PACIFIC
ENVIRONMENTAL
GROUP, INC.

Quarterly Groundwater Monitoring Report and Remedial System Performance Evaluation First Quarter 1996

ARCO Service Station 0374
6407 Telegraph Avenue at Alcatraz Avenue
Oakland, California

Prepared for

ARCO Products Company

June 30, 1996

Prepared by

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

Project 330-084.2C

Kelly C Brown for
Shaw Garakani
Project Engineer

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No. 1006
Certified Engineering
GEOLOGIST
STATE OF CALIFORNIA

Date: June 30, 1996
Quarter: 1Q96

ARCO QUARTERLY GROUNDWATER MONITORING REPORT

Facility No.: 0374 Address: 6407 Telegraph Avenue at Alcatraz Avenue, Oakland
ARCO Environmental Engineer: Michael Whelan
Consulting Co./Contact Person: Pacific Environmental Group, Inc./Shaw Garakani
Consultant Project No.: 330-084.2C
Primary Agency/Regulatory ID No.: Alameda County Health Care Services Agency

WORK PERFORMED THIS QUARTER (First - 1996):

1. Performed first quarter 1996 groundwater monitoring event.
2. Prepared first quarter 1996 groundwater monitoring report.

WORK PROPOSED FOR NEXT QUARTER (Second - 1996):

1. Perform second quarter 1996 groundwater monitoring event.
2. Prepare second quarter 1996 groundwater monitoring event.
3. Continue intrinsic bioremediation enhancement at Well MW-3.

Current Phase of Project:	Monitoring	(Assmnt, Remed., etc.)
Frequency of Groundwater Sampling:	Quarterly/Annually	(Quarterly, etc.)
Frequency of Groundwater Monitoring:	Quarterly	(Monthly, etc.)
Is Free Product (FP) Present On-Site:	No	(Yes/No)
FP Recovered this Quarter:	None	(gallons)
Cumulative FP Recovered to Date:	None	(gallons)
Bulk Soil Removed This Quarter:	None	(cubic yards)
Bulk Soil Removed to Date:	63.5	(cubic yards)
Current Remediation Techniques:	Intrinsic Bioremediation	(SVE/Sparge/FP Removal, etc.)
Approximate Depth to Groundwater:	6.55	(Measure Feet)
Groundwater Gradient:	Southwest	(Direction)
	0.04	(Magnitude)
Period TPPH-g/Benzene Removed:	0.0/0.0	(gallons)
Cumulative TPPH-g/Benzene Removed:	0.43/0.05	(gallons)

DISCUSSION:

- Petroleum hydrocarbon concentrations in groundwater are within historical ranges; TPPH-g ranged between 140 and 230 parts per billion (ppb); benzene ranged between 20 and 30 ppb.
- The GWE system will remain deactivated unless plume migration occurs.

ATTACHMENTS:

- Table 1 - Groundwater Sampling Schedule
- Table 2 - Groundwater Elevation and Analytical Data
- Figure 1 - Groundwater Elevation Contour Map
- Figure 2 - TPPH-g/Benzene Concentration Map
- Attachment A - Historical Liquid Surface Elevation and Groundwater Analytical Data Tables
- Attachment B - Field and Laboratory Procedures
- Attachment C - Certified Analytical Reports, Chain-of-Custody Documentation, and Field Data Sheets
- Attachment D - Remedial System Performance Evaluation

cc: Ms. Susan Hugo, Alameda County Health Care Services Agency
Mr. Kevin Graves, Regional Water Quality Control Board - S.F. Bay Region

Table 1
Groundwater Sampling Schedule

ARCO Service Station 0374
6407 Telegraph Avenue at Alcatraz Avenue
Oakland, California

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

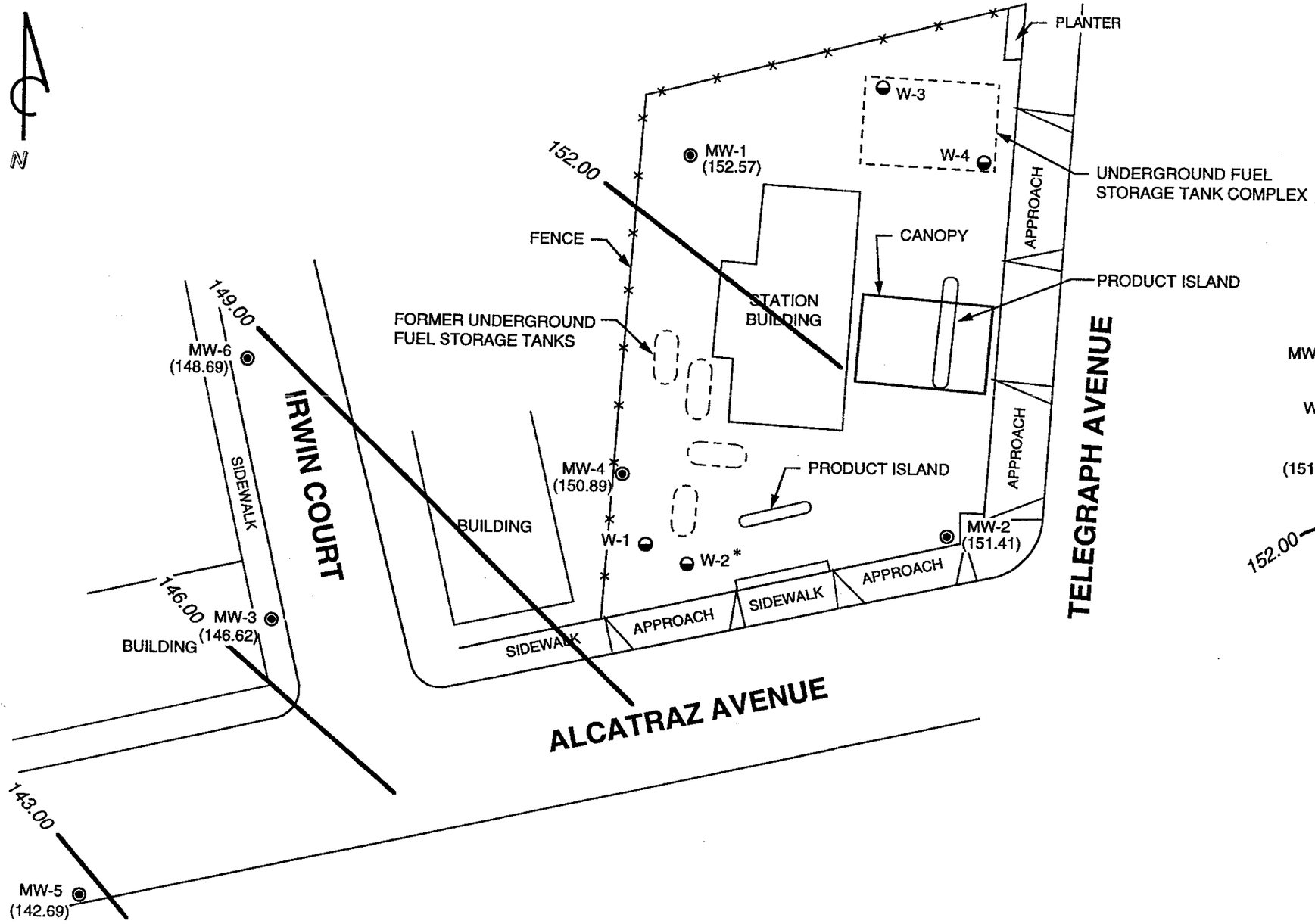
a. Samples analyzed for TPPH-g and BTEX compounds according to EPA Methods 8015 (modified) and 8020.

Table 2
Groundwater Elevation and Analytical Data
Total Purgeable Petroleum Hydrocarbons
(TPPH as Gasoline and BTEX Compounds)

ARCO Service Station 0374
6407 Telegraph Avenue at Alcatraz Avenue
Oakland, California

Well Number	Date Gauged/ Sampled	Well Elevation (feet, MSL)	Depth to Water (feet, TOC)	Groundwater Elevation (feet, MSL)	TPPH as Gasoline (ppb)	Benzene (ppb)	Toluene (ppb)	Ethyl-benzene (ppb)	Xylenes (ppb)
MW-1	01/31/96	158.91	6.34	152.57	---------- Well Sampled Annually ----------				
MW-2	01/31/96	157.92	6.51	151.41	---------- Well Sampled Annually ----------				
MW-3	01/31/96	153.64	7.02	146.62	140	20	0.87	11	14
MW-4	01/31/96	156.53	5.64	150.89	230	23	2.2	3.7	32
MW-5	01/31/96	151.33	8.64	142.69	<50	<0.50	<0.50	<0.50	<0.50
MW-6	01/31/96	153.84	5.15	148.69	---------- Well Sampled Annually ----------				

MSL = Mean sea level
TOC = Top of casing
ppb = Parts per billion
< = Denotes laboratory detection limit.



