PACIFIC
ENVIRONMENTAL
GROUP, INC.

April 27, 1995
Project 330-041.2B

Mr. Michael Whelan
ARCO Products Company
2155 South Bascom Avenue, Suite 202
Campbell, California 95008

Re: Quarterly Report - First Quarter 1995
ARCO Service Station 4494
566 Hegenberger Road at Edes Avenue
Oakland, California

Dear Mr. Whelan:

This letter, prepared by Pacific Environmental Group, Inc. (PACIFIC) on behalf of ARCO Products Company, presents the results of the first quarter 1995 groundwater monitoring at the site referenced above. In addition, a summary of work completed and anticipated at the site is included.

QUARTERLY GROUNDWATER MONITORING RESULTS

Groundwater samples were collected from Well RW-1 by PACIFIC on February 22, 1995, and analyzed for the presence of total petroleum hydrocarbons calculated as gasoline (TPH-g), benzene, toluene, ethylbenzene, and xylenes (BTEX compounds). Only Well RW-1 is sampled quarterly. As indicated in the fourth quarter 1994 report, Wells MW-1, and MW-3 through MW-7 are sampled annually in the second quarter. A groundwater sampling schedule is presented in Table 1. The certified analytical report, chain-of-custody documentation, and field data sheets are presented as Attachment A. Field and laboratory procedures are presented as Attachment B.

Depth to water data collected on February 22, 1995 indicate that groundwater levels across the site have fallen an average of 0.54 foot since November 17, 1994. Groundwater flow was to the northwest with an approximate gradient ranging between 0.04 to 0.007. This flow direction and gradient are consistent with historical data. Groundwater

elevation data are presented in Table 1. A groundwater elevation contour map based on the February 22, 1995 data is shown on Figure 1.

TPH-g and benzene were detected in Well RW-1 at concentrations of 8,100 and 140 parts per billion, respectively. Separate-phase hydrocarbons were not observed in any site well this quarter. Groundwater analytical data are presented in Table 2. A TPH-g and benzene concentration map is shown on Figure 2.

SUMMARY OF WORK

Work Performed First Quarter 1995

- Performed first quarter 1995 groundwater monitoring event. Groundwater sampling was performed by PACIFIC.
- Prepared and submitted fourth quarter 1994 groundwater monitoring report.

Work Anticipated Second Quarter 1995

- Preparation and submittal of first quarter 1995 groundwater monitoring report.
- Performance of second quarter 1995 groundwater monitoring event. Groundwater sampling to be performed by PACIFIC.
- Preparation of second quarter 1995 groundwater monitoring report.

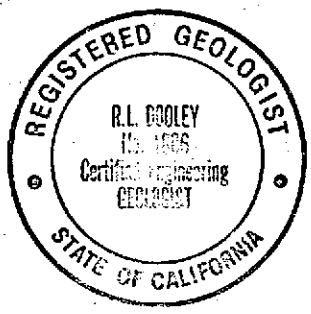
If there are any questions regarding the contents of this letter, please call.

Sincerely,

Pacific Environmental Group, Inc.

Edward Buskirk
Project Scientist

R. Lee Dooley
Senior Geologist
CEG 1006



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Attachments:
- Table 1 - Groundwater Sampling Schedule
- Table 2 - Liquid Surface Elevation Data
- Table 3 - Groundwater Analytical Data - Total Petroleum Hydrocarbons (TPH as Gasoline and BTEX Compounds)
- Figure 1 - Groundwater Elevation Contour Map
- Figure 2 - TPH-g/Benzene Concentration Map
- Attachment A - Certified Analytical Report, Chain-of-Custody Documentation, and Field Data Sheets
- Attachment B - Field and Laboratory Procedures

cc: Mr. Kevin Graves, Regional Water Quality Control Board - S.F. Bay Region
Mr. Dan[illegible], Alameda County Health Care Services Agency

Table 1
Groundwater Sampling Schedule

ARCO Service Station 4494
566 Hegenberger Road at Edes Avenue
Oakland, California

Well Number	First Quarter	Second Quarter	Third Quarter	Fourth Quarter	Sample Frequency
MW-1		a			Annually
MW-2		a			Annually
MW-3		a			Annually
MW-4		a			Annually
MW-5		a			Annually
MW-6		a			Annually
MW-7		a			Annually
RW-1	a	a	a	a	Quarterly

a. Samples analyzed for TPH-g and BTEX compounds according to EPA Methods 8015 (modified), 8020, and 5030.

Table 2
Liquid Surface Elevation Data

ARCO Service Station 4494
566 Hegenberger Road at Edes Avenue
Oakland, California

Well Number	Date Gauged	Well Elevation (feet, MSL)	Depth to Water (feet, TOC)	Depth to Liquid (feet, TOC)	SPH Thickness (feet)	Liquid Surface Elevation (feet, MSL)
MW-1	06/06/90	105.31	6.65	6.05	0.00	98.66
	08/16/90		7.00	7.00	0.00	98.31
	08/21/90		7.05	7.05	0.00	98.26
	09/07/90		7.24	7.24	0.00	98.07
	11/20/90		7.46	7.46	0.00	97.85
	11/29/90		7.40	7.40	0.00	97.91
	12/19/90		6.99	6.99	0.00	98.32
	01/29/91		7.23	7.23	0.00	98.08
	02/27/91		7.45	7.45	0.00	97.86
	03/07/91		6.96	6.96	0.00	98.35
	03/26/91		6.02	6.02	0.00	99.29
	05/02/91		7.04	7.04	0.00	98.27
	06/27/91		6.71	6.71	0.00	98.60
	07/24/91		6.91	6.91	0.00	98.40
	08/22/91		6.85	6.85	0.00	98.46
	09/30/91		7.04	7.04	0.00	98.27
	10/17/91		7.22	7.22	0.00	98.09
	11/21/91		7.17	7.17	0.00	98.14
	12/18/91		7.46	7.46	0.00	97.85
	01/19/92		7.44	7.44	0.00	97.87
	02/20/92		6.25	6.25	0.00	99.06
	03/20/92		6.40	6.40	0.00	98.91
	04/20/92		6.88	6.88	0.00	98.43
	05/19/92		7.10	7.10	0.00	98.21
	06/08/92		7.22	7.22	0.00	98.09
	07/15/92		7.92	7.92	0.00	97.39
	08/06/92	106.10	7.29	7.29	0.00	98.81
	10/29/92		7.34	7.34	0.00	98.76
	11/23/92		8.15	8.15	0.00	97.95
	08/16/93		7.23	7.23	0.00	98.87
	11/17/93		7.51	7.51	0.00	98.59
	02/21/94		6.56	6.56	0.00	99.54
	05/11/94		6.57	6.57	0.00	99.53
	08/12/94		7.12	7.12	0.00	98.98
	11/17/94		6.85	6.85	0.00	99.25
	02/22/95		7.35	7.35	0.00	98.75
MW-2	06/06/90	105.78	9.92 *	9.00	0.92	95.86
	08/16/90		NM	NM	0.17	NM
	08/21/90		NM	NM	0.17	NM
	09/07/90		9.34 *	9.17	0.17	96.44
	11/20/90		9.20 *	9.20	Sheen	96.58
	11/29/90		9.92 *	9.92	Sheen	95.86
	12/19/90		8.95	8.95	0.00	96.83
	01/29/91		9.01	9.01	Sheen	96.77
	02/27/91		9.14	9.14	Sheen	96.64
	03/07/91		8.94	8.94	Sheen	96.84
	03/26/91		8.11	8.11	Sheen	97.67
	05/02/91		8.72	8.72	0.00	97.06
	06/27/91		9.20	9.20	Sheen	96.58
	07/24/91		9.25	9.25	0.00	96.53
	08/22/91		9.20	9.20	0.00	96.58
	09/30/91		9.31	9.31	Sheen	96.47
	10/17/91		9.39	9.39	Sheen	96.39
	11/21/91		9.20	9.20	0.00	96.58
	12/18/91		9.23	9.23	Sheen	96.55

