EMCON
1921 Ringwood Avenue • San Jose, California 95131-1721 • (408) 453-7300 • Fax (408) 437-9526

03

Date June 30, 1995
Project 0805-132.02

To:

Ms. Eva Chu
Alameda County Health Care Services Agency
Department of Environmental Health
1131 Harborbay Parkway, Suite 250
Alameda, California 94502-6577

Request quantify MTBE in future sampling starting 3rd quarter
>150 days to get QMR

We are enclosing:

Copies	Description
1	First quarter 1995 groundwater monitoring report for ARCO service station 6041, Deblin, California

For your:		Sent by:	
	X Use		Regular Mail
	Approval		Standard Air
	Review		Courier
	Information	X	Other Certified Mail

Comments:
The enclosed groundwater monitoring report is being sent to you per the request of ARCO Products Company. Plaese call if you have questions or comments.

David Larsen
Project Coordinator

cc: Copy entire document:
Kevin Graves, RWQCB - SFBR
Michael Whelan, ARCO Products Company
David Larsen, EMCON
File

Copy tranmsmittal and Table 2 only:
Scott T. Hooton, BP Oil Company

ARCO Products Company
Environmental Engineering
2155 South Bascom Avenue, Suite 202
Campbell, California 95008

Date: June 30, 1995

Re: ARCO Station # 6041 • 7249 Village Parkway • Dublin, CA
First Quarter 1995 Groundwater Monitoring Report

" I declare, that to the best of my knowledge at the present time, that the information and/or recommendations contained in the attached proposal or report are true and correct."

Submitted by:

Michael R. Whelan
Environmental Engineer

EMCON
1921 Ringwood Avenue • San Jose, California 95131-1721 • **(408) 453-7300** • Fax (408) 437-9526

June 7, 1995
Project 0805-132.02

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

Re: First quarter 1995 groundwater monitoring program results, ARCO service station 6041, Dublin, California

Dear Mr. Whelan:

This letter presents the results of the first quarter 1995 groundwater monitoring program at ARCO Products Company (ARCO) service station 6041, 7249 Village Parkway, Dublin, California (Figure 1). The quarterly monitoring program complies with Alameda County Health Care Services Agency (ACHCSA) requirements regarding underground tank investigations.

BACKGROUND

In June 1990, a waste-oil tank was removed from the site. In September 1991, RESNA conducted an initial subsurface environmental investigation to evaluate the impact of a gasoline spill beneath a gasoline dispenser pump. This investigation included installing three groundwater monitoring wells (MW-1, MW-2, and MW-3) beneath the tank pit to assess the presence of hydrocarbons.

Between October and November 1992, RESNA conducted a second phase of investigation. This investigation included installing three additional groundwater monitoring wells (MW-4, MW-5 and MW-6) and four vadose wells (VW-1 through VW-4) in October 1992, and conducting a soil-vapor extraction (SVE) pilot test in November 1992.

Between August 1993 and February 1994, RESNA conducted a third phase of investigation to further evaluate potential sources of gasoline hydrocarbons in soil, and to aid in the design of interim SVE and air-sparge (AS) systems. The work included installing one vadose well (VW-5) and two AS wells (AS-1 and AS-2), and conducting an AS pilot test.

Groundwater monitoring and sampling at this site was initiated in September 1991. There are currently six groundwater monitoring wells, five vadose wells, and two AS wells on site. For additional background information, please refer to *Report of Findings, Air Sparge Pilot Test* (RESNA, June 10, 1994). Water levels are measured quarterly in

wells MW-1 through MW-6. Wells MW-5 and MW-6 are sampled annually, during the first quarter of the year. Well MW-4 is sampled semiannually during the first and third quarters. Wells MW-1, MW-2, and MW-3 are sampled quarterly.

MONITORING PROGRAM FIELD PROCEDURES

The first quarter 1995 groundwater monitoring event was performed by EMCON on February 15, 1995. Field work this quarter included (1) measuring depths to groundwater and subjectively analyzing groundwater for the presence of floating product in wells MW-1 through MW-6, (2) purging and subsequently sampling groundwater monitoring wells MW-1 through MW-6 for laboratory analysis, and (3) directing a state-certified laboratory to analyze the groundwater samples. Copies of all field data sheets from the first quarter 1995 groundwater monitoring event are included in Appendix A.

ANALYTICAL PROCEDURES

Groundwater samples collected during first quarter 1995 monitoring were analyzed for total petroleum hydrocarbons as gasoline (TPHG) and benzene, toluene, ethylbenzene, and total xylenes (BTEX). Groundwater samples were prepared for analysis by U.S. Environmental Protection Agency (USEPA) method 5030 (purge and trap). Groundwater was analyzed for TPHG by the methods accepted by the Department of Toxic Substances Control, California Environmental Protection Agency (Cal-EPA), and referenced in the *Leaking Underground Fuel Tank* (LUFT) *Field Manual* (State Water Resources Control Board, October 1989). Samples were analyzed for BTEX by USEPA method 8020, as described in *Test Methods for Evaluating Solid Waste: Physical/Chemical Methods* (EPA SW-846, November 1986, third edition). These methods are recommended for samples from petroleum-hydrocarbon-impacted sites in the *Tri-Regional Board Staff Recommendations for Preliminary Evaluation and Investigation of Underground Tank Sites* (August 10, 1990).

MONITORING PROGRAM RESULTS

Results of the first quarter 1995 groundwater monitoring event are summarized in Table 1 and illustrated in Figure 2. Historical groundwater elevation data, including top-of-casing elevations, depth-to-water measurements, calculated groundwater elevations, floating-product thickness measurements, and groundwater flow direction and gradient data, are summarized in Table 2. Table 3 summarizes historical laboratory data for TPHG and BTEX. Table 4 summarizes historical groundwater elevation data for the British Petroleum (BP) station at 7197 Village Parkway, the former Shell station at 7194 Amador Valley Boulevard, and the UNOCAL station at 7375 Amador Valley Boulevard. Figure 3 illustrates vicinity groundwater elevation data for all four service stations (ARCO, BP,

Shell, and UNOCAL) during the first quarter of 1995. Copies of the first quarter 1995 analytical results and chain-of-custody documentation are included in Appendix B.

On-site groundwater contours and analytical data for the first quarter of 1995 are presented in Figure 2. An approximate direction of groundwater flow and hydraulic gradient could not be determined based on the groundwater elevation data collected at the site on February 15, 1995. An approximate groundwater flow direction and gradient for the site vicinity were calculated using groundwater elevation data collected from the UNOCAL, ARCO, and BP stations during the February 15, 1995, cooperative sampling event. Based on these data, groundwater in the site vicinity flows northeast at an approximate hydraulic gradient of 0.009 foot per foot (Figure 3).

Groundwater samples collected from wells MW-4, MW-5, and MW-6 did not contain detectable concentrations of TPHG or BTEX. Groundwater samples collected from wells MW-1, MW-2, and MW-3 contained 820, 730, and 100 micrograms per liter (µg/L) TPHG, and 15, 110, and 14 µg/L benzene, respectively.

LIMITATIONS

No monitoring event is thorough enough to describe all geologic and hydrogeologic conditions of interest at a given site. If conditions have not been identified during the monitoring event, such a finding should not therefore be construed as a guarantee of the absence of such conditions at the site, but rather as the result of the scope, limitations, and cost of work performed during the monitoring event.

SITE STATUS UPDATE

This update reports site activities performed during the first quarter of 1995 and the anticipated site activities for the second quarter of 1995.

First Quarter 1995 Activities

- Prepared and submitted quarterly groundwater monitoring report for fourth quarter 1994.
- Performed quarterly groundwater monitoring for first quarter 1995.

Work Anticipated for Second Quarter 1995

- Prepare and submit quarterly groundwater monitoring report for first quarter 1995.

- Perform quarterly groundwater monitoring for second quarter 1995.

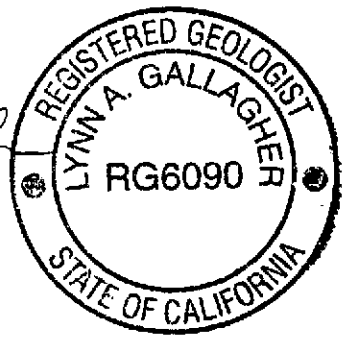
Please call if you have questions.

Sincerely,

EMCON

David Larsen
Project Coordinator

Lynn A. Gallagher, R.G. 6090
Project Geologist



Attachments:

Table 1 -	Groundwater Monitoring Data, First Quarter 1995
Table 2 -	Historical Groundwater Elevation Data
Table 3 -	Historical Groundwater Analytical Data (TPHG and BTEX)
Table 4 -	Historical Groundwater Elevation Data (BP, Shell, and UNOCAL Stations)
Figure 1 -	Site Location
Figure 2 -	Groundwater Data, First Quarter 1995
Figure 3 -	Vicinity Groundwater contours (ARCO, BP, Shell, and UNOCAL Stations)
Appendix A -	Field Data Sheets, First Quarter 1995 Groundwater Monitoring Event
Appendix B -	Analytical Results and Chain-of-Custody Documentation, First Quarter 1995

Table 1
Groundwater Monitoring Data
First Quarter 1995
Summary Report

ARCO Service Station 6041
7249 Village Parkway, Dublin, California

Date: 05-11-95
Project Number: 0805-132.02

Well Designation	Water Level Field Date	TOC Elevation	Depth to Water	Ground-Water Elevation	Floating Product Thickness	Ground-Water Flow Direction	Hydraulic Gradient	Water Sample Field Date	TPHG	Benzene	Toluene	Ethyl-benzene	Total Xylenes
		ft-MSL	feet	ft-MSL	feet	MWN	foot/foot		µg/L	µg/L	µg/L	µg/L	µg/L
MW-1	02-15-95	336.56	8.53	328.03	ND	NR	NR	02-15-95	820	15	<1	5.2	1.4
MW-2	02-15-95	334.80	6.75	328.05	ND	NR	NR	02-15-95	730	110	1.7	25	66
MW-3	02-15-95	335.53	8.55	326.98	ND	NR	NR	02-15-95	100	14	<0.5	6.3	<0.5
MW-4	02-15-95	334.22	7.85	326.37	ND	NR	NR	02-15-95	<50	<0.5	<0.5	<0.5	<0.5
MW-5	02-15-95	335.87	7.80	328.07	ND	NR	NR	02-15-95	<50	<0.5	<0.5	<0.5	<0.5
MW-6	02-15-95	335.84	7.81	328.03	ND	NR	NR	02-15-95	<50	<0.5	<0.5	<0.5	<0.5

TOC = Top of casing
ft-MSL = Elevation in feet, relative to mean sea level
MWN = Ground-water flow direction and gradient apply to the entire monitoring well network
TPHG = Total petroleum hydrocarbons as gasoline
µg/L = Micrograms per liter
ND = None detected
NR = Not reported; data not available or not measurable

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Table 2
Historical Groundwater Elevation Data
Summary Report