LEGEND

MW-1 ◉ GROUNDWATER MONITORING WELL LOCATION AND DESIGNATION

W-1 ◒ TANK PIT GROUNDWATER MONITORING WELL LOCATION AND DESIGNATION

(151.41) GROUNDWATER ELEVATION IN FEET - MSL, 1-31-96

152.00 GROUNDWATER ELEVATION CONTOUR IN FEET - MSL, 1-31-96

* USED AS A GROUNDWATER EXTRACTION WELL

APPROXIMATE DIRECTION OF GROUNDWATER FLOW

APPROXIMATE GRADIENT = 0.04

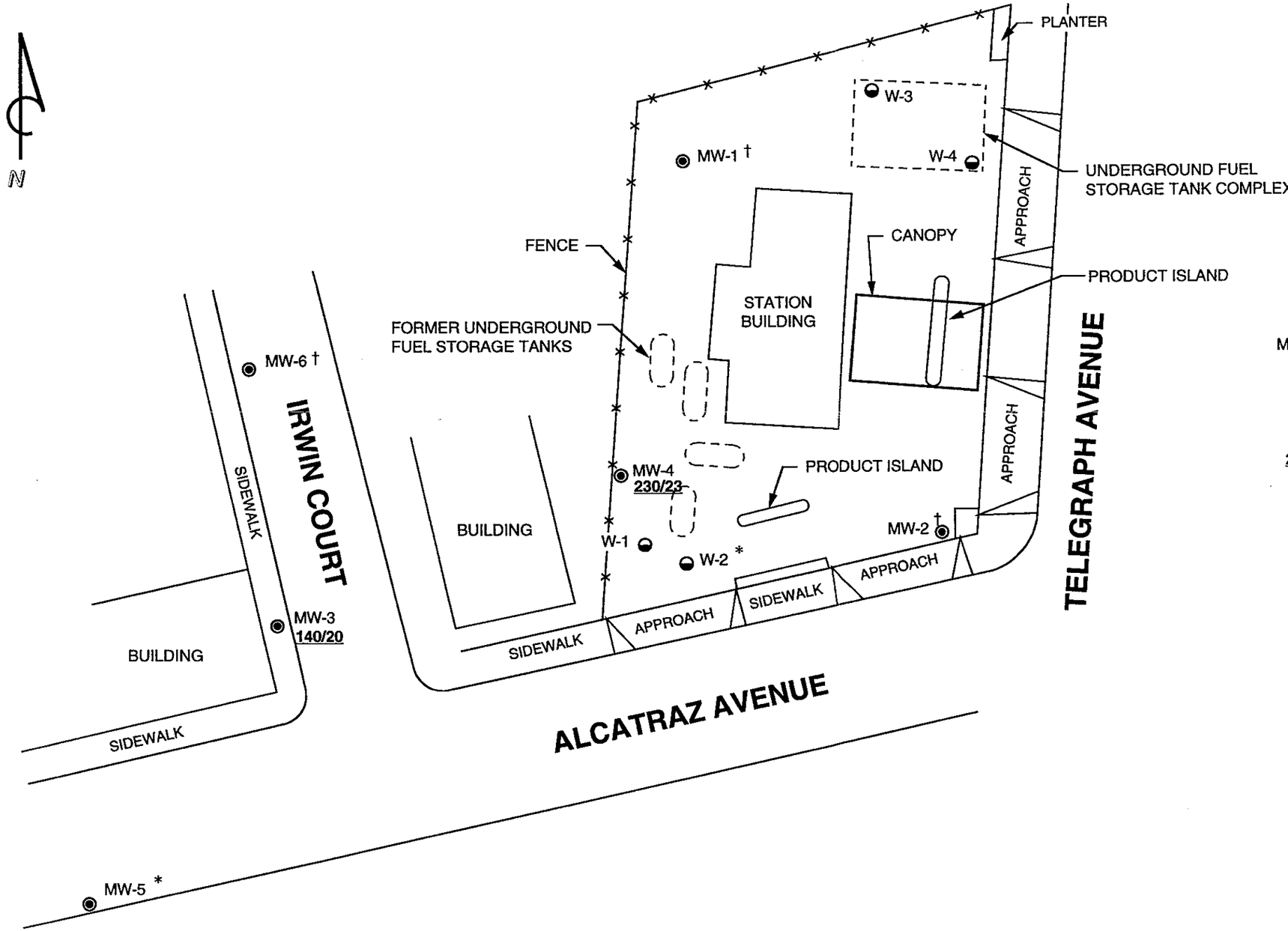
PACIFIC ENVIRONMENTAL GROUP, INC.

SCALE
0 30 60 FEET

ARCO SERVICE STATION 0374
6407 Telegraph Avenue at Alcatraz Avenue
Oakland, California

GROUNDWATER ELEVATION CONTOUR MAP

FIGURE:
1
PROJECT:
330-084.2C



LEGEND

MW-1 ◉ GROUNDWATER MONITORING WELL LOCATION AND DESIGNATION

W-1 ◒ TANK PIT GROUNDWATER MONITORING WELL LOCATION AND DESIGNATION

230/23 TPPH-g/BENZENE CONCENTRATION IN GROUNDWATER, IN PARTS PER BILLION, 1-31-96

ND NOT DETECTED

* WELL INACCESSIBLE

† WELL SAMPLED ANNUALLY

APPROXIMATE DIRECTION
OF GROUNDWATER FLOW

PACIFIC
ENVIRONMENTAL
GROUP, INC.

SCALE
0 30 60 FEET

ARCO SERVICE STATION 0374
6407 Telegraph Avenue at Alcatraz Avenue
Oakland, California

TPPH-g/BENZENE CONCENTRATION MAP

FIGURE:
2
PROJECT:
330-084.2C

ATTACHMENT A

HISTORICAL LIQUID SURFACE ELEVATION AND GROUNDWATER ANALYTICAL DATA TABLES

Table A-1
Historical Liquid Surface Elevation Data

ARCO Service Station 0374
6407 Telegraph Avenue at Alcatraz Avenue
Oakland, California

Well Number	Date Gauged	Well Elevation (feet, MSL)	Depth to Water (feet, TOC)	SPH Thickness (feet)	Liquid Surface Elevation (feet, MSL)
MW-1	07/20/89	159.44	8.04	--	151.40
	08/30/89		8.47	--	150.97
	10/04/89		8.50	--	150.94
	01/10/90		6.74	--	152.70
	08/07/90		6.87	--	152.57
	12/06/90		7.35	--	152.09
	12/19/90		7.22	--	152.22
	01/29/91		8.28	--	151.16
	02/20/91		7.98	--	151.46
	04/25/91		6.89	--	152.55
	05/31/91		7.64	--	151.80
	07/08/91		8.17	--	151.27
	08/09/91		8.58	--	150.86
	09/25/91		8.82	--	150.62
	10/17/91		8.96	--	150.48
	11/20/91		8.60	--	150.84
	12/27/91		8.71	--	150.73
	01/19/92		7.83	--	151.61
	02/19/92		6.68	--	152.76
	03/09/92		4.47	--	154.97
	04/15/92	158.91	6.44	--	152.47
	05/12/92		7.31	--	151.60
	06/16/92		7.97	--	150.94
	07/14/92		8.22	--	150.69
	08/07/92		8.46	--	150.45
	09/22/92		6.76	--	152.15
	10/12/92		7.13	--	151.78
	11/23/92		7.24	--	151.67
	12/16/92		6.44	--	152.47
	01/21/93		5.03	--	153.88
	02/22/93		4.93	--	153.98
	03/25/93		5.13	--	153.78
	04/27/93		5.68	--	153.23
	08/04/93		7.91	--	151.00
	10/13/93		8.81	--	150.10
	02/03/94		7.51	--	151.40
	04/29/94		7.20	--	151.71
	08/02/94		8.02	--	150.89
	11/12/94		6.70	--	152.21
	02/23/95		7.77	--	151.14
	05/09/95		7.82	--	151.09
	08/07/95		7.45	--	151.46
	11/02/95		8.26	--	150.65
MW-2	07/20/89	158.46	8.15	--	150.31
	08/30/89		8.42	--	150.04
	10/04/89		8.40	--	150.06
	01/10/90		6.12	--	152.34
	08/07/90		6.35	--	152.11
	12/06/90		7.15	--	151.31
	12/19/90		7.38	--	151.08
	01/29/91		8.41	--	150.05
	02/20/91		8.26	--	150.20
	04/25/91		7.70	--	150.76
	05/31/91		8.10	--	150.36
	07/08/91		8.34	--	150.12

Table A-1 (continued)
Historical Liquid Surface Elevation Data

ARCO Service Station 0374
6407 Telegraph Avenue at Alcatraz Avenue
Oakland, California

Well Number	Date Gauged	Well Elevation (feet, MSL)	Depth to Water (feet, TOC)	SPH Thickness (feet)	Liquid Surface Elevation (feet, MSL)
MW-2	08/09/91		8.51	--	149.95
(cont.)	09/25/91		8.66	--	149.80
	10/17/91		8.80	--	149.66
	11/20/91		8.66	--	149.80
	12/27/91		8.57	Sheen	149.89
	01/19/92		8.25	--	150.21
	02/19/92		7.50	--	150.96
	03/09/92		7.40	--	151.06
	04/15/92	157.92	7.72	--	150.20
	05/12/92		8.01	--	149.91
	06/16/92		8.25	--	149.67
	07/14/92		8.33	--	149.59
	08/07/92		8.42	--	149.50
	09/22/92		6.13	--	151.79
	10/12/92		6.80	--	151.12
	11/23/92		7.15	--	150.77
	12/16/92		6.66	--	151.26
	01/21/93		5.93	--	151.99
	02/22/93		6.01	--	151.91
	03/25/93		5.91	--	152.01
	04/27/93		6.63	--	151.29
	08/04/93		8.02	--	149.90
	10/13/93		8.64	--	149.28
	02/03/94		8.08	--	149.84
	04/29/94		8.14	--	149.78
	08/02/94		8.31	--	149.61
	11/12/94		7.74	--	150.18
	02/23/95		7.53	--	150.39
	05/09/95		7.57	--	150.35
	08/07/95		8.15	--	149.77
	11/02/95		8.50	--	149.42
MW-3	07/20/89	154.18	7.58	--	146.60
	08/30/89		8.00	--	146.18
	10/04/89		7.73	Emulsion	146.45
	01/10/90		7.78	--	146.40
	08/07/90		7.66	--	146.52
	12/06/90		7.75	--	146.43
	12/19/90		7.58	--	146.60
	01/29/91		7.60	--	146.58
	02/20/91		7.51	--	146.67
	04/25/91		6.37	--	147.81
	05/31/91		7.19	--	146.99
	07/08/91		7.60	--	146.58
	08/09/91		7.94	--	146.24
	09/25/91		8.23	--	145.95
	10/17/91		8.44	--	145.74
	11/20/91		8.78	--	145.40
	12/27/91		8.05	Sheen	146.13
	01/19/92		7.65	--	146.53
	02/19/92		6.48	--	147.70
	03/09/92		5.45	--	148.73
	04/15/92	153.64	7.75	--	145.89
	05/12/92		7.45	--	146.19
	06/16/92		7.51	--	146.13
	07/14/92		7.60	--	146.04

Table A-1 (continued)
Historical Liquid Surface Elevation Data

ARCO Service Station 0374
6407 Telegraph Avenue at Alcatraz Avenue
Oakland, California