Table 2 (continued)
Liquid Surface Elevation Data

ARCO Service Station 4494
566 Hegenberger Road at Edes Avenue
Oakland, California

Well Number	Date Gauged	Well Elevation (feet, MSL)	Depth to Water (feet, TOC)	Depth to Liquid (feet, TOC)	SPH Thickness (feet)	Liquid Surface Elevation (feet, MSL)
MW-2	01/19/92		9.96 **	9.96	Skimmer	95.82
(cont.)	02/20/92		9.13 **	9.13	Skimmer	96.65
	03/20/92		9.31 **	9.31	Skimmer	96.47
	04/20/92		9.69	9.69	Skimmer	96.09
	05/19/92		9.92	9.92	Skimmer	95.86
	06/08/92		9.84	9.84	Skimmer	95.94
	07/15/92		10.19	10.19	Skimmer	95.59
	08/06/92	106.57	10.05	10.05	Skimmer	96.52
	10/29/92		10.00	10.00	Skimmer	96.57
	11/23/92		9.88	9.87	0.01	96.69
	12/08/92	----------	----------	Well Destoyed	----------	----------
MW-3	08/16/90	105.51	8.87	8.87	0.00	96.64
	08/21/90		8.85	8.85	0.00	96.66
	09/07/90		8.98	8.98	0.00	96.53
	11/20/90		9.10	9.10	0.00	96.41
	11/29/90		9.05	9.05	0.00	96.46
	12/19/90		8.67	8.67	0.00	96.84
	01/29/91		8.96	8.96	0.00	96.55
	02/27/91		8.71	8.71	0.00	96.80
	03/07/91		8.49	8.49	0.00	97.02
	03/26/91		7.65	7.65	0.00	97.86
	05/02/91		8.62	8.62	0.00	96.89
	06/27/91		8.94	8.94	0.00	96.57
	07/24/91		8.96	8.96	0.00	96.55
	08/22/91		8.92	8.92	0.00	96.59
	09/30/91		9.04	9.04	0.00	96.47
	10/17/91		9.12	9.12	0.00	96.39
	11/21/91		8.92	8.92	0.00	96.59
	12/18/91		8.97	8.97	0.00	96.54
	01/19/92		8.69	8.69	0.00	96.82
	02/20/92		7.78	7.78	0.00	97.73
	03/20/92		8.15	8.15	0.00	97.36
	04/20/92		8.57	8.57	0.00	96.94
	05/19/92		8.76	8.76	0.00	96.75
	06/08/92		8.74	8.74	0.00	96.77
	07/15/92		9.12	9.12	0.00	96.39
	08/06/92	106.29	8.95	8.95	0.00	97.34
	10/29/92		8.78	8.78	0.00	97.51
	11/23/92		9.91	9.91	0.00	96.38
	08/16/93		8.62	8.62	0.00	97.67
	11/17/93		8.72	8.72	0.00	97.57
	02/21/94		7.91	7.91	0.00	98.38
	05/11/94		8.09	8.09	0.00	98.20
	08/12/94		8.78	8.78	0.00	97.51
	11/17/94		8.45	8.45	0.00	97.84
	02/22/95		8.95	8.95	0.00	97.34
MW-4	08/16/90	106.61	8.16	8.16	0.00	98.45
	08/21/90		8.22	8.22	0.00	98.39
	09/07/90		8.39	8.39	0.00	98.22
	11/20/90		8.57	8.57	0.00	98.04
	11/29/90		8.53	8.53	0.00	98.08
	12/19/90		8.13	8.13	0.00	98.48
	01/29/91		8.66	8.66	0.00	97.95
	02/27/91		8.44	8.44	0.00	98.17

Table 2 (continued)
Liquid Surface Elevation Data

ARCO Service Station 4494
566 Hegenberger Road at Edes Avenue
Oakland, California

Well Number	Date Gauged	Well Elevation (feet, MSL)	Depth to Water (feet, TOC)	Depth to Liquid (feet, TOC)	SPH Thickness (feet)	Liquid Surface Elevation (feet, MSL)
MW-4	03/07/91		8.18	8.18	0.00	98.43
(cont.)	03/26/91		7.56	7.56	0.00	99.05
	05/02/91		8.25	8.25	0.00	98.36
	06/27/91		7.75	7.75	0.00	98.86
	07/24/91		8.12	8.12	0.00	98.49
	08/22/91		7.98	7.98	0.00	98.63
	09/30/91		8.26	8.26	0.00	98.35
	10/17/91		8.42	8.42	0.00	98.19
	11/21/91		8.65	8.65	0.00	97.96
	12/18/91		8.77	8.77	0.00	97.84
	01/19/92		8.42	8.42	0.00	98.19
	02/20/92		7.60	7.60	0.00	99.01
	03/20/92		7.61	7.61	0.00	99.00
	04/20/92		8.15	8.15	0.00	98.46
	05/19/92		8.14	8.14	0.00	98.47
	06/08/92		8.40	8.40	0.00	98.21
	07/15/92		8.72	8.72	0.00	97.89
	08/06/92	107.40	8.52	8.52	0.00	98.88
	10/29/92		8.63	8.63	0.00	98.77
	11/23/92		8.75	8.75	0.00	98.65
	08/16/93		8.69	8.69	0.00	98.71
	11/17/93		9.11	9.11	0.00	98.29
	02/21/94		8.16	8.16	0.00	99.24
	05/11/94		8.29	8.29	0.00	99.11
	08/12/94		8.75	8.75	0.00	98.65
	11/17/94		8.40	8.40	0.00	99.00
	02/22/95		8.72	8.72	0.00	98.68
MW-5	08/06/92	105.19	7.19	7.19	0.00	98.00
	10/29/92		6.99	6.99	0.00	98.20
	11/23/92		6.90	6.90	0.00	98.29
	08/16/93		7.06	7.06	0.00	98.13
	11/17/93		6.91	6.91	0.00	98.28
	02/21/94		5.52	5.52	0.00	99.67
	05/11/94		6.18	6.18	0.00	99.01
	08/12/94		6.81	6.81	0.00	98.38
	11/17/94		5.38	5.38	0.00	99.81
	02/22/95		6.25	6.25	0.00	98.94
MW-6	08/06/92	105.07	7.01	7.01	0.00	98.06
	10/29/92		6.70	6.70	0.00	98.37
	11/23/92		6.75	6.75	0.00	98.32
	08/16/93		6.71	6.71	0.00	98.36
	11/17/93		6.67	6.67	0.00	98.40
	02/21/94		5.31	5.31	0.00	99.76
	05/11/94		5.98	5.98	0.00	99.09
	08/12/94		6.60	6.60	0.00	98.47
	11/17/94		5.09	5.09	0.00	99.98
	02/22/95		5.85	5.85	0.00	99.22
MW-7	08/06/92	105.52	8.28	8.28	0.00	97.24
	10/29/92		8.62	8.62	0.00	96.90
	11/23/92		8.21	8.21	0.00	97.31
	08/16/93		8.11	8.11	0.00	97.41
	11/17/93		8.11	8.11	0.00	97.41
	02/21/94		7.34	7.34	0.00	98.18

