. : LAB CONTROL SAMPLE
 Matrix : WATER
 Date Sampled : N/A
 Date Extracted: 11/19/93
 Date Analyzed : 11/25/93

Anamatrix I.D. : MN1911F1
 Analyst : RD
 Supervisor : A
 Date Released : 12/08/93
 Instrument I.D.: HP23

COMPOUND	SPIKE AMT (ug/L)	LCS REC (ug/L)	% REC LCS	LCSD REC (ug/L)	% REC LCSD	RPD	% REC LIMITS
DIESEL	1250	1050	84%	930	74%	-12%	47-130
SURROGATE			66%		48%		30-130

* Quality control limits established by Anamatrix, Inc.