Well Number	Date Gauged	Well Elevation (feet, MSL)	Depth to Water (feet, TOC)	SPH Thickness (feet)	Liquid Surface Elevation (feet, MSL)
MW-3	08/07/92		7.85	--	145.79
(cont.)	09/22/92		7.73	--	145.91
	10/12/92		7.83	--	145.81
	11/23/92		6.98	--	146.66
	12/16/92		5.96	--	147.68
	01/21/93		4.62	--	149.02
	02/22/93		5.15	--	148.49
	03/25/93		5.45	--	148.19
	04/27/93		5.79	--	147.85
	08/04/93		7.24	--	146.40
	10/13/93		8.03	--	145.61
	02/03/94		6.66	--	146.98
	04/29/94		7.70	--	145.94
	08/02/94		7.47	--	146.17
	11/12/94		5.91	--	147.73
	02/23/95		7.18	--	146.46
	05/09/95		5.96	--	147.68
	08/07/95		7.83	--	145.81
	11/02/95		7.83	--	145.81
MW-4	07/20/89	157.08	8.09	--	148.99
	08/30/89		8.45	Sheen	148.63
	10/04/89		8.57	Sheen	148.51
	01/10/90		7.26	--	149.82
	08/07/90		6.87	--	150.21
	12/06/90		8.02	Sheen	149.06
	12/19/90		7.69	--	149.39
	01/29/91		8.39	Sheen	148.69
	02/20/91		8.16	--	148.92
	04/25/91		7.14	--	149.94
	05/31/91		7.64	--	149.44
	07/08/91		8.34	--	148.74
	08/09/91		8.60	--	148.48
	09/25/91		8.80	--	148.28
	10/17/91		8.98	--	148.10
	11/20/91		8.78	--	148.30
	12/27/91		8.82	--	148.26
	01/19/92		8.18	--	148.90
	02/19/92		7.62	--	149.46
	03/09/92		6.68	--	150.40
	04/15/92	156.53	6.96	--	149.57
	05/12/92		7.45	--	149.08
	06/16/92		7.94	--	148.59
	07/14/92		8.21	--	148.32
	08/07/92		8.41	--	148.12
	09/22/92		6.14	--	150.39
	10/12/92		6.45	--	150.08
	11/23/92		7.48	--	149.05
	12/16/92		6.95	--	149.58
	01/21/93		5.53	--	151.00
	02/22/93		5.83	--	150.70
	03/25/93		5.96	--	150.57
	04/27/93		6.30	--	150.23
	08/04/93		7.71	--	148.82
	10/13/93		8.53	--	148.00
	02/03/94		9.27	--	147.26

Table A-1 (continued)
Historical Liquid Surface Elevation Data

ARCO Service Station 0374
6407 Telegraph Avenue at Alcatraz Avenue
Oakland, California

Well Number	Date Gauged	Well Elevation (feet, MSL)	Depth to Water (feet, TOC)	SPH Thickness (feet)	Liquid Surface Elevation (feet, MSL)
MW-4	04/29/94		9.50	--	147.03
(cont.)	08/02/94		8.69	--	147.84
	11/12/94		6.88	--	149.65
	02/23/95		9.38	--	147.15
	05/09/95		9.00	--	147.53
	08/07/95		9.55	--	146.98
	11/02/95		9.58	--	146.95
MW-5	04/15/92	151.33	8.05	--	143.28
	05/12/92		8.44	--	142.89
	06/16/92		8.74	--	142.59
	07/14/92		9.70	--	141.63
	08/07/92		9.10	--	142.23
	09/22/92		9.26	--	142.07
	10/25/92		9.24	--	142.09
	11/23/92		Well Inaccessible		
	12/16/92		8.20	--	143.13
	01/21/93		7.89	--	143.44
	02/22/93		7.29	--	144.04
	03/25/93		7.51	--	143.82
	04/27/93		7.72	--	143.61
	08/05/93		8.66	--	142.67
	10/13/93		9.00	--	142.33
	02/03/94		9.38	--	141.95
	04/29/94		Well Inaccessible		
	08/02/94		8.71	--	142.62
	11/12/94		8.65	--	142.68
	02/23/95		9.23	--	142.10
	05/09/95		7.65	--	143.68
	08/07/95		8.25	--	143.08
	11/02/95		8.60	--	142.73
MW-6	04/15/92	153.84	4.55	--	149.29
	05/12/92		5.32	--	148.52
	06/16/92		5.91	--	147.93
	07/14/92		6.08	--	147.76
	08/07/92		6.36	--	147.48
	09/22/92		6.53	--	147.31
	10/25/92		6.54	--	147.30
	11/23/92		5.75	--	148.09
	12/16/92		4.69	--	149.15
	01/21/93		3.82	--	150.02
	02/22/93		3.78	--	150.06
	03/25/93		3.93	--	149.91
	04/27/93		4.30	--	149.54
	08/05/93		5.39	--	148.45
	10/13/93		7.12	--	146.72
	02/03/94		5.17	--	148.67
	04/29/94		4.66	--	149.18
	08/02/94		5.64	--	148.20
	11/12/94		6.32	--	147.52
	02/23/95		5.60	--	148.24
	05/09/95		5.21	--	148.63

Table A-1 (continued)
Historical Liquid Surface Elevation Data

ARCO Service Station 0374
6407 Telegraph Avenue at Alcatraz Avenue
Oakland, California

Well Number	Date Gauged	Well Elevation (feet, MSL)	Depth to Water (feet, TOC)	SPH Thickness (feet)	Liquid Surface Elevation (feet, MSL)
MW-6	08/07/95		5.68	--	148.16
(cont.)	11/02/95		6.60	--	147.24

SPH = Separate-phase hydrocarbons
MSL = Mean sea level
TOC = Top of casing

Table A-2
Historical Groundwater Analytical Data
Total Purgeable Petroleum Hydrocarbons
(TPPH as Gasoline, BTEX Compounds, TEPH as Diesel, and Oil and Grease)

ARCO Service Station 0374
6407 Telegraph Avenue at Alcatraz Avenue
Oakland, California

Well Number	Date Sampled		TPPH as Gasoline (ppb)	Benzene (ppb)	Toluene (ppb)	Ethyl-benzene (ppb)	Xylenes (ppb)	TEPH as Diesel (ppb)	Oil and Grease (ppb)
MW-1	07/21/89		33	0.77	1.6	15	5	NA	NA
	08/30/89		<20	<0.50	<0.50	<0.50	<0.50	NA	NA
	10/04/89		<20	<0.50	<0.50	<0.50	<0.50	NA	NA
	01/10/90		<20	<0.50	<0.50	<0.50	<0.50	NA	NA
	08/07/90		<20	<0.50	<0.50	<0.50	<0.50	NA	NA
	12/06/90		<50	3.6	2.7	0.60	5.8	NA	NA
	02/20/91		<50	<0.50	<0.50	<0.50	<0.50	NA	NA
	07/08/91		<30	<0.30	<0.30	<0.30	<0.30	NA	NA
	09/25/91		<30	57	57	54	1.7	NA	NA
	11/20/91		57	9.2	3.7	0.63	25	NA	NA
	03/09/92		<50	<0.5	<0.5	<0.5	<0.5	NA	NA
	04/15/92		<50	<0.5	<0.5	<0.5	<0.5	NA	NA
	07/14/92		<50	<0.5	0.7	<0.5	1.3	NA	NA
	10/12/92		<50	<0.5	<0.5	<0.5	<0.5	NA	NA
	01/21/93		<50	<0.5	<0.5	<0.5	<0.5	NA	NA
	04/27/93		<50	<0.5	<0.5	<0.5	<0.5	NA	NA
	08/04/93		<50	<0.5	<0.5	<0.5	<0.5	NA	NA
	10/13/93		<50	<0.5	<0.5	<0.5	<0.5	NA	NA
	02/03/94		<50	1.4	2.1	<0.5	2	NA	NA
	04/29/94		<50	<0.5	<0.5	<0.5	<0.5	NA	NA
	08/02/94		<50	<0.5	<0.5	<0.5	<0.5	NA	NA
	11/12/94		<50	<0.5	<0.5	<0.5	<0.5	NA	NA
	02/23/95		<50	<0.50	<0.50	<0.50	<0.50	NA	NA
	05/09/95		<50	<0.50	<0.50	<0.50	<0.50	NA	NA
	08/07/95	a	<500	<5.0	<5.0	<5.0	<5.0	NA	NA
	11/02/95		<50	3.6	<0.50	<0.50	<0.50	NA	NA
MW-2	07/21/89		4,200	280	210	38	24	NA	NA
	08/30/89		4,200	160	260	45	240	NA	NA
	10/04/89		4,300	860	300	29	330	NA	NA
	01/10/90		8,000	890	710	120	760	NA	NA
	08/07/90		6,000	880	76	25	80	NA	NA
	12/06/90		1,600	330	69	18	63	NA	NA
	02/20/91		1,300	160	46	13	48	NA	NA
	07/08/91		310	76	18	7.7	24	NA	NA
	09/25/91		83	17	0.69	2.2	4.1	NA	NA
	11/20/91		180	46	6.1	3	8.7	NA	NA
	03/09/92		690	170	25	21	58	NA	NA
	04/15/92		86	20	2.3	3.8	85	NA	NA
	07/14/92		160	46	1.4	1.2	35	NA	NA
	10/12/92		230	59	7	55	11	NA	NA
	01/21/93		450	70	6.6	22	54	NA	NA
	04/27/93		<50	6.6	<0.5	0.7	1.1	NA	NA
	08/04/93		<50	2.1	<0.5	<0.5	<0.5	NA	NA
	10/13/93		<50	14	<0.5	<0.5	<0.5	NA	NA
	02/03/94		<50	4.4	<0.5	<0.5	0.8	NA	NA
	04/29/94		150	38	0.7	4.3	4.8	NA	NA
	08/02/94		<50	<0.5	<0.5	<0.5	<0.5	NA	NA
	11/12/94		95	28	0.7	2.5	7.5	NA	NA

Table A-2 (continued)
Historical Groundwater Analytical Data
Total Purgeable Petroleum Hydrocarbons
(TPPH as Gasoline, BTEX Compounds, TEPH as Diesel, and Oil and Grease)

ARCO Service Station 0374
6407 Telegraph Avenue at Alcatraz Avenue
Oakland, California