Table 2 (continued)
Liquid Surface Elevation Data

ARCO Service Station 4494
566 Hegenberger Road at Edes Avenue
Oakland, California

Well Number	Date Gauged	Well Elevation (feet, MSL)	Depth to Water (feet, TOC)	Depth to Liquid (feet, TOC)	SPH Thickness (feet)	Liquid Surface Elevation (feet, MSL)
MW-7	05/11/94		7.45	7.45	0.00	98.07
(cont.)	08/12/94		8.13	8.13	0.00	97.39
	11/17/94		7.90	7.90	0.00	97.62
	02/22/95		8.40	8.40	0.00	97.12
RW-1	08/16/93	NM	---------- Well Dry ----------			
	11/17/93		---------- Well Dry ----------			
	02/21/94		7.69	7.69	0.00	NM
	05/11/94		7.96	7.96	0.00	NM
	08/12/94		7.58	7.58	0.00	NM
	11/17/94		7.66	7.66	0.00	NM
	02/22/95		8.00	8.00	0.00	NM

MSL = Mean sea level
TOC = Top of casing
* = Separate-phase hydrocarbons present in well.
** = Skimmer installed (12/24/91).
NM = Not measured

Table 3
Groundwater Analytical Data
Total Petroleum Hydrocarbons
(TPH as Gasoline, BTEX Compounds, TPH as Diesel, and Oil and Grease)

ARCO Service Station 4494
566 Hegenberger Road at Edes Avenue
Oakland, California

Well Number	Date Sampled	TPH as Gasoline (ppb)	Benzene (ppb)	Toluene (ppb)	Ethyl-benzene (ppb)	Xylenes (ppb)	TPH as Diesel (ppb)	Total Oil and Grease (ppm)
MW-1	06/19/90	<50	<0.50	<0.50	<0.50	<0.50	<0.50	<5,000
	08/16/90	<20	<0.50	<0.50	<0.50	<0.50	N/A	N/A
	09/07/90	N/A	N/A	N/A	N/A	N/A	N/A	<5,000
	11/29/90	<50	<0.50	0.7	<0.50	<0.50	N/A	N/A
	03/07/91	<50	<0.30	<0.30	<0.30	<0.50	N/A	N/A
	06/27/91	<30	<0.30	<0.30	<0.30	<0.30	N/A	N/A
	09/30/91	<30	<0.30	<0.30	<0.30	<0.30	N/A	N/A
	12/18/91	<30	<0.30	<0.30	<0.30	<0.30	N/A	N/A
	03/20/92	<50	<0.50	<0.50	<0.50	<0.50	N/A	N/A
	06/08/92	<50	<0.50	<0.50	<0.50	<0.50	N/A	N/A
	08/06/92	<50	<0.50	<0.50	<0.50	<0.50	N/A	N/A
	10/29/92	<50	<0.5	<0.5	<0.5	<0.5	N/A	N/A
	08/16/93	<50	<0.5	<0.5	<0.5	<0.5	N/A	N/A
	11/17/93	<50	<0.5	<0.5	<0.5	<0.5	N/A	N/A
	02/22/94	<50	<0.5	<0.5	<0.5	<0.5	N/A	N/A
	05/11/94	<50	<0.5	<0.5	<0.5	<0.5	N/A	N/A
	08/12/94	<50	<0.5	<0.5	<0.5	<0.5	N/A	N/A
	11/17/94	<50	<0.5	<0.5	<0.5	<0.5	N/A	N/A
	02/22/95	Well Sampled Annually						
MW-2	06/19/90	0.92 foot of Separate-Phase Hydrocarbons						
	08/16/90	0.17 foot of Separate-Phase Hydrocarbons						
	09/07/90	0.17 foot of Separate-Phase Hydrocarbons						
	11/29/90	Separate-Phase Hydrocarbon Sheen						
	03/07/91	Separate-Phase Hydrocarbon Sheen						
	06/27/91	Separate-Phase Hydrocarbon Sheen						
	09/30/91	Separate-Phase Hydrocarbon Sheen						
	12/18/91	Separate-Phase Hydrocarbon Sheen						
	03/20/92	48,000	2,000	580	2,300	7,000	N/A	N/A
	06/08/92	43,000	2,900	940	2,400	5,100	N/A	N/A
	08/06/92	78,000	2,500	6,700	2,900	16,000	N/A	N/A
	10/29/92	NS	NS	NS	NS	NS	NS	NS
	12/08/92	Well Destroyed						
MW-3	06/19/90	<20	<0.50	<0.50	<0.50	<0.50	N/A	N/A
	08/16/90	N/A	N/A	N/A	N/A	N/A	N/A	<5,000
	09/07/90	<50	<0.50	<0.50	<0.50	<0.50	N/A	N/A
	11/29/90	<50	<0.50	<0.50	<0.50	<0.50	N/A	N/A
	03/07/91	<50	<0.30	<0.30	<0.30	<0.50	N/A	N/A
	06/27/91	<30	<0.30	<0.30	<0.50	<0.30	N/A	N/A
	09/30/91	<30	<0.30	<0.30	<0.30	<0.30	N/A	N/A
	12/18/91	<30	<0.30	<0.30	<0.30	<0.30	N/A	N/A
	03/20/92	<50	<0.50	<0.50	<0.50	<0.50	N/A	N/A
	06/08/92	<50	<0.50	<0.50	<0.50	<0.50	N/A	N/A
	08/06/92	<50	<0.50	<0.50	<0.50	<0.50	N/A	N/A
	10/29/92	<50	<0.5	<0.5	<0.5	<0.5	N/A	N/A
	08/16/93	<50	<0.5	<0.5	<0.5	<0.5	N/A	N/A
	11/17/93	<50	<0.5	<0.5	<0.5	<0.5	N/A	N/A
	02/22/94	<50	<0.5	<0.5	<0.5	<0.5	N/A	N/A
	05/11/94	<50	<0.5	<0.5	<0.5	<0.5	N/A	N/A
	08/12/94	<50	<0.5	<0.5	<0.5	<0.5	N/A	N/A
	11/17/94	<50	<0.5	<0.5	<0.5	<0.5	N/A	N/A
	02/22/95	Well Sampled Annually						

Table 3 (continued)
Groundwater Analytical Data
Total Petroleum Hydrocarbons
(TPH as Gasoline, BTEX Compounds, TPH as Diesel, and Oil and Grease)

ARCO Service Station 4494
566 Hegenberger Road at Edes Avenue
Oakland, California

