PACIFIC
ENVIRONMENTAL
GROUP, INC.

April 14, 1995
Project 330-084.2A

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

Re: Quarterly Report - Fourth Quarter 1994
Remedial System Performance Evaluation
ARCO Service Station 0374
6407 Telegraph Avenue at Alcatraz 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 fourth quarter 1994 groundwater monitoring and performance evaluation of the groundwater extraction (GWE) system 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 by Integrated Wastestream Management, Inc. (IWM) on November 12, 1994, and analyzed for the presence of total petroleum hydrocarbons calculated as gasoline (TPH-g), benzene, toluene, ethylbenzene, xylenes (BTEX compounds), and TPH calculated as diesel (TPH-d). The certified analytical report, chain-of-custody documentation, and field data sheets are presented as Attachment A. IWM's groundwater sampling procedures are presented as Attachment B.

Depth to water data collected on November 12, 1994 indicate that groundwater levels across the site have risen an average of 0.77 foot since August 2, 1994. Groundwater flow was to the southwest with an approximate gradient of 0.04. This flow direction and gradient are consistent with historical data. Groundwater elevation data are presented in Table 1. A liquid surface elevation contour map based on the November 12, 1994 data is shown on Figure 1.

Results of groundwater monitoring this quarter are generally consistent with previous results. TPH-g and benzene were not detected in Wells MW-1, MW-5, and MW-6. TPH-g concentrations in Wells MW-2, MW-3, and MW-4 were 95, 160, and 1,600 parts per billion (ppb), respectively. Benzene concentrations in Wells MW-2, MW-3, and MW-4 were 28, 6.0, and 230 ppb, respectively. Separate-phase hydrocarbons were not observed in any site well this quarter, or during any sampling event since December 1991. Groundwater analytical data are presented in Table 2. A TPH-g and benzene concentration map is shown on Figure 2.

REMEDIAL PERFORMANCE EVALUATION

Remedial action consisting of GWE is currently in progress at this site. The GWE system has been in operation since December 21, 1993.

Remedial objectives for the site include: (1) migration control of the impacted groundwater plume, and (2) petroleum hydrocarbon mass reduction. To evaluate GWE system performance, PACIFIC monitors groundwater levels, instantaneous and average flow rate, evaluates and analyzes samples of system influent and effluent for TPH-g and BTEX compounds.

Below is a brief description of the GWE system and an evaluation of its performance from September 30 to December 16, 1994.

GROUNDWATER EXTRACTION SYSTEM

Description

The GWE system utilizes an electric pump in Well W-2, and three 200-pound granular activated carbon (GAC) vessels arranged in series to treat the extracted groundwater. The carbon vessels are connected and valved so that the vessel order can be rotated. This allows for any one of the vessels to become the primary vessel, or after carbon replacement to become the secondary vessel, or polishing vessel. Sample ports are located at the treatment system influent, between the carbon vessels, at the effluent, and at the individual well head. Groundwater system effluent is discharged into the East Bay Municipal Utility District (EBMUD) sanitary sewer system.

Migration Control

Progress toward meeting the migration control objective is evaluated by comparison of the groundwater elevation contour map (Figure 1) and TPH-g and benzene concentration map (Figure 2) from previous and current groundwater monitoring events.

As indicated by Figures 1 and 2, although no apparent hydraulic control was observed since the GWE system was operational, TPH-g and benzene concentrations in down-

gradient groundwater monitoring wells were either non-detectable or decreased compared to previous quarters. Therefore, the migration control objective appears to have been met during the reporting period.

Mass Reduction

Progress toward meeting the mass reduction objective is determined by evaluating the GWE system mass removal data and the TPH-g concentration trends in associated groundwater monitoring wells. GWE system operational data are collected monthly. The system flow and influent sample analysis data are used to estimate TPH-g mass removal values. During the reporting period, GWE removed approximately 0.0 pound (0.0 gallon) of TPH-g and 0.0 pound (0.0 gallon) of benzene from impacted groundwater beneath the site. To date, GWE has removed approximately 1.75 pounds (0.29 gallon) of TPH-g and 0.24 pound (0.03 gallon) of benzene from impacted groundwater beneath the site. Mass removal data for the GWE system are presented in Table 3. The certified analytical report and chain-of-custody documentation are presented as Attachment C. Progress toward site remediation is presented in the table below.

	Mass Removed			
	09/30/94 to 12/16/94		Cumulative	
Analyte	(lbs)	(gal)	(lbs)	(gal)
Groundwater Extraction				
TPH-g	0.0	0.0	1.75	0.29
Benzene	0.0	0.0	0.24	0.03

lbs = Pounds
gal = Gallons
TPH-g = Total petroleum hydrocarbons calculated as gasoline

Groundwater Extraction System Operational Data

The GWE system was operational for approximately 2 days during the reporting period. The GWE system was non-operational, due to repairs that were necessary, including repairing the containment berm and repairing GAC vessel lids. The system will be restarted by PACIFIC during first quarter the 1995.

SUMMARY OF WORK

Work Completed Fourth Quarter 1994

- Prepared and submitted of third quarter 1994 groundwater monitoring and remedial system performance evaluation.
- Sampled site wells for fourth quarter 1994 groundwater monitoring program. Sampling performed by IWM.

- Reactivated and performed troubleshooting on GWE system.
- Repaired lids on GAC vessels.
- Repaired leak from secondary containment berm into service station building.
- Renewed EBMUD permit for groundwater discharge to the sanitary sewer.

Work Anticipated First Quarter 1995

- Reactivate, monitor, and troubleshoot GWE system.
- Preparation and submittal of fourth quarter 1994 groundwater monitoring and remedial system performance evaluation report.
- Sample site wells for first quarter 1995 groundwater monitoring program. Sampling to be performed by PACIFIC.
- Preparation of first quarter 1995 groundwater monitoring and remedial system performance evaluation report.
- Issue quarterly self-monitoring report to the EBMUD.

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

Sincerely,

Pacific Environmental Group, Inc.

Shaw Garakani
Project Engineer

R. Lee Dooley
Senior Geologist
CEG 1006

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

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

Table 1
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
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 1 (continued)
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
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 1 (continued)
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
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 1 (continued)
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
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
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

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

Table 2

Groundwater Analytical Data

Total Petroleum Hydrocarbons

(TPH as Gasoline, BTEX Compounds, TPH as Diesel, and Oil and Grease)

ARCO Service Station 0374

6407 Telegraph Avenue at Alcatraz Avenue

Oakland, California

Well Number	Date Sampled	TPH as Gasoline (ppb)	Benzene (ppb)	Toluene (ppb)	Ethyl-benzene (ppb)	Xylenes (ppb)	TPH 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
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
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

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

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

Well Number	Date Sampled	TPH as Gasoline (ppb)	Benzene (ppb)	Toluene (ppb)	Ethyl-benzene (ppb)	Xylenes (ppb)	TPH as Diesel (ppb)	Oil and Grease (ppb)
MW-3	01/10/90	940	130	59	21	73	NA	NA
(cont.)	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
MW-4	07/21/89	8,700	720	360	120	640	NA	NA
	08/30/89	7,300	630	220	n	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
	10/13/93	16,000	3,500	800	470	1,800	670	NA
	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
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

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

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

Well Number	Date Sampled	TPH as Gasoline (ppb)	Benzene (ppb)	Toluene (ppb)	Ethyl-benzene (ppb)	Xylenes (ppb)	TPH as Diesel (ppb)	Oil and Grease (ppb)
MW-5	02/03/94	<50	0.8	1.7	<0.5	15	NA	NA
(cont.)	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
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

ppb = Parts per billion
NA = Not analyzed
* = The chromatogram does not match the typical diesel fingerprint.

Table 3

Groundwater Extraction System Performance Data

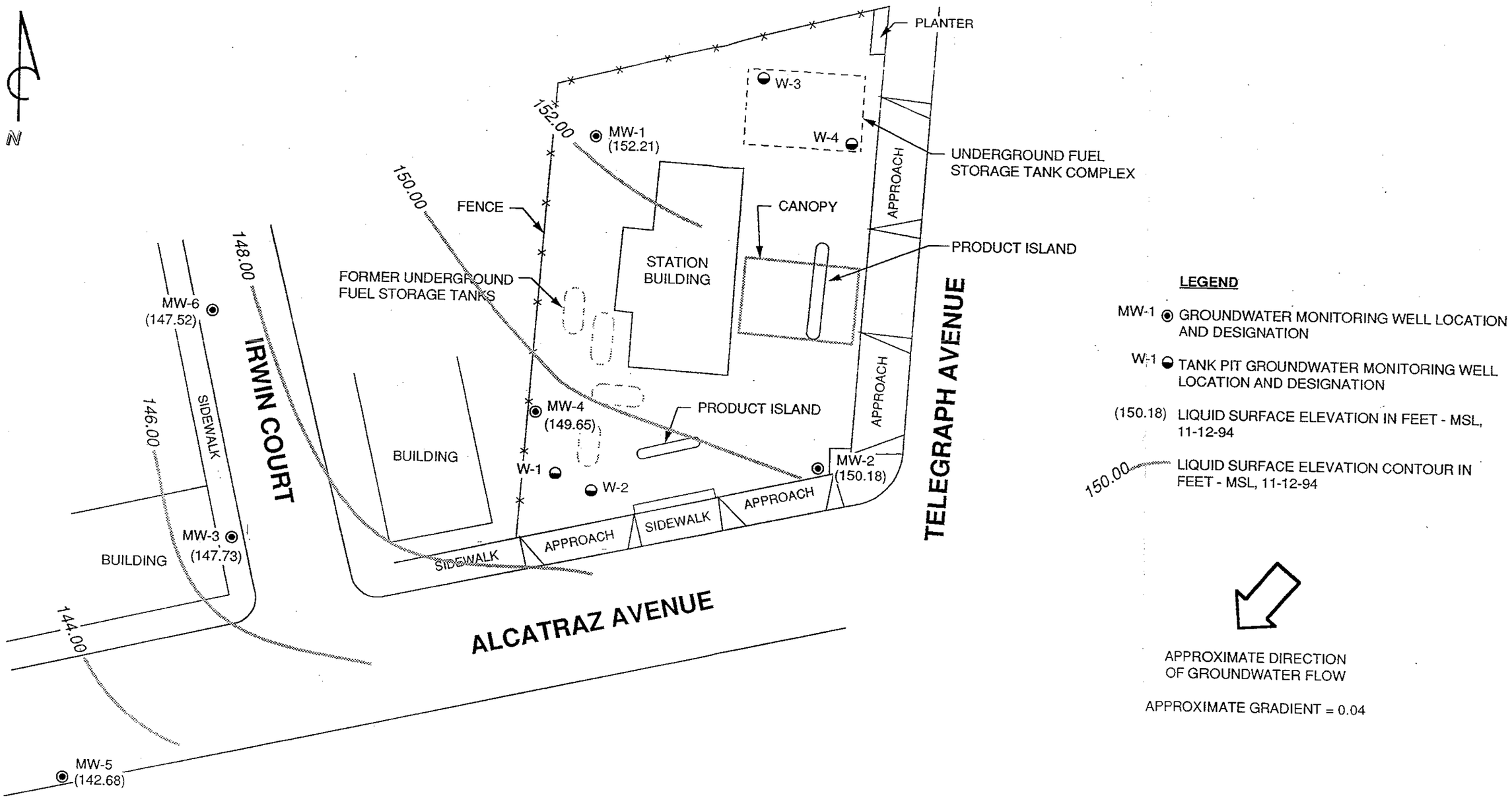
ARCO Service Station 0374
6407 Telegraph Avenue at Alcatraz Avenue
Oakland, California

Sample I.D.	Date Sampled	Totalizer Reading (gallons)	Net Volume (gallons)	Average Flow Rate (gpm)	TPH as Gasoline: Influent Concentration (µg/L)	TPH as Gasoline: Net Removed (lbs)	TPH as Gasoline: 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	0.00	0.00	NS	0.000	0.00	0.0
INFL	12/23/93 a	4,855	4,833	1.6	9,300	0.36	0.36	1,200	0.024	0.02	0.5
INFL	12/27/93 a	6,871	2,016	0.36	5,700	0.13	0.51	820	0.017	0.04	0.6
INFL	12/29/93 a	7,192	321	0.13	5,800	0.02	0.53	950	0.003	0.04	0.7
INFL	01/03/94 a	7,925	733	0.10	6,500	0.01	0.54	860	0.006	0.05	0.7
INFL	01/05/94 a	8,162	237	0.08	5,200	0.01	0.55	970	0.002	0.05	0.7
INFL	01/11/94 a	8,907	745	0.08	6,300	0.03	0.58	900	0.006	0.06	0.7
INFL	01/13/94 a	9,175	268	0.09	6,600	0.02	0.60	950	0.002	0.06	0.7
INFL	01/24/94 a	9,306	131	0.08	NS	0.01	0.60	NS	0.001	0.06	0.8
INFL	02/24/94 a	14,555	5,249	0.21	4,200	0.26	0.86	520	0.011	0.07	1.1
INFL	03/24/94 a	23,723	9,168	0.24	6,200	0.40	1.40	1,100	0.062	0.13	1.8
INFL	04/26/94 b	29,543	5,820	0.12	6,400	0.15	1.55	1,400	0.061	0.19	1.9
INFL	05/24/94 c	35,082	5,539	0.14	NS	0.20	1.75	NS	0.043	0.24	2.2
INFL	11/17/94 d,e	35,507	425	N/A	2,100	0.00	1.75	460	0.001	0.24	2.2
REPORTING PERIOD: 09/30/94 - 12/16/94											
TOTAL POUNDS REMOVED:							1.75			0.24	
TOTAL GALLONS REMOVED:							0.29			0.03	
PERIOD POUNDS REMOVED:						0.00			0.00		
PERIOD GALLONS REMOVED:						0.00			0.00		
TOTAL GALLONS EXTRACTED:					35,507						
PERIOD GALLONS EXTRACTED:					425						
PERIOD AVERAGE FLOW RATE (gpm):					0.16						
PRIMARY BED CAPACITY REMAINING:					97.8%						

TPH = Total petroleum hydrocarbons
gpm = Gallons per minute
µg/L = Micrograms per liter
lbs = Pounds
NS = Not sampled
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 this period. System was down due to extensive repairs to system and compound.