ARCO Service Station 6041
7249 Village Parkway, Dublin, California

Date: 05-11-95
Project Number: 0805-132.02

Well Designation	Water Level Field Date	TOC Elevation ft-MSL	Depth to Water feet	Ground-Water Elevation ft-MSL	Floating Product Thickness feet	Ground-Water Flow Direction MWN	Hydraulic Gradient foot/foot
MW-1	09-20-91	336.56	11.20	325.36	ND	NR	NR
MW-1	10-22-91	336.56	11.48	325.08	ND	NR	NR
MW-1	11-27-91	336.56	11.27	325.29	ND	NR	NR
MW-1	12-16-91	336.56	11.55	325.01	ND	NR	NR
MW-1	01-18-92	336.56	11.37	325.19	ND	NR	NR
MW-1	02-21-92	336.56	9.13	327.43	ND	NR	NR
MW-1	03-16-92	336.56	9.70	326.86	ND	NR	NR
MW-1	04-24-92	336.56	10.20	326.36	ND	NR	NR
MW-1	05-15-92	336.56	10.46	326.10	ND	NR	NR
MW-1	06-09-92	336.56	10.73	325.83	ND	NR	NR
MW-1	07-28-92	336.56	11.04	325.52	ND	NR	NR
MW-1	08-24-92	336.56	11.32	325.24	ND	NR	NR
MW-1	09-09-92	336.56	11.54	325.02	ND	NR	NR
MW-1	10-26-92	336.56	11.80	324.76	ND	NR	NR
MW-1	11-10-92	336.56	11.74	324.82	ND	NR	NR
MW-1	12-14-92	336.56	10.77	325.79	ND	NR	NR
MW-1	01-15-93	336.56	8.88	327.68	ND	NR	NR
MW-1	02-10-93	336.56	9.66	326.90	ND	NR	NR
MW-1	03-29-93	336.56	8.31	328.25	ND	NR	NR
MW-1	04-27-93	336.56	9.03	327.53	ND	NR	NR
MW-1	05-10-93	336.56	9.50	327.06	ND	NR	NR
MW-1	06-18-93	336.56	10.16	326.40	ND	NR	NR
MW-1	07-28-93	336.56	10.68	325.88	ND	NR	NR
MW-1	08-30-93	336.56	10.59	325.97	ND	NR	NR
MW-1	09-28-93	336.56	10.82	325.74	ND	NR	NR
MW-1	10-31-93	336.56	10.94	325.62	ND	NR	NR
MW-1	11-11-93	336.56	10.70	325.86	ND	NR	NR
MW-1	12-15-93	336.56	10.56	326.00	ND	NR	NR
MW-1	02-11-94	336.56	10.35	326.21	ND	NR	NR
MW-1	03-13-94	336.56	9.99	326.57	ND	NR	NR
MW-1	05-17-94	336.56	9.82	326.74	ND	NR	NR
MW-1	08-25-94	336.56	10.11	326.45	ND	NR	NR
MW-1	09-22-94	336.56	11.20	325.36	ND	NR	NR
MW-1	11-18-94	336.56	10.25	326.31	ND	NR	NR
MW-1	02-15-95	336.56	8.53	328.03	ND	NR	NR

Table 2
Historical Groundwater Elevation Data
Summary Report

ARCO Service Station 6041
7249 Village Parkway, Dublin, California

Date: 05-11-95
Project Number: 0805-132.02

Well Designation	Water Level Field Date	TOC Elevation ft-MSL	Depth to Water feet	Ground-Water Elevation ft-MSL	Floating Product Thickness feet	Ground-Water Flow Direction MWN	Hydraulic Gradient foot/foot
MW-2	09-20-91	334.80	9.22	325.58	ND	NR	NR
MW-2	10-22-91	334.80	9.66	325.14	ND	NR	NR
MW-2	11-27-91	334.80	9.48	325.32	ND	NR	NR
MW-2	12-16-91	334.80	9.76	325.04	ND	NR	NR
MW-2	01-18-92	334.80	9.47	325.33	ND	NR	NR
MW-2	02-21-92	334.80	7.62	327.18	ND	NR	NR
MW-2	03-16-92	334.80	7.84	326.96	ND	NR	NR
MW-2	04-24-92	334.80	8.34	326.46	ND	NR	NR
MW-2	05-15-92	334.80	8.62	326.18	ND	NR	NR
MW-2	06-09-92	334.80	8.88	325.92	ND	NR	NR
MW-2	07-28-92	334.80	9.38	325.42	ND	NR	NR
MW-2	08-24-92	334.80	9.81	324.99	ND	NR	NR
MW-2	09-09-92	334.80	9.92	324.88	ND	NR	NR
MW-2	10-26-92	334.80	10.13	324.67	ND	NR	NR
MW-2	11-10-92	334.80	10.12	324.68	ND	NR	NR
MW-2	12-14-92	334.80	8.99	325.81	ND	NR	NR
MW-2	01-15-93	334.80	7.20	327.60	ND	NR	NR
MW-2	02-10-93	334.80	7.30	327.50	ND	NR	NR
MW-2	03-29-93	334.80	6.60	328.20	ND	NR	NR
MW-2	04-27-93	334.80	7.10	327.70	ND	NR	NR
MW-2	05-10-93	334.80	7.40	327.40	ND	NR	NR
MW-2	06-18-93	334.80	8.02	326.78	ND	NR	NR
MW-2	07-28-93	334.80	8.47	326.33	ND	NR	NR
MW-2	08-30-93	334.80	8.80	326.00	ND	NR	NR
MW-2	09-28-93	334.80	9.19	325.61	ND	NR	NR
MW-2	10-31-93	334.80	9.12	325.68	ND	NR	NR
MW-2	11-11-93	334.80	9.02	325.78	ND	NR	NR
MW-2	12-15-93	334.80	8.82	325.98	ND	NR	NR
MW-2	02-11-94	334.80	8.59	326.21	ND	NR	NR
MW-2	03-13-94	334.80	8.09	326.71	ND	NR	NR
MW-2	05-17-94	334.80	7.99	326.81	ND	NR	NR
MW-2	08-25-94	334.80	9.23	325.57	ND	NR	NR
MW-2	09-22-94	334.80	9.47	325.33	ND	NR	NR
MW-2	11-18-94	334.80	8.70	326.10	ND	NR	NR
MW-2	02-15-95	334.80	6.75	328.05	ND	NR	NR

Table 2
Historical Groundwater Elevation Data
Summary Report

ARCO Service Station 6041
7249 Village Parkway, Dublin, California

Date: 05-11-95
Project Number: 0805-132.02

Well Designation	Water Level Field Date	TOC Elevation	Depth to Water	Ground-Water Elevation	Floating Product Thickness	Ground-Water Flow Direction	Hydraulic Gradient
		ft-MSL	feet	ft-MSL	feet	MWN	foot/foot
MW-3	09-20-91	335.53	10.16	325.37	ND	NR	NR
MW-3	10-22-91	335.53	10.48	325.05	ND	NR	NR
MW-3	11-27-91	335.53	10.17	325.36	ND	NR	NR
MW-3	12-16-91	335.53	10.25	325.28	ND	NR	NR
MW-3	01-18-92	335.53	10.71	324.82	ND	NR	NR
MW-3	02-21-92	335.53	8.68	326.85	ND	NR	NR
MW-3	03-16-92	335.53	8.91	326.62	ND	NR	NR
MW-3	04-24-92	335.53	9.14	326.39	ND	NR	NR
MW-3	05-15-92	335.53	9.54	325.99	ND	NR	NR
MW-3	06-09-92	335.53	9.72	325.81	ND	NR	NR
MW-3	07-28-92	335.53	10.15	325.38	ND	NR	NR
MW-3	08-24-92	335.53	10.42	325.11	ND	NR	NR
MW-3	09-09-92	335.53	10.53	325.00	ND	NR	NR
MW-3	10-26-92	335.53	10.92	324.61	ND	NR	NR
MW-3	11-10-92	335.53	10.72	324.81	ND	NR	NR
MW-3	12-14-92	335.53	9.78	325.75	ND	NR	NR
MW-3	01-15-93	335.53	7.66	327.87	ND	NR	NR
MW-3	02-10-93	335.53	7.87	327.66	ND	NR	NR
MW-3	03-29-93	335.53	7.35	328.18	ND	NR	NR
MW-3	04-27-93	335.53	7.70	327.83	ND	NR	NR
MW-3	05-10-93	335.53	8.46	327.07	ND	NR	NR
MW-3	06-18-93	335.53	9.13	326.40	ND	NR	NR
MW-3	07-28-93	335.53	9.49	326.04	ND	NR	NR
MW-3	08-30-93	335.53	9.62	325.91	ND	NR	NR
MW-3	09-28-93	335.53	9.80	325.73	ND	NR	NR
MW-3	10-31-93	335.53	9.84	325.69	ND	NR	NR
MW-3	11-11-93	335.53	9.81	325.72	ND	NR	NR
MW-3	12-15-93	335.53	10.23	325.30	ND	NR	NR
MW-3	02-11-94	335.53	9.60	325.93	ND	NR	NR
MW-3	03-13-94	335.53	9.03	326.50	ND	NR	NR
MW-3	05-17-94	335.53	9.11	326.42	ND	NR	NR
MW-3	08-25-94	335.53	11.09	324.44	ND	NR	NR
MW-3	09-22-94	335.53	10.21	325.32	ND	NR	NR
MW-3	11-18-94	335.53	9.79	325.74	ND	NR	NR
MW-3	02-15-95	335.53	8.55	326.98	ND	NR	NR

Table 2
Historical Groundwater Elevation Data
Summary Report

ARCO Service Station 6041
7249 Village Parkway, Dublin, California

Date: 05-11-95
Project Number: 0805-132.02

Well Designation	Water Level Field Date	TOC Elevation	Depth to Water	Ground-Water Elevation	Floating Product Thickness	Ground-Water Flow Direction	Hydraulic Gradient
		ft-MSL	feet	ft-MSL	feet	MWN	foot/foot
MW-4	11-10-92	334.22	9.58	324.64	ND	NR	NR
MW-4	12-14-92	334.22	8.72	325.50	ND	NR	NR
MW-4	01-15-93	334.22	7.27	326.95	ND	NR	NR
MW-4	02-10-93	334.22	6.80	327.42	ND	NR	NR
MW-4	03-29-93	334.22	6.29	327.93	ND	NR	NR
MW-4	04-27-93	334.22	6.33	327.89	ND	NR	NR
MW-4	05-10-93	334.22	6.68	327.54	ND	NR	NR
MW-4	06-18-93	334.22	7.05	327.17	ND	NR	NR
MW-4	07-28-93	334.22	7.77	326.45	ND	NR	NR
MW-4	08-30-93	334.22	8.09	326.13	ND	NR	NR
MW-4	09-28-93	334.22	8.40	325.82	ND	NR	NR
MW-4	10-31-93	334.22	8.56	325.66	ND	NR	NR
MW-4	11-11-93	334.22	8.48	325.74	ND	NR	NR
MW-4	12-15-93	334.22	8.38	325.84	ND	NR	NR
MW-4	02-11-94	334.22	8.15	326.07	ND	NR	NR
MW-4	03-13-94	334.22	7.57	326.65	ND	NR	NR
MW-4	05-17-94	334.22	7.49	326.73	ND	NR	NR
MW-4	08-25-94	334.22	8.79	325.43	ND	NR	NR
MW-4	09-22-94	334.22	8.99	325.23	ND	NR	NR
MW-4	11-18-94	334.22	8.31	325.91	ND	NR	NR
MW-4	02-15-95	334.22	7.85	326.37	ND	NR	NR
MW-5	11-10-92	335.87	11.02	324.85	ND	NR	NR
MW-5	12-14-92	335.87	10.17	325.70	ND	NR	NR
MW-5	01-15-93	335.87	8.14	327.73	ND	NR	NR
MW-5	02-10-93	335.87	8.00	327.87	ND	NR	NR
MW-5	03-29-93	335.87	7.52	328.35	ND	NR	NR
MW-5	04-27-93	335.87	8.26	327.61	ND	NR	NR
MW-5	05-10-93	335.87	8.64	327.23	ND	NR	NR
MW-5	06-18-93	335.87	9.26	326.61	ND	NR	NR
MW-5	07-28-93	335.87	9.65	326.22	ND	NR	NR
MW-5	08-30-93	335.87	9.81	326.06	ND	NR	NR
MW-5	09-28-93	335.87	9.99	325.88	ND	NR	NR
MW-5	10-31-93	335.87	10.02	325.85	ND	NR	NR
MW-5	11-11-93	335.87	10.09	325.78	ND	NR	NR
MW-5	12-15-93	335.87	10.08	325.79	ND	NR	NR
MW-5	02-11-94	335.87	9.63	326.24	ND	NR	NR
MW-5	03-13-94	335.87	9.26	326.61	ND	NR	NR
MW-5	05-17-94	335.87	8.99	326.88	ND	NR	NR
MW-5	08-25-94	335.87	10.23	325.64	ND	NR	NR
MW-5	09-22-94	335.87	10.39	325.48	ND	NR	NR
MW-5	11-18-94	335.87	9.65	326.22	ND	NR	NR
MW-5	02-15-95	335.87	7.80	328.07	ND	NR	NR