Well Number	Date Sampled	TPPH as Gasoline (ppb)	Benzene (ppb)	Toluene (ppb)	Ethyl-benzene (ppb)	Xylenes (ppb)	TEPH as Diesel (ppb)	Oil and Grease (ppb)
MW-2	02/23/95	<50	1.8	<0.50	<0.50	<0.50	NA	NA
(cont.)	05/09/95	<50	1.9	<0.50	<0.50	<0.50	NA	NA
	08/07/95	<50	0.66	<0.50	<0.50	<0.50	NA	NA
	11/02/95	<50	<0.50	<0.50	<0.50	<0.50	NA	NA
MW-3	07/21/89	430	9	4.8	<0.50	50	NA	NA
	08/30/89	1,200	85	46	84	55	NA	NA
	10/04/89	7,000	580	900	120	670	NA	NA
	01/10/90	940	130	59	21	73	NA	NA
	08/07/90	2,300	180	64	59	120	NA	NA
	12/06/90	460	52	55	14	39	350	NA
	02/20/91	470	36	30	9.3	31	<100	<5,000
	07/08/91	2500	240	470	74	320	NA	NA
	09/25/91	1,100	120	110	34	120	NA	NA
	11/20/91	1,000	180	140	43	140	NA	NA
	03/10/92	1,200	200	110	53	130	NA	NA
	04/15/92	1,600	200	13	110	81	NA	NA
	07/14/92	5,200	620	44	310	250	NA	NA
	10/12/92	850	150	5.2	55	46	NA	NA
	01/21/93	620	100	12	35	35	NA	NA
	04/27/93	1,700	180	83	64	100	NA	NA
	08/04/93	380	70	12	29	41	NA	NA
	10/13/93	780	90	6	40	31	NA	NA
	02/03/94	340	42	8.7	9.2	28	NA	NA
	04/29/94	830	150	38	27	48	NA	NA
	08/02/94	220	25	1.7	7.6	8.3	NA	NA
	11/12/94	160	6.0	<0.5	3.2	4.1	NA	NA
	02/23/95	120	1.3	<0.50	1.1	1.6	NA	NA
	05/09/95	190	20	6.6	8.9	20	NA	NA
	08/07/95	<50	2.3	0.51	0.51	0.57	NA	NA
	11/02/95	<50	2.3	<0.50	<0.50	0.94	NA	NA
MW-4	07/21/89	8,700	720	360	120	640	NA	NA
	08/30/89	7,300	630	220	N/A	320	NA	NA
	10/04/89	21,000	2,300	1,300	280	1,300	NA	NA
	01/10/90	4,300	470	250	63	430	NA	NA
	08/07/90	69,000	8,700	4,200	540	4,600	28,000	<5,000
	12/06/90	---------- Separate-Phase Hydrocarbon Sheen ----------						
	02/20/91	5,200	690	200	95	580	<100	<5,000
	07/08/91	1,700	280	68	37	170	NA	NA
	09/25/91	6,300	2,100	290	210	590	NA	NA
	11/20/91	2,700	1,200	200	110	320	NA	NA
	03/10/92	690	180	80	18	43	NA	NA
	04/15/92	8,500	2,100	750	280	1,000	NA	NA
	07/14/92	10,000	2,900	530	290	930	NA	NA
	10/12/92	19,000	5,200	1,600	490	1,800	690	NA
	01/21/93	22,000	4,400	1,300	580	2,200	1,400	NA
	04/27/93	21,000	4,800	1,200	630	2,400	1,100	NA
	08/04/93	23,000	6,600	1,700	770	2,600	1500	NA

Table A-2 (continued)
Historical Groundwater Analytical Data
Total Purgeable Petroleum Hydrocarbons
(TPPH as Gasoline, BTEX Compounds, TEPH as Diesel, and Oil and Grease)

ARCO Service Station 0374
6407 Telegraph Avenue at Alcatraz Avenue
Oakland, California

Well Number	Date Sampled	TPPH as Gasoline (ppb)	Benzene (ppb)	Toluene (ppb)	Ethyl-benzene (ppb)	Xylenes (ppb)	TEPH as Diesel (ppb)	Oil and Grease (ppb)
MW-4	10/13/93	16,000	3,500	800	470	1,800	670	NA
(cont.)	02/03/94	850	140	84	7.9	59	59	NA
	04/29/94	68	1.1	<0.5	<0.5	1.7	<50	NA
	08/02/94	52	5.7	<0.5	1.2	1.9	<50	NA
	11/12/94	1,600	230	51	81	190	90	NA
	02/23/95	1,700	340	81	52	130	NA	NA
	05/09/95	<50	<0.50	<0.50	<0.50	<0.50	NA	NA
	08/07/95	<50	<0.50	<0.50	<0.50	<0.50	NA	NA
	11/02/95	<50	<0.50	<0.50	<0.50	<0.50	NA	NA
MW-5	04/15/92	<50	<0.5	<0.5	<0.5	<0.5	NA	NA
	07/14/92	<50	<0.5	<0.5	<0.5	<0.5	NA	NA
	10/25/92	<50	<0.5	<0.5	<0.5	<0.5	NA	NA
	01/21/93	<50	<0.5	<0.5	<0.5	<0.5	NA	NA
	04/27/93	<50	0.5	1	<0.5	0.8	NA	NA
	08/05/93	<50	<0.5	<0.5	<0.5	<0.5	NA	NA
	10/14/93	<50	<0.5	<0.5	<0.5	<0.5	NA	NA
	02/03/94	<50	0.8	1.7	<0.5	15	NA	NA
	04/29/94	Well inaccessible						
	08/02/94	<50	<0.5	<0.5	<0.5	<0.5	NA	NA
	11/12/94	<50	<0.5	<0.5	<0.5	<0.5	NA	NA
	02/23/95	<50	<0.50	0.56	<0.50	0.50	NA	NA
	05/09/95	<50	<0.50	0.56	<0.50	0.50	NA	NA
	08/07/95	<50	<0.50	<0.50	<0.50	<0.50	NA	NA
	11/02/95	<50	<0.50	1.8	<0.50	<0.50	NA	NA
MW-6	04/15/92	<50	<0.5	<0.5	<0.5	<0.5	NA	NA
	07/15/92	<50	<0.5	<0.5	<0.5	<0.5	NA	NA
	10/25/92	<50	<0.5	<0.5	<0.5	<0.5	NA	NA
	01/21/93	<50	<0.5	<0.5	<0.5	<0.5	NA	NA
	04/27/93	<50	<0.5	<0.5	<0.5	<0.5	NA	NA
	08/05/93	<50	<0.5	<0.5	<0.5	<0.5	NA	NA
	10/13/93	<50	<0.5	<0.5	<0.5	<0.5	NA	NA
	02/03/94	<50	<0.5	<0.5	<0.5	<0.5	NA	NA
	04/29/94	<50	<0.5	<0.5	<0.5	<0.5	NA	NA
	08/02/94	<50	<0.5	<0.5	<0.5	<0.5	NA	NA
	11/12/94	<50	<0.5	<0.5	<0.5	<0.5	NA	NA
	02/23/95	<50	<0.50	<0.50	<0.50	<0.50	NA	NA
	05/09/95	<50	<0.50	<0.50	<0.50	<0.50	NA	NA
	08/07/95	<50	<0.50	<0.50	<0.50	<0.50	NA	NA
	11/02/95	<50	<0.50	<0.50	<0.50	<0.50	NA	NA

TEPH = Total extractable petroleum hydrocarbons
ppb = Parts per billion
NA = Not analyzed
a. Detection limits were raised due to analysis for methyl tert-butyl ether.
Prior to June 1995, TPPH as gasoline and TEPH as diesel were reported as TPH as gasoline and diesel, respectively.

Table A-3
Historical Groundwater Analytical Data
Total Methyl t-Butyl Ether

ARCO Service Station 0374
6407 Telegraph Avenue at Alcatraz Avenue
Oakland, California

Well Number	Date Sampled	Methyl t-Butyl Ether (ppb)
MW-1	08/07/95	510
MW-2	08/07/95	37
MW-3	08/07/95	<2.5
MW-4	08/07/95	<2.5
MW-5	08/07/95	<2.5
MW-6	08/07/95	160

ppb = Parts per billion
See certified analytical report for detection limit.

ATTACHMENT B

FIELD AND LABORATORY PROCEDURES

ATTACHMENT B
FIELD AND LABORATORY PROCEDURES

Sampling Procedures

The sampling procedure for each well consists first of 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 purgeable 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 C.

ATTACHMENT C

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

Sequoia Analytical

680 Chesapeake Drive, Redwood City, CA 94063, (415) 364-9600, FAX (415) 364-9233
404 N. Wiget Lane, Walnut Creek, CA 94598, (510) 988-9600, FAX (510) 988-9673
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: Kelly Brown

Project: 330-084.2I/0374,Berkeley

Enclosed are the results from samples received at Sequoia Analytical on February 1, 1996.
The requested analyses are listed below:

SAMPLE #	SAMPLE DESCRIPTION	DATE COLLECTED	TEST METHOD
9602106 -01	LIQUID, MW-3	01/31/96	TPHGBW Purgeable TPH/BTEX
9602106 -02	LIQUID, MW-4	01/31/96	TPHGBW Purgeable TPH/BTEX
9602106 -03	LIQUID, MW-5	01/31/96	TPHGBW Purgeable TPH/BTEX
9602106 -04	LIQUID, TB-1	01/31/96	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

Claudia Hirotsu
Project Manager

Quality Assurance Department

Sequoia Analytical

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Pacific Environmental Group
2025 Gateway Place, Suite 440
San Jose, CA 95110

Attention: Kelly Brown

Client Proj. ID: 330-084.21/0374,Berkeley
Sample Descript: MW-3
Matrix: LIQUID
Analysis Method: 8015Mod/8020
Lab Number: 9602106-01

Sampled: 01/31/96
Received: 02/01/96

Analyzed: 02/05/96
Reported: 02/09/96

QC Batch Number: GC020596BTEX17A
Instrument ID: GCHP17

Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX

Analyte	Detection Limit ug/L	Sample Results ug/L
TPPH as Gas	50	140
Benzene	0.50	20
Toluene	0.50	0.87
Ethyl Benzene	0.50	11
Xylenes (Total)	0.50	14
Chromatogram Pattern:		Gas

Surrogates	Control Limits %		% Recovery
Trifluorotoluene	70	130	102

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

SEQUOIA ANALYTICAL - ELAP #1210

Claudia Hirotsu
Project Manager

Sequoia Analytical

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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: 330-084.2I/0374,Berkeley	Sampled: 01/31/96
2025 Gateway Place, Suite 440	Sample Descript: MW-4	Received: 02/01/96
San Jose, CA 95110	Matrix: LIQUID	
	Analysis Method: 8015Mod/8020	Analyzed: 02/05/96
Attention: Kelly Brown	Lab Number: 9602106-02	Reported: 02/09/96

QC Batch Number: GC020596BTEX17A
Instrument ID: GCHP17

Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX

Analyte	Detection Limit ug/L	Sample Results ug/L
TPPH as Gas	50	230
Benzene	0.50	23
Toluene	0.50	2.2
Ethyl Benzene	0.50	3.7
Xylenes (Total)	0.50	32
Chromatogram Pattern:		Gas

Surrogates	Control Limits %		% Recovery
Trifluorotoluene	70	130	103

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

SEQUOIA ANALYTICAL - ELAP #1210

Claudia Hirotsu
Project Manager

Sequoia Analytical

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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: 330-084.2I/0374,Berkeley	Sampled: 01/31/96
2025 Gateway Place, Suite 440	Sample Descript: MW-5	Received: 02/01/96
San Jose, CA 95110	Matrix: LIQUID	
	Analysis Method: 8015Mod/8020	Analyzed: 02/06/96
Attention: Kelly Brown	Lab Number: 9602106-03	Reported: 02/09/96

QC Batch Number: GC020596BTEX03A
Instrument ID: GCHP03

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.