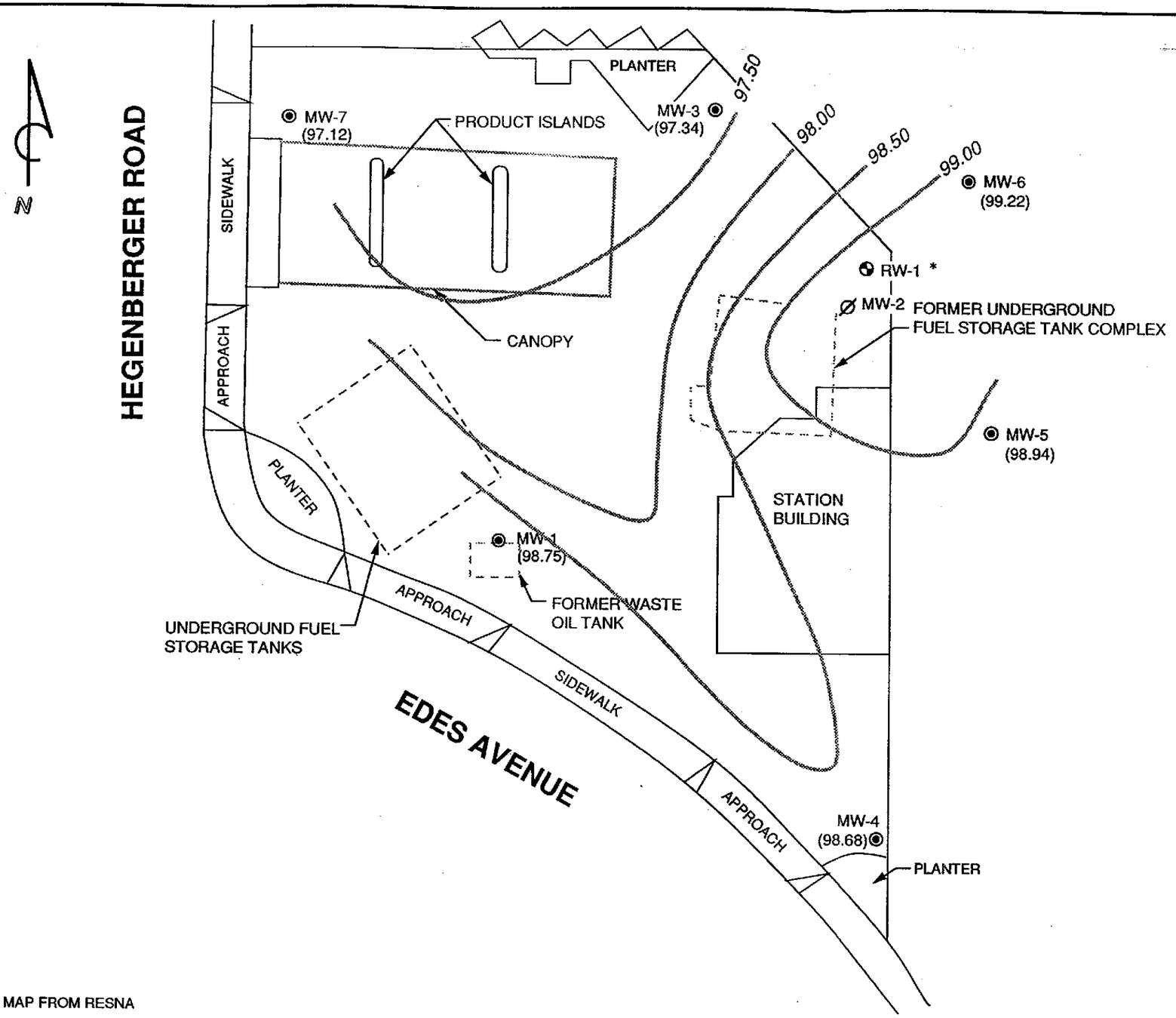
Well Number	Date Sampled	TPH as Gasoline (ppb)	Benzene (ppb)	Toluene (ppb)	Ethyl-benzene (ppb)	Xylenes (ppb)	TPH as Diesel (ppb)	Total Oil and Grease (ppm)
MW-4	08/16/90	<20	<0.50	<0.50	<0.50	<0.50	N/A	N/A
	09/07/90	N/A	N/A	N/A	N/A	N/A	N/A	<5,000
	11/29/90	<50	<0.50	<0.50	<0.50	<0.50	N/A	N/A
	03/07/91	<50	<0.30	<0.30	<0.30	<0.50	N/A	N/A
	06/27/91	<30	0.75	1.1	<0.30	1.6	N/A	N/A
	09/30/91	<30	<0.30	<0.30	<0.30	<0.30	N/A	N/A
	12/18/91	<30	0.83	1.2	<0.30	0.58	N/A	N/A
	03/20/92	<50	<0.50	<0.50	<0.50	<0.50	N/A	N/A
	06/08/92	<50	<0.50	<0.50	<0.50	<0.50	N/A	N/A
	08/06/92	<50	<0.50	<0.50	<0.50	<0.50	N/A	N/A
	10/29/92	<50	<0.5	<0.5	<0.5	<0.5	N/A	N/A
	08/16/93	<50	<0.5	<0.5	<0.5	<0.5	N/A	N/A
	11/17/93	<50	<0.5	<0.5	<0.5	<0.5	N/A	N/A
	02/22/94	<50	<0.5	<0.5	<0.5	<0.5	N/A	N/A
	05/11/94	<50	<0.5	<0.5	<0.5	<0.5	N/A	N/A
	08/12/94	<50	<0.5	<0.5	<0.5	<0.5	N/A	N/A
	11/17/94	<50	<0.5	<0.5	<0.5	<0.5	N/A	N/A
	02/22/95	Well Sampled Annually						
MW-5	08/06/92	<50	<0.50	<0.50	<0.50	<0.50	N/A	N/A
	10/29/92	<50	<0.5	<0.5	<0.5	<0.5	N/A	N/A
	08/16/93	<50	<0.5	<0.5	<0.5	<0.5	N/A	N/A
	11/17/93	<50	<0.5	<0.5	<0.5	<0.5	N/A	N/A
	02/22/94	<50	<0.5	<0.5	<0.5	0.6	N/A	N/A
	05/11/94	<50	<0.5	<0.5	<0.5	<0.5	N/A	N/A
	08/12/94	<50	<0.5	<0.5	<0.5	<0.5	N/A	N/A
	11/17/94	<50	<0.5	<0.5	<0.5	<0.5	N/A	N/A
	02/22/95	Well Sampled Annually						
MW-6	08/06/92	<50	<0.50	<0.50	<0.50	<0.50	N/A	N/A
	10/29/92	<50	<0.5	<0.5	<0.5	<0.5	N/A	N/A
	08/16/93	<50	<0.5	<0.5	<0.5	<0.5	N/A	N/A
	11/17/93	<50	<0.5	<0.5	<0.5	<0.5	N/A	N/A
	02/22/94	<50	<0.5	<0.5	<0.5	<0.5	N/A	N/A
	05/11/94	<50	<0.5	<0.5	<0.5	<0.5	N/A	N/A
	08/12/94	<50	<0.5	<0.5	<0.5	<0.5	N/A	N/A
	11/17/94	<50	<0.5	<0.5	<0.5	<0.5	N/A	N/A
	02/22/95	Well Sampled Annually						
MW-7	08/06/92	<50	<0.50	<0.50	<0.50	<0.50	N/A	N/A
	10/29/92	<50	<0.5	<0.5	<0.5	<0.5	N/A	N/A
	08/16/93	<50	<0.5	<0.5	<0.5	<0.5	N/A	N/A
	11/17/93	<50	<0.5	<0.5	<0.5	<0.5	N/A	N/A
	02/22/94	<50	<0.5	<0.5	<0.5	<0.5	N/A	N/A
	05/11/94	<50	<0.5	<0.5	<0.5	<0.5	N/A	N/A
	08/12/94	<50	<0.5	<0.5	<0.5	<0.5	N/A	N/A
	11/17/94	<50	<0.5	<0.5	<0.5	<0.5	N/A	N/A
	02/22/95	Well Sampled Annually						

Table 3 (continued)
Groundwater Analytical Data
Total Petroleum Hydrocarbons
(TPH as Gasoline, BTEX Compounds, TPH as Diesel, and Oil and Grease)

ARCO Service Station 4494
566 Hegenberger Road at Edes Avenue
Oakland, California