Table 2
Historical Groundwater Elevation Data
Summary Report

ARCO Service Station 6041
7249 Village Parkway, Dublin, California

Date: 05-11-95
Project Number: 0805-132.02

Well Designation	Water Level Field Date	TOC Elevation ft-MSL	Depth to Water feet	Ground-Water Elevation ft-MSL	Floating Product Thickness feet	Ground-Water Flow Direction MWN	Hydraulic Gradient foot/foot
MW-6	11-10-92	335.84	11.03	324.81	ND	NR	NR
MW-6	12-14-92	335.84	10.03	325.81	ND	NR	NR
MW-6	01-15-93	335.84	7.64	328.20	ND	NR	NR
MW-6	02-10-93	335.84	8.22	327.62	ND	NR	NR
MW-6	03-29-93	335.84	7.59	328.25	ND	NR	NR
MW-6	04-27-93	335.84	8.20	327.64	ND	NR	NR
MW-6	05-10-93	335.84	8.85	326.99	ND	NR	NR
MW-6	06-18-93	335.84	9.26	326.58	ND	NR	NR
MW-6	07-28-93	335.84	9.83	326.01	ND	NR	NR
MW-6	08-30-93	335.84	10.15	325.69	ND	NR	NR
MW-6	09-28-93	335.84	9.95	325.89	ND	NR	NR
MW-6	10-31-93	335.84	10.16	325.68	ND	NR	NR
MW-6	11-11-93	335.84	10.02	325.82	ND	NR	NR
MW-6	12-15-93	335.84	10.28	325.56	ND	NR	NR
MW-6	02-11-94	335.84	9.66	326.18	ND	NR	NR
MW-6	03-13-94	335.84	9.28	326.56	ND	NR	NR
MW-6	05-17-94	335.84	9.10	326.74	ND	NR	NR
MW-6	08-25-94	335.84	10.39	325.45	ND	NR	NR
MW-6	09-22-94	335.84	10.50	325.34	ND	NR	NR
MW-6	11-18-94	335.84	9.54	326.30	ND	NR	NR
MW-6	02-15-95	335.84	7.81	328.03	ND	NR	NR

TOC = Top of casing
ft-MSL = Elevation in feet, relative to mean sea level
MWN = Ground-water flow direction and gradient apply to the entire monitoring well network
ND = None detected
NR = Not reported; data not available or not measurable

Table 3
Historical Groundwater Analytical Data
Summary Report

ARCO Service Station 6041
7249 Village Parkway, Dublin, California

Date: 05-11-95
Project Number: 0805-132.02

Well Designation	Water Sample Field Date	TPHG µg/L	Benzene µg/L	Toluene µg/L	Ethyl-benzene µg/L	Total Xylenes µg/L
MW-1	09-20-91	410	28	36	4.3	89
MW-1	12-16-91	840	50	50	3.9	12
MW-1	03-16-92	780	22	12	45	22
MW-1	06-09-92	700	8.8	15	16	18
MW-1	09-09-92	400	5.4	8.4	4.6	6.7
MW-1	11-10-92	2800	93	56	190	390
MW-1	02-10-93	9700	180	100	450	740
MW-1	05-10-93	6400	120	12	410	300
MW-1	08-30-93	2000	2.5	<2.5	110	61
MW-1	11-11-93	2100	<2.5	<2.5	66	20
MW-1	02-11-94	2000	<2.5	<2.5	25	5.7
MW-1	05-17-94	1400	79	1.4	11	2.4
MW-1	08-25-94	880	2.4	<1	4.6	<1
MW-1	11-18-94	2500	1.5	<0.5	1.4	<1
MW-1	02-15-95	820	15	<1	5.2	1.4
MW-2	09-20-91	130	6.6	0.96	1.4	1.5
MW-2	12-16-91	83	0.96	<0.3	<0.3	<0.3
MW-2	03-16-92	430	130	<2.5	37	5
MW-2	06-09-92	120	3.7	<0.5	5.7	<0.5
MW-2	09-09-92	<50	<0.5	<0.5	<0.5	<0.5
MW-2	11-10-92	<50	<0.5	<0.5	<0.5	<0.5
MW-2	02-10-93	740	110	<5	35	<5
MW-2	05-10-93	2000	650	14	86	28
MW-2	08-30-93	170	1.4	7.9	1.6	15
MW-2	11-11-93	78	<0.5	2.8	0.7	5.9
MW-2	02-11-94	<50	2.4	0.7	<0.5	<0.5
MW-2	05-17-94	150	19	<0.5	2.5	1.2
MW-2	08-25-94	<50	<0.5	<0.5	<0.5	<0.5
MW-2	11-18-94	237	1.9	0.6	<0.5	<1
MW-2	02-15-95	730	110	1.7	25	66

Table 3
Historical Groundwater Analytical Data
Summary Report

ARCO Service Station 6041
7249 Village Parkway, Dublin, California

Date: 05-11-95
Project Number: 0805-132.02

Well Designation	Water Sample Field Date	TPHG µg/L	Benzene µg/L	Toluene µg/L	Ethyl-benzene µg/L	Total Xylenes µg/L
MW-3	09-20-91	990	50	100	11	200
MW-3	12-16-91	1000	180	5.1	23	4.3
MW-3	03-16-92	430	86	<1.0	22	3.4
MW-3	06-09-92	1800	290	2.4	49	17
MW-3	09-09-92	2600	550	<5	120	12
MW-3	11-10-92	1100	280	<5	100	<5
MW-3	02-10-93	980	190	<5	52	<5
MW-3	05-10-93	1100	280	<2.5	70	<2.5
MW-3	08-30-93	470	120	<1	22	<1
MW-3	11-11-93	830	96	<2.5	25	<2.5
MW-3	02-11-94	220	42	<1.0	84	<1.0
MW-3	05-17-94	200	44	<0.5	9.3	<0.5
MW-3	08-25-94	100	4.3	<0.5	1.1	<0.5
MW-3	11-18-94	1850	3.5	<0.5	0.9	<1
MW-3	02-15-95	100	14	<0.5	6.3	<0.5
MW-4	11-10-92	<50	<0.5	<0.5	<0.5	<0.5
MW-4	02-10-93	<50	<0.5	<0.5	<0.5	<0.5
MW-4	05-10-93	<50	<0.5	<0.5	<0.5	<0.5
MW-4	08-30-93	<50	<0.5	<0.5	<0.5	<0.5
MW-4	11-11-93	<50	<0.5	<0.5	<0.5	<0.5
MW-4	02-11-94	<50	<0.5	<0.5	<0.5	<0.5
MW-4	05-17-94	<50	<0.5	<0.5	<0.5	<0.5
MW-4	08-25-94	<50	<0.5	<0.5	<0.5	<0.5
MW-4	11-18-94	<50	<0.5	<0.5	<0.5	<1
MW-4	02-15-95	<50	<0.5	<0.5	<0.5	<0.5
MW-5	11-10-92	<50	<0.5	<0.5	<0.5	<0.5
MW-5	02-10-93	<50	<0.5	<0.5	<0.5	<0.5
MW-5	05-10-93	<50	<0.5	<0.5	<0.5	<0.5
MW-5	08-30-93	<50	<0.5	<0.5	<0.5	<0.5
MW-5	11-11-93	<50	<0.5	<0.5	<0.5	<0.5
MW-5	02-11-94	<50	<0.5	<0.5	<0.5	<0.5
MW-5	05-17-94	<50	<0.5	<0.5	<0.5	<0.5
MW-5	08-25-94	<50	<0.5	<0.5	<0.5	<0.5
MW-5	11-18-94	<50	<0.5	<0.5	<0.5	<1
MW-5	02-15-95	<50	<0.5	<0.5	<0.5	<0.5

Table 3
Historical Groundwater Analytical Data
Summary Report

ARCO Service Station 6041
7249 Village Parkway, Dublin, California

Date: 05-11-95
Project Number: 0805-132.02

Well Desig-nation	Water Sample Field Date	TPHG µg/L	Benzene µg/L	Toluene µg/L	Ethyl-benzene µg/L	Total Xylenes µg/L
MW-6	11-10-92	<50	<0.5	<0.5	<0.5	<0.5
MW-6	02-10-93	<50	<0.5	<0.5	<0.5	<0.5
MW-6	05-10-93	<50	<0.5	<0.5	<0.5	<0.5
MW-6	08-30-93	<50	<0.5	<0.5	<0.5	<0.5
MW-6	11-11-93	<50	<0.5	<0.5	<0.5	<0.5
MW-6	02-11-94	<50	<0.5	<0.5	<0.5	<0.5
MW-6	05-17-94	<50	<0.5	<0.5	<0.5	<0.5
MW-6	08-25-94	<50	<0.5	<0.5	<0.5	<0.5
MW-6	11-18-94	<50	<0.5	<0.5	<0.5	<1
MW-6	02-15-95	<50	<0.5	<0.5	<0.5	<0.5

TPHG = Total petroleum hydrocarbons as gasoline
µg/L = Micrograms per liter

Table 4
Historical Groundwater Elevation Data
Summary Report

BP Station 1116, 7197 Village Parkway
Former Shell Station, 7194 Amador Valley Boulevard
UNOCAL Station, 7375 Amador Valley Boulevard