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.
Carbon loading assumes an 8% isotherm.
See certified analytical reports for detection limits.



LEGEND

MW-1 ◉ GROUNDWATER MONITORING WELL LOCATION AND DESIGNATION

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

(150.18) LIQUID SURFACE ELEVATION IN FEET - MSL, 11-12-94

150.00 LIQUID SURFACE ELEVATION CONTOUR IN FEET - MSL, 11-12-94

APPROXIMATE DIRECTION OF GROUNDWATER FLOW

APPROXIMATE GRADIENT = 0.04

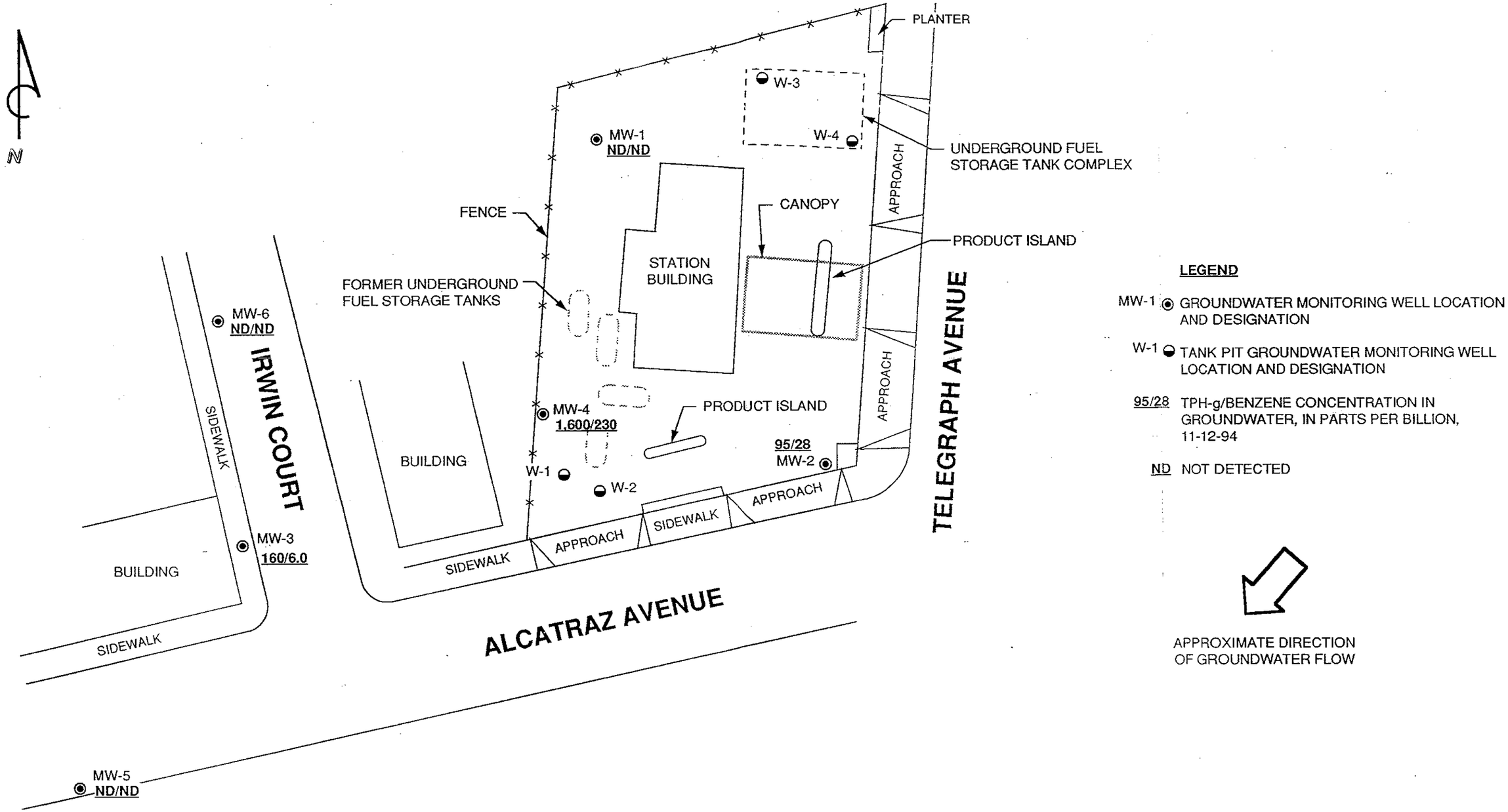
PACIFIC ENVIRONMENTAL GROUP, INC.

SCALE
0 30 60 FEET

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

LIQUID SURFACE ELEVATION CONTOUR MAP

FIGURE:
1
PROJECT:
330-084.2A



PACIFIC ENVIRONMENTAL GROUP, INC.

SCALE
0 30 60 FEET

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

TPH-g/BENZENE CONCENTRATION MAP

FIGURE:
2
PROJECT:
330-084.2A

ATTACHMENT A

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

330-084.2A

I NTEGRATED
W ASTESTREAM
M ANAGEMENT

December 9, 1994

Kelly Brown
Pacific Environmental Group
2025 Gateway Place, Ste# 440
San Jose, CA 95110

Dear Mr. Brown:

Attached are the field data sheets and analytical results for quarterly ground water sampling at ARCO Facility No. 374 in Oakland, California. Integrated Wastestream Management measured the depth to water and collected samples from wells at this site on November 12, 1994.

Sampling was carried out in accordance with the protocols described in the "Request for Bid for Quarterly Sampling at ARCO Facilities in Northern California".

Please call us if you have any questions.

Sincerely,
Integrated Wastestream Management

Tom DeLon
Project Manager

Walter H. Howe
Registered Geologist

REGISTERED GEOLOGIST
WALTER H. HOWE
No. 730
Exp. 4/'96
STATE OF CALIFORNIA

950 AMES AVENUE MILPITAS, CA 95035 (408) 942-8955

INTEGRATED
WASTESTREAM
MANAGEMENT

A0374Q4.XLS

Summary of Ground Water Sample Analyses for ARCO Facility A-374, Oakland, California

WELL NUMBER	MW-1	MW-2A	MW-3	MW-4	MW-5	MW-6
DATE SAMPLED	11/12/94	11/12/94	11/12/94	11/12/94	11/12/94	11/12/94
DEPTH TO WATER	6.70	7.74	5.91	6.88	8.65	6.32
SHEEN	NONE	NONE	NONE	NONE	NONE	NONE
PRODUCT THICKNESS	NA	NA	NA	NA	NA	NA
TPHg	ND	95	160	1,600	ND	ND
BTEX						
BENZENE	ND	28	6.0	230	ND	ND
TOLUENE	ND	0.7	ND	51	ND	ND
ETHLYBENZENE	ND	2.5	3.2	81	ND	ND
XYLENES	ND	7.5	4.1	190	ND	ND
TPHd						
DIESEL	NA	NA	NA	90#	NA	NA

FOOTNOTES:

Concentrations reported in ug/L (ppb)

TPHg = Total Purgeable Petroleum Hydrocarbons (USEPA Method 8015 Modified)

BTEX Distinction (USEPA Method 8020)

PCE = Tetrachloroethene (USEPA Method 8010)

* = Well inaccessible

** = Not sampled per consultant request

DCE = cis-1, 2-Dichloroethene (USEPA Method 8010)

TCE = Trichloroethene (USEAP Method 8010)

ND = Not Detected

NA = Not applicable

FP = Floating product

= See laboratory analytical report

950 AMES AVENUE MILPITAS, CA 95035 (408) 942-8955

FIELD REPORT

Depth To Water / Floating Product Survey

Site Arrival Time: 1445

Site Departure Time:

Weather Conditions: Cloudy cool

DTW: Well Box or Well Casing (circle one)

Project No.: Location: 6407 telegraph ave. OAK Date: Nov. 12, 1994

Client / Station#: Arco 374 Field Technician: Vince Valdes Day of Week: Saturday

DTW ORDER	WELL ID	SURFACE SEAL	LID SECURE	GASKET	LOCK	EXPANDING CAP	TOTAL DEPTH (Feet)	FIRST DEPTH TO WATER (Feet)	SECOND DEPTH TO WATER (Feet)	DEPTH TO FLOATING PRODUCT (Feet)	FLOATING PRODUCT THICKNESS (Feet)	SHEEN (Y=YES, N=NO) FP=FLOATING PRODUCT	COMMENTS	MATERIALS
	MW-1	OK	Yes	OK	22	OK	27.00	6.70	6.70	N/A	N/A	N	4"	Hole in lock
	MW-2A	OK	Yes	OK	22	R	26.80	7.74	7.74	N/A	N/A	N	4" Replaced ex. CAP	Hole in lock
	MW-3	OK	Yes	OK	22	OK	27.00	5.91	5.91	N/A	N/A	N	4" inside grading box	Hole in lock
	MW-4	OK	Yes	OK	22	OK	27.80	6.88	6.88	N/A	N/A	N	4"	3/4
	MW-5	OK	Yes	OK	22	OK	22.91	8.65-	8.65-	N/A	N/A	N	4"	15/16
	MW-6	OK	Yes	OK	22	OK	15.10	6.32-	6.32-	N/A	N/A	N	4"	15/16

PAGE 2 OF 3 DATE: 11-12-94 CLIENT/STATION #: Arco 374 ADDRESS: 6407 dolegraph ave. OAK.

WELL ID: MW-1 TD 27.0 − DTW 6.70 × 0.66 (Gal./Linear Ft.) × 3 (Casing Volume) = 40.19 (Calculated Purge)

DATE PURGED: 11-12-94 START (2400 HR): 1640 END (2400 HR) 1654
DATE SAMPLED: 11-12-94 TIME (2400 HR): 1658 DTW: 24.8

TIME (2400 HR)	VOLUME (GAL)	pH (UNITS)	(E.C. X 1,000) (UMHOS/CM@25 C)	TEMP. (F)	COLOR (VISUAL)
1642	3	6.97	0.70	67.1	cloudy
1645	15	7.04	0.70	66.8	clear
1650	30	6.96	0.71	66.4	clear
1654	37	6.94	0.71	66.3	clear

Total purge: 37
PURGING EQUIP.: Centrifugal Pump Bailer Disp. SAMPLING EQUIP: Bailer Disp.
REMARKS: Well pumped dry at 37 gallons.