Well Number	Date Sampled	TPH as Gasoline (ppb)	Benzene (ppb)	Toluene (ppb)	Ethyl-benzene (ppb)	Xylenes (ppb)	TPH as Diesel (ppb)	Total Oil and Grease (ppm)
RW-1	08/16/93	NS	NS	NS	NS	NS	NS	NS
	11/17/93	NS	NS	NS	NS	NS	NS	NS
	02/22/94	280	2,100	19	40	66	N/A	N/A
	05/11/94	3,300	32	28	87	310	N/A	N/A
	08/12/94	4,600	42	59	190	400	N/A	N/A
	11/17/94	1,400	56	21	28	210	N/A	N/A
	02/22/95	8,100	140	<10	550	560	N/A	N/A

ppb = Parts per billion
ppm = Parts per million
N/A = Not applicable
NS = Not sampled



LEGEND

MW-6 ◉ GROUNDWATER MONITORING WELL LOCATION AND DESIGNATION

MW-2 ⌀ DESTROYED WELL LOCATION AND DESIGNATION

RW-1 ◔ GROUNDWATER EXTRACTION WELL LOCATION AND DESIGNATION

(99.22) LIQUID SURFACE ELEVATION IN FEET - MSL, 2-22-95

99.00 LIQUID SURFACE ELEVATION CONTOUR IN FEET - 2-22-95

* WELL NOT SURVEYED

APPROXIMATE DIRECTION OF GROUNDWATER FLOW

APPROXIMATE GRADIENT = 0.006

SOURCE: MAP FROM RESNA

PACIFIC ENVIRONMENTAL GROUP, INC.

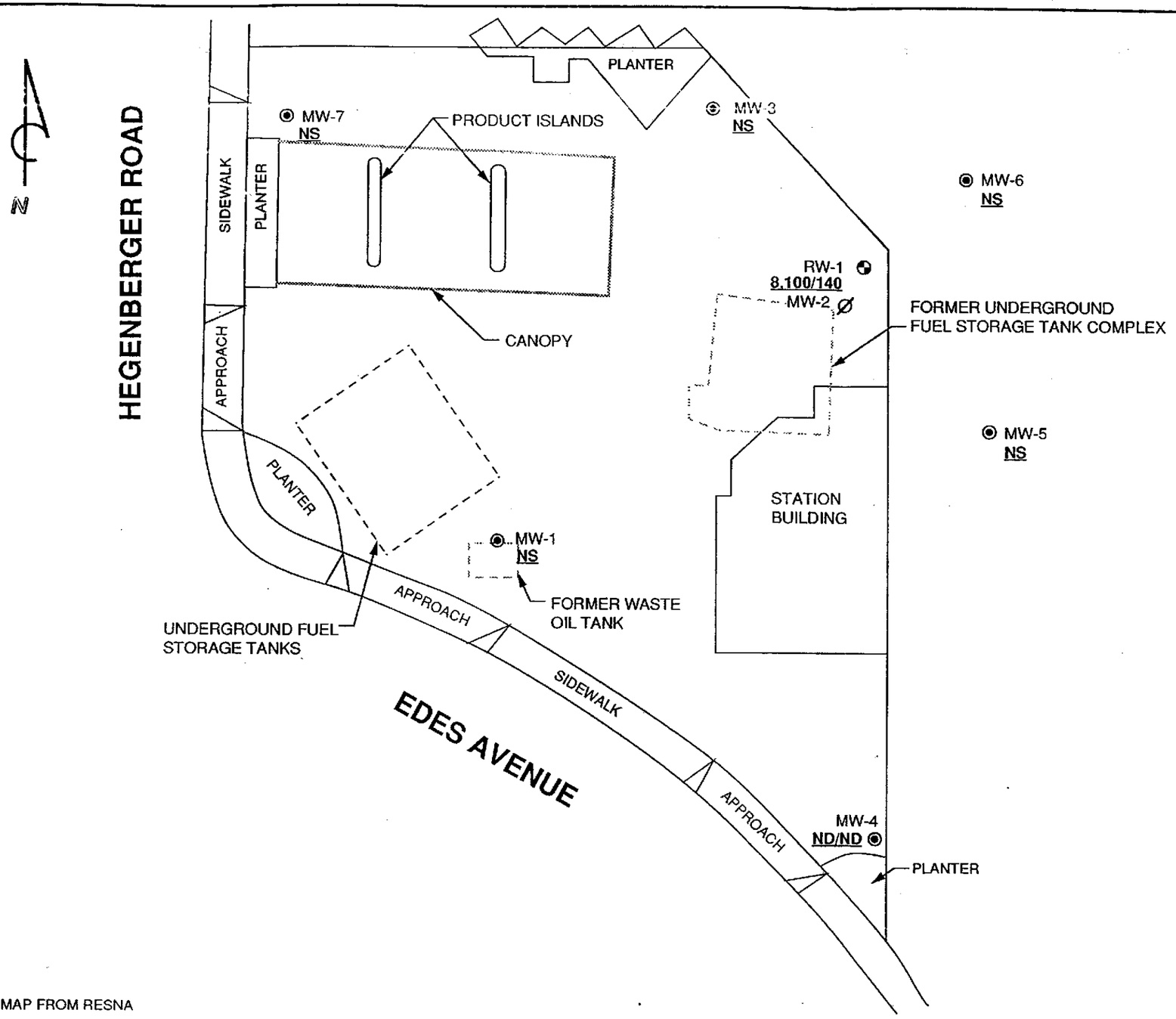
SCALE
0 30 60 FEET

ARCO SERVICE STATION 4494
566 Hegenberger Road at Edes Avenue
Oakland, California

GROUNDWATER ELEVATION CONTOUR MAP

FIGURE: 1

PROJECT: 330-041.2B



LEGEND

- MW-6 ◉ GROUNDWATER MONITORING WELL LOCATION AND DESIGNATION
- MW-2 Ø DESTROYED WELL LOCATION AND DESIGNATION
- RW-1 ◓ GROUNDWATER EXTRACTION WELL LOCATION AND DESIGNATION
- 8,100/140 TPH-g/BENZENE CONCENTRATION IN GROUNDWATER, IN PARTS PER BILLION, 2-22-95
- NS NOT SAMPLED

APPROXIMATE DIRECTION OF GROUNDWATER FLOW

SOURCE: MAP FROM RESNA

PACIFIC ENVIRONMENTAL GROUP, INC.

SCALE
0 30 60 FEET

ARCO SERVICE STATION 4494
566 Hegenberger Road at Edes Avenue
Oakland, California

TPH-g/BENZENE CONCENTRATION MAP

FIGURE:
2
PROJECT:
330-041.2B

ATTACHMENT A

CERTIFIED ANALYTICAL REPORT, CHAIN-OF-CUSTODY DOCUMENTATION, AND FIELD DATA SHEETS

WELL SAMPLING REQUEST 952956

ITE INFORMATION FORM

Identification

oject # 330-041.2G
ation # 4494
te Address: 566 Hegenberger Oakland, CA
unty: Alameda
roject Manager: K. Brown
equestor: Chuck Graves
lient: ARCO
lient P.O.C.:
ate of request: 2/17/95

Project Type

- ☐ 1st Time visit
- ☑ Quarterly
  - ☐ 1st ☐ 2nd ☐ 3rd ☐ 4th
- ☐ Monthly
- ☐ Semi-Monthly
- ☐ Weekly
- ☐ One time event
- ☐ Other:

Ideal field date(s):

FILE COPY

Prefield Contacts/Permits

- ☐ Cal Trans
- ☐ County
- ☐ City
- ☐ Private
- ☐ Multi-Consultant Scheduling

	Initials	Date
F/S	RJ	3/1/95
Copy/Dist.	RJ	↓

Date(s):

Purge Water Containment:

- ☐ Drums
- ☐ Treatment System
- ☐ Other Describe:

Field Tasks

Y H_2O levels all Wells Quarterly (TOC)
Y H_2O Sampling RW-1 Quarterly
Wells MW1 → MW7 Annually /2nd Q
GRA/BTEX

Well Development

Other:

Describe task (i.e. Well groups and analytical params):

vities occuring on site
remedial system construction, ongoing projects, etc.)