Date: 05-11-95
Project Number: 0805-132.02

Well Designation	Water Level Field Date	TOC Elevation ft-MSL	Depth to Water feet	Ground-Water Elevation ft-MSL	Comments
BP Station 1116					
MW-1	11-10-92	335.17	10.67	324.50	
MW-1	02-10-93	335.17	5.25	329.92	
MW-1	05-21-93	335.17	5.73	329.44	
MW-1	08-12-93	335.17	8.99	326.18	
MW-1	11-11-93	335.17	9.65	325.52	
MW-1	02-11-94	335.17	8.72	326.45	
MW-1	10-04-94	335.17	9.66	325.51	
MW-1	11-18-94	335.17	Not surveyed:		
MW-1	02-15-95	335.17	6.56	328.61	
MW-2	11-10-92	334.58	10.27	324.31	
MW-2	02-10-93	334.58	6.46	328.12	
MW-2	05-21-93	334.58	6.96	327.62	
MW-2	08-12-93	334.58	8.58	326.00	
MW-2	11-11-93	334.58	9.28	325.30	
MW-2	02-11-94	334.58	8.10	326.48	
MW-2	10-04-94	334.58	9.27	325.31	
MW-2	11-18-94	334.58	Not surveyed:		
MW-2	02-15-95	334.58	5.97	328.61	
MW-3	11-10-92	335.13	10.78	324.35	
MW-3	02-10-93	335.13	7.16	327.97	
MW-3	05-21-93	335.13	7.69	327.44	
MW-3	08-12-93	335.13	9.11	326.02	
MW-3	11-11-93	335.13	9.78	325.35	
MW-3	02-11-94	335.13	8.60	326.53	
MW-3	10-04-94	335.13	9.81	325.32	
MW-3	11-18-94	335.13	Not surveyed:		
MW-3	02-15-95	335.13	6.61	328.52	

Table 4
Historical Groundwater Elevation Data
Summary Report

BP Station 1116, 7197 Village Parkway
Former Shell Station, 7194 Amador Valley Boulevard
UNOCAL Station, 7375 Amador Valley Boulevard

Date: 05-11-95
Project Number: 0805-132.02

Well Designation	Water Level Field Date	TOC Elevation ft-MSL	Depth to Water feet	Ground-Water Elevation ft-MSL	Comments
AW-4	11-10-92	333.41	9.10	324.31	
AW-4	02-10-93	333.41	Not surveyed: well was inaccessible		
AW-4	05-21-93	333.41	Not surveyed: well was inaccessible		
AW-4	08-12-93	333.41	Not surveyed: well was inaccessible		
AW-4	11-11-93	333.41	8.00	325.41	
AW-4	02-11-94	333.41	6.84	326.57	
AW-4	10-04-94	333.41	8.04	325.37	
AW-4	11-18-94	333.41	6.80	326.61	
AW-4	02-15-95	333.41	4.91	328.50	
AW-5	11-10-92	334.81	10.27	324.54	
AW-5	02-10-93	334.81	7.29	327.52	
AW-5	05-21-93	334.81	7.77	327.04	
AW-5	08-12-93	334.81	8.87	325.94	
AW-5	11-11-93	334.81	9.13	325.68	
AW-5	02-11-94	334.81	8.20	326.61	
AW-5	10-04-94	334.81	8.70	326.11	
AW-5	11-18-94	334.81	8.20	326.61	
AW-5	02-15-95	334.81	6.65	328.16	
AW-6	11-10-92	334.90	10.10	324.80	
AW-6	02-10-93	334.90	7.13	327.77	
AW-6	05-21-93	334.90	7.64	327.26	
AW-6	08-12-93	334.90	8.64	326.26	
AW-6	11-11-93	334.90	8.67	326.23	
AW-6	02-11-94	334.90	8.04	326.86	
AW-6	10-04-94	334.90	9.33	325.57	
AW-6	11-18-94	334.90	7.17	327.73	
AW-6	02-15-95	334.90	6.19	328.71	

Table 4
Historical Groundwater Elevation Data
Summary Report

BP Station 1116, 7197 Village Parkway
Former Shell Station, 7194 Amador Valley Boulevard
UNOCAL Station, 7375 Amador Valley Boulevard

Date: 05-11-95
Project Number: 0805-132.02

Well Desig-nation	Water Level Field Date	TOC Elevation ft-MSL	Depth to Water feet	Ground-Water Elevation ft-MSL	Comments
Former Shell Station					
MW-1	11-10-92	334.83	10.04	324.79	
MW-1	02-10-93	334.83	7.24	327.59	
MW-1	05-10-93	334.83	7.78	327.05	
MW-1	08-12-93	334.83	8.54	326.29	
MW-1	11-11-93	334.83	8.56	326.27	
MW-1	02-11-94	334.83	8.62	326.21	
MW-1	08-25-94	334.83	9.24	325.59	
MW-1	11-23-94	334.83	8.74	326.09	
MW-1	02-15-95	334.83	6.84	327.99	
MW-2	11-10-92	336.96	12.05	324.91	
MW-2	02-10-93	336.96	9.28	327.68	
MW-2	05-10-93	336.96	9.65	327.31	
MW-2	08-12-93	336.96	10.70	326.26	
MW-2	11-11-93	336.96	11.36	325.60	
MW-2	02-11-94	336.96	11.04	325.92	
MW-2	08-25-94	336.96	11.29	325.67	
MW-2	11-23-94	336.96	10.92	326.04	
MW-2	02-15-95	336.96	8.90	328.06	
MW-3	11-10-92	336.93	11.84	325.09	
MW-3	02-10-93	336.93	8.82	328.11	
MW-3	05-10-93	336.93	10.88	326.05	
MW-3	08-12-93	336.93	10.36	326.57	
MW-3	11-11-93	336.93	10.64	326.29	
MW-3	02-11-94	336.93	10.68	326.25	
MW-3	08-25-94	336.93	11.30	325.63	
MW-3	11-23-94	336.93	10.48	326.45	
MW-3	02-15-95	336.93	8.35	328.58	

Table 4
Historical Groundwater Elevation Data
Summary Report

BP Station 1116, 7197 Village Parkway
Former Shell Station, 7194 Amador Valley Boulevard
UNOCAL Station, 7375 Amador Valley Boulevard

Date: 05-11-95
Project Number: 0805-132.02

Well Designation	Water Level Field Date	TOC Elevation ft-MSL	Depth to Water feet	Ground-Water Elevation ft-MSL	Comments
MW-4	11-10-92	337.14	12.12	325.02	
MW-4	02-10-93	337.14	9.40	327.74	
MW-4	05-10-93	337.14	9.54	327.60	
MW-4	08-12-93	337.14	10.68	326.46	
MW-4	11-11-93	337.14	11.97	325.17	
MW-4	02-11-94	337.14	10.71	326.43	
MW-4	08-25-94	337.14	10.84	326.30	
MW-4	11-23-94	337.14	10.78	326.36	
MW-4	02-15-95	337.14	9.49	327.65	
MW-5	11-10-92	334.96	9.65	325.31	
MW-5	02-10-93	334.96	7.97	326.99	
MW-5	05-10-93	334.96	Not surveyed:		
MW-5	08-12-93	334.96	8.75	326.21	
MW-5	11-11-93	334.96	9.32	325.64	
MW-5	02-11-94	334.96	8.97	325.99	
MW-5	08-25-94	334.96	9.19	325.77	
MW-5	11-23-94	334.96	8.78	326.18	
MW-5	02-15-95	334.96	6.88	328.08	
MW-6	11-10-92	335.42	10.56	324.86	
MW-6	02-10-93	335.42	7.65	327.77	
MW-6	05-10-93	335.42	8.10	327.32	
MW-6	08-12-93	335.42	9.18	326.24	
MW-6	11-11-93	335.42	9.38	326.04	
MW-6	02-11-94	335.42	9.02	326.40	
MW-6	08-25-94	335.42	9.79	325.63	
MW-6	11-23-94	335.42	9.20	326.22	
MW-6	02-15-95	335.42	7.36	328.06	

Table 4
Historical Groundwater Elevation Data
Summary Report

BP Station 1116, 7197 Village Parkway
Former Shell Station, 7194 Amador Valley Boulevard
UNOCAL Station, 7375 Amador Valley Boulevard

Date: 05-11-95
Project Number: 0805-132.02

Well Designation	Water Level Field Date	TOC Elevation ft-MSL	Depth to Water feet	Ground-Water Elevation ft-MSL	Comments
MW-7	11-10-92	333.23	8.82	324.41	
MW-7	02-10-93	333.23	6.06	327.17	
MW-7	05-10-93	333.23	6.68	326.55	
MW-7	08-12-93	333.23	6.83	326.40	
MW-7	11-11-93	333.23	6.90	326.33	
MW-7	02-11-94	333.23	6.12	327.11	
MW-7	08-25-94	333.23	6.76	326.47	
MW-7	11-23-94	333.23	6.75	326.48	
MW-7	02-15-95	333.23	5.40	327.83	
MW-8	11-10-92	335.80	10.41	325.39	
MW-8	02-10-93	335.80	7.35	328.45	
MW-8	05-10-93	335.80	8.00	327.80	
MW-8	08-12-93	335.80	9.00	326.80	
MW-8	11-11-93	335.80	9.47	326.33	
MW-8	02-11-94	335.80	8.80	327.00	
MW-8	08-25-94	335.80	9.52	326.28	
MW-8	11-23-94	335.80	9.08	326.72	
MW-8	02-15-95	335.80	6.67	329.13	
MW-9	11-10-92	334.57	9.61	324.96	
MW-9	02-10-93	334.57	7.20	327.37	
MW-9	05-10-93	334.57	7.56	327.01	
MW-9	08-12-93	334.57	8.25	326.32	
MW-9	11-11-93	334.57	10.30	324.27	
MW-9	02-11-94	334.57	8.88	325.69	
MW-9	08-25-94	334.57	8.79	325.78	
MW-9	11-23-94	334.57	8.65	325.92	
MW-9	02-15-95	334.57	7.36	327.21	

Table 4
Historical Groundwater Elevation Data
Summary Report

BP Station 1116, 7197 Village Parkway
Former Shell Station, 7194 Amador Valley Boulevard
UNOCAL Station, 7375 Amador Valley Boulevard

Date: 05-11-95
Project Number: 0805-132.02

Well Designation	Water Level Field Date	TOC Elevation ft-MSL	Depth to Water feet	Ground-Water Elevation ft-MSL	Comments
MW-11	11-10-92	334.20	9.47	324.73	
MW-11	02-10-93	334.20	6.79	327.41	
MW-11	05-10-93	334.20	7.18	327.02	
MW-11	08-12-93	334.20	8.10	326.10	
MW-11	11-11-93	334.20	8.56	325.64	
MW-11	02-11-94	334.20	8.21	325.99	
MW-11	08-25-94	334.20	8.68	325.52	
MW-11	11-23-94	334.20	8.27	325.93	
MW-11	02-15-95	334.20	6.46	327.74	
MW-12	11-10-92	332.53	8.32	324.21	
MW-12	02-10-93	332.53	6.75	325.78	
MW-12	05-10-93	332.53	Not surveyed:		
MW-12	08-12-93	332.53	6.23	326.30	
MW-12	11-11-93	332.53	7.43	325.10	
MW-12	02-11-94	332.53	7.18	325.35	
MW-12	08-25-94	332.53	7.24	325.29	
MW-12	11-23-94	332.53	7.16	325.37	
MW-12	02-15-95	332.53	5.16	327.37	
MW-13	11-10-92	335.64	10.69	324.95	
MW-13	02-10-93	335.64	7.49	328.15	
MW-13	05-10-93	335.64	8.06	327.58	
MW-13	08-12-93	335.64	8.73	326.91	
MW-13	11-11-93	335.64	9.15	326.49	
MW-13	02-11-94	335.64	9.12	326.52	
MW-13	08-25-94	335.64	9.32	326.32	
MW-13	11-23-94	335.64	9.37	326.27	
MW-13	02-15-95	335.64	8.42	327.22	
RW-1	08-25-94	336.19	10.56	325.63	
RW-1	11-23-94	336.19	10.07	326.12	
RW-1	02-15-95	336.19	8.20	327.99	