WELL ID: MW-2A TD 26.80 − DTW 7.74 × 0.66 (Gal./Linear Ft.) × 3 (Casing Volume) = 37.73 (Calculated Purge)

DATE PURGED: 11-12-94 START (2400 HR): 1707 END (2400 HR) 1718
DATE SAMPLED: 11-12-94 TIME (2400 HR): 1723 DTW: 14.1

TIME (2400 HR)	VOLUME (GAL)	pH (UNITS)	(E.C. X 1,000) (UMHOS/CM@25 C)	TEMP. (F)	COLOR (VISUAL)
1709	1	6.91	0.44	66.9	clear
1712	15	6.81	0.45	66.7	clear
1716	30	6.80	0.46	66.5	clear
1718	40	6.79	0.48	66.3	clear

Total purge: 40
PURGING EQUIP.: Centrifugal Pump Bailer Disp. SAMPLING EQUIP: Bailer Disp.
REMARKS:

WELL ID: MW-5 TD 22.91 − DTW 8.65 × 0.66 (Gal./Linear Ft.) × 3 (Casing Volume) = 28.23 (Calculated Purge)

DATE PURGED: 11-12-94 START (2400 HR): 1733 END (2400 HR) 1742
DATE SAMPLED: 11-12-94 TIME (2400 HR): 1750 DTW: 20.2

TIME (2400 HR)	VOLUME (GAL)	pH (UNITS)	(E.C. X 1,000) (UMHOS/CM@25 C)	TEMP. (F)	COLOR (VISUAL)
1735	3	6.81	0.50	67.2	clear
1737	15	6.75	0.47	65.9	clear
1741	23	6.72	0.49	65.5	clear
1742	24	6.72	0.49	65.4	clear

Total purge: 24
PURGING EQUIP.: Centrifugal Pump Bailer Disp. SAMPLING EQUIP: Bailer Disp.
REMARKS: Well pumped dry at 24 gallons

WELL ID: MW-6 TD 15.10 − DTW 6.32 × 0.66 (Gal./Linear Ft.) × 3 (Casing Volume) = 17.38 (Calculated Purge)

DATE PURGED: 11-12-94 START (2400 HR): 1808 END (2400 HR) 1812
DATE SAMPLED: 11-12-94 TIME (2400 HR): 1814 DTW: 13.8

TIME (2400 HR)	VOLUME (GAL)	pH (UNITS)	(E.C. X 1,000) (UMHOS/CM@25 C)	TEMP. (F)	COLOR (VISUAL)
1809	2	6.83	0.42	66.0	clear
1811	11	6.70	0.42	65.6	clear
1812	15	6.70	0.42	65.3	clear

Total purge: 15
PURGING EQUIP.: Centrifugal Pump Bailer Disp. SAMPLING EQUIP: Bailer Disp.
REMARKS: Well pumped dry at 15 gallons

PRINT NAME: Vince Hoades SIGNATURE:

CASING DIAMETER (inches):	2	3	4	6	8	12	Other:
GALLON/LINEAR FOOT:	0.17	0.38	0.66	1.5	2.6	5.8	Other:

PAGE 3 OF 3 DATE: 11-12-94 CLIENT/STATION #: ARCO 374 ADDRESS: 6407 Telegraph Ave. OAK.

WELL ID: MW-3 TD 27.0 - DTW 5.91 X 0.66 (Gal. / Linear Ft.) X 3 (Casing / Volume) = 41.57 (Calculated Purge)

DATE PURGED: 11-12-94 START (2400 HR): 1833 END (2400 HR) 1844
DATE SAMPLED: 11-12-94 TIME (2400 HR): 1848 DTW: 25.4

TIME (2400 HR)	VOLUME (GAL)	pH (UNITS)	(E.C. X 1,000) (UMHOS/CM@25 C)	TEMP. (F)	COLOR (VISUAL)
1835	4	6.78	0.42	65.9	clear
1839	20	6.72	0.46	65.3	clear
1843	33	6.71	0.44	65.0	clear
1844	34	6.70	0.44	64.8	clear

Total purge: 34
PURGING EQUIP.: Centrifugal Pump Bailer Disp. SAMPLING EQUIP: Bailer Disp.
REMARKS: Well pumped dry at 34 gallons

WELL ID: MW-4 TD 27.80 - DTW 6.38 X 0.66 (Gal. / Linear Ft.) X 3 (Casing / Volume) = 41.42 (Calculated Purge)

DATE PURGED: 11-12-94 START (2400 HR): 1906 END (2400 HR) 1937
DATE SAMPLED: 11-12-94 TIME (2400 HR): 1936 DTW: 24.4

TIME (2400 HR)	VOLUME (GAL)	pH (UNITS)	(E.C. X 1,000) (UMHOS/CM@25 C)	TEMP. (F)	COLOR (VISUAL)
1914	4	7.20	0.68	66.1	clear
1925	20	7.08	0.72	65.8	clear
1928	30	7.07	0.68	65.0	clear
1932	42	7.05	0.65	64.7	clear

Total purge: 42
PURGING EQUIP.: Centrifugal Pump Bailer Disp. SAMPLING EQUIP: Bailer Disp.
REMARKS:

WELL ID: ____ TD ____ - DTW ____ X Gal. (Linear Ft.) ____ X Casing (Volume) ____ = Calculated Purge ____

DATE PURGED: ____ START (2400 HR): ____ END (2400 HR) ____
DATE SAMPLED: ____ TIME (2400 HR): ____ DTW: ____

TIME (2400 HR)	VOLUME (GAL)	pH (UNITS)	(E.C. X 1,000) (UMHOS/CM@25 C)	TEMP. (F)	COLOR (VISUAL)

Total purge: ____
PURGING EQUIP.: Centrifugal Pump Bailer Disp. SAMPLING EQUIP: Bailer Disp.
REMARKS:

WELL ID: ____ TD ____ - DTW ____ X Gal. (Linear Ft.) ____ X Casing (Volume) ____ = Calculated Purge ____

DATE PURGED: ____ START (2400 HR): ____ END (2400 HR) ____
DATE SAMPLED: ____ TIME (2400 HR): ____ DTW: ____

TIME (2400 HR)	VOLUME (GAL)	pH (UNITS)	(E.C. X 1,000) (UMHOS/CM@25 C)	TEMP. (F)	COLOR (VISUAL)

Total purge: ____
PURGING EQUIP.: Centrifugal Pump Bailer Disp. SAMPLING EQUIP: Bailer Disp.
REMARKS:

PRINT NAME: Vince Uzdes SIGNATURE: [signature]

CASING DIAMETER (inches):	2	3	4	6	8	12	Other:
GALLON/LINEAR FOOT:	0.17	0.38	0.66	1.5	2.6	5.8	Other:

Columbia Analytical Services INC.

RECEIVED
DEC 02 1994

December 1, 1994

Service Request No. S941462

Gina Austin
Tom DeLon
IWM
950 Ames Avenue
Milpitas, CA 95035

Re: **ARCO Facility No. 374**

Dear Ms. Austin/Mr. DeLon:

Attached are the results of the water samples submitted to our lab on November 16, 1994. For your reference, these analyses have been assigned our service request number S941462.

All analyses were performed consistent with our laboratory's quality assurance program. All results are intended to be considered in their entirety, and CAS is not responsible for use of less than the complete report. Results apply only to the samples analyzed.

Please call if you have any questions.

Respectfully submitted:

COLUMBIA ANALYTICAL SERVICES, INC.

Keoni A. Murphy
Program Director

Annelise J. Bazar
Regional QA Coordinator

KAM/ajb

COLUMBIA ANALYTICAL SERVICES, Inc.

Acronyms

ASTM	American Society for Testing and Materials
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LUFT	Leaking Underground Fuel Tank
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MRL	Method Reporting Limit
NA	Not Applicable
NAN	Not Analyzed
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected at or above the MRL
NR	Not Requested
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
VPH	Volatile Petroleum Hydrocarbons

1921 Ringwood Avenue • San Jose, California 95131 • Telephone 408/437-2400 • Fax 408/437-9356

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	IWM	**Service Request:**	S941462
Project:	ARCO Facility No. 374	**Date Collected:**	11/12/94
Sample Matrix:	Water	**Date Received:**	11/16/94
		Date Extracted:	NA
		Date Analyzed:	11/21,22/94

BTEX and TPH as Gasoline
EPA Methods 5030/8020/California DHS LUFT Method

Analyte:	TPH as Gasoline	Benzene	Toluene	Ethyl-benzene	Xylenes, Total
Units:	ug/L (ppb)	ug/L (ppb)	ug/L (ppb)	ug/L (ppb)	ug/L (ppb)
Method Reporting Limit:	50	0.5	0.5	0.5	0.5
Sample Name	**Lab Code**				
MW-1 (24.8)	S941462-001	ND	ND	ND	ND	ND
MW-2A (14.1)	S941462-002	95	28	0.7	2.5	7.5
MW-3 (25.4)	S941462-003	160	6.0	ND	3.2	4.1
MW-4 (24.4)	S941462-004	1,600	230	51	81	190
MW-5 (20.2)	S941462-005	ND	ND	ND	ND	ND
MW-6 (13.8)	S941462-006	ND	ND	ND	ND	ND
Method Blank	S941121-WB	ND	ND	ND	ND	ND
Method Blank	S941122-WB	ND	ND	ND	ND	ND

Approved By: Kevin A Murphy Date: December 1, 1994

5ABTXGAS/061694

1921 Ringwood Avenue • San Jose, California 95131 • Telephone 408/437-2400 • Fax 408/437-9356

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	IWM	**Service Request:**	S941462
Project:	ARCO Facility No. 374	**Date Collected:**	11/12/94
Sample Matrix:	Water	**Date Received:**	11/16/94
		Date Extracted:	11/22/94
		Date Analyzed:	11/24,30/94

TPH as Diesel
EPA Method 3510/California DHS LUFT Method
Units: ug/L (ppb)

Sample Name	Lab Code	MRL	Result
MW-4 (24.4)	S941462-004	50	90 *
Method Blank	S941122-WB	50	ND

* This sample contains components eluting in the diesel range, quantified as diesel. The chromatogram does not match the typical diesel fingerprint

Approved By: Edward A Murphy Date: December 1, 1994

IAMRL/060194

1921 Ringwood Avenue • San Jose, California 95131 • Telephone 408/437-2400 • Fax 408/437-9356

APPENDIX A

LABORATORY QC RESULTS

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COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: IWM
Project: ARCO Facility No. 374
Sample Matrix: Water

Service Request: S941462
Date Collected: 11/12/94
Date Received: 11/16/94
Date Extracted: NA
Date Analyzed: 11/21,22/94

Surrogate Recovery Summary
BTEX and TPH as Gasoline
EPA Methods 5030/8020/California DHS LUFT Method

Sample Name	Lab Code	Percent Recovery α,α,α-Trifluorotoluene
MW-1 (24.8)	S941462-001	92
MW-2A (14.1)	S941462-002	92
MW-3 (25.4)	S941462-003	95
MW-4 (24.4)	S941462-004	98
MW-5 (20.2)	S941462-005	92
MW-6 (13.8)	S941462-006	92
MS	S941461-003MS	100
DMS	S941461-003DMS	102
Method Blank	S941121-WB	92
Method Blank	S941122-WB	88

CAS Acceptance Limits: 69-116

Approved By: _____ Date: Dec 1, 1994

SUR1/062994

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COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: IWM
Project: ARCO Facility No. 374

Service Request: S941462
Date Analyzed: 11/21/94

Initial Calibration Verification (ICV) Summary
BTEX and TPH as Gasoline
EPA Methods 5030/8020/California DHS LUFT Method
Units: ppb

Analyte	True Value	Result	Percent Recovery	CAS Percent Recovery Acceptance Limits
Benzene	25	27.7	111	85-115
Toluene	25	26.0	104	85-115
Ethylbenzene	25	26.6	106	85-115
Xylenes, Total	75	77.1	103	85-115
Gasoline	250	246	98	90-110

Approved By: _____ Date: December 1, 1994

ICV25AL/060194

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COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: IWM
Project: ARCO Facility No. 374
Sample Matrix: Water

Service Request: S941461
Date Collected: 11/12/94
Date Received: 11/16/94
Date Extracted: NA
Date Analyzed: 11/21/94

Matrix Spike/Duplicate Matrix Spike Summary
TPH as Gasoline
EPA Methods 5030/California DHS LUFT Method
Units: ug/L (ppb)

Sample Name: Batch QC
Lab Code: S941461-003

Analyte	Spike Level MS	Spike Level DMS	Sample Result	Spike Result MS	Spike Result DMS	Percent Recovery MS	Percent Recovery DMS	CAS Acceptance Limits	Relative Percent Difference
Gasoline	250	250	ND	232	230	93	92	67-121	<1

Approved By: _____ Date: December 1, 1994

DMS1S/060194

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COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: IWM
Project: ARCO Facility No. 374
Sample Matrix: Water

Service Request: S941462
Date Collected: 11/12/94
Date Received: 11/16/94
Date Extracted: 11/22/94
Date Analyzed: 11/24,30/94

Surrogate Recovery Summary
TPH as Diesel
EPA Method 3510/California DHS LUFT Method

Sample Name	Lab Code	Percent Recovery p-Terphenyl
MW-4 (24.4)	S941462-004	74
MS	S941408-028MS	95
DMS	S941408-028DMS	92
Method Blank	S941122-WB	94