(Please attach: Site Map, Well Information Data, Site Safety Plan, Well logs as appropriate)

dgeted hours:
tual hours; On-Site: 1 1/2
b-de-Mob: 1 1/2

Site Safety

Wells	Concerns

- ☐ Flash Safety
- ☐ Flagman
- ☐ Cones
- ☐ Barricades
- ☐ No Turn/Lane Closed sign

Other:

Comments, remarks, etc. from Field Staff
(include problems encountered and out-of-scope work)

* Well MW2 is destroyed RW-1 TAKEN PLACE FOR MW-2

☒ All Wells secured

Completed by: [signature] Date: 02-22-95
Checked by: [signature] PITS Update 3-6-95

CIFIC ENVIRONMENTAL GROUP, INC.

FIELD REPORT

DEPTH TO WATER/SEPARATE-PHASE HYDROCARBON SURVEY

PROJECT No.: 330412G LOCATION: 566 Hobenbarger DATE: 02-22-95

CLIENT/STATION NO.: 04494 FIELD TECHNICIAN: Pedro Ruiz DAY OF WEEK: WED

PROBE TYPE/ID No.
- ☐ Oil/Water IF/ _____
- ☐ H_2O level indicator _____
- ☐ Other: _____

	Dtw Order	Well ID	Time	Surface Seal	Lid Secure	Gasket	Lock	Expanding Cap	Total Depth (feet) TOC	First Depth to Water (feet) TOB/TOC	Second Depth to Water (feet) TOB/TOC	SERARATE-PHASE HYDROCARBONS (SPH): SPH Depth (feet) TOB/TOC	SPH Thickness (feet)	COLOR: Fresh	Weathered	Gas	Oil	VISCOSITY: Lite	Medium	Heavy	LIQUID REMOVED (gallons): SPH	H_2O
4"		Mw1	16:20						23.35	7.43 / 7.43	7.35 / 7.35											
4"		Mw3	15:45						17.90	9.48 / 9.48	8.95 / 8.95											
4"		Mw4	16:17						16.60	9.10 / 9.10	8.72 / 8.72											
2"		Mw5	14:55						16.85	7.35 / 7.35	6.26 / 6.26											
2"		Mw6	14:50						18.10	6.75 / 6.75	5.85 / 5.85											
4"		Mw7	16:05						14.40	8.85 / 8.85	8.40 / 8.40											
2"		Rw1	15:38						11:30	8.55 / 8.55	8.08 / 8.00											

Comments: _____

WATER SAMPLE FIELD DATA SHEET

PROJECT No.: 330041.26 LOCATION: 04494 WELL ID #: RW-1

CLIENT/STATION No.: ARCO 04494 FIELD TECHNICIAN: PEDRO RUIZ

WELL INFORMATION

Depth to Liquid: — TOB — TOC
Depth to water: — TOB 8.00 (TOC)
Total depth: — TOB 11.30 (TOC)
Date: 02-22-95 Time (2400): 13:58

Probe Type and I.D. #
- ☐ Oil/Water interface
- ☐ Electronic indicator
- ☐ Other;

CASING DIAMETER	GAL/LINEAR FT.
☒ 2	0.17
☐ 3	0.38
☐ 4	0.66
☐ 4.5	0.83
☐ 5	1.02
☐ 6	1.5
☐ 8	2.6

SAMPLE TYPE
- ☒ Groundwater
- ☐ Duplicate
- ☐ Extraction well
- ☐ Trip blank
- ☐ Field blank
- ☐ Equipment blank
- ☐ Other;

TD 11.30 DTW 8.00 = 3.3 x Gal/Linear Foot .17 = .56 x Number of Casings 3 = Calculated Purge 1.68

DATE PURGED: 02-22-95 START: 16:20 END (2400 hr): — PURGED BY: PE

DATE SAMPLED: 02-22-95 START: 16:30 END (2400 hr): — SAMPLED BY: PE

TIME (2400 hr)	VOLUME (gal.)	pH (units)	E.C. (umhos/cm @ 25°C)	TEMPERATURE (°F)	COLOR	TURBIDITY	ODOR
16:23	.50	7.00	7.480	64.5	Cloudy	Mod	Strong
16:25	1	7.06	7.150	62.5	"	"	"
16:28	1.5	7.03	7.380	61.5	"	"	"

Pumped dry Yes (No)

Color: Cobalt 0-100, Clear, Cloudy, Yellow, Brown
Turbidity: NTU 0-200, Heavy, Moderate, Light, Trace
Odor: Strong, Moderate, Faint, None

FIELD MEASUREMENTS AT TIME OF SAMPLE, AFTER RECHARGE:

DTW: ____ TOB (TOC) ____

PURGING EQUIPMENT/I.D. #
- ☒ Bailer: 4-11
- ☒ Centrifugal Pump: ____ ☐ Dedicated: ____
- ☐ Airlift Pump: ____
- ☐ Other: ____

SAMPLING EQUIPMENT/I.D. #
- ☒ Bailer: 4-11
- ☐ Dedicated: ____
- ☐ Other: ____

SAMP. CNTRL #	DATE	TIME (2400)	No. of Cont.	SIZE	CONTAINER	PRESERVE	ANALYTICAL PARAMETER
RW1	02-22-95	16:30	3	40ml	VOA	HCL	GAS/BTEX

REMARKS: ____

SIGNATURE: ____

PACIFIC ENVIRONMENTAL GROUP, INC.

WATER SAMPLE FIELD DATA SHEET

PROJECT No.: 330041.26 LOCATION: 04494 WELL ID #: TB-1

CLIENT/STATION No.: ARCO 04494 FIELD TECHNICIAN: Pedro Ruiz

WELL INFORMATION

Depth to Liquid: ____ TOB ____ TOC
Depth to water: ____ TOB ____ (TOC)
Total depth: ____ TOB ____ (TOC)
Date: ____ Time (2400): ____

Probe Type and I.D. #
- ☐ Oil/Water interface ____
- ☐ Electronic indicator ____
- ☐ Other; ____

CASING DIAMETER		GAL/ LINEAR FT.
☐	2	0.17
☐	3	0.38
☐	4	0.66
☐	4.5	0.83
☐	5	1.02
☐	6	1.5
☐	8	2.6

SAMPLE TYPE
- ☒ Groundwater
- ☐ Duplicate
- ☐ Extraction well
- ☒ Trip blank
- ☐ Field blank
- ☐ Equipment blank
- ☐ Other; ____

TD ____ - DTW ____ = ____ x Gal/Linear Foot ____ = ____ x Number of Casings 3 = Calculated Purge ____

DATE PURGED: ____ START: ____ END (2400 hr): ____ PURGED BY: ____

DATE SAMPLED: ____ START: ____ END (2400 hr): ____ SAMPLED BY: ____

TIME (2400 hr)	VOLUME (gal.)	pH (units)	E.C. (umhos/cm @ 25°C)	TEMPERATURE (° F)	COLOR	TURBIDITY	ODOR