Table 4
Historical Groundwater Elevation Data
Summary Report

BP Station 1116, 7197 Village Parkway
Former Shell Station, 7194 Amador Valley Boulevard
UNOCAL Station, 7375 Amador Valley Boulevard

Date: 05-11-95
Project Number: 0805-132.02

Well Designation	Water Level Field Date	TOC Elevation ft-MSL	Depth to Water feet	Ground-Water Elevation ft-MSL	Comments
UNOCAL Station					
MW-1	11-10-92	336.72	11.97	324.75	
MW-1	02-10-93	336.72	8.63	328.09	
MW-1	05-10-93	336.72	9.57	327.15	
MW-1	08-12-93	336.08	9.91	326.17	
MW-1	11-11-93	336.07	10.17	325.90	
MW-1	02-11-94	336.07	9.72	326.35	
MW-1	05-17-94	336.07	9.26	326.81	
MW-1	08-25-94	336.07	10.58	325.49	
MW-1	11-18-94	336.07	9.69	326.38	
MW-1	02-17-95	336.07	7.80	328.27	
MW-2	11-10-92	337.36	12.15	325.21	
MW-2	02-10-93	337.36	8.81	328.55	
MW-2	05-10-93	337.36	9.75	327.61	
MW-2	08-12-93	336.78	10.11	326.67	
MW-2	11-11-93	336.78	10.51	326.27	
MW-2	02-11-94	336.78	9.85	326.93	
MW-2	05-17-94	336.78	9.31	327.47	
MW-2	08-25-94	336.78	10.75	326.03	
MW-2	11-18-94	336.78	9.95	326.83	
MW-2	02-17-95	336.78	7.58	329.20	
MW-3	11-10-92	337.53	12.33	325.20	
MW-3	02-10-93	337.53	8.95	328.58	
MW-3	05-10-93	337.53	9.91	327.62	
MW-3	08-12-93	336.98	10.34	326.64	
MW-3	11-11-93	336.98	10.64	326.34	
MW-3	02-11-94	336.98	10.01	326.97	
MW-3	05-17-94	336.98	9.49	327.49	
MW-3	08-25-94	336.98	10.93	326.05	
MW-3	11-18-94	336.98	10.15	326.83	
MW-3	02-17-95	336.98	7.62	329.36	

Table 4
Historical Groundwater Elevation Data
Summary Report

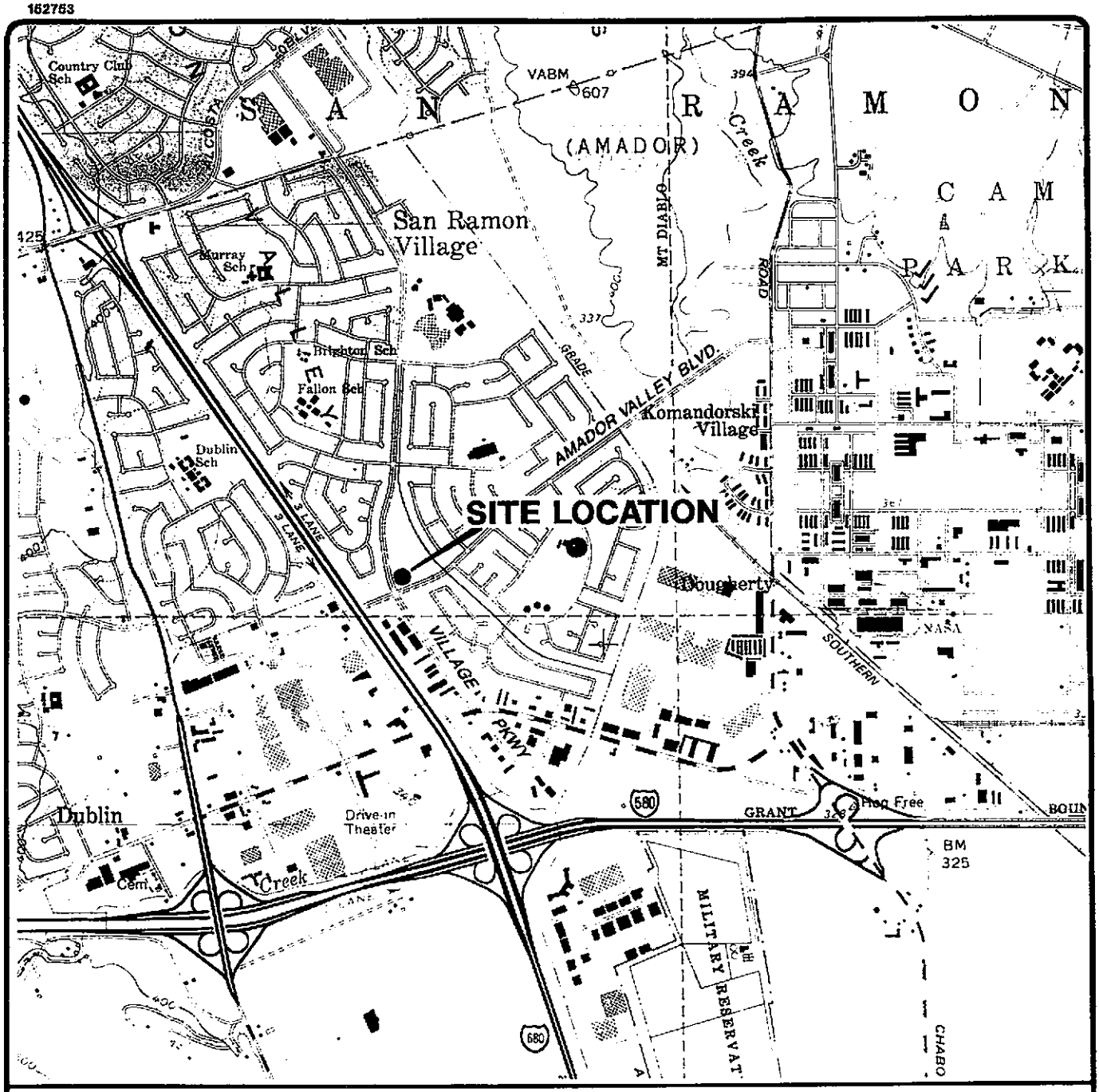
BP Station 1116, 7197 Village Parkway
Former Shell Station, 7194 Amador Valley Boulevard
UNOCAL Station, 7375 Amador Valley Boulevard

Date: 05-11-95
Project Number: 0805-132.02

Well Desig-nation	Water Level Field Date	TOC Elevation ft-MSL	Depth to Water feet	Ground-Water Elevation ft-MSL	Comments
MW-4	11-10-92	337.00	12.32	324.68	
MW-4	02-10-93	337.00	8.94	328.06	
MW-4	05-10-93	337.00	9.90	327.10	
MW-4	08-12-93	336.42	10.32	326.10	
MW-4	11-11-93	336.43	10.48	325.95	
MW-4	02-11-94	336.43	10.10	326.33	
MW-4	05-17-94	336.43	9.63	326.80	
MW-4	08-25-94	336.43	10.94	325.49	
MW-4	11-18-94	336.43	10.10	326.33	
MW-4	02-17-95	336.43	8.12	328.31	
MW-5	02-11-94	335.96	10.08	325.88	
MW-5	05-17-94	335.96	9.24	326.72	
MW-5	08-25-94	335.96	10.43	325.53	
MW-5	11-18-94	335.96	10.09	325.87	
MW-5	02-17-95	335.96	7.76	328.20	

TOC = Top of casing
ft-MSL = Elevation in feet, relative to mean sea level

162753



Base map from USGS 7.5' Quad. Map:
Dublin, California. (Photorevised 1980).

N

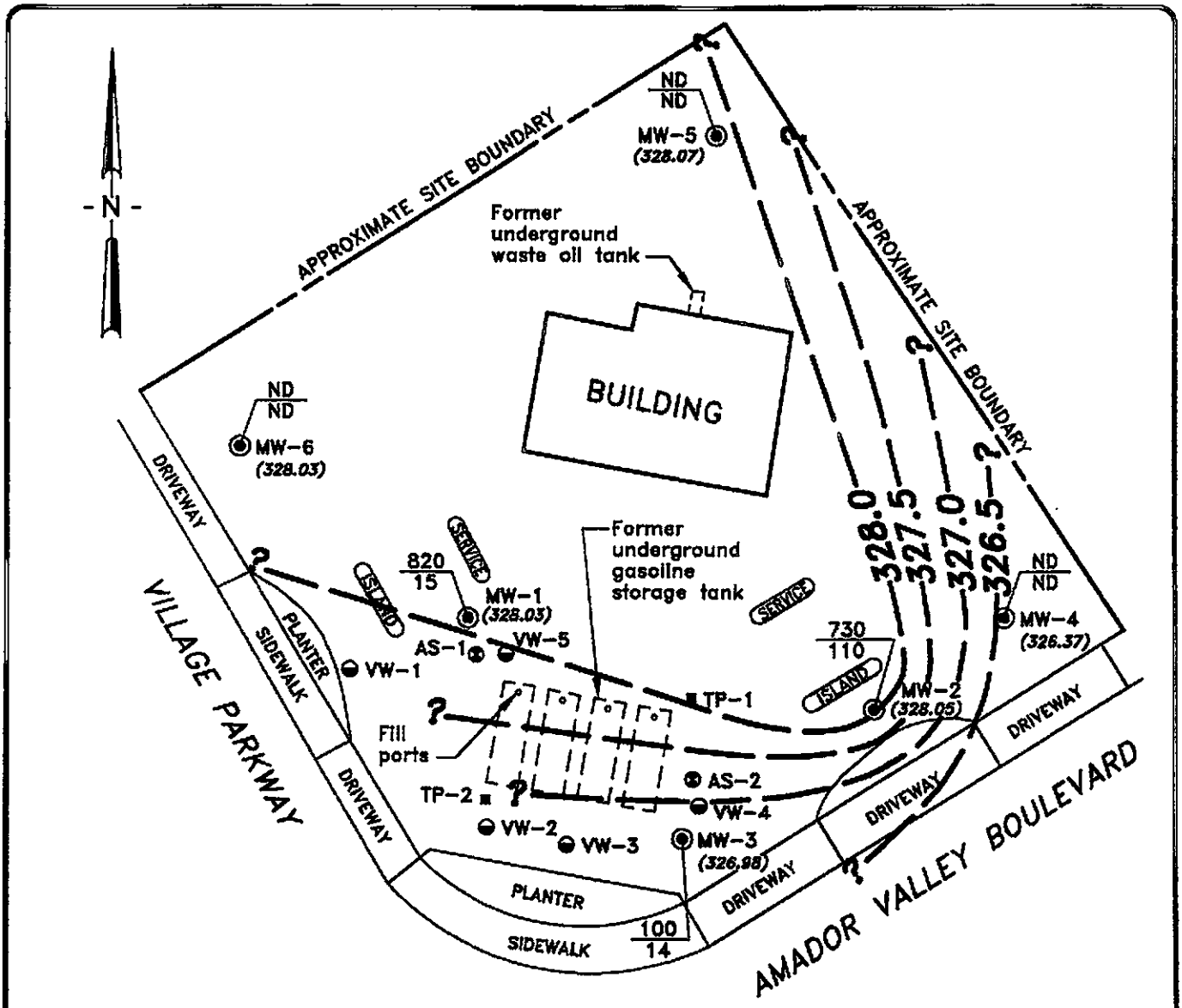
Scale : 0 2000 4000 Feet

EMCON

ARCO PRODUCTS COMPANY
SERVICE STATION 6041, 7249 VILLAGE PARKWAY
QUARTERLY GROUNDWATER MONITORING
DUBLIN, CALIFORNIA

SITE LOCATION

FIGURE
1
PROJECT NO.
805-132.02



EXPLANATION

- Groundwater monitoring well
- Tank pit observation well
- Vapor extraction well
- Air sparge well