CAS Acceptance Limits: 66-123

Approved By: Kevin Murphy Date: December 1, 1994

SUR1/062994

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COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: IWM
Project: ARCO Facility No. 374

Service Request: S941462
Date Analyzed: 11/24/94

Initial Calibration Verification (ICV) Summary
TPH as Diesel
California DHS LUFT Method
Units: ppm

Analyte	True Value	Result	Percent Recovery	CAS Percent Recovery Acceptance Limits
TPH as Diesel	1,000	1,046	105	90-110

Approved By: Kevin Murphy Date: December 1, 1994

ICV25AL/060194

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COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: IWM
Project: ARCO Facility No. 374
Sample Matrix: Water

Service Request: S941462
Date Collected: 11/12/94
Date Received: 11/16/94
Date Extracted: 11/22/94
Date Analyzed: 11/24/94

Matrix Spike/Duplicate Matrix Spike Summary
TPH as Diesel
EPA Method 3510/California DHS LUFT Method
Units: ug/L (ppb)

Sample Name: Batch QC
Lab Code: S941408-028

Analyte	Spike Level MS	Spike Level DMS	Sample Result	Spike Result MS	Spike Result DMS	Percent Recovery MS	Percent Recovery DMS	CAS Acceptance Limits	Relative Percent Difference
TPH as Diesel	5,700	5,700	ND	4,690	5,040	83	88	61-141	7

Approved By: Tom A Murphy Date: December 1, 1994

DMSLS/060194

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APPENDIX B

CHAIN OF CUSTODY

1921 Ringwood Avenue • San Jose, California 95131 • Telephone 408/437-2400 • Fax 408/437-9356

ARCO Products Company
Division of AtlanticRichfieldCompany

Chain of Custody

Task Order No. IWM-94-5CC

ARCO Facility no. A374	City (Facility) OAKLAND	Project manager (Consultant) TOM DeLoon	Laboratory name Columbia
ARCO engineer MW.	Telephone no. (ARCO) 415 571 2434	Telephone no. (Consultant) 408/942 8955	Fax no. (Consultant) 408/942 1499
Consultant name Emcon IWM - Rosa	Address (Consultant) 950 Amerson. Wlp.		Contract number 07077

Method of shipment: sampler deliver

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 ☐	TPH Diesel
FB-1	7	2		✓		✓	✓	11-12-94	1455		✓	✓									
3.8 MW-1	1	2		✓		✓	✓		1658		✓	✓									
4.1 MW-2A	2	2		✓		✓	✓		1723		✓	✓									
5.4 MW-3	3	2		✓		✓	✓		1848		✓	✓									
4.4 MW-4	4	4		✓		✓	✓		1936		✓	✓									✓
0.2 MW-5	5	2		✓		✓	✓		1750		✓	✓									
3.8 MW-6	6	2		✓		✓	✓		1814		✓	✓									

Special detection Limit/reporting

Special QA/QC

Remarks: 601 on FB-1

Lab number: 5941462

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 11/16/94 Time 10:45	Received by	11/16/94 10:45A
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

APPC-3292 (2-91)

ATTACHMENT B

GROUNDWATER SAMPLING PROCEDURES

FIELD PROCEDURES: GROUNDWATER SAMPLING

PRELIMINARY: SITE SAFETY

IWM SAFETY PRACTICES APPLY AT ALL TIMES! OBSERVE ALL STANDARD PROCEDURES WITH SPECIAL ATTENTION TO THESE HAZARDS:

- **Vehicular traffic: Insure visibility of yourself and your equipment**
- **Pedestrian activity: Anticipate and prevent tripping hazards**

A. WATER-LEVEL MEASUREMENTS

GENERAL

1. Water-level measurements must be taken before disturbing the water in the well in any way. The water in the well should be in an undisturbed state for a minimum of 24 hours before performing this task.
2. To insure consistency in date from event-to-event, the measurement must be taken from the same point on the well top casing. As a general rule, take the measurement from the highest point of the casing. Typically, there is a notch in the casing for this purpose. If no such mark is visible, place one at the highest point of the casing, take measurements from that point, and make a note of this in the field notes.
3. Always work from the cleanest wells (based on past data) to the dirtiest.
4. Keep your equipment CLEAN! Between wells clean the probes, lines and associated attachments with a clean cloth soaked in water containing Alconox (or like cleaning agent). Thoroughly rinse in tap water in a 5 gallon bucket. After each rinsing, empty the bucket into a 55 gallon drum or other purge water containment vessel.
5. Take measurements to the nearest .01 foot.

PROCEDURE (NO FREE PRODUCT ANTICIPATED)

1. Inspect the wellhead for the following: damage of any kind, indications of possible leakage into the well at the wellhead, damaged or missing locks, etc. Remove any standing water in or around the well head. Note all irregularities.
2. Lower the (CLEAN!) water-level indicator slowly down the well until the indicator sounds.
3. Continue lowering the indicator about 2 inches more before very slowly raising the indicator until the sound stops.
4. Take the measurement at the casing.
5. Repeat this procedure. If the next reading is within .01 foot of the first, then record the first measurement. If not, repeat this procedure until two consecutive measurements are within .01 foot.
6. Remove and CLEAN the equipment (probe and tape) before proceding to the next well.

PROCEDURE (FREE PRODUCT ANTICIPATED)

1. Inspect the wellhead for the following: damage of any kind, indications of possible leakage into the well at the wellhead, damaged or missing locks, etc. Remove any standing water in or around the well head. Note all irregularities.
2. Lower the (CLEAN!) oil-water interface probe slowly down the well until the indicator sounds. The presence of product is indicated by a steady sound; its absence by a broken sound. (If there is no evidence of product, follow procedure for water-level measurements where no product is anticipated.)
3. If the presence of product is indicated, lower the probe very slowly until the signal changes to broken pattern.
4. Continue lowering the indicator about 2 inches more before very slowly raising the indicator until the sound becomes steady; note this measurement at the casing as the depth to water. Continue raising the probe until the sound stops; note this measurement at the casing as the depth to product.
5. Repeat this procedure. If the next readings are within .01 foot of the first set, then record the first measurements. If not, repeat this entire procedure until two consecutive measurements sets are within .01 foot.
6. Remove and CLEAN the equipment before using in another well.

B. SUBJECTIVE ANALYSIS

GENERAL

1. Always work from the cleanest wells (based on past data) to the dirtiest.
2. Follow this procedure for cleaning the bailer between wells:
a. Fill and empty the bailer once using tap water.
b. Refill bailer approximately two-thirds full with a mixture of water and Alconox (or like cleaning agent).
c. Clean bailer inside and out with a bottle brush.
d. Empty the bailer then repeat this process at least three times.
e. After each cleaning, empty the cleaning liquids into a 55 gallon drum or other purge water containment vessel.
3. Clean the lines (or wire) and associated attachments with a clean cloth soaked in water containing Alconox (or like cleaning agent). Thoroughly rinse in tap water in a 5 gallon bucket. After each rinsing, empty the bucket into a 55 gallon drum or other purge water containment vessel.

PROCEDURE

1. Gently lower the (CLEAN) bailer into the well until it reaches the water surface.
2. Lower the bailer further about half its length.
3. Remove the bailer and examine the water therein for the following:
a. Presence of Free Product: Note and record thickness to the nearest eighth of an inch.
b. Sheen: Note visual indications of sheen as follows: "Heavy", "Moderate" or "Llight".
c. Emulsion: Record presence of emulsion as "Heavy", "Moderate", or "Light".
d. Color: Record if floating product is present.

C. WELL PURGING: GENERAL

GENERAL

1. To minimize any risk of cross contamination, whenever possible use surface pumps and disposable tubing.
2. If another alternative is used for purging (bailers, submersible pumps, bladder pumps, etc.), follow cleaning procedures outlined for bailers and equipment above.

PROCEDURE

1. **Determine the volume of water in the well.**
2. **If the well recharges, remove three well volumes. If the well doesn't recharge, or does so slowly, continue purging until the recharge water stabilizes with regard to pH, temperature and conductivity, or until the well is empty.**
3. **Contain purged water in labeled 55 gallon drums or other provided containment.**

D. WATER SAMPLE COLLECTION

GENERAL

1. **In general, use disposable bailers for all sampling.**
2. **If a teflon bailer is reused, follow this procedure for cleaning the bailer between wells:**

a. Fill and empty the bailer once using tap water.
b. Refill bailer approximately two-thirds full with a mixture of water and Alconox (or like cleaning agent).
c. Clean bailer inside and out with a bottle brush.
d. Empty the bailer then repeat this process at least three times.
e. After each cleaning, empty the cleaning liquids into a 55 gallon drum or other purge water containment vessel.

3. **Clean the lines (or wire) and associated attachments with a clean cloth soaked in water containing Alconox (or like cleaning agent). Thoroughly rinse in tap water in a 5 gallon bucket. After each rinsing, empty the bucket into a 55 gallon drum or other purge water containment vessel.**
4. **Always work from the cleanest wells (based on past data) to the dirtiest.**
5. **Always keep your samples chilled.**

PROCEDURE

1. **If well recharges, sample may be obtained immediately after purging. If during the course of the sampling day a well does not recharge sufficiently to half fill the bailer, return the next morning to take the sample.**
2. **Review the sampling list to determine which analysis(es) is(are) required for each well during this sampling event. Note any special handling requirements (addition of preservatives, etc.). Complete the sample labels with the following: sample ID number, project ID number and date. Attach the labels to the sample**

containers. Always prepare duplicate samples for analysis and indicate the number of containers on the Chain of Custody. Also, label two sample containers with the project ID number, date and the words "Field Blank"; fill these two containers with distilled water and place in the holders provided for transport (see 5. below).

3. Lower a new disposable bailer into the well and take a sample from below the water's surface. Minimize agitation while removing the bailer.

4. Using the valve at the bottom of the bailer, fill the sample vial very slowly to minimize agitation of the liquid. Cap the vial tightly, then tap it and invert it to check for any air. Top off the vial if there is any air present.

5. Place all sample vials in the holders provided for transport. Place holders inside a cooler containing enough ice to keep the sample temperature below 4 degrees Centigrade. However, do not permit the samples to freeze.

6. After sampling is complete, lock cooler if possible; if not, seal with tape and sign across tape so that any tampering will be evident.

7. Enter the information concerning the collected samples on the field notes and on the Chain of Custody.

8. Before resealing each wellhead, replace any lock or cap, as required.

E. CHAIN OF CUSTODY PROCEDURE

GENERAL

1. Only list on the Chain of Custody those samples that will go to the lab; samples to be held for possible future analysis should only be noted on the field notes.

2. Fill out the Chain of Custody in ink.

PROCEDURE

1. Fill out as much of the form as possible before beginning work on the site.

2. Provide the following:

a. Your name, signature and phone number.

b. The Project Manager's name and phone number.

c. The laboratory.

d. The turnaround time.

3. For each sample, provide the sample ID number, site ID, sample date and analysis(es) requested.
4. After the samples are taken, note the sample condition.
5. The completed Chain of Custody must accompany the shipping container to the laboratory; keep a copy for the Project Manager.
6. Each time the samples change custody the date and time are directely noted on the Chain of Custody which is signed by both the transferor and the transferee.
7. The laboratory will make the final entry upon receipt of the samples. Sample condition will be noted on the Chain of Custody. The original Chain of Custody will be returned with the sample results and a copy will be kept by the laboratory.