Surrogates	Control Limits %		% Recovery
Trifluorotoluene	70	130	110

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

SEQUOIA ANALYTICAL - ELAP #1210

Claudia Hirotsu
Project Manager

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: 330-084.2I/0374,Berkeley	Sampled: 01/31/96
2025 Gateway Place, Suite 440	Sample Descript: TB-1	Received: 02/01/96
San Jose, CA 95110	Matrix: LIQUID	
	Analysis Method: 8015Mod/8020	Analyzed: 02/05/96
Attention: Kelly Brown	Lab Number: 9602106-04	Reported: 02/09/96

QC Batch Number: GC020596BTEX17A
Instrument ID: GCHP17

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.

Surrogates	Control Limits %		% Recovery
Trifluorotoluene	70	130	98

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

SEQUOIA ANALYTICAL - ELAP #1210

Claudia Hirotsu
Project Manager

Sequoia Analytical

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Pacific Environmental Group
2025 Gateway Place, Suite 440
San Jose, CA 95110
Attention: Kelly Brown

Client Project ID: 330-084.2I/0374, Berkeley
Matrix: LIQUID
Work Order #: 9602106 01, 02, 04

Reported: Feb 9, 1996

QUALITY CONTROL DATA REPORT

Analyte:	Benzene	Toluene	Ethyl Benzene	Xylenes
QC Batch#:	GC020596BTEX17A	GC020596BTEX17A	GC020596BTEX17A	GC020596BTEX17A
Analy. Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020
Prep. Method:	EPA 5030	EPA 5030	EPA 5030	EPA 5030
Analyst:	J. Woo	J. Woo	J. Woo	J. Woo
MS/MSD #:	9601J5902	9601J5902	9601J5902	9601J5902
Sample Conc.:	N.D.	N.D.	N.D.	N.D.
Prepared Date:	2/5/96	2/5/96	2/5/96	2/5/96
Analyzed Date:	2/5/96	2/5/96	2/5/96	2/5/96
Instrument I.D.#:	GCHP17	GCHP17	GCHP17	GCHP17
Conc. Spiked:	10 µg/L	10 µg/L	10 µg/L	30 µg/L
Result:	9.9	10	9.9	30
MS % Recovery:	99	100	99	100
Dup. Result:	10	10	9.9	30
MSD % Recov.:	100	100	99	100
RPD:	1.0	0.0	0.0	0.0
RPD Limit:	0-50	0-50	0-50	0-50
LCS #:	BLK020596	BLK020596	BLK020596	BLK020596
Prepared Date:	2/5/96	2/5/96	2/5/96	2/5/96
Analyzed Date:	2/5/96	2/5/96	2/5/96	2/5/96
Instrument I.D.#:	GCHP17	GCHP17	GCHP17	GCHP17
Conc. Spiked:	10 µg/L	10 µg/L	10 µg/L	30 µg/L
LCS Result:	9.8	10	9.7	29
LCS % Recov.:	98	100	97	97
MS/MSD LCS Control Limits	70-130	70-130	70-130	70-130

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

SEQUOIA ANALYTICAL

Claudia Hirotsu
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

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Pacific Environmental Group
2025 Gateway Place, Suite 440
San Jose, CA 95110
Attention: Kelly Brown

Client Project ID: 330-084.2I/0374, Berkeley
Matrix: LIQUID
Work Order #: 9602106 03
Reported: Feb 9, 1996

QUALITY CONTROL DATA REPORT

Analyte:	Benzene	Toluene	Ethyl Benzene	Xylenes
QC Batch#:	GC020596BTEX03A	GC020596BTEX03A	GC020596BTEX03A	GC020596BTEX03A
Analy. Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020
Prep. Method:	EPA 5030	EPA 5030	EPA 5030	EPA 5030
Analyst:	J. Woo	J. Woo	J. Woo	J. Woo
MS/MSD #:	9601J5902	9601J5902	9601J5902	9601J5902
Sample Conc.:	N.D.	N.D.	N.D.	N.D.
Prepared Date:	2/5/96	2/5/96	2/5/96	2/5/96
Analyzed Date:	2/5/96	2/5/96	2/5/96	2/5/96
Instrument I.D.#:	GCHP3	GCHP3	GCHP3	GCHP3
Conc. Spiked:	10 µg/L	10 µg/L	10 µg/L	30 µg/L
Result:	10	10	10	30
MS % Recovery:	100	100	100	100
Dup. Result:	10	10	10	30
MSD % Recov.:	100	100	100	100
RPD:	0.0	0.0	0.0	0.0
RPD Limit:	0-50	0-50	0-50	0-50
LCS #:	BLK020596	BLK020596	BLK020596	BLK020596
Prepared Date:	2/5/96	2/5/96	2/5/96	2/5/96
Analyzed Date:	2/5/96	2/5/96	2/5/96	2/5/96
Instrument I.D.#:	GCHP3	GCHP3	GCHP3	GCHP3
Conc. Spiked:	10 µg/L	10 µg/L	10 µg/L	30 µg/L
LCS Result:	10	10	9.9	30
LCS % Recov.:	100	100	99	100
MS/MSD LCS Control Limits	70-130	70-130	70-130	70-130

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

SEQUOIA ANALYTICAL

Claudia Hirotsu
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: PEG
REC. BY (PRINT): MY

WORKORDER: 9602106
DATE OF LOG-IN: 2/1/96

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 custody reports, traffic reports and sample tags agree? (Yes) / No*
10. Proper preservatives used: (Yes) / No*
11. Date Rec. at Lab: 2.1.96
12. Temp. Rec. at Lab: 10 C
13. Time Rec. at Lab: 1203

LAB SAMPLE #	DASH #	CLIENT IDENTIFICATION	CONTAINER DESCRIPTION	SAMPLE MATRIX	DATE SAMP.	REMARKS: CONDITION(ETC.)
01	A-C	MW-3	VOA (3)	LIQ	1/31/96	
02		MW-4	"	"	"	
03		MW-5	"	"	"	
04	AB	TB-1	VOA (2)	"	"	

2.1.96

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

ARCO Products Company
Division of AtlanticRichfieldCompany

330-084.2I **Task Order No.** 934800

Chain of Custody

ARCO Facility no. 0374	City (Facility) 6407 Telegraph Berkeley	Project manager (Consultant) Kelly Brown	Laboratory name SEQUOIA
ARCO engineer Mike Whelan	Telephone no. (ARCO)	Telephone no. (Consultant) (408) 441-7500	Fax no. (Consultant) (408) 441-9102
Consultant name Pacific Environmental Group	Address (Consultant) 2025 Gateway #440 San Jose California 95110		Contract number 1934800

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 ☐ Semi VOA ☐ VOA ☐	CAM Metals EPA 6010/7000 TTLC ☐ STLC ☐	Lead Org./DHS ☐ Lead EPA 7420/7421 ☐		
MW3	01	3		✓		✓	HCL	1/31/96	1230		✓											
MW4	02	↓		↓		↓	↓	↓	1315		✓											
MW5	03	↓		↓		↓	↓	↓	1155		✓											
TB-1	04	2		↓		↓	↓	↓	—		✓											

Special detection Limit/reporting

Special QA/QC

Remarks

Jhw – 12

Lab number 9602106

Turnaround time

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

Condition of sample:

Temperature received:

	Date	Time		Date	Time
Relinquished by sampler	1/31/96	1530	Received by		
Relinquished by	2-1-96	11:15	Received by	2/1/96	11:15
Relinquished by	2-1-96		Received by laboratory	2-1-96	1203

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

#96 0023

FIELD SERVICES / O & M REQUEST

SITE INFORMATION FORM

Project #:330-084.2I

Station #:374

Site Address:6407 Telegraph ave Berkeley, California

County: Alameda

Project Manager: Kelly Brown

Requestor: Chuck Graves

Client: Arco

Prefield contacts: None

☐ 1st time visit

☒ 1st ☐ 2nd ☐ 3rd ☐ 4th

☐ Monthly

☐ Semi-Monthly

☐ Weekly

☐ One time Event

☐ Other._____

Client P.O.C.: Mike Whelan

Date of Request: 1/23/96

Ideal Field Date:

Budget Hrs._____

Actual Hrs. 3.5

Mob de Mob 1.5

Field Tasks: For General Description

First Quarter 1996 Groundwater sampling event: DTW/DTL on all wells TOB/TOC sample per attached protocol.