Pumped dry Yes / No

Cobalt 0-100, Clear, Cloudy, Yellow, Brown | NTU 0-200, Heavy, Moderate, Light, Trace | Strong, Moderate, Faint, None

FIELD MEASUREMENTS AT TIME OF SAMPLE, AFTER RECHARGE:

DTW: ____ TOB (TOC) ____

PURGING EQUIPMENT/I.D. #
- ☐ Bailer: ____
- ☒ Centrifugal Pump: ____
- ☐ Other: ____
- ☐ Airlift Pump: ____
- ☐ Dedicated: ____

SAMPLING EQUIPMENT/I.D. #
- ☒ Bailer: ____
- ☐ Dedicated: ____
- ☐ Other: ____

SAMP. CNTRL #	DATE	TIME (2400)	No. of Cont.	SIZE	CONTAINER	PRESERVE	ANALYTICAL PARAMETER
TB-1	02-22-95	NA	3	40ml	VOA	HCL	GAS/BTEX

REMARKS: ____

SIGNATURE: ____

PACIFIC ENVIRONMENTAL GROUP, INC.

ARCO Products Company

Division of AtlanticRichfieldCompany

330 041 2G Task Order No. 170760 00

Chain of Custody

ARCO Facility no. 1194	City (Facility) 566 Hegenberger Oakland	Project manager (Consultant) Kelly Brown	Laboratory name Sequoia
ARCO engineer Whelan	Telephone no. (ARCO)	Telephone no. (Consultant) 408 441 7500	Fax no. (Consultant) 408 7539
Consultant name Pacific Environmental Group	Address (Consultant) 2025 Gateway Place #440 San Jose		Contract number

Sample I.D.	Lab no.	Container no.	Matrix: Soil	Matrix: Water	Matrix: Other	Preservation: Ice	Preservation: Acid	Sampling date	Sampling time	BTEX 602/EPA 8020	BTEX/TPH EPA M602/8020/8015	TPH Modified 8015 Gas ☐ Diesel ☐	Oil and Grease 413.1 ☐ 413.2 ☐	TPH EPA 418.1/SM503E	EPA 601/8010	EPA 624/8240	EPA 625/8270	TCLP Metals ☐ VOA ☐ VOA ☐ Semi	CAM Metals EPA 6010/7000 TTLC ☐ STLC ☐	Lead Org./DHS ☐ Lead EPA 7420/7421 ☐		
BW1		3		X		X		02-22-95	16:30		X											
TB1		2		X		X		↓	NA		↓											

Special detection Limit/reporting

Special QA/QC

Remarks

Lab number

Turnaround time

Priority Rush 1 Business Day ☐

Rush 2 Business Days ☐

Expedited 5 Business Days ☐

Standard 10 Business Days ☒

Condition of sample:

Temperature received:

Relinquished by sampler	Date 02-22-95 Time 7:30	Received by
Relinquished by	Date Time	Received by
Relinquished by	Date Time	Received by laboratory Date Time

Distribution: White copy — Laboratory; Canary copy — ARCO Environmental Engineering; Pink copy — Consultant

Sequoia Analytical

680 Chesapeake Drive, Redwood City, CA 94063, (415) 364-9600, FAX (415) 364-9233
1900 Bates Avenue, Suite L, Concord, CA 94520, (510) 686-9600, FAX (510) 686-9689
819 Striker Avenue, Suite 8, Sacramento, CA 95834, (916) 921-9600, FAX (916) 921-0100

Pacific Environmental Group
2025 Gateway Place, Suite 440
San Jose, CA 95110
Attention: Maree Doden

Project: 330-041.2G/4494, Oakland

Enclosed are the results from samples received at Sequoia Analytical on February 23, 1995. The requested analyses are listed below:

SAMPLE #	SAMPLE DESCRIPTION	DATE COLLECTED	TEST METHOD
9502F59 -01	LIQUID, RW1	02/22/95	TPHGBW Purgeable TPH/BTEX
9502F59 -02	LIQUID, TB1	02/22/95	TPHGBW Purgeable TPH/BTEX

Please contact me if you have any questions. In the meantime, thank you for the opportunity to work with you on this project.

Very truly yours,

SEQUOIA ANALYTICAL

Eileen Manning
Project Manager

Quality Assurance Department

Sequoia Analytical

680 Chesapeake Drive, Redwood City, CA 94063, (415) 364-9600, FAX (415) 364-9233
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819 Striker Avenue, Suite 8, Sacramento, CA 95834, (916) 921-9600, FAX (916) 921-0100

Pacific Environmental Group	Client Proj. ID: 330-041.2G/4494, Oakland	Sampled: 02/22/95
2025 Gateway Place, Suite 440	Sample Descript: MW1	Received: 02/23/95
San Jose, CA 95110	Matrix: LIQUID	
	Analysis Method: 8015Mod/8020	Analyzed: 02/28/95
Attention: Maree Doden	Lab Number: 9502F59-01	Reported: 03/06/95

QC Batch Number: GC022895BTEX03A
Instrument ID: GCHP3

Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX

Analyte	Detection Limit ug/L	Sample Results ug/L
TPPH as Gas	**1000**	**8100**
Benzene	**10**	**140**
Toluene	10	N.D.
Ethyl Benzene	**10**	**550**
Xylenes (Total)	**10**	**560**
Chromatogram Pattern:		**Gas**

Surrogates	Control Limits %		% Recovery
Trifluorotoluene	70	130	119

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL - ELAP #1210

Eileen Manning
Project Manager

Sequoia Analytical

680 Chesapeake Drive, Redwood City, CA 94063, (415) 364-9600, FAX (415) 364-9233
1900 Bates Avenue, Suite L, Concord, CA 94520, (510) 686-9600, FAX (510) 686-9689
819 Striker Avenue, Suite 8, Sacramento, CA 95834, (916) 921-9600, FAX (916) 921-0100

Pacific Environmental Group	Client Proj. ID: 330-041.2G/4494, Oakland	Sampled: 02/22/95
2025 Gateway Place, Suite 440	Sample Descript: TB1	Received: 02/23/95
San Jose, CA 95110	Matrix: LIQUID	
	Analysis Method: 8015Mod/8020	Analyzed: 02/28/95
Attention: Maree Doden	Lab Number: 9502F59-02	Reported: 03/06/95

QC Batch Number: GC022895BTEX03A
Instrument ID: GCHP3

Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX

Analyte	Detection Limit ug/L	Sample Results ug/L
TPPH as Gas	50	N.D.
Benzene	0.50	N.D.
Toluene	0.50	N.D.
Ethyl Benzene	0.50	N.D.
Xylenes (Total)	0.50	N.D.
Chromatogram Pattern:		

Surrogates	Control Limits %		% Recovery
Trifluorotoluene	70	130	115

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL - ELAP #1210

Eileen Manning
Project Manager

Sequoia Analytical

680 Chesapeake Drive, Redwood City, CA 94063, (415) 364-9600, FAX (415) 364-9233
1900 Bates Avenue, Suite L, Concord, CA 94520, (510) 686-9600, FAX (510) 686-9689
819 Striker Avenue, Suite 8, Sacramento, CA 95834, (916) 921-9600, FAX (916) 921-0100

Pacific Environmental Group	Client Project ID:	330-041.2G/4494, Oakland	
2025 Gateway Place, Suite 440	Matrix:	Liquid	
San Jose, CA 95110			
Attention: Maree Doden	Work Order #:	9502F59	Reported: Mar 7, 1995