ATTACHMENT C

REMEDIAL SYSTEM
CERTIFIED ANALYTICAL REPORT AND
CHAIN-OF-CUSTODY DOCUMENTATION

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: 330-084.5A/374, Oakland

Enclosed are the results from samples received at Sequoia Analytical on November 18, 1994. The requested analyses are listed below:

SAMPLE #	SAMPLE DESCRIPTION	DATE COLLECTED	TEST METHOD
9411C92 -01	LIQUID, Infl	11/17/94	TPHGBW Purgeable TPH/BTEX
9411C92 -02	LIQUID, Mid-1	11/17/94	TPHGBW Purgeable TPH/BTEX
9411C92 -03	LIQUID, Mid-2	11/17/94	TPHGBW Purgeable TPH/BTEX
9411C92 -04	LIQUID, Effl	11/17/94	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

Cynthia Camba
Quality Assurance Department

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: 330-084.5A/374, Oakland	Sampled: 11/17/94
2025 Gateway Place, Suite 440	Sample Descript: Infl	Received: 11/18/94
San Jose, CA 95110	Matrix: LIQUID	
	Analysis Method: 8015Mod/8020	Analyzed: 11/24/94
Attention: Maree Doden	Lab Number: 9411C92-01	Reported: 12/06/94

QC Batch Number: GC112394BTEX02A
Instrument ID: GCHP2

Total Purgeable Petroleum Hydrocarbons (TPPH) with BTEX

Analyte	Detection Limit ug/L	Sample Results ug/L
TPPH as Gas	500	2100
Benzene	5.0	460
Toluene	5.0	5.9
Ethyl Benzene	5.0	37
Xylenes (Total)	5.0	82
Chromatogram Pattern:		Gas

Surrogates	Control Limits %		% Recovery
Trifluorotoluene	70	130	87

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: 330-084.5A/374, Oakland	Sampled: 11/17/94
2025 Gateway Place, Suite 440	Sample Descript: Mid-1	Received: 11/18/94
San Jose, CA 95110	Matrix: LIQUID	
	Analysis Method: 8015Mod/8020	Analyzed: 11/24/94
Attention: Maree Doden	Lab Number: 9411C92-02	Reported: 12/06/94

QC Batch Number: GC112394BTEX02A
Instrument ID: GCHP2

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	87

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: 330-084.5A/374, Oakland	Sampled: 11/17/94
2025 Gateway Place, Suite 440	Sample Descript: Mid-2	Received: 11/18/94
San Jose, CA 95110	Matrix: LIQUID	
	Analysis Method: 8015Mod/8020	Analyzed: 11/24/94
Attention: Maree Doden	Lab Number: 9411C92-03	Reported: 12/06/94

QC Batch Number: GC112394BTEX02A
Instrument ID: GCHP2

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	88

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: 330-084.5A/374, Oakland	Sampled: 11/17/94
2025 Gateway Place, Suite 440	Sample Descript: Effl	Received: 11/18/94
San Jose, CA 95110	Matrix: LIQUID	
	Analysis Method: 8015Mod/8020	Analyzed: 11/24/94
Attention: Maree Doden	Lab Number: 9411C92-04	Reported: 12/06/94

QC Batch Number: GC112394BTEX02A
Instrument ID: GCHP2

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	86

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

SEQUOIA ANALYTICAL - ELAP #1210

Eileen Manning
Project Manager

SEQUOIA ANALYTICAL SAMPLE RECEIPT LOG

CLIENT NAME: PEG
REC. BY (PRINT): DR

WORKORDER: 9411C92
DATE OF LOG-IN: 11·19·94

CIRCLE THE APPROPRIATE RESPONSE

1. Custody Seal(s) — Present / ~~Absent~~
2. Custody Seal Nos.: — Intact / Broken*
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: 11/18/94
12. Temp. Rec. at Lab: 8°C
13. Time Rec. ar Lab: 1206

LAB SAMPLE #	DASH #	CLIENT IDENTIFICATION	CONTAINER DESCRIPTION	SAMPLE MATRIX	DATE SAMP.	REMARKS: CONDITION(ETC.)
01	A/C	Inf 1	3 Voas	Liq	11/17	
02	"	Mid -1	"	"	"	
03	"	Mid -2	"	"	"	
04	"	Eff 1	"	"	"	

DR

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

Revision 10/10/94

ARCO Products Company ◆ Division of AtlanticRichfieldCompany — 330-084.5-A Task Order No. 374-94-5 — **Chain of Custody**

ARCO Facility no. 374	City (Facility) OAKLAND	Project manager (Consultant) SHAW GARAKANI	Laboratory name SEQUOIA
ARCO engineer MIKE WHELAN	Telephone no. (ARCO)	Telephone no. (Consultant) 4084417500	Fax no. (Consultant) 4084417539
Consultant name PACIFIC ENV GROUP	Address (Consultant) 2025 GATEWAY PL #470 SAN JOSE		Contract number 07-073

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 ☐ Semi VOA ☐	CAM Metals EPA 6010/7000 TTLC ☐ STLC ☐	Lead Org./DHS ☐ Lead EPA 7420/7421 ☐	
INFC	1A	3		X		X	HCL	11-17-94			X										
MIP-1	2																				
MIP2	3																				
EFF	4																				

Special detection Limit/reporting

Special QA/QC

Remarks: 8°C

Lab number: 9411092

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	11-18-94	700	Received by	11/18/94	0730
Relinquished by	11/18/94	0940	Received by		
Relinquished by	11/18/94	12:06	Received by laboratory	11/18/94	1206

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

APPC-3292 (2-91)

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:	330-084.5A/374, Oakland	
2025 Gateway Place, Suite 440	Matrix:	LIQUID	
San Jose, CA 95110			
Attention: Maree Doden	Work Order #:	9411C92 01-04	Reported: Dec 6, 1994

COC #:

QUALITY CONTROL DATA REPORT

Analyte:	Benzene	Toluene	Ethyl Benzene	Xylenes
QC Batch#:	GC112394BTEX02A	GC112394BTEX02A	GC112394BTEX02A	GC112394BTEX02A
Analy. Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020
Prep. Method:	N.A.	N.A.	N.A.	N.A.
Analyst:	J. Minkel	J. Minkel	J. Minkel	J. Minkel
MS/MSD #:	9411C4502	9411C4502	9411C4502	9411C4502
Sample Conc.:	N.D.	N.D.	N.D.	N.D.
Prepared Date:	N.A.	N.A.	N.A.	N.A.
Analyzed Date:	11/23/94	11/23/94	11/23/94	11/23/94
Instrument I.D.#:	GCHP2	GCHP2	GCHP2	GCHP2
Conc. Spiked:	10 µg/L	10 µg/L	10 µg/L	30 µg/L
Result:	9.4	9.5	9.6	29
MS % Recovery:	94	95	96	97
Dup. Result:	10	10	10	30
MSD % Recov.:	100	100	100	100
RPD:	6.2	5.1	4.1	3.4
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

FIELD SERVICES / O&M REQUEST

Work Order # 3330

SITE INFORMATION FORM

Identification

Project # 330-084.5A

Station # 0374

Site Address: 6402 TELEGRAPH AVENUE @ RICATA'S OAKLAND

County: ALAMEDA

Project Manager: SHAWG.

Requestor: ERIC W.

Client: ARCO

Client P.O.C.: MIKE WHELAN

Date of request: 12/15/94

Project Type

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

Ideal field date(s): 12/16/94

Prefield Contacts/Permits

	Initials	Date
☐ Cal Trans		
☐ County F/S	RH	12/20/94
☐ City		
☐ Private Copy/Dist.	RH	
☐ Multi-Consultant Scheduling date(s):		

Check Appropriate Category

Budget Hrs. 4

Actual Hrs. 4.5

Mob de Mob 1.5

Field Tasks: For General Description

TALK TO MIKE BEFORE BEGINNING WORK

REMOVE SVE PIPING (ONE 4" PIPE AND ONE 1" PIPE) FROM THE CONCRETE BERM. BREAK BACK TO BACKHOED AND TAG AS BELONGING TO THIS STATION.

REMOVE BRACING FROM BERM.

DO NOT REMOVE CONDENSATE PIPE AND DO NOT REMOVE PIPING THAT GOES THROUGH BERM.

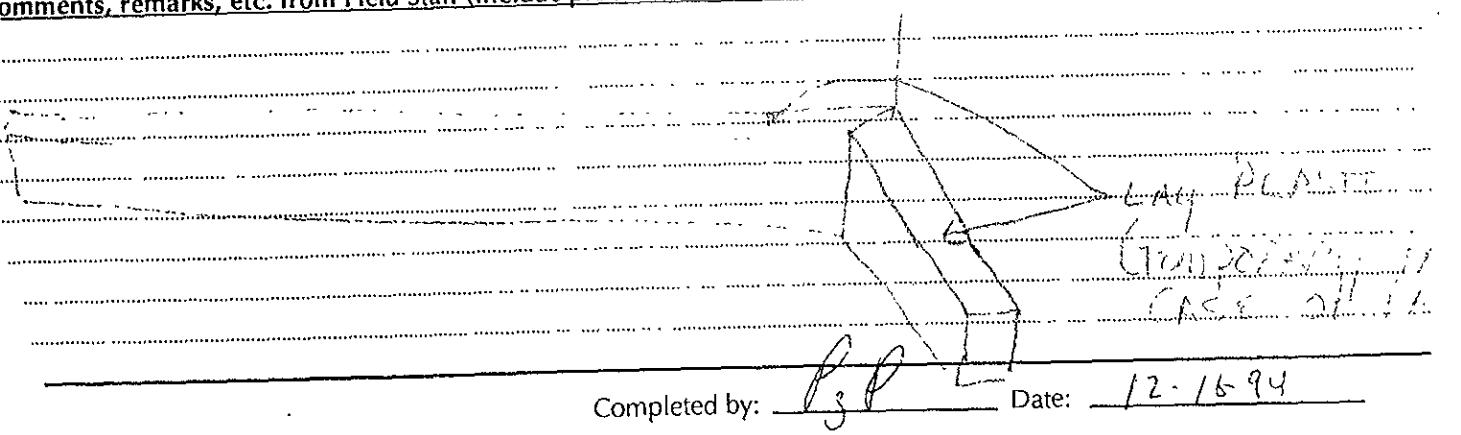
COVER SUMP PLACED AS A TEMPORARY COVER OVER CONC. (but DRILL see DRAWING BELOW)

CALL FROM THE FIELD AFTER JOB IS FINISHED

TURN SYSTEM OFF

MAKE SURE SUMP HOLE IS COVERED FOR WORK ON SATURDAY

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



Completed by: [signature] Date: 12-16-94

Checked by:

ENVIRONMENTAL GROUP, INC.

Pink Copy - File

FIELD SERVICES / O&M REQUEST

Work Order # 3438 RY

SITE INFORMATION FORM

Identification

Project # 330-084.5A

Station # ARCO 374

Site Address: 6207 Telegraph Ave. Oakland

County: Alameda

Project Manager: K. Brown

Requestor: K. Brown

Client: ARCO

Client P.O.C.: Michael Whelan

Date of request: 12/5/94

Project Type

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

Ideal field date(s): Fri 12/9/94

Prefield Contacts/Permits

	Initials	Date
☐ Cal Trans		
☐ County F/S	RY	12/12/94
☐ City		
☐ Priv. Copy/Dist.	RY	12/12/94
☐ Multi-Consultant Scheduling date(s):		

Check Appropriate Category

Budget Hrs. 4 hrs.

Actual Hrs. 7.5

Mob de Mob 2.5

Field Tasks: For General Description

1). Meet @ site @ 9:30 am 12/9/94.

2). Job is to berm up part of remedial sys. berm that is adjacent to station building. Fill w/ water, and look for leaks into station building.

3). Bring: visqueen sheeting, 2x4's, nails, duct tape, Filled sand bags, hose

4). Client engineer will be on site.

Problem w/ site: Water is leaking through station building wall from remedial system compound area.

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

Completed by: FSP Date: 12-9-94

Checked by:

PSP

6407 Telegraph Ave Oakland ~~Ave~~ CA

Solenoid For Air Supply to terminal #4

ICRA Energizes Power up Solenoid

Moved Yellow Wire From #6 to #1 Hot

Receipt By ~~V~~ Sump allows Hot as long as switch is on

Removed #2 wire Between 1CRB Terminal #7 and 2LCR Terminal #7

Put Jumper From # Hot to 2LCR Terminal #7

This ~~Pse~~ will By-Stand system after Power out

no Stand Button

Need Lock For ~~on~~ Electrical Panel and side Compond ?