WA# 19348 00

Comments, remarks, from Field Staff (include problems encountered

NO Problems

Completed by: Chuck Graves Date: 1/31/96

Checked by:_____

WELL SAMPLING REQUEST

SAMPLING PROTOCOL								
Project No.	Station #	Project Name	SEQUENCE	Project Manager	Approval	Date/s	Laboratory:	Client Engineer:
330-084.21	374	6407 Telegraph Berkeley	1Q96	Kelly Brown	KCB 1/23/96		Sequoia	Mike Whelan

Well Number	Ideal Sampling Order	Sample I.D.	Sampling Frequency	Analyses	TOB TOC	Well Depth	Casing Diameter	Well goes Dry?	Comments
MW-1			ANNUAL	DTW ONLY	TOB/TOC	26.5	4"	NO	
MW-2			ANNUAL	DTW ONLY	TOB/TOC	26	4"	NO	
MW-3			QLY	GAS/BTEX	TOB/TOC	27	4"	NO	
MW-4			QLY	GAS/BTEX	TOB/TOC	27	4"	NO	
MW-5			QLY	GAS/BTEX	TOB/TOC	22	4"	NO	
MW-6			ANNUAL	DTW ONLY	TOB/TOC	14.5	4"	NO	
TB-1			QLY	GAS/BTEX					

FIELD REPORT

DEPTH TO WATER/SEPARATE-PHASE HYDROCARBON SURVEY

PROJECT No.: 330-084.2I LOCATION: 6407 Telegraph Berkeley DATE: 1/31/96

CLIENT/STATION NO.: 0374 FIELD TECHNICIAN: Chuck GRAVES DAY OF WEEK: WEDNESDAY

PROBE TYPE/ID No.
- ☐ Oil/Water IF/ ____
- ☒ H_2O level indicator 29
- ☐ Other: ____

Dtw Order	Well ID	Time	Surface Seal	Lid Secure	Gasket	Lock	Expanding Cap	Total Depth (feet)	First Depth to Water (feet) TOB/TOC	Second Depth to Water (feet) TOB/TOC	SEPARATE-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
	MW1	1128	✓	✓	✓	✓	✓		6.34 / 6.34	6.55 / 6.55	—	—								— / —
	MW2	1134	✓	✓	✓	✓	✓		6.51 / 6.51	6.78 / 6.78	—	—								— / —
	MW3	1121	✓	✓	✓	✓	✓	26.70	7.02 / 7.02	7.26 / 7.26	—	—								— / —
	MW4	1140	✓	✓	✓	✓	✓	26.85	5.64 / 5.64	6.36 / 6.36	—	—								— / —
	MW5	1112	✓	✓	✓	✓	✓	23.00	8.64 / 8.64	9.03 / 9.03	—	—								— / —
	MW6	1118	✓	✓	✓	✓	✓	—	5.15 / 5.15	5.45 / 5.45	—	—								— / —
									/	/										/
									/	/										/
									/	/										/

Comments: ____

FIELD DATA SHEET

WATER SAMPLE FIELD DATA SHEET

PROJECT No.: 330-084.2T LOCATION: 6407 Telegraph Ave Berkeley WELL ID #: MW-3

CLIENT/STATION No.: 0374 FIELD TECHNICIAN: Chuck Graves

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 26.70 - DTW 7.02 = 19.68 x Gal/Linear Foot 0.66 = 12.98 x Number of Casings 3 = Calculated Purge 38.94

DATE PURGED: 1/31/96 START: 12:11 END (2400 hr): 1225 PURGED BY: CG

DATE SAMPLED: 1/31/96 START: 1230 END (2400 hr): 1230 SAMPLED BY: CG

TIME (2400 hr)	VOLUME (gal.)	pH (units)	E.C. (umhos/cm @ 25°C)	TEMPERATURE (°F)	COLOR	TURBIDITY	ODOR
1214	13	6.73	740	65.4	Clear	14.46	NO
1218	26	6.65	812	68.3	Clear	12.11	NO
1225	39	6.71	803	68.6	Cloudy	46.2	NO

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: 29-2
- ☐ Dedicated: _____
- ☐ Other: _____

SAMP. CNTRL #	DATE	TIME (2400)	No. of Cont.	SIZE	CONTAINER	PRESERVE	ANALYTICAL PARAMETER
MW-3	1/31/96	1230	3	40ml	VOA	HCl	GAS/BTEX

REMARKS: _____

SIGNATURE: _____

PACIFIC ENVIRONMENTAL GROUP, INC.

FIELD DATA SHEET

WATER SAMPLE FIELD DATA SHEET

PROJECT No.: 330-084.2I LOCATION: 6407 Telegraph Ave Berkeley WELL ID #: MW-4

CLIENT/STATION No.: 0374 FIELD TECHNICIAN: Chuck Graves

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 26.85 - DTW 5.64 = 21.21 x Gal/Linear Foot 0.66 = 13.99 x Number of Casings 3 = Calculated Purge 41.99

DATE PURGED: 1/31/96 START: 1300 END (2400 hr): 1312 PURGED BY: CG

DATE SAMPLED: 1/31/96 START: 1315 END (2400 hr): 1315 SAMPLED BY: CG

TIME (2400 hr)	VOLUME (gal.)	pH (units)	E.C. (umhos/cm @ 2 5°C)	TEMPERATURE (° F)	COLOR	TURBIDITY	ODOR
1304	14	6.97	833	64.6	Clear	14.61	NO
1308	28	6.95	834	66.2	clear	8.61	NO
1312	42	7.02	813	67.0	Cloudy	87.9	NO

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: 29
- ☐ Other: _____
- ☐ Airlift Pump: _____
- ☐ Dedicated: _____

SAMPLING EQUIPMENT/I.D. #
- ☒ Bailer: 29-3
- ☐ Dedicated: _____
- ☐ Other: _____

SAMP. CNTRL #	DATE	TIME (2400)	No. of Cont.	SIZE	CONTAINER	PRESERVE	ANALYTICAL PARAMETER
MW-4	1/31/96	1315	3	40ml	VOA	HCl	GAS/BTEX

REMARKS: _____

SIGNATURE: _____

PACIFIC ENVIRONMENTAL

FIELD DATA SHEET

WATER SAMPLE FIELD DATA SHEET

PROJECT No.: 330-084.2F LOCATION: 6407 Telegraph Ave Berkeley WELL ID #: MW5

CLIENT/STATION No.: 0374 FIELD TECHNICIAN: Chuck Graves

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 23.00 - DTW 8.64 = 14.36 x Gal/Linear Foot 0.66 = 9.48 x Number of Casings 3 = Calculated Purge 28.44

DATE PURGED: 1/31/96 START: 11:48 END (2400 hr): 1152 PURGED BY: CG

DATE SAMPLED: 1/31/96 START: 1155 END (2400 hr): 1155 SAMPLED BY: CG

TIME (2400 hr)	VOLUME (gal.)	pH (units)	E.C. (umhos/cm @ 2 5°C)	TEMPERATURE (° F)	COLOR	TURBIDITY	ODOR
1150	9.50	6.74	676	65.0	Clear	18.18	NO
1151	19.0	6.77	689	65.4	Clear	7.41	NO
1152	28.5	6.86	711	65.1	Clear	4.14	NO

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: 29
- ☐ Other: _____
- ☐ Airlift Pump: _____
- ☐ Dedicated: _____

SAMPLING EQUIPMENT/I.D. #
- ☒ Bailer: 29-1
- ☐ Dedicated: _____
- ☐ Other: _____

SAMP. CNTRL #	DATE	TIME (2400)	No. of Cont.	SIZE	CONTAINER	PRESERVE	ANALYTICAL PARAMETER
MW-5	1/31/96	1155	3	40ml	VOA	HCL	GAS/BTEX

REMARKS: _____

SIGNATURE: _____

PACIFIC ENVIRONMENTAL GROUP, INC.

FIELD DATA SHEET

WATER SAMPLE FIELD DATA SHEET

PROJECT No.: 330-084.2T LOCATION: 6407 Telegraph Ave Berkeley WELL ID #: TB-1

CLIENT/STATION No.: 0374 FIELD TECHNICIAN: Chuck Graves

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 0.66 = _____ x Number of Casings 3 = Calculated Purge _____

DATE PURGED: 1/31/96 START: _____ END (2400 hr): _____ PURGED BY: CG

DATE SAMPLED: 1/31/96 START: — END (2400 hr): — SAMPLED BY: CG

TIME (2400 hr)	VOLUME (gal.)	pH (units)	E.C. (umhos/cm @ 2 5°C)	TEMPERATURE (° F)	COLOR	TURBIDITY	ODOR
			TRIP				
			BLANK				

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
~~MW~~ TB-1	1/31/96	—	3	40ml	VOA	HCL	GAS/BTEX

REMARKS: _____

SIGNATURE: _____

PACIFIC ENVIRONMENTAL

ARCO Products Company
Division of AtlanticRichfieldCompany

330-084.21 **Task Order No.** 1934800

Chain of Custody

ARCO Facility no. 0374	City (Facility) 6407 Telegraph Berkeley	Project manager (Consultant) Kelly Brown	Laboratory name SEQUOIA
ARCO engineer Mike Whelan	Telephone no. (ARCO) —	Telephone no. (Consultant) (408) 441-7500	Fax no. (Consultant) (408) 441-9102
Consultant name Pacific Environmental Group	Address (Consultant) 2025 Gateway #440 San Jose California 95110		Contract number 1934800

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 ☐ Semi VOA ☐ VOA ☐	CAM Metals EPA 6010/7000 TTLC ☐ STLC ☐	Lead Org./DHS ☐ Lead EPA 7420/7421 ☐		
MW3		3		✓		✓	HCl	1/31/96	1230		✓											
MW4		↓		↓		↓	↓	↓	1315		✓											
MW5		↓		↓		↓	↓	↓	1155		✓											
TB-1		2		↓		↓	↓	↓	—		✓											

Method of shipment

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 1/31/96 Time 1530	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
APC-3292 (2-91)

ATTACHMENT D

REMEDIAL SYSTEM PERFORMANCE EVALUATION

ATTACHMENT D
REMEDIAL SYSTEM PERFORMANCE EVALUATION

Groundwater extraction (GWE) was initiated on December 21, 1993. An intrinsic bioremediation enhancement program at off-site groundwater Monitoring Well MW-3 was initiated on November 14, 1995. A brief description and performance evaluation of the remedial system between January 1 and March 31, 1996 is presented below.

GWE System

The GWE system is comprised of a pneumatic pump in Well W-2, and three 200-pound granular activated carbon (GAC) vessels arranged in series to treat the extracted groundwater. Sample ports are located at the treatment system influent, between the GAC vessels, at the effluent, and at the extraction well head. The GWE system in permitted by East Bay Municipal Utility District Sewer Discharge Permit No. 502-85611, which expires December 31, 1997.

The GWE system was not operated during the reporting period since TPPH-g and benzene concentrations in downgradient wells remained non-detectable or unchanged, indicating that no further plume migration has occurred.

GWE system performance and analytical data are presented in Tables D-1 and D-2, respectively. Graphical presentations of TPPH-g and benzene mass removal and concentration data are shown on Figures D-1 and D-2, respectively. On the certified analytical reports, data have been labeled by sample port numbers which correspond to the following process points: SP-105 is the influent; SP-106 is between the first and second GAC vessels; SP-107 is between the second and third GAC vessels; and SP-108 is the effluent. The operation and maintenance field data sheet is presented as Attachment D-A.