QUALITY CONTROL DATA REPORT

Analyte:	Benzene	Toluene	Ethyl Benzene	Xylenes
QC Batch#:	GC022895BTEX03A	GC022895BTEX03A	GC022895BTEX03A	GC022895BTEX03A
Analy. Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020
Prep. Method:	EPA 5030	EPA 5030	EPA 5030	EPA 5030
Analyst:	J. Minkel	J. Minkel	J. Minkel	J. Minkel
MS/MSD #:	9502D6104	9502D6104	9502D6104	9502D6104
Sample Conc.:	N.D.	N.D.	N.D.	N.D.
Prepared Date:	2/28/95	2/28/95	2/28/95	2/28/95
Analyzed Date:	2/28/95	2/28/95	2/28/95	2/28/95
Instrument I.D.#:	GCHP3	GCHP3	GCHP3	GCHP3
Conc. Spiked:	10 µg/L	10 µg/L	10 µg/L	30 µg/L
Result:	11	12	12	35
MS % Recovery:	110	120	120	117
Dup. Result:	11	12	11	34
MSD % Recov.:	110	120	110	113
RPD:	0.0	0.0	8.7	2.9
RPD Limit:	0-50	0-50	0-50	0-50

LCS #:				
Prepared Date:				
Analyzed Date:				
Instrument I.D.#:				
Conc. Spiked:				
LCS Result:				
LCS % Recov.:				
MS/MSD LCS Control Limits	71-133	72-128	72-130	71-120

Quality Assurance Statement: All standard operating procedures and quality control requirements have been met.

SEQUOIA ANALYTICAL

Eileen A. Manning
Project Manager

Please Note:
The LCS is a control sample of known, interferent-free matrix that is analyzed using the same reagents, preparation, and analytical methods employed for the samples. The matrix spike is an aliquot of sample fortified with known quantities of specific compounds and subjected to the entire analytical procedure. If the recovery of analytes from the matrix spike does not fall within specified control limits due to matrix interference, the LCS recovery is to be used to validate the batch.

** MS = Matrix Spike, MSD = MS Duplicate, RPD = Relative % Difference

SEQUOIA ANALYTICAL SAMPLE RECEIPT LOG

CLIENT NAME: ARCO 330-0912A
REC. BY (PRINT): Chris

WORKORDER: 9502F59
DATE OF LOG-IN: 2.25.95

CIRCLE THE APPROPRIATE RESPONSE

1. Custody Seal(s): Present / ~~Absent~~
   Intact / Broken*
2. Custody Seal Nos.: Put in Remarks Section
3. Chain-of-Custody Records: (Present) / Absent*
4. Traffic Reports or Packing List: Present / ~~Absent~~
5. Airbill: Airbill / Sticker
   Present / ~~Absent~~
6. Airbill No.:
7. Sample Tags: (Present) / Absent*
   Sample Tag Nos.: (Listed) / Not Listed
   on Chain-of-Custody
8. Sample Condition: (Intact) / Broken* / Leaking*
9. Does information on on custody reports, traffic reports and sample tags agree? (Yes) / No*
10. Proper preservatives used: (Yes) / No*
11. Date Rec. at Lab: 2/23/95
12. Temp. Rec. at Lab: 13°C
13. Time Rec. at Lab: 1737

LAB SAMPLE #	DASH #	CLIENT IDENTIFICATION	CONTAINER DESCRIPTION	SAMPLE MATRIX	DATE SAMP.	REMARKS: CONDITION(ETC.)
1	A-C	RW1	3 VOA	Liquid	2/22	
2	A-B	TB1	2 VOA	↓	↓	

2/23/95 1737

* If Circled, contact Project manager and attach record of resolution

Revision 12/5/94

ARCO Products Company
Division of AtlanticRichfieldCompany

330-041.2G Task Order No. 1707600

Chain of Custody

ARCO Facility no.	4494
City (Facility)	566 Hegenberger, Oakland
Project manager (Consultant)	Kelly Brown
ARCO engineer	M. Whelan
Telephone no. (ARCO)	
Telephone no. (Consultant)	(408) 441-7500
Fax no. (Consultant)	(408) 7539 or 9102
Consultant name	Pacific Environmental Group
Address (Consultant)	2025 Gateway Place #440 San Jose 95110
Laboratory name	Sequoia
Contract number	07-073
Method of shipment	

Sample I.D.	Lab no.	Container no.	Matrix: Soil	Matrix: Water	Matrix: Other	Preservation: Ice	Preservation: Acid	Sampling date	Sampling time	BTEX 602/EPA 8020	BTEX/TPH GAS EPA M602/8020/8015	TPH Modified 8015 Gas ☐ Diesel ☐	Oil and Grease 413.1 ☐ 413.2 ☐	TPH EPA 418.1/SM503E	EPA 601/8010	EPA 624/8240	EPA 625/8270	TCLP Metals ☐ VOA ☐ Semi VOA ☐	CAM Metals EPA 6010/7000 TTLC ☐ STLC ☐	Lead Org./DHS ☐ Lead EPA 7420/7421 ☐
RW1		3		X		X	HCL	02-22-95	16:30		X									
TB1		2		X		X	↓	↓	NA		↓									

Special detection Limit/reporting

Special QA/QC

Remarks

Lab number 9502F59

Turnaround time

- Priority Rush 1 Business Day ☐
- Rush 2 Business Days ☐
- Expedited 5 Business Days ☐
- Standard 10 Business Days ☒

Condition of sample:

Temperature received: 13°

Relinquished by	Date	Time	Received by	Date	Time
Relinquished by sampler: [signature]	02-23-95	7:30	Received by: M. Boden	2/23/95	0730
Relinquished by: M. Boden	2/23/95	2:40	Received by: Steve Tan	2/23/95	
Relinquished by: Steve Tan	2/23/95		Received by laboratory: [signature]	2/23/95	1737

Distribution: White copy — Laboratory; Canary copy — ARCO Environmental Engineering; Pink copy — Consultant
APC-3292 (2-91)

ATTACHMENT B

FIELD AND LABORATORY PROCEDURES

ATTACHMENT B
FIELD AND LABORATORY PROCEDURES

Sampling Procedures

The sampling procedure for each well consists of first measuring the water level and checking for the presence of separate-phase hydrocarbons (SPH), using either an electronic indicator and a clear Teflon® bailer or an oil-water interface probe. Wells not containing SPH are then purged of approximately four casing volumes of water (or to dryness) using a centrifugal pump, gas displacement pump, or bailer. Equipment used for the current sampling event is noted on the attached field data sheets. During purging, temperature, pH, and electrical conductivity are monitored in order to document that these parameters are stable prior to collecting samples. After purging, water levels are allowed to partially recover. Groundwater samples are collected using a Teflon bailer, placed into appropriate EPA-approved containers, labeled, logged onto chain-of-custody documents, and transported on ice to a California State-certified laboratory.

Laboratory Procedures

The groundwater samples were analyzed for the presence of total petroleum hydrocarbons calculated as gasoline, benzene, toluene, ethylbenzene, and xylenes. The analyses were performed according to EPA Methods 8015 (modified), 8020, and 5030 utilizing a purge-and-trap extraction technique. Final detection was by gas chromatography using flame- and photo-ionization detectors. The methods of analysis for the groundwater samples are documented in the certified analytical report. The certified analytical report, chain-of-custody documentation, and field data sheets are presented as Attachment A.