Circuit #2 Drips to

PACIFIC ENVIRONMENTAL GROUP, INC.
1601 Civic Center Drive., Suite 202
Santa Clara, California 95050
(408) 984-6580

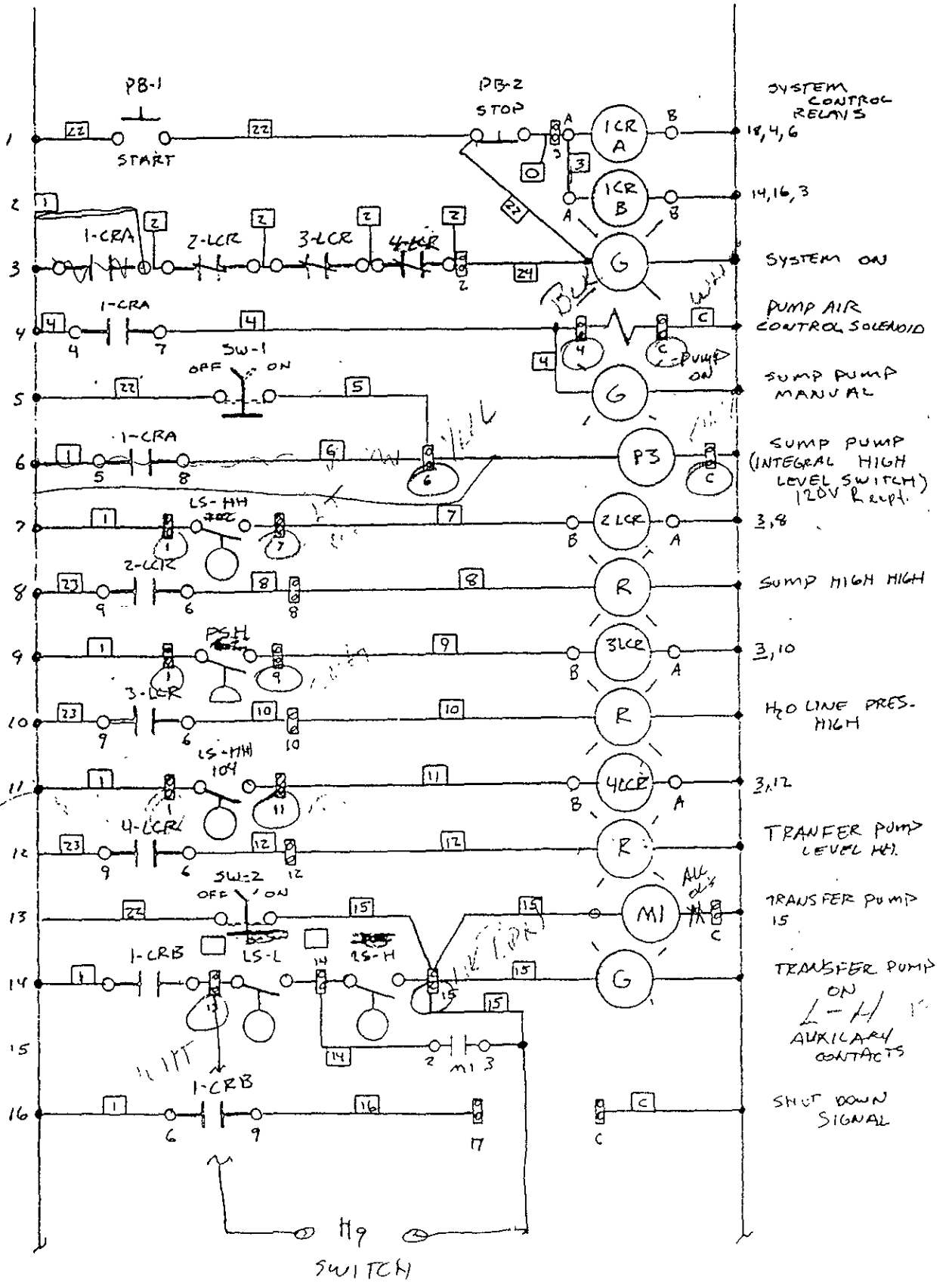
PROJECT _____ JOB NO. _____

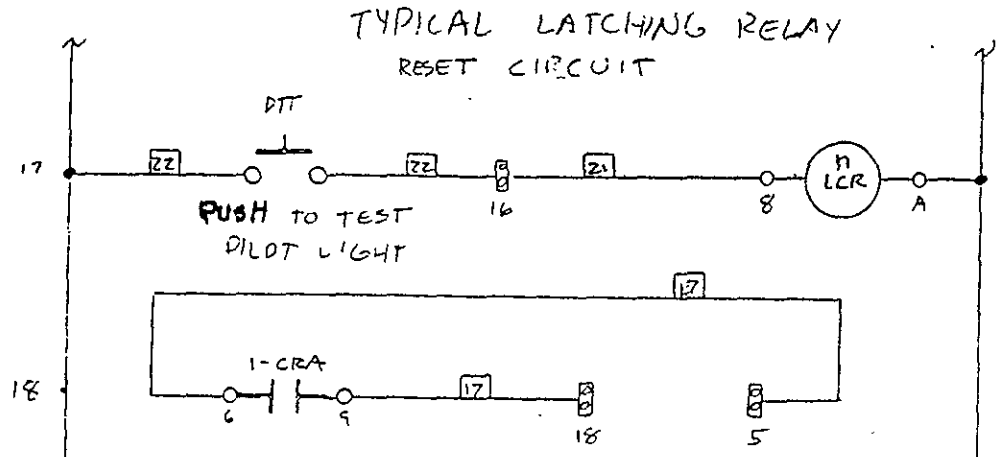
PREPARED BY _____ DATE _____

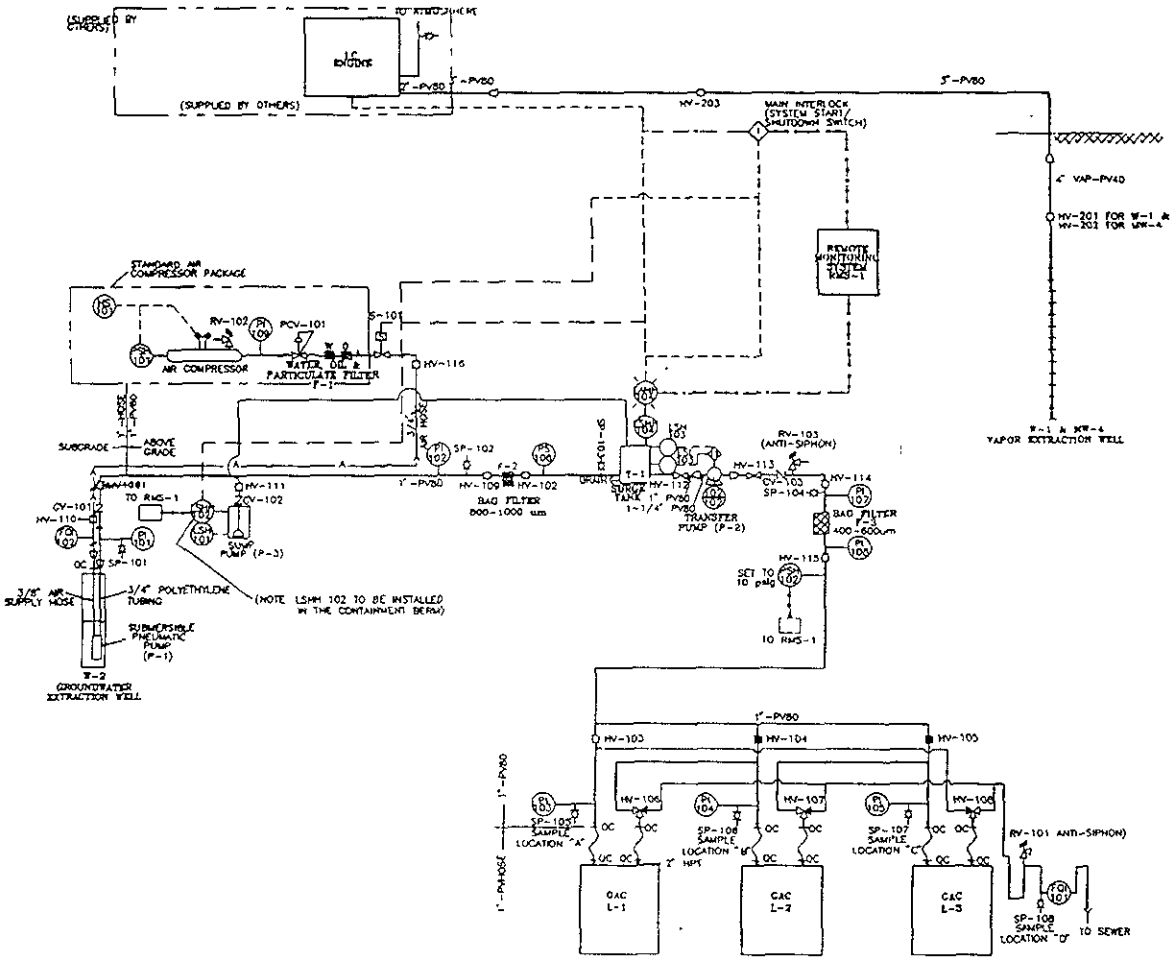
CHECKED BY _____ DATE _____

ARCO 374 GWTU CONTROL PANEL

081193 G. NOLEN




TYPICAL LATCHING RELAY
RESET CIRCUIT
DTT
17
22
22
16
21
8
n
LCR
A
PUSH TO TEST
PILOT LIGHT
17
18
1-CRA
6
9
17
18
5
TYP OF 3
AUXILARY
INTERLOCK



TAG NO	INSTRUMENT DESCRIPTION	MANUFACTURER MODEL NO. (OR EQUIVALENT)	RANGE AND SET POINTS	NUMBER (EACH)
FQI-101	FLOW TOTALIZER (WATER) PADDLE WHEEL TYPE 0.5 TO 52 GPM, MECHANICAL	GMCDA FTB-1110	N/A	1
FQI-102	PNEUMATIC PULSE COUNTER FOR AN SP-20000 PUMP	QED (JEFF SALTER) (800-366-7810) # 34363	N/A	1
HS-101 AND HS-102	HAND OPERATED SWITCH	(SUPPLIED WITH COMPRESSOR AND PUMP PACKAGES)	N/A	2
HV-101 THRU HV-105 AND HV-109, 111, 114 AND 115	1" PVC TRUE-UNION BALL VALVE THREADED, DUAL UNION FLUID: WATER	RYAN-HERCO 8033-010	N/A	8
HV-106 THRU HV-108	THREE WAY BALL VALVE THREADED, FLUID: WATER	RYAN-HERCO 5080-010	N/A	3
HV-110 & HV-116	1" BRASS BALL VALVES FLUID: COMPRESSED AIR, 200 PSIG WORKING PRESSURE	N/A	N/A	2
HV-201 THRU 203	3" PVC UNION BALL VALVE THREADED	RYAN-HERCO 8033-130	N/A	3
LSH-101	LIQUID LEVEL SWITCH COMES WITH SUMP PUMP PACKAGE	N/A	NORMALLY OPEN	1
LSL-103 AND LSH-103 (SHAC SWITCH)	LIQUID LEVEL SWITCH LOW & HIGH LEVEL SWITCH IN ONE, 85 DEGREE WIDE ANGLE B/W MAGNATEK FLOAT SWITCH, W/A CORD LENGTH OF 20-FT, AND A FLOAT SWITCH WEIGHT. INSTALL IN TOP OF TANK WITH WATERTIGHT AND ANTICORF COMPRESSION TYPE CORD FITTING. INSTALL LSL-101 TO START PUMP AT 12" FROM TANK BOTTOM. INSTALL LSH-101 TO STOP PUMP AT 24" FROM TANK BOTTOM	CONSOLIDATED PARTS, SAN JOSE MAGNATEK 7010-4-44-20 W/12-08000 (408) 435-1200	NORMALLY OPEN	1
LSHH 102 AND 104	LIQUID LEVEL SWITCH HIGH HIGH LEVEL SWITCHES, NARROW ANGLE B/W, MAGNATEK FLOAT SWITCHES W/A CORD LENGTH OF 10-FEET AND A FLOAT SWITCH WEIGHT.	CONSOLIDATED PARTS, SAN JOSE MAGNATEK 7010-4-44-20 W/12-08000 (408) 435-1200	NORMALLY OPEN	2
PI-101 THRU PI-106 EXCEPT PI-103, 104 AND 105	PRESSURE INDICATOR (WATER) UNITS, PSI, STEEL CASE, BOTTOM CONNECTION, 3.5" DIAL SIZE, GRADE B (2%) ACCURACY, 1 PSIG GRADATIONS (PI-106 SUPPLIED WITH COMPRESSOR PACKAGE)	MCMASTER-CARR #4004K13	0 TO 30 PSIG	5
PI-103 THRU PI-105	PRESSURE INDICATOR (WATER) UNITS, PSI 2-1/2 INCH DIAL, BOTTOM CONNECTION, 0.5 PSIG GRADATIONS, 2% ACCURACY, GRADE B	MCMASTER-CARR #4004K13	0 TO 15 PSIG	3
PSH-101 AND 102	HIGH PRESSURE SWITCH PSH-102 (WATER) GENERAL PURPOSE, WEATHER TIGHT, DIAPHRAM SWITCH (PSH-101 SUPPLIED WITH COMPRESSOR PACKAGE)	MCMASTER-CARR #4781K71	5 TO 30 PSIG	1
RV-101 THRU RV-103	VACUUM RELIEF/SIPHON BREAKER VALVE (WATER) -WATTS BRAND, 1/2" MPT, BRASS, 200 PSIG WATER PRESSURE -RV-101- PLACE TO BE INSTALLED WILL BE DETERMINED AT THE TIME OF CONSTRUCTION -RV-103- INSTALL AT 2' ABOVE TOP OF CARBON CANISTER. RV-102 COMES W/COMPRESSOR PACKAGE	GRAINGER #64772	<0.5" W.C. VACUUM	2
S-101	SOLENOID VALVE OPERATING RANGE: 0-150 PSI NORMALLY CLOSED PIPE AND ORIFICE SIZES: 3/4" FPT	ASCO RED HAT II 8210G95 LEDKOTTE STONE CORP., BERKELEY, CA	N/A	1
SP-101 THRU SP-108	LAB COCK VALVES (SAMPLE POINTS) 1/4"x1/4" PVC MPT X HOSE	RYAN-HERCO 5308-102	N/A	9
CV-101 THRU 103	1" CHECK VALVE -PVC OR BRONZE SWING CHECK WITH BUNA-N SEALS	N/A	N/A	3
PCV-101	COMES W/AIR COMPRESSOR PACKAGE	N/A	N/A	1
HV-112	1" PVC GATE VALVE FLUID: WATER	N/A	N/A	1
HV-113	1" PVC GLOBE VALVE WITH BUNA-N GASKETS FLUID: WATER	N/A	N/A	1

RESNA
Working to Restore Nature

PROJECT 60025.12

VAPOR & GROUNDWATER P&ID
ARCO Station 374
6407 Telegraph Avenue
Oakland, California

PLATE
3

FIELD SERVICES/O and M REQUEST

Work Order # 00810

SITE INFORMATION FORM

Identification

Project # 330-084.05A

Station # 0374

Site Address: 6707 TELEGRAPH OAKLAND (T.O. # 374-94-5K)

County: ALAMEDA

Project Manager: SHAWN

Requestor: ERIC W.