(328.03) Groundwater elevation (Ft.–MSL) measured 2/15/95

Groundwater elevation contour (Ft.–MSL)

820 / 15 — TPH, as gasoline concentration (µg/L); sampled 2/15/95; Benzene concentration (µg/L); sampled 2/15/95

SCALE: 0 40 80 FEET
(Approximate)

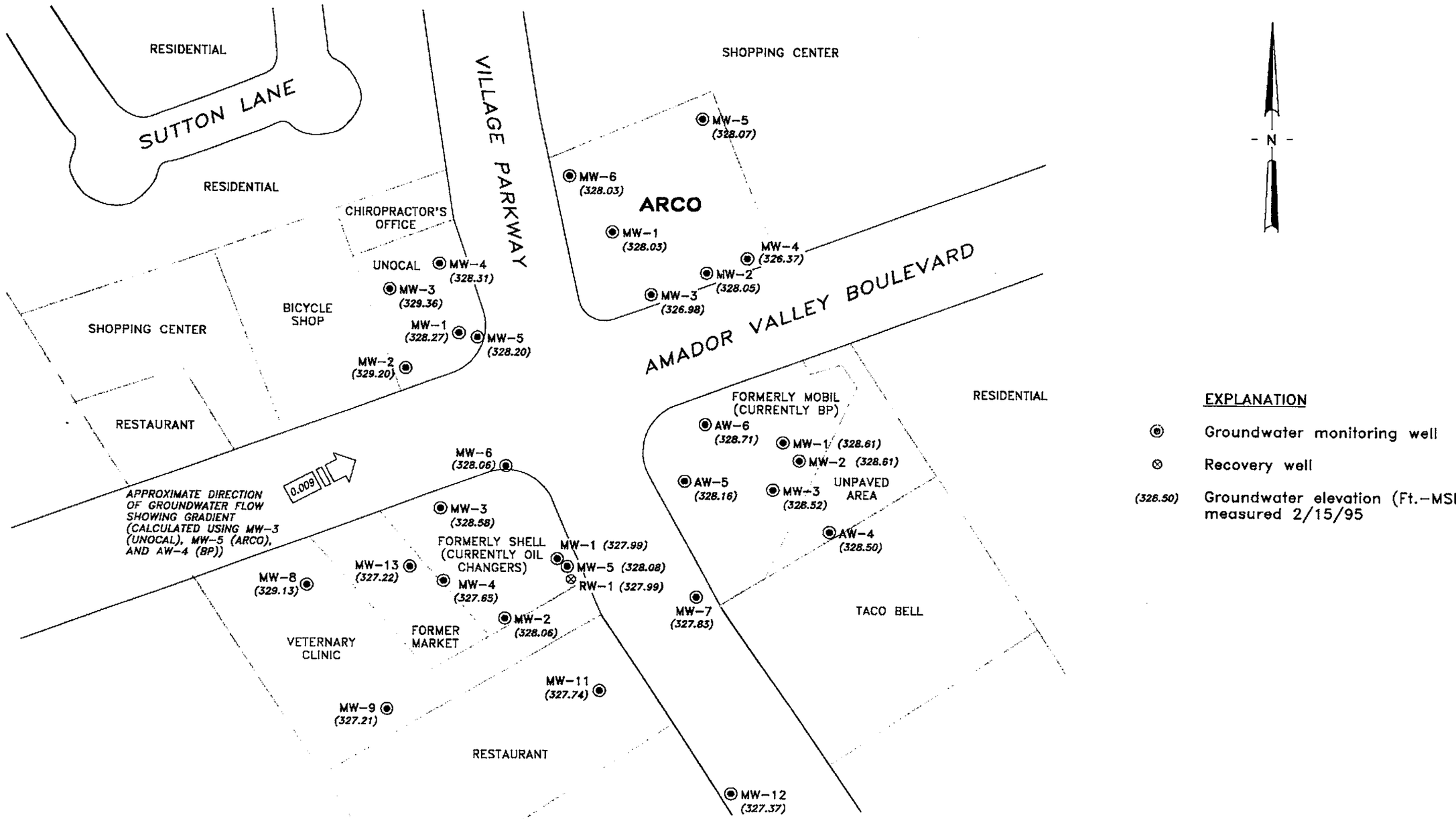
EMCON

ARCO PRODUCTS COMPANY
SERVICE STATION 6041, 7249 VILLAGE PARKWAY
QUARTERLY GROUNDWATER MONITORING
DUBLIN, CALIFORNIA

GROUNDWATER DATA
FIRST QUARTER 1995

FIGURE
2
PROJECT NO.
805-132.02

G:\805-132\G01 REV 0 06/06/95 10:46:48 KAJ DJ



EMCON

SCALE: 0 40 80 FEET

ARCO PRODUCTS COMPANY
SERVICE STATION 6041, 7249 VILLAGE PARKWAY
QUARTERLY GROUNDWATER MONITORING
DUBLIN, CALIFORNIA

GROUNDWATER DATA
FIRST QUARTER 1995

FIGURE
3
PROJECT NO.
805-132.02

APPENDIX A

FIELD DATA SHEETS, FIRST QUARTER 1995 GROUNDWATER MONITORING EVENT

FIELD REPORT
DEPTH TO WATER / FLOATING PRODUCT SURVEY

PROJECT # : 1775-244.01 STATION ADDRESS : 7249 Village Parkway, Dublin DATE : 2-15-55

ARCO STATION # : 6041 FIELD TECHNICIAN : M. Gallegos DAY : wednesday

DTW Order	WELL ID	Well Box Seal	Well Lid Secure	Gasket	Lock	Locking Well Cap	FIRST DEPTH TO WATER (feet)	SECOND DEPTH TO WATER (feet)	DEPTH TO FLOATING PRODUCT (feet)	FLOATING PRODUCT THICKNESS (feet)	WELL TOTAL DEPTH (feet)	COMMENTS
1	MW-4		15/16	good	present	good	7.85	7.85	N/D	N/A	14.5	
2	MW-5		15/16	↓	↓	↓	7.80	7.80	↓	↓	17.5	
3	MW-6		15/16	↓	↓	↓	7.81	7.81	↓	↓	15.8	well seal cracked, water in box
4	MW-2		15/16	↓	↓	↓	~~6.75~~	6.75	↓	↓	~~14.1~~	14.1
5	MW-3		15/16	↓	↓	↓	8.55	8.55	↓	↓	14.1	
6	MW-1		15/16	↓	↓	↓	8.53	8.53	↓	↓	17.6	

SURVEY POINTS ARE TOP OF WELL CASINGS

Rev. 3, 2/94

WATER SAMPLE FIELD DATA SHEET

EMCON ASSOCIATES

PROJECT NO: 1775-244.01 SAMPLE ID: MW-1

PURGED BY: M. GALLEGOS CLIENT NAME: ARCO # 6041

SAMPLED BY: ↓ LOCATION: Dublin, CA

TYPE: Ground Water X Surface Water ___ Treatment Effluent ___ Other ___

CASING DIAMETER (inches): 2 ___ 3 ___ 4 X 4.5 ___ 6 ___ Other ___

CASING ELEVATION (feet/MSL):	NR	VOLUME IN CASING (gal.):	5.92
DEPTH TO WATER (feet):	8.53	CALCULATED PURGE (gal.):	17.72
DEPTH OF WELL (feet):	17.6	ACTUAL PURGE VOL. (gal.):	12.5

DATE PURGED: 2-15-95 Start (2400 Hr) 1408 End (2400 Hr) 1414

DATE SAMPLED: ↓ Start (2400 Hr) 1425 End (2400 Hr) —

TIME (2400 Hr)	VOLUME (gal.)	pH (units)	E.C. (µmnos/cm @ 25° C)	TEMPERATURE (°F)	COLOR (visual)	TURBIDITY (visual)
1410	6.0	6.70	2700	68.3	Cloudy	Moderate
1413	12.0	6.71	3080	70.1	BRN	Heavy
	well	dried	at 12.5	gallons		
1427	recharge	6.80	299	72.0	Cloudy	Heavy

D. O. (ppm): NR ODOR: Strong

COLOR (COBALT 0 - 500): NR

TURBIDITY (NTU 0 - 200 or 0 - 1000): NR

Field QC samples collected at this well: FB1

Parameters field filtered at this well: NR

PURGING EQUIPMENT

- ___ 2" Bladder Pump
- ___ Centrifugal Pump
- ___ Submersible Pump
- ___ Well Wizard™
- ___ Bailer (Teflon®)
- X Bailer (PVC)
- ___ Bailer (Stainless Steel)
- ___ Dedicated
- Other: ___

SAMPLING EQUIPMENT

- ___ 2" Bladder Pump
- ___ DDL Sampler
- ___ Dipper
- ___ Well Wizard™
- X Bailer (Teflon®)
- ___ Bailer (Stainless Steel)
- ___ Submersible Pump
- ___ Dedicated
- Other: ___

WELL INTEGRITY: Good LOCK #: Balch

REMARKS: All Samples taken

well dried at 12.5 gallons.

Meter Calibration: Date: 2-15-95 Time: ___ Meter Serial #: 9011 Temperature °F: ___

(EC 1000 ___ / ___) (DI ___) (pH 7 ___ / ___) (pH 10 ___ / ___) (pH 4 ___ / ___)

Location of previous calibration: MW-4

Signature: [signature] Reviewed By: JB Page 1 of 6

Rev. 3, 2/94

WATER SAMPLE FIELD DATA SHEET

EMCON ASSOCIATES

PROJECT NO: 1775-244.01 SAMPLE ID: MW-2

PURGED BY: M. Gallegos CLIENT NAME: ARCO #6041

SAMPLED BY: ↓ LOCATION: Dublin, CA

TYPE: Ground Water X Surface Water ___ Treatment Effluent ___ Other ___

CASING DIAMETER (inches): 2 ___ 3 ___ 4 X 4.5 ___ 6 ___ Other ___

CASING ELEVATION (feet/MSL): NR VOLUME IN CASING (gal.): 4.80

DEPTH TO WATER (feet): 6.75 CALCULATED PURGE (gal.): 14.40

DEPTH OF WELL (feet): 14.1 ACTUAL PURGE VOL. (gal.): 14.5

DATE PURGED: 2-15-95 Start (2400 Hr) 1315 End (2400 Hr) 1322

DATE SAMPLED: ↓ Start (2400 Hr) 1328 End (2400 Hr) ___

TIME (2400 Hr)	VOLUME (gal.)	pH (units)	E.C. (µmnos/cm @ 25° C)	TEMPERATURE (°F)	COLOR (visual)	TURBIDITY (visual)
1317	5.0	6.73	2310	64.5	Sl Y/BLK	heavy
1320	10.0	6.74	3310	65.4	cloudy	"
1322	14.5	6.72	3360	65.4	"	"

D. O. (ppm): NR ODOR: Strong

COLOR: NR (COBALT 0 - 500)

TURBIDITY: NR (NTU 0 - 200 or 0 - 1000)

Field QC samples collected at this well: NR

Parameters field filtered at this well: NR

PURGING EQUIPMENT

- ___ 2" Bladder Pump
- ___ Centrifugal Pump
- ___ Submersible Pump
- ___ Well Wizard™
- ___ Bailer (Teflon®)
- X Bailer (PVC)
- ___ Bailer (Stainless Steel)
- ___ Dedicated

Other: ___

SAMPLING EQUIPMENT

- ___ 2" Bladder Pump
- ___ DDL Sampler
- ___ Dipper
- ___ Well Wizard™
- X Bailer (Teflon®)
- ___ Bailer (Stainless Steel)
- ___ Submersible Pump
- ___ Dedicated

Other: ___

WELL INTEGRITY: Good LOCK #: Balch

REMARKS: All Samples taken

Meter Calibration: Date: 2-15-95 Time: ___ Meter Serial #: 9011 Temperature °F: ___

(EC 1000 ___ / ___) (DI ___) (pH 7 ___ / ___) (pH 10 ___ / ___) (pH 4 ___ / ___)

Location of previous calibration: MW-4

Signature: [signature] Reviewed By: JB

Rev. 3, 2/94

WATER SAMPLE FIELD DATA SHEET

EMCON ASSOCIATES

PROJECT NO: 1775-244.01 SAMPLE ID: MW-3

PURGED BY: M. Gallegos CLIENT NAME: ARCO #6041

SAMPLED BY: J. LOCATION: Dublin, CA.