During this quarter, the GWE system was in compliance with all conditions stipulated in the discharge permit.

Bioremediation Enhancement Program

At the request of ARCO Products Company, the bioremediation enhancement program, utilizing oxygen releasing compound (ORC) manufactured by Regenesis Bioremediation Products,

was initiated in Well MW-3 on November 14, 1995. Twelve 2-inch diameter ORC socks were installed below the groundwater surface in Well MW-3. ORC is a formulation of very fine, insoluble magnesium peroxide that releases oxygen at a slow, controlled rate when hydrated.

To evaluate the program, baseline intrinsic bioremediation evaluation parameters, including dissolved oxygen, nitrates, nitrites (electron acceptors), pH, and electrical conductivity, in groundwater at Well MW-3 were obtained prior to installation of ORC. The aforementioned parameters will be monitored during future groundwater monitoring events. Initial program evaluation results have been presented in this report. Groundwater biodegradation study field and laboratory data are presented in Table D-3.

Conclusions

During a meeting attended by PACIFIC, ARCO, and the Alameda County Health Care Services Agency on October 5, 1995, it was agreed that the operation of the GWE system was no longer required unless quarterly groundwater monitoring indicates a plume migration during the verification monitoring period, at which point GWE will be resumed.

Attachments:
- Table D-1 - Groundwater Extraction System Performance Data
- Table D-2 - Groundwater Extraction System Analytical Data - Total Purgeable Petroleum Hydrocarbons (TPPH as Gasoline and BTEX Compounds)
- Table D-3 - Groundwater Biodegradation Study Field and Laboratory Data
- Figure D-1 - Groundwater Extraction System Mass Removal Trend
- Figure D-2 - Groundwater Extraction System Hydrocarbon Concentrations
- Attachment D-A - Operation and Maintenance Field Data Sheet

Table D-1
Groundwater Extraction System Performance Data

ARCO Service Station 0374
6407 Telegraph Avenue at Alcatraz Avenue
Oakland, California

Sample I.D.	Date Sampled	Totalizer Reading (gallons)	Net Volume (gallons)	Average Flow Rate (gpm)	TPPH Influent Concentration (µg/L)	TPPH Net Removed (lbs)	TPPH Removed to Date (lbs)	Benzene Influent Concentration (µg/L)	Benzene Net Removed (lbs)	Benzene Removed to Date (lbs)	Primary Carbon Loading (percent)
INFL	12/21/93 a	22	22	0.21	NS	0.000	0.00	NS	0.000	0.00	0.0
INFL	12/23/93 a	4,855	4,833	1.6	9,300	0.380	0.38	1,200	0.024	0.02	0.5
INFL	12/27/93 a	6,871	2,016	0.36	5,700	0.130	0.51	820	0.017	0.04	0.6
INFL	12/29/93 a	7,192	321	0.13	5,800	0.016	0.53	950	0.002	0.04	0.7
INFL	01/03/94 a	7,925	733	0.10	6,500	0.010	0.54	860	0.006	0.05	0.7
INFL	01/05/94 a	8,162	237	0.08	5,200	0.010	0.55	970	0.002	0.05	0.7
INFL	01/11/94 a	8,907	745	0.08	6,300	0.030	0.58	900	0.006	0.06	0.7
INFL	01/13/94 a	9,175	268	0.09	8,600	0.019	0.60	950	0.002	0.06	0.7
INFL	01/24/94 a	9,306	131	0.08	NS	0.007	0.60	NS	0.001	0.06	0.8
INFL	02/24/94 a	14,555	5,249	0.21	4,200	0.280	0.88	520	0.011	0.07	1.1
INFL	03/24/94 a	23,723	9,168	0.24	6,200	0.400	1.40	1,100	0.062	0.13	1.8
INFL	04/26/94 b	29,543	5,820	0.12	6,400	0.150	1.55	1,400	0.061	0.19	1.9
INFL	05/24/94 c	35,082	5,539	0.14	NS	0.196	1.75	NS	0.043	0.24	2.2
INFL	11/17/94 d,e	35,507	425	N/A	2,100	0.004	1.75	460	0.001	0.24	2.2
INFL	01/10/95 f	36,493	986	0.01	1,100	0.013	1.76	180	0.003	0.24	2.2
INFL	02/07/95 g	41,399	4,906	0.12	3,500	0.094	1.86	370	0.011	0.25	2.3
INFL	03/03/95 h	53,290	11,891	0.34	NS	0.220	2.08	NS	0.035	0.29	2.6
INFL	04/03/95	62,562	9,292	0.21	5,000	0.194	2.27	1,000	0.039	0.32	2.8
INFL	05/01/95	69,809	7,227	0.18	580	0.168	2.44	40	0.031	0.36	3.0
INFL	06/09/95	75,254	5,445	0.10	1,400	0.045	2.48	420	0.010	0.37	3.1
INFL	07/05/95	81,540	6,286	0.17	750	0.056	2.54	41	0.012	0.38	3.2
INFL	08/10/95	86,868	5,328	0.10	610	0.030	2.57	29	0.002	0.38	3.2
INFL	09/18/95	91,532	4,664	0.08	600	0.024	2.59	10	0.001	0.38	3.2
INFL	10/02/95	92,918	1,386	0.07	790	0.008	2.60	52	0.000	0.38	3.3
INFL	10/13/95 i,h	93,989	1,071	0.07	NS	0.006	2.61	NS	0.000	0.38	3.3
REPORTING PERIOD: 01/01/96 - 03/31/96 (i)											
TOTAL POUNDS REMOVED:							**2.61**			**0.38**	
TOTAL GALLONS REMOVED:							**0.43**			**0.05**	
PERIOD POUNDS REMOVED:						**0.000**			**0.00**		
PERIOD GALLONS REMOVED:						**0.000**			**0.00**		
TOTAL GALLONS EXTRACTED:					**93,989**						
PERIOD GALLONS EXTRACTED:					**0**						
PERIOD AVERAGE FLOW RATE (gpm):					**N/A**						
PRIMARY BED CAPACITY REMAINING:					**96.7%**						

TPPH = Total purgeable petroleum hydrocarbons
gpm = Gallons per minute
µg/L = Micrograms per liter
lbs = Pounds
NS = Not sampled (prior concentrations assumed)
N/A = Not available or not applicable

a. All data prior to 9/1/94 provided by prior consultant.
b. Samples taken 4/21/94; totalizer reading from 4/26/94.
c. Last site visit by RESNA on 5/24/94.
d. Pacific Environmental Group, Inc. became consultant for the site 9/1/94.
e. System operated for two days in 4th quarter 1994; system down due to extensive repairs required for system and compound.
f. System started on January 10, 1995.
g. System auto shutdown 2/14/95; shut down 3/3/95 for repairs.
h. TPPH/benzene pounds removed estimated from previous data.
i. GWE system temporarily shut down 10/13/95.

System operation began December 21, 1993, under RESNA Industries, Inc.; system shut down 4/27/94 - 11/17/94.
Pounds of hydrocarbons removed to date through March 24, 1994 provided by prior consultant.
Benzene mass removal from 12/21/93 through 4/27/94 estimated from data provided by prior consultant.
Prior to June 1995, TPPH was reported as "TPH calculated as Gasoline".
Mass removed is an approximation calculated using averaged concentrations.
Carbon loading assumes an 8 percent isotherm. See certified analytical reports for detection limits.

Table D-2
Groundwater Extraction System Analytical Data
Total Purgeable Petroleum Hydrocarbons
(TPPH as Gasoline and BTEX Compounds)

ARCO Service Station 0374
6407 Telegraph Avenue at Alcatraz Avenue
Oakland, California

Sample I.D.	Date Sampled	TPPH as Gasoline (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethyl-benzene (µg/L)	Xylenes (µg/L)
Influent Samples						
SP-105	01/10/94	1,100	180	2.7	26	51
SP-105	02/07/94	3,500	370	120	67	230
SP-105	04/03/95	5,000	1,000	41	88	300
INFL	05/01/95	580	40	ND	1.2	17
SP-105	06/09/95	1,400	420	7	10	20
SP-105	07/05/95	750	41	ND	2.8	17
SP-105	08/10/95	610	29	0.64	3.4	16
SP-105	09/18/95	600	10	ND	ND	20
105	10/02/95	790	52	ND	8.4	67
Midpoint-1 Samples						
SP-106	01/10/94	ND	ND	ND	ND	ND
SP-106	02/07/94	ND	ND	ND	ND	ND
SP-106	04/03/95	ND	ND	ND	ND	ND
MID-1	05/01/95	ND	ND	ND	ND	ND
SP-106	06/09/95	ND	ND	ND	ND	ND
SP-106	07/05/95	ND	ND	ND	ND	ND
SP-106	08/10/95	ND	ND	ND	ND	ND
SP-106	09/18/95	ND	ND	ND	ND	ND
106	10/02/95	ND	ND	ND	ND	ND
Midpoint-2 Samples						
MID-2	11/17/94	ND	ND	ND	ND	ND
SP-107	01/10/94	ND	ND	ND	ND	ND
SP-107	02/07/94	ND	ND	ND	ND	ND
SP-107	04/03/95	ND	ND	ND	ND	ND
SP-107	06/09/94	ND	ND	ND	ND	ND
SP-107	09/18/95	ND	ND	ND	ND	ND
Effluent Samples						
SP-108	01/10/94	ND	ND	ND	ND	ND
SP-108	02/07/94	ND	ND	ND	ND	ND
SP-108	04/03/95	ND	ND	ND	ND	ND
EFFL	05/01/95	ND	ND	ND	ND	ND
SP-108	06/09/95	79	ND	ND	ND	ND
SP-108	07/05/95	ND	ND	ND	ND	ND
SP-108	08/10/95	ND	ND	ND	ND	ND
SP-108	09/18/95	ND	ND	ND	ND	ND
108	10/02/95	ND	ND	ND	ND	ND

µg/L = Micrograms per liter
ND = Not detected above detection limits
System startup on 12/21/93 by RESNA Industries, Inc.
Pacific Environmental Group, Inc. (PACIFIC) became consultant 9/01/94.
PACIFIC restarted system on 11/17/94.
See certified analytical reports for individual detection limits.