Client: ARCO

Client P.O.C.: MIKE WHELAN

Date of request: 11/9/94

Project Type

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

Ideal field date(s): MID NOV.

Circle Appropriate Category

I = In Budget Site Visit

O = In Budget Site Visit

S = In Budget Site Visit

Check Appropriate Category

Budget Hrs. ____

Actual Hrs. 3

Mob de Mob 1.5

Concerns	Site Safety Initials	Date
F/S	KJ	11/18/94
Copy/Dist.	da	11/22

Field Tasks: For General Description

(1) SURVEY SITE AND TAKE NOTES ON SITE CONDITION

(2) TURN SYSTEM ON, AND SET FLOW to ≈7 gpm

(3) WAIT 1 HR AND TAKEN SAMPLES TPH-g AND BTEX AS FOLLOWS:

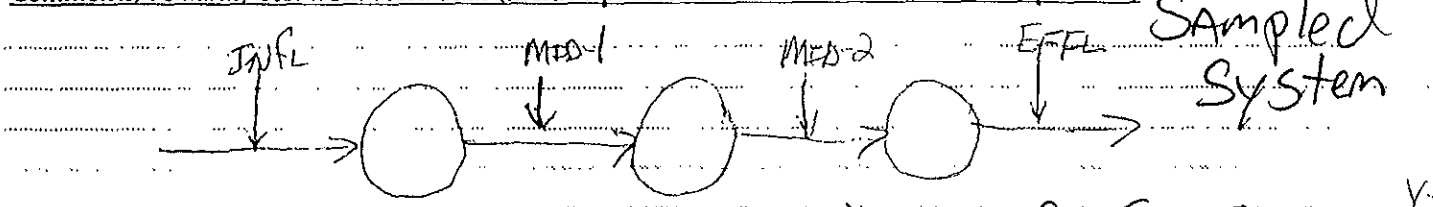
	INFL	MID-1	MID-2	EFFL
TPH-g	✓	✓	✓	✓
BTEX	✓	✓	✓	✓

(4) GET TOTALIZER READING, AND FLOW READING

(5) SET PARAFAX to 1-408-441-7539 AND ERIC WENGFIELD

(6) CHECK FOR SAFETY PLAN AND FIRE EXTINGUISHER. POST EMERGENCY NUMBER

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



(7) CHECK PHONE, AND ELECTRICITY-O.K

(8) NOTE RECOMMENDATIONS

(9) ATTACHED ARE INSTRUCTIONS FOR PARA

(10) CHECK FOR FIRE EXTINGUISHER (Yes)

(11) CHECK FOR SSP (Yes)

RECORD SERIAL NUMBER 45 24

Completed by: _____ Date: _____

Checked by: _____

PACIFIC ENVIRONMENTAL GROUP, INC.

White Copy - Originator Yellow Copy - O & M Tech Pink Copy - File

FIELD DATA SHEET

Client: ARCO

Date: 11-17-94

Project No.: 330 084.5A

Job Address:

Time Arrived:

Time Departed:

Weather Conditions:

Equipment at Site:

Personnel at Site:

FIELD NOTES

STARTed System, Found CArbon vessel #1 Lid To be leaking, it is Boxed and CArbon vessel #2 WAS Leaking I WAS Able to Tite it up. Need to Replace CArbon vessel Lid on #1 vessel.

Totalizer Reading 35507 Flow rate to Sewer 15 10gpm OR 43 gallons Per Cycle

System WAS Sampled and WAS Shut off AS Per Eric W.

INstall PACAFAY ~~disk~~ disk and TURN on PACAFAY

INFL bag psi 14 EFFL Bag psi 12

INFL CArbon #1 psi 10 CArbon #2 0psi

CArbon #3 25 psi

TV

Signature

Paragon Environmental Systems
Escondido, CA

Para-Fax Model 4043 Instructions

619 432-9839 JACK

Unpacking

Remove the Para-Fax unit from the shipping box. Open the enclosure by turning the latch 90 deg counter-clockwise. Remove the packing material. Find the following: 5 1/2" square bubble packet containing one floppy diskette, a plastic bag containing three M3x16 screws and spacers, a 3/4" liquid-tite conduit connector with seal and nut, and a 1/2" telephone wire water tight strain relief connector with seal and nut.

Mounting

The Para-Fax Model 4043 should be mounted on a vertical surface that is capable of securely supporting the 30 lb. unit. Locate the Para-Fax where the temperature will not exceed 110 F and where there is minimum vibration.

Hang the unit from the four mounting "ears" on the top and bottom rear. Use 5/16" or 3/8" bolts (or lag screws if mounted into wood), spaced 14-1/2" apart horizontally and 17-5/8" vertically.

Cover Removal

Release the electronics cover by removing the two slotted screws just below the latch. Slide the cover to the right about 1/4" then up about 1" until the bottom of the cover clears the enclosure opening. Then pull the cover straight out of the unit. Do not operate the Para-Fax without the cover in place.

Electrical Conduits

A 3/4" conduit knock-out is provided on the upper right side of the unit. A liquid tight or rigid conduit should be run from here to the equipment being monitored. Be sure to use the supplied 3/4" liquid tight conduit connector and sealing gasket where the conduit enters the Para-Fax. This conduit carries both the input signal wires and the 120 VAC power to the unit.

An additional 1/2" conduit knock-out is provided for the telephone connection. Use the supplied water tight compression fitting for .125" to .188" dia. phone wire in this knock-out. Be sure to use the supplied sealing gasket between the compression fitting and the Para-Fax. For other sizes of phone wire use a similar water tight strain relief connector.

Telephone Wiring

Feed the telephone cable through the compression fitting into the Para-Fax. Immediately below the 1/2" knockout is a two terminal barrier strip. The two incoming phone line wires are connected to this strip. If the incoming wires are red and green connect them to the matching colors of wire inside the box. If the incoming wires are black and yellow, then connect the black wire to red and the yellow wire to green. If the incoming wires are a solid color and a striped white, then connect the solid colored wire to red and the striped wire to green.

Equipment Wiring

**** CAUTION ****

ALL POWER SHOULD BE TURNED OFF BEFORE ELECTRICAL WIRING

Power

Wires to the equipment being monitored are run through the 3/4" conduit. 120 VAC power must be supplied through #16 AWG wires. Type MTW, THHN, or THWN wire with 600V insulation should be used. All external connections should be made to the top side of the terminal strip. Do not disturb any wires on the bottom of the terminal strip.

The hot wire should be black or brown and connect to terminal 27 in the Para-Fax. This terminal is a fuse holder which must be opened by pulling out and down to access the terminal screws. Opening the fuse holder removes power from the Para-Fax. Verify that the fuse is a 1.6 A slow blow. An indicator on this fuse holder will light if the fuse blows.

The neutral wire should be white or blue and connected to terminal 26. A green or green/yellow ground wire must be connected to terminal 25. Safe operation of the Para-Fax requires this safety ground connection.

Digital Inputs

The four digital inputs are 120 V relay coils. One side of each coil is connected to neutral and the other side can be energized by 120 V hot connection. The relay coil connections for each channel are shown in the attached figure.

Analog Inputs

Four differential analog inputs are available. The voltage range of each is individually selected on the Configuration Diskette supplied with the Para-Fax. The full scale ranges

available are: 5.00V, 0.50V, 0.05V, 1-5V (for use with 4-20 mA signals and a 250 ohm terminating resistor), SQR (square root function for use with 4-20 mA signals and a 250 ohm terminating resistor), and K and J for use with a type K and type J thermocouple, respectively. The range is selected using the left or right arrow keys. If the K or J range is used on any channel, channel #1 must be configured as a cold junction compensator as described below.

If an input signal is not referenced to ground at its origin, the low side of that signal should be jumpered to the ground terminal in the Para-Fax. This is accomplished by inserting a supplied screw through the center grounding strip into the terminal which needs to be grounded.

Channel #1 is factory supplied with a silicon temperature sensor for use as a cold junction compensator for thermocouples. If this feature is used, the channel #1 input must be configured for units of F, range of 5.0V, 0V = 0 F, 5V = 500 F, and an alarm should be set for > 135 F. The alarm level " > " or " < " or " " is selected using the left or right arrow key.

If the cold junction temperature is not needed, the small transistor-like sensor connected to terminals 1, 2, and 3 can be removed. With that sensor removed, channel #1 becomes a standard input.

The channel assignments to terminals are shown below:

Channel #	Terminal #	
+ 12 Volts	1	(used for temp sensor)
1 high	2	
1 low	3	
analog gnd	4	
2 low	5	
2 high	6	
3 high	7	
3 low	8	
analog gnd	9	
4 low	10	
4 high	11	

Individual shielded twisted pairs should be used for each analog input. Thermocouples should be wired with matching thermocouple extension wire which is also shielded

twisted pairs. Thermocouples will measure the temperature difference between the equipment and the Para-Fax box. If the K or J range is selected, the Para-Fax will compensate for the cold junction and linearize the thermocouple to read directly in F or C.

**** CAUTION ****

DO NOT CONNECT ANY WIRES TO TERMINALS 12, 22, 23, OR 24. SEVERE DAMAGE TO THE PARA-FAX UNIT MAY RESULT.

Configuration

Set up the configuration diskette by placing it in a disk drive on an IBM compatible PC and typing "CONFIG". The most reliable results are obtained by using the same density disk drive as the diskette itself. The "README.DOC" file on the diskette contains information on how to use the configuration program.

Start-up

Place the configured diskette in the Para-Fax disk drive. Insert the diskette with the label on top and facing out so that you can read it.

Push the Normal/Standby/Test switch to the Standby position.

Turn on power by pushing the fused disconnect terminal #27 up and in. The red power light should come on continuously.

After about 30 seconds the disk drive light should come on for a few seconds and the scan light should flash rapidly.

Test

Momentarily press down the Normal/Standby/Test switch. The Para-Fax will make a single scan of the inputs and generate a test Fax. The scan light should stop flashing and within 3 seconds the disk drive should come on for about 5 seconds. After about 100 seconds dialing should be initiated. If a good connection is made data transmission should be heard for about 100 seconds.

When the transmission is completed, the scan light will return to a rapid flash. If, for some reason, the connection did not get through (e.g. no dial tone, busy, etc.) the Para-Fax will disconnect, wait about 3 min. and then try again. Nine attempts will be made to send the Test Fax.

Normal Operation

Press up the Normal/Standby/Test switch to the "NORMAL" position and the scan light should flash more slowly. This indicates that the system is in Normal mode. Periodic reports will be transmitted at the times determined by the configuration stored on the diskette. If any alarm condition specified by the configuration diskette is detected, an Alarm report with a flag "****" by that input will be transmitted immediately to the alarm Fax number.

Standby Mode

If the Normal/Standby/Test switch is placed in the Standby position the scan light will flash rapidly and no Faxes will be sent under any conditions. This is useful during equipment service to prevent transmission of unwanted Faxes.