TYPE: Ground Water X Surface Water ___ Treatment Effluent ___ Other ___

CASING DIAMETER (inches): 2 ___ 3 ___ 4 X 4.5 ___ 6 ___ Other ___

CASING ELEVATION (feet/MSL):	N/R	VOLUME IN CASING (gal.):	3.62
DEPTH TO WATER (feet):	8.55	CALCULATED PURGE (gal.):	10.87
DEPTH OF WELL (feet):	14.1	ACTUAL PURGE VOL. (gal.):	7.5

DATE PURGED: 2-15-95 Start (2400 Hr) 1347 End (2400 Hr) 1352

DATE SAMPLED: J Start (2400 Hr) 1400 End (2400 Hr) ___

TIME (2400 Hr)	VOLUME (gal.)	pH (units)	E.C. (µmhos/cm @ 25° C)	TEMPERATURE (°F)	COLOR (visual)	TURBIDITY (visual)
1349	3.5	6.80	2670	66.3	cloudy	moderate
1351	7.0	6.76	2630	66.3	"	"
	Recharge	well dried at 7.5 gallons.				
1402	recharge	6.75	2690	68.5	"	"

D. O. (ppm): N R ODOR: Strong

N/R (COBALT 0 - 500) N/R (NTU 0 - 200 or 0 - 1000)

Field QC samples collected at this well: N/R

Parameters field filtered at this well: N/R

PURGING EQUIPMENT		SAMPLING EQUIPMENT	
___ 2" Bladder Pump	___ Bailer (Teflon®)	___ 2" Bladder Pump	X Bailer (Teflon®)
___ Centrifugal Pump	X Bailer (PVC)	___ DDL Sampler	___ Bailer (Stainless Steel)
___ Submersible Pump	___ Bailer (Stainless Steel)	___ Dipper	___ Submersible Pump
___ Well Wizard™	___ Dedicated	___ Well Wizard™	___ Dedicated
Other: ___		Other: ___	

WELL INTEGRITY: Good LOCK #: Balch

REMARKS: well dried at 7.5 gallons

all Samples taken

Meter Calibration: Date: 2-15-95 Time: ___ Meter Serial #: 9011 Temperature °F: ___

(EC 1000 ___ / ___) (DI ___) (pH 7 ___ / ___) (pH 10 ___ / ___) (pH 4 ___ / ___)

Location of previous calibration: MW-4

Signature: M. L. Gallegos Reviewed By: JB Page 3 of 6

Rev. 3, 2/94

WATER SAMPLE FIELD DATA SHEET

EMCON ASSOCIATES

PROJECT NO: 1775-244.01 SAMPLE ID: MW-4

PURGED BY: M. GALLEGOS CLIENT NAME: ARCO # 6041

SAMPLED BY: ↓ LOCATION: Dublin, CA.

TYPE: Ground Water X Surface Water ___ Treatment Effluent ___ Other ___

CASING DIAMETER (inches): 2 ___ 3 ___ 4 X 4.5 ___ 6 ___ Other ___

CASING ELEVATION (feet/MSL):	NR	VOLUME IN CASING (gal.):	4.34
DEPTH TO WATER (feet):	7.85	CALCULATED PURGE (gal.):	13.03
DEPTH OF WELL (feet):	14.5	ACTUAL PURGE VOL. (gal.):	13.5

DATE PURGED: 2-15-95 Start (2400 Hr) 1156 End (2400 Hr) 1204

DATE SAMPLED: 2-15-95 Start (2400 Hr) 1208 End (2400 Hr) ___

TIME (2400 Hr)	VOLUME (gal.)	pH (units)	E.C. (µmhos/cm @ 25° C)	TEMPERATURE (°F)	COLOR (visual)	TURBIDITY (visual)
1159	4.5	6.79	5960	66.0	Cloudy	heavy
1201	9.0	6.85	6050	66.3	"	"
1204	13.5	6.88	6030	66.2	"	"

D. O. (ppm): NR ODOR: Slight

COLOR (COBALT 0 - 500): NR

TURBIDITY (NTU 0 - 200 or 0 - 1000): NR

Field QC samples collected at this well: NR

Parameters field filtered at this well: NR

PURGING EQUIPMENT		SAMPLING EQUIPMENT	
___ 2" Bladder Pump	___ Bailer (Teflon®)	___ 2" Bladder Pump	X Bailer (Teflon®)
___ Centrifugal Pump	X Bailer (PVC)	___ DDL Sampler	___ Bailer (Stainless Steel)
___ Submersible Pump	___ Bailer (Stainless Steel)	___ Dipper	___ Submersible Pump
___ Well Wizard™	___ Dedicated	___ Well Wizard™	___ Dedicated
Other: ___		Other: ___	

WELL INTEGRITY: Good LOCK #: Balch

REMARKS: All Samples taken

Meter Calibration: Date: 2-15-95 Time: 1152 Meter Serial #: 9011 Temperature °F: 61.5

(EC 1000 988 / 1000) (DI ___) (pH 7 702 / 709) (pH 10 1000 / 1000) (pH 4 399 / ___)

Location of previous calibration: ___

Signature: [signature] Reviewed By: [signature] Page 4 of 6

Rev. 3, 2/94

WATER SAMPLE FIELD DATA SHEET

EMCON ASSOCIATES

PROJECT NO: 1775-244.01 SAMPLE ID: MW-5

PURGED BY: M. Gallegos CLIENT NAME: ARCO # 6041

SAMPLED BY: ↓ LOCATION: Dublin, CA

TYPE: Ground Water X Surface Water ___ Treatment Effluent ___ Other ___

CASING DIAMETER (inches): 2 ___ 3 ___ 4 X 4.5 ___ 6 ___ Other ___

CASING ELEVATION (feet/MSL):	N/A	VOLUME IN CASING (gal.):	6.33
DEPTH TO WATER (feet):	7.80	CALCULATED PURGE (gal.):	19.01
DEPTH OF WELL (feet):	17.5	ACTUAL PURGE VOL. (gal.):	19.5

DATE PURGED: 2-15-95 Start (2400 Hr) 1218 End (2400 Hr) 1226

DATE SAMPLED: 2-15-95 Start (2400 Hr) 1230 End (2400 Hr) ___

TIME (2400 Hr)	VOLUME (gal.)	pH (units)	E.C. (µmhos/cm @ 25° C)	TEMPERATURE (°F)	COLOR (visual)	TURBIDITY (visual)
1220	6.5	6.96	4420	65.1	cloudy	moderate
1223	13.0	7.06	4520	66.0	BRN	heavy
1226	19.5	7.04	4610	66.5	"	"

D. O. (ppm): N/R ODOR: None N/A (COBALT 0 - 500) N/R (NTU 0 - 200 or 0 - 1000)

Field QC samples collected at this well: MR

Parameters field filtered at this well: MR

PURGING EQUIPMENT		SAMPLING EQUIPMENT	
___ 2" Bladder Pump	___ Bailer (Teflon®)	___ 2" Bladder Pump	X Bailer (Teflon®)
___ Centrifugal Pump	X Bailer (PVC)	___ DDL Sampler	___ Bailer (Stainless Steel)
___ Submersible Pump	___ Bailer (Stainless Steel)	___ Dipper	___ Submersible Pump
___ Well Wizard™	___ Dedicated	___ Well Wizard™	___ Dedicated
Other: ___		Other: ___	

WELL INTEGRITY: Good LOCK #: Balch

REMARKS: All Samples taken

Meter Calibration: Date: 2/15/95 Time: ___ Meter Serial #: 9011 Temperature °F: ___

(EC 1000 ___ / ___) (DI ___) (pH 7 ___ / ___) (pH 10 ___ / ___) (pH 4 ___ / ___)

Location of previous calibration: MW-4

Signature: M. Gallegos Reviewed By: JB Page 5 of 6

Rev. 3, 2/94

WATER SAMPLE FIELD DATA SHEET

EMCON ASSOCIATES

PROJECT NO: 1775-244.01 SAMPLE ID: MW-6

PURGED BY: M. GALLEGOS CLIENT NAME: ARCO #6041

SAMPLED BY: ↓ LOCATION: Dublin, CA

TYPE: Ground Water X Surface Water ___ Treatment Effluent ___ Other ___

CASING DIAMETER (inches): 2 ___ 3 ___ 4 X 4.5 ___ 6 ___ Other ___

CASING ELEVATION (feet/MSL): NR VOLUME IN CASING (gal.): 5.22

DEPTH TO WATER (feet): 7.81 CALCULATED PURGE (gal.): 15.66

DEPTH OF WELL (feet): 15.8 ACTUAL PURGE VOL. (gal.): 16.0

DATE PURGED: 2-15-95 Start (2400 Hr) 1247 End (2400 Hr) 1254

DATE SAMPLED: ↓ Start (2400 Hr) 1300 End (2400 Hr) —

TIME (2400 Hr)	VOLUME (gal.)	pH (units)	E.C. (µmhos/cm @ 25° C)	TEMPERATURE (°F)	COLOR (visual)	TURBIDITY (visual)
1249	5.5	7.32	1662	64.3	Gry/Blk	Heavy
1251	11.0	7.27	1680	66.2	"	"
1254	16.0	7.32	1682	66.9	"	"

D. O. (ppm): NR ODOR: ~~None~~ Strong COLOR: NR (COBALT 0 - 500) TURBIDITY: NR (NTU 0 - 200 or 0 - 1000)

Field QC samples collected at this well: NR

Parameters field filtered at this well: NR

PURGING EQUIPMENT		SAMPLING EQUIPMENT	
___ 2" Bladder Pump	___ Bailer (Teflon®)	___ 2" Bladder Pump	X Bailer (Teflon®)
___ Centrifugal Pump	X Bailer (PVC)	___ DDL Sampler	___ Bailer (Stainless Steel)
___ Submersible Pump	___ Bailer (Stainless Steel)	___ Dipper	___ Submersible Pump
___ Well Wizard™	___ Dedicated	___ Well Wizard™	___ Dedicated
Other: ___		Other: ___	