Table D-3
Groundwater Biodegradation Study Field and Laboratory Data

ARCO Service Station 0374
6407 Telegraph Avenue at Alcatraz Avenue
Oakland, California

		Field Analyses				Laboratory Analyses	
Well	Date Sampled	Groundwater Temperature (deg F)	pH (units)	Conductivity (µmhos)	DO (mg/L)	Nitrite as Nitrite (mg/L)	Nitrate as Nitrate (mg/L)
MW-3	11/14/95	65.5*	6.76*	508*	7.17†	<1.0	6.6

DO = Dissolved oxygen
deg F = Degrees Fahrenheit
µmhos = Micromhos
mg/L = Milligrams per liter

* = Field measurements collected on November 2, 1995.
† = DO measurement taken in office.

Figure D-1
Groundwater Extraction System Mass Removal Trend

ARCO Service Station 0374
6407 Telegraph Avenue at Alcatraz Avenue
Oakland, California

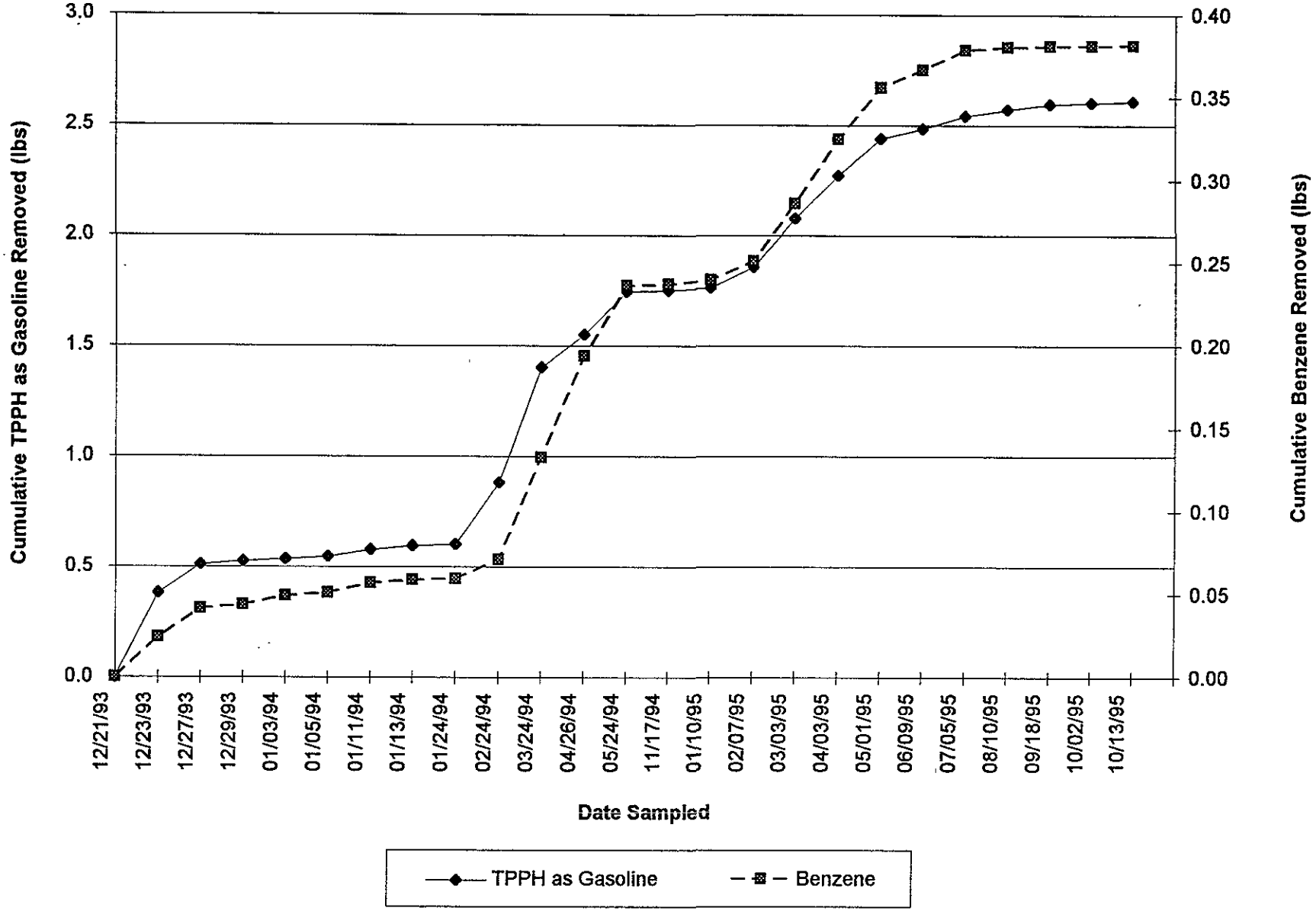
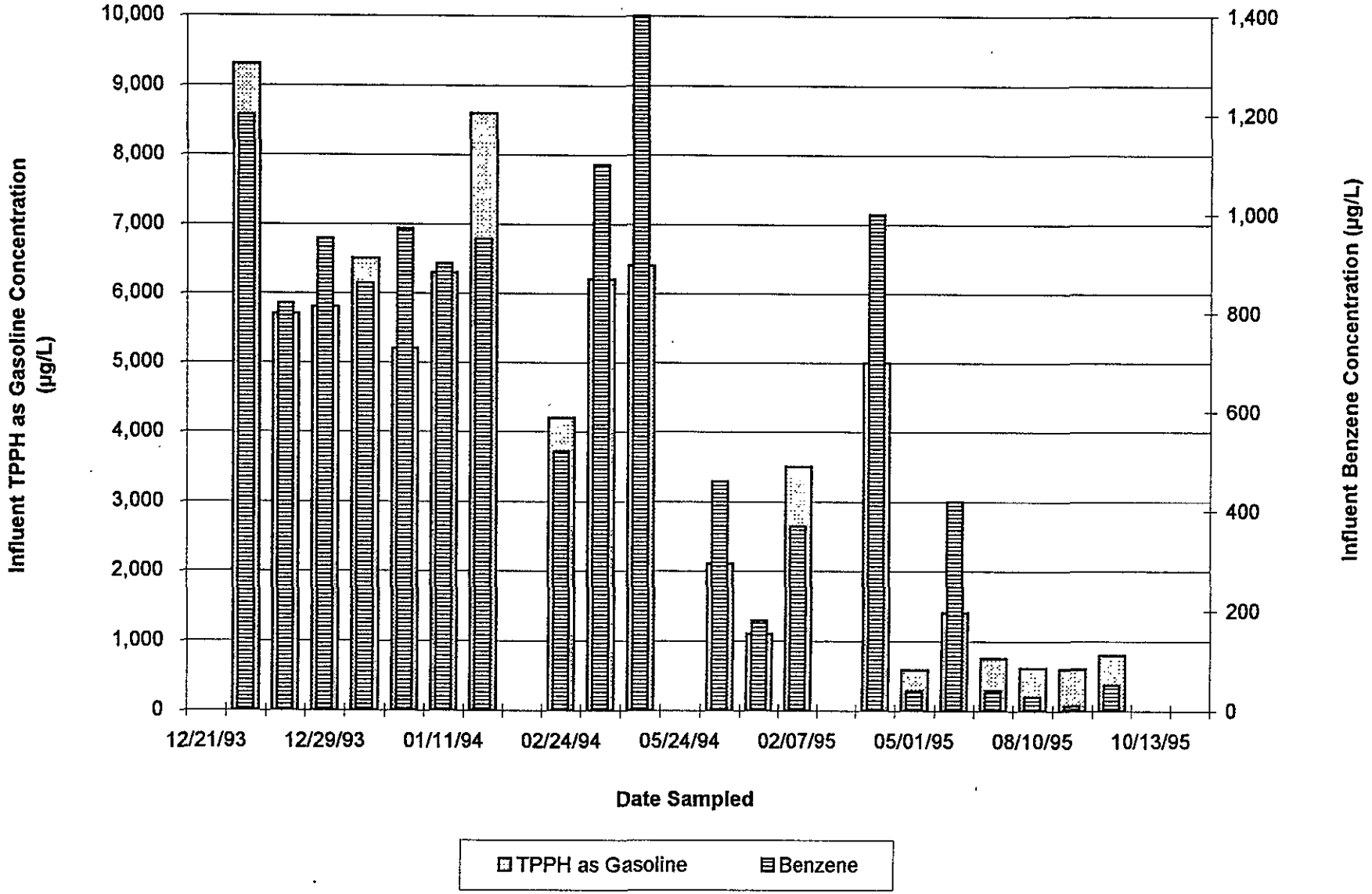


Figure D-2
Groundwater Extraction System Hydrocarbon Concentrations

ARCO Service Station 0374
6407 Telegraph Avenue at Alcatraz Avenue
Oakland, California



ATTACHMENT D-A

OPERATION AND MAINTENANCE
FIELD DATA SHEET

FIELD SERVICES REQUEST

SITE INFORMATION FORM

Identification

Project # 330-084.5C
Station ID # 0374
Site Address: 6407 TELEGRAPH AVE., OAKLAND
Lab: Sequoia 19277 00
County:
Project Manager: Shaw Garakani
Requester: David S. Nanstad
Client: ARCO
Client P.O.C:MIKE WHEILAN
Date of Request: March 20, 1996

Project Type

☒ Operation & Maintenance
☐ Sampling
☐ 1st time visit
☐ Quarterly
☐ 1st ☐ 2nd ☐ 3rd ☐ 4th
☐ Monthly
☐ Semi-Monthly
☐ Weekly
☒ One time event
☐ Other:
Ideal field date: ASAP

Check Appropriate Category

☐ In Budget Site Visit
☐ Out of Budget Site Visit

Budget Hours: +1.5
Actual Hours: 1.0
Mob de Mob: —

Site Safety Concerns

STANDARD

Field Tasks General Description

OBJECTIVE: Turn power off to the sump pump.

Drill a hole in the burm (1.5" to 2") so water will not collect in burm. Locate hole at a low elevation and in an inconspicouse location. If enclosure is prone to collect trash, create and install a small wire gage around the drain hole so trash doesn't block hole so easily.

RECORD TOTALIZER

Comments, remarks from field staff

SYSTEM = 00093997 GAL
- DRAIN HOLE DRILLED AS REQUESTED

Completed By: [illegible] Date: 3.26.95

Pacific Environmental Group, Inc.