Remote Access

Para-Fax Model 4043 can be reached by remote access. With this feature, the Para-Fax can be controlled from a terminal or a computer using most any communications software and a compatible modem. If you want to download reports, the software must include file capture capability. Bitcom and Procomm are two widely used programs that include file capture capability. If necessary, a communications software program compatible with Hayes type modems is available from Paragon Environmental Systems.

Once you connect with the Para-Fax you can choose all of the possible operations from menus using the item numbers or code letters. Although most of the operations are self-explanatory, the details are reviewed below. While connected on-line, the Para-Fax does not take data measurements. After disconnection, the Para-Fax resumes data collection. If you generate a new report by remote access, another report will be started after you disconnect.

Modem Setup

Before communicating with the Para-Fax, set up the modem and software to 1200 baud, 8 data bits, no parity, and 1 stop bit. Refer to your modem and software instructions on how to do this.

Calling the Para-Fax

Dial the phone number of the Para-Fax. It should answer in less than three rings and you should get a "CONNECT 1200" indication on the screen. After a few seconds you should see a line identifying the Para-Fax you have called and its serial number.

Immediately afterward you should see a request to enter your password. All Para-Fax passwords are set at the factory to "PARAGON". The password can be changed on the Configuration diskette using the Config program, or it can be changed by remote access. Note that the Password is case sensitive -- you must have all letters the correct case!

If the password is entered incorrectly, you will be given a second chance. If the second entry is also incorrect, the Para-Fax will disconnect. Once a correct password has been received by the Para-Fax, the full four lines of identifying text will be sent along with the Main Menu.

The Para-Fax allows you to make corrections to entries by backspacing. Because of this, you must always press the Enter key to let the Para-Fax know that you are satisfied with your entry and want it to be processed. Whenever the Para-Fax cannot interpret your entry as a valid selection (because of mis-entry or line interference), it will prompt again for the same entry.

To keep an unterminated connection from indefinitely tying up the Para-Fax, it will disconnect after 100 seconds without any entry. A ten second warning will be given before disconnecting. You can always just press the Enter key after the warning to avoid disconnection.

Main Menu

Details of the Main Menu choices are reviewed below:

1. Change the Configuration

This operation allows you to remotely change any of the configuration parameters that were set on the Configuration diskette. You will be presented one screen at a time with a numbered list of the configuration items. The prompt at the bottom of the screen reminds you to enter the number of the line you wish to change, enter Q to quit the Change Configuration function, enter R to review the current list of configuration items, enter P to advance to the next page of configuration items, or enter B to back up to the previous page of configuration items. (Always remember to press the enter key after your selection).

Although most parameters can accept any entry, some require very specific choices for the Para-Fax to operate correctly. These valid choices are listed in parentheses to the right of the parameter list. Be sure to enter a valid choice or the results may be unpredictable.

When you select a line to change, the existing entry for that line will be displayed on the screen with quote marks (" ") to show the available length of the entry. Immediately below you will be prompted for the new entry. If you do not want to change the entry simply press the Enter key and the existing entry will be retained. Typed characters can

be edited before entry by using the backspace key. If you do make a new entry, be sure to press the Enter key at the end of the line to transmit the entry to the Para-Fax.

To avoid incorrect entries and transmission errors the Para-Fax will re-display your entry and prompt you to enter a Y if the entry is correct, or an N if the entry is not correct. Pay particular attention to the lines where specific choices must be made and make sure that the entry is one of the choices listed in the Notes at the right of the line. Unpredictable results can occur from incorrect entries on these lines. If you do not enter a Y you will be prompted to make your entry again.

If you choose Q to quit the Change Configuration selection you will be given the opportunity to save your changes to the Para-Fax diskette by Entering S. If you are not happy with the changes you have made you may abandon all of the changes by entering A, or go back and make additional changes by entering C.

If you save configuration changes you will be prompted with a message that explains that the Para-Fax will reset itself when you disconnect. Resetting is necessary so that the Para-Fax can reprogram itself with the new information. When the reset occurs, any data collected since the end of the last report will be erased from the memory. To avoid losing this data, it should be compiled into a report and the report downloaded to the terminal or sent to a FAX machine before disconnecting. These selections can be made from the Main Menu.

2. Send Last Report to FAX

This option will send a copy of the latest compiled report to a FAX machine. Unless you have previously chosen the Update Last Report to Current Report option it will be a copy of the last transmitted report. This option is especially useful if the last report was missed (for example, your FAX machine was out of paper.) Before sending a report to a FAX, it can be previewed at your terminal by using option 3 below.

When you select this option, you will be prompted with the current Periodic Report FAX number and given the opportunity to use it by pressing the Enter key, or to enter a new FAX number to be used for this report only. To avoid errors, the entered number will be displayed and you must verify it by entering a Y. If you enter an N you will be prompted to enter the FAX number again. When you have verified the number the Para-Fax will disconnect and transmit the current report in about one minute.

3. Download Last Report to Terminal (PC) NOW

This option will send a copy of the latest compiled report to your terminal. It is most useful to preview the report that will be sent if you choose option 2 above.

After you select this option, you will be given the opportunity to start a file capture routine in your communications software. Check the operation of your communication software's file capture feature in its manual. If you have this capability and want to save the report to a file, invoke the file capture feature of your software. Enter a Y to start the report transmission. When the report has been completely transmitted you will be prompted to end the file capture. When you enter a Y you will be returned to the Main Menu again.

You may download a report as often as you choose. For example, you might first download without file capture turned on to see if the current report is the one that you want. If so, from the Main Menu you can download again, this time capturing the report file.

4. Update Last Report to Current Report

This option allows you to take the data collected by the Para-Fax since its last report and compile it into a new report. This report will then become the current report. This option should be used before changing the configuration of the Para-Fax since the reconfiguration will reset the Para-Fax and the accumulated data will be erased. It is also useful if you want to know the current status of the system being monitored.

If you select this option, you will be prompted to wait a few seconds. When the new report is generated you will be notified and returned to the Main Menu. From that menu, you can then Download or FAX the report just generated.

5. Reset Time

The Para-Fax does not keep track of Daylight Savings Time beginning or ending. Enter the time in 24 hour military time, i.e. 1:00PM would be 13:00.

6. Disconnect NOW

Choose this option when you are finished with your remote access to the Para-Fax.

TROUBLESHOOTING

1. Open the front door to Para-Fax by inserting a quarter or large screwdriver into the front door latch screw and rotating 90 degrees counter-clockwise.

2. Locate the fuse disconnect at extreme right end of the terminal block (while facing Para-Fax). It is labeled terminal number 27. The fuse disconnect is hinged at the bottom of the terminal and pivots out toward you and down. Place your finger on the tab directly above the number 27 label and pull the fuse disconnect out towards you and down. This will interrupt power to the Para-Fax.

3. Wait 30 seconds.

4. Place the toggle switch located immediately to the right of the "NORMAL, STANDBY, TEST" label in the standby position (middle position).

5. Close the fuse disconnect to re-establish power to the Para-Fax by pushing the tab back up and in as far as it will go. The power LED (the larger of the two LED's located directly above the toggle switch) will illuminate and remain lit. This will reset the unit.

6. Wait one minute. During this time, the Para-Fax will perform a diagnostics check on itself and eventually read the configuration information stored on the configuration diskette which resides in the disk drive. After 30 seconds or so you should see the light come on, on the floppy disk drive for a few seconds then go out. This indicates the Para-Fax is reading the configuration information it uses as its instructions. Once it has completed reading the configuration information, the smaller of the two LED's (located about an inch and a half to the right of the power LED) will begin flashing rapidly. This rapid flashing indicates the Para-Fax has been successfully reset, is in standby mode and is operating correctly.

7. To test the Para-Fax, push the toggle switch down for a few seconds and release it. It will return to the standby position.

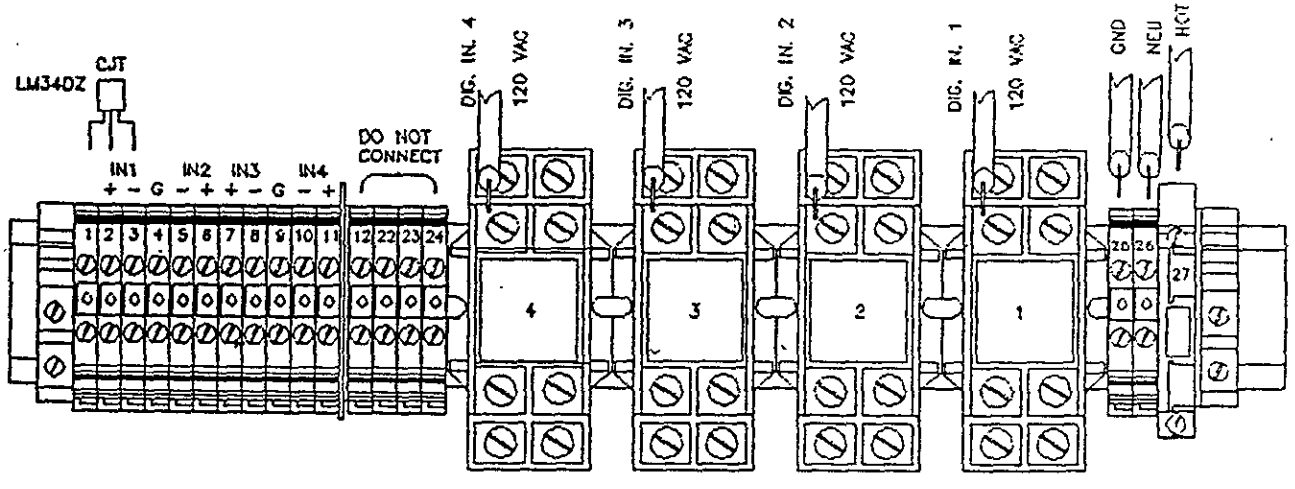
8. Wait one minute. During this time the Para-Fax will take a set of readings on each of the analog and digital inputs wired to the terminal block and generate a test report to be transmitted. A copy of this report will be written to the floppy disk drive. Scanning the inputs and generating the report takes a mere few seconds, however, conversion of the report into a bit stream that can be transmitted over the phone line to the receiving fax machine takes much longer.

Once the conversion is completed, the Para-Fax obtains a dial tone, dials the phone number stored on the conversion diskette and transmits the test report. If you listen closely you can hear the Para-Fax dial and transmit. Transmission takes approximately one minute. During transmission, the small LED may either be illuminated or not. Either condition is normal.

9. When the transmission of the test report has been completed, the Para-Fax returns to standby mode and the small LED resumes flashing.

10. If all of these steps can be completed as described, the Para-Fax is functioning correctly and can be returned to normal mode of operation. This is accomplished by pushing the toggle switch upward to the normal position. In normal mode, the small LED will flash noticeably more slowly. At this point, the Para-Fax will begin taking measurements and accumulating data for transmission at the next scheduled periodic report interval.

11. Close the front door to the Para-Fax and latch it closed by turning the door latch clockwise.



NOTES:
1. ANALOG INPUTS MUST BE IN RANGE ± 5V TO GROUND.
2. ONE SIDE OF EACH ANALOG SIGNAL MUST REFERENCE TO GROUND.
3. CJT CAN BE REMOVED AND USED AS INPUT #1 IF THERMOCOUPLE REF. IS NOT REQUIRED.
4. COMMON SIDE OF 120 VAC DIGITAL INPUTS CONNECTS TO NEUTRAL AT TERMINAL 26.

DRAWN BY: D.RAWLINSON	DATE:	PARAGON ENVIRONMENTAL	
CHECKED BY:	DATE:	TITLE: TERMINAL BLOCK DIAGRAM	
TIME:		TITLE	F.S.C.M.	DRAWING NO.
				30-002-4041
		SCALE: 1:1		SHEET: 4 OF 4

ARCO Products Company ◆ Division of AtlanticRichfieldCompany — 330-084.5A Task Order No. 374-94-5 — **Chain of Custody**

ARCO Facility no. 374	City (Facility) OAKLAND	Project manager (Consultant) SHAW GARAKANI	Laboratory name SEQUOIA
ARCO engineer Mike Whelan	Telephone no. (ARCO)	Telephone no. (Consultant) 4084417500 / Fax no. (Consultant) 4084417539	Contract number
Consultant name PACIFIC ENV GROUP	Address (Consultant) 2025 GATEWAY PL #440 SAN JOSE		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 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 ☐		
INFL		3		X		X	HCL	11-17-94			X											
MIP-1		↓		↓		↓	↓	↓			↓											
MID 2		↓		↓		↓	↓	↓			↓											
EFF		↓		↓		↓	↓	↓			↓											

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 11-18-94 Time 700	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

APPC-3292 (2-9