WELL INTEGRITY: Good LOCK #: Batch

REMARKS: All Samples Taken

Meter Calibration: Date: 2/15/95 Time: ___ Meter Serial #: 9011 Temperature °F: ___

(EC 1000 ___ / ___) (DI ___) (pH 7 ___ / ___) (pH 10 ___ / ___) (pH 4 ___ / ___)

Location of previous calibration: MW-4

Signature: M. J. Gallegos Reviewed By: JB Page 6 of 6

Joint Monitoring

ALISTO ENGINEERING GROUP
GROUNDWATER MONITORING

Client: BP
Alisto Project No: 10-017-03-004
Service Station No: 11116

Date: 2-15-95
Field Personnel: M. Killeran
Site Address: 7197 Village Pkwy Dublin, CA

FIELD ACTIVITY:

___ Groundwater Monitoring
X Groundwater Sampling
___ Well Development

QUALITY CONTROL SAMPLES:

___ QC-1 Sample Duplicate (Well ID)
___ QC-2 Trip Blank
___ QC-3 Rinsate Blank

GW
ELEV

Well ID	Well Diam	Order Measured / Sampled	Total Depth	Depth to Water	Depth to Product	Product Thick-ness	Comments TOC	
MW1	2	335.17	25.80	6.56			335.17	328.61
MW2	2	334.58	25.45	5.97			334.58	328.61
MW3	2	335.13	25.90	6.61			335.13	328.52
AW4	4	333.41	34.15	4.91			333.41	328.50
AW5	4	334.81	32.90	6.65			334.81	328.16
AW6	4	334.90	16.50	6.19			334.90	328.71

Notes:

FORM: FS2/121592

Shell Data

To: Rob Davis
From: Rhonda (PACIFIC)
437 9524

WELL GAUGING DATA

Project # 950215-E1 Date 2-15-95 Client 204-2217-0105

Site 7914 Amador Valley Blvd. Dublin, CA.

Well I.D.	Well Size (in.)	Sheen/ Odor	Depth to Immiscible Liquid (feet)	Thickness of Immiscible Liquid (ft.)	Volume of Immiscibles Removed (ml)	Depth to Water (feet)	Depth to Well Bottom (feet)	Survey Point: TOB or TOC
MW-1	4"	GWG SW	327.99	334.83		6.84	25.19	TOC
MW 2	4"		328.00	336.96		8.90	24.54	
MW 3	4"		~~328.01~~			8.35	24.30	
MW 4	4"		327.65			9.49	24.80	
MW 5	4"		328.08			6.88	44.79	
MW 6	4"		328.06			7.36	22.90	
MW 7	4"		327.83			5.40	16.52	
MW 8	4"		329.13			6.67	16.15	
MW 9	4"		327.21			7.36	17.89	
MW 10	4"		327.74			6.46	16.41	
MW 12	4"		327.37			5.16	17.19	
MW 13	4"		327.22			6.42	17.09	
RW-1	6"		327.99			8.20	31.04	

Rob - let me know if you need add'l info.
Also, in the future, pls. fax your data to me, Patty @ Alisto & NuBar of MPDS. I have their Fax #'s if you need them.

Thx. R.

DUBLIN - 7375 AMADOR VALLEY BLVD.

1095

TABLE 1

SUMMARY OF MONITORING DATA
UNOCAL MONITORING WELLS

Well #	Ground Water Elevation (feet)	Depth to Water (feet)*	Total Well Depth (feet)*	Product Thickness (feet)	Sheen	Water Purged (gallons)
(Monitored and Sampled February 15, 1995)						
MW1	328.27	7.80	19.52	0	No	8
MW2	329.20	7.58	19.30	0	No	8
MW3	329.36	7.62	18.98	0	No	8
MW4	328.31	8.12	19.44	0	No	8
MW5	328.20	7.76	20.02	0	No	8.5
(Monitored and Sampled November 18, 1994)						
MW1	326.38	9.69	19.49	0	No	7
MW2*	326.83	9.95	19.26	0	--	0
MW3*	326.83	10.15	18.91	0	--	0
MW4*	326.33	10.10	19.44	0	--	0
MW5	325.87	10.09	19.99	0	No	7
(Monitored and Sampled August 25, 1994)						
MW1	325.49	10.58	19.49	0	No	6.5
MW2*	326.03	10.75	19.27	0	--	0
MW3*	326.05	10.93	18.94	0	--	0
MW4*	325.49	10.94	19.43	0	--	0
MW5	325.53	10.43	20.00	0	No	7
(Monitored and Sampled on May 17, 1994)						
MW1	326.81	9.26	19.50	0	No	8
MW2*	327.47	9.31	19.26	0	--	0
MW3*	327.49	9.49	18.94	0	--	0
MW4*	326.80	9.63	19.44	0	--	0
MW5	326.72	9.24	20.00	0	No	8

APPENDIX B

ANALYTICAL RESULTS AND CHAIN-OF-CUSTODY DOCUMENTATION, FIRST QUARTER 1995

Columbia
Analytical
Services inc.

March 2, 1995 Service Request No. S950178

John Young
EMCON Associates
1921 Ringwood Avenue
San Jose, CA 95131

Re: **ARCO Facility No. 6041 / EMCON Project No. 1775-244.01**

Dear Mr. Young:

Attached are the results of the water sample(s) submitted to our lab on February 15, 1995. For your reference, these analyses have been assigned our service request number S950178.

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.

Elaine R. Thomas for
Steven L. Green
Project Chemist

Annelise Jade Bazar
Annelise J. Bazar
Regional QA Coordinator

SLG/ajb

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COLUMBIA ANALYTICAL SERVICES, Inc.

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
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
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the U. S. EPA.
MDL	Method Detection Limit
MPN	Most Probable Number
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
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
tr	Trace level is the concentration of an analyte that is less than the PQL, but greater than or equal to the MDL

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COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	EMCON Associates	**Service Request:**	S950178
Project:	ARCO Facility No. 6041/EMCON Project No. 1775-244.01	**Date Collected:**	2/15/95
Sample Matrix:	Water	**Date Received:**	2/15/95
		Date Extracted:	NA
		Date Analyzed:	2/24, 27/95

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(17')	S950178-001	820	15	<1*	5.2	1.4
MW-2(14')	S950178-002	730	110	1.7	25	66
MW-3(14')	S950178-003	100	14	ND	6.3	ND
MW-4(14')	S950178-004	ND	ND	ND	ND	ND
MW-5(17')	S950178-005	ND	ND	ND	ND	ND
MW-6(15')	S950178-006	ND	ND	ND	ND	ND
FB-1	S950178-007	ND	ND	ND	ND	ND
Method Blank	S950224-WB1	ND	ND	ND	ND	ND
Method Blank	S950227-WB1	ND	ND	ND	ND	ND

* Raised MRL due to high analyte concentration requiring sample dilution.

Approved By: Elaine R. Thomas Date: 3/2/95

5ABTXGAS/061694

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COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	EMCON Associates	**Service Request:**	S950178
Project:	ARCO Facility No. 6041/EMCON Project No. 1775-244.01	**Date Collected:**	2/15/95
Sample Matrix:	Water	**Date Received:**	2/15/95
		Date Extracted:	NA
		Date Analyzed:	2/24, 27/95

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(17')	S950178-001	116
MW-2(14')	S950178-002	105
MW-3(14')	S950178-003	98
MW-4(14')	S950178-004	96
MW-5(17')	S950178-005	92
MW-6(15')	S950178-006	96
FB-1	S950178-007	95
MW-4(14')MS	S950178-004MS	96
MW-4(14')DMS	S950178-004DMS	98
Method Blank	S950224-WB1	98
Method Blank	S950227-WB1	105

CAS Acceptance Limits: 69-116

Approved By: Elaine R. Thomas Date: 3/2/95

SUR1/062994

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COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: EMCON Associates **Service Request:** S950178
Project: ARCO Facility No. 6041/EMCON Project No. 1775-244.01 **Date Analyzed:** 2/24/95

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	25.9	104	85-115
Toluene	25	24.8	99	85-115
Ethylbenzene	25	25.1	100	85-115
Xylenes, Total	75	73.4	98	85-115
Gasoline	250	247	99	90-110

Approved By: Elaine R Thomas Date: 3/2/95

ICV25AL/060194

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COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	EMCON Associates	**Service Request:**	S950178
Project:	ARCO Facility No. 6041/EMCON Project No. 1775-244.01	**Date Collected:**	2/15/95
Sample Matrix:	Water	**Date Received:**	2/15/95
		Date Extracted:	NA
		Date Analyzed:	2/24/95

Matrix Spike/Duplicate Matrix Spike Summary
BTE
EPA Methods 5030/8020
Units: ug/L (ppb)

Sample Name: MW-4(14')
Lab Code: S950178-004

	Spike Level		Sample	Spike Result		Percent Recovery		CAS Acceptance	Relative Percent
Analyte	MS	DMS	**Result**	MS	DMS	MS	DMS	Limits	**Difference**
Benzene	25	25	ND	25.8	26.3	103	105	75-135	2
Toluene	25	25	ND	24.9	25.4	100	102	73-136	2
Ethylbenzene	25	25	ND	25.2	25.6	101	102	69-142	2

Approved By: Elaine R Thomas Date: 3/2/95

DMS1S/060194

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ARCO Products Company
Division of AtlanticRichfieldCompany

Task Order No. 17075.00

Chain of Custody

ARCO Facility no. 6041	City (Facility) Dublin	Project manager (Consultant) John Young	Laboratory name CAS
ARCO engineer Kyle Christie	Telephone no. (ARCO)	Telephone no. (Consultant) 453-7300	Fax no. (Consultant) 453-0452
Consultant name EMCON	Address (Consultant) 1921 Ringwood Avenue San Jose		Contract number

Sample I.D.	Lab no.	Container no.	Matrix: Soil	Matrix: Water	Matrix: Other	Preservation: Ice	Preservation: Acid	Sampling date	Sampling time	BTEX 602/EPA 8020	BTEX/TPH EPA M602/8020/8015	TPH Modified 8015 Gas ☐ Diesel ☐	Oil and Grease 413.1 ☐ 413.2 ☐	TPH EPA 418.1/SM503E	EPA 601/8010	EPA 624/8240	EPA 625/8270	TCLP Semi Metals ☐ VOA ☐ VOA ☐	CAM Metals EPA 6010/7000 TTLC ☐ STLC ☐	Lead Org./DHS ☐ Lead EPA 7420/7421 ☐		
MW-1(17)	1	2		X		X	HCl	2/15/95	1425		X											
MW-2(14)	2	↓		↓		↓	↓	↓	1328		X											
MW-3(14)	3								1400		X											
MW-4(14)	4								1208		X											
MW-5(17)	5								1230		X											
MW-6(15)	6								1300		X											
FB-1	7	↓		↓		↓	↓	↓	—		X											

Method of shipment: Sampler will deliver

Special detection Limit/reporting: Lowest Possible

Special QA/QC: AS Normal

Remarks: 2-40 ml VOA's Per well

1775-244.01

Lab number: 9501178

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: [signature]	Date 2/15/95 Time 1540	Received by [signature]	
Relinquished by	Date Time	Received by	
Relinquished by	Date Time	Received by laboratory [signature]	Date 2-15-95 Time 1540

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

APPC-3292 (2-91)