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

Date December 22, 1995
Project 20805-132.002

To:

4 mo. to get QMR

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

We are enclosing:

Copies	Description
1	Third quarter 1995 groundwater monitoring results
	for ARCO service station 6041, Deblin, California

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

① Watch MW-3 for MTBE. could there be a recent release?

② VW2, VW-3 are screened 9.5' bgs.

ARCO Products Company

Date:

December 22, 1995

Re: ARCO Station #

6041 • 7249 Village Parkway • Dublin, CA
Third Quarter 1995 Groundwater Monitoring Results

" 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

Michael R. Whelan
Environmental Engineer

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

December 5, 1995
Project 20805-132.002

Mr. Michael Whelan
ARCO Products Company
P.O. Box 612530
San Jose, California 95161

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

Dear Mr. Whelan:

This letter presents the results of the third 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

Six on-site groundwater monitoring wells (MW-1 through MW-6), five on-site vapor extraction wells (VW-1 through VW-5), and two on-site air-sparge wells (AS-1 and AS-2) were installed as part of a comprehensive site assessment conducted at this site from September 1991 through February 1994 (Figure 2). Please refer to *Report of Findings, Air Sparge Pilot Test* (RESNA, June 10, 1994), and *First Quarter 1995 Groundwater Monitoring Results, ARCO Service Station 6041, Dublin, California* (EMCON, June 1995) for more details.

MONITORING PROGRAM FIELD PROCEDURES

A program of quarterly groundwater monitoring was initiated during the third quarter of 1991 to provide information concerning water quality, flow direction, and gradient, and to meet ACHCSA and Regional Water Quality Control Board (RWQCB) requirements regarding underground fuel tank investigations. 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.

EMCON performed the third quarter 1995 groundwater monitoring event on August 25, 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-4 for laboratory analysis; and (3) directing a state-certified laboratory to analyze the groundwater samples. Copies of all field data sheets from the third quarter 1995 groundwater monitoring event are included in Appendix A.

ANALYTICAL PROCEDURES

Groundwater samples collected during third quarter 1995 monitoring were analyzed for total petroleum hydrocarbons as gasoline (TPHG); benzene, toluene, ethylbenzene, and total xylenes (BTEX); and methyl-tert-butyl ether (MTBE). 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 *Leaking Underground Fuel Tank* (LUFT) *Field Manual* (State Water Resources Control Board, October 1989). Samples were analyzed for BTEX and MTBE 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 in *Tri-Regional Board Staff Recommendations for Preliminary Evaluation and Investigation of Underground Tank Sites* (August 10, 1990) for analysis of samples from petroleum-hydrocarbon-impacted sites.

MONITORING PROGRAM RESULTS

Results of the third 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 analysis of petroleum hydrocarbons and their constituents. 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 third quarter of 1995. Copies of the third quarter 1995 analytical results and chain-of-custody documentation are included in Appendix B.

On-site groundwater contours and analytical data for the third quarter of 1995 are presented in Figure 2. Groundwater elevation data collected on August 25, 1995, were used to calculate the on-site groundwater flow direction and gradient. Data from on-site wells MW-4, MW-5, and MW-6 indicate that groundwater beneath the site flows to the northwest, with a gradient of 0.006 foot per foot. This relatively shallow local gradient and flow direction may be overridden by regional flow patterns. The 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 August 25, 1995, cooperative sampling event. Based on data collected from wells MW-3 (UNOCAL), AW-4 (BP), and MW-5 (ARCO), groundwater in the site vicinity flows east-southeast, with an approximate hydraulic gradient of 0.004 foot per foot (Figure 3).

Groundwater samples collected from well MW-4 did not contain detectable concentrations of TPHG, BTEX, or MTBE. Samples from wells MW-1, MW-2, and MW-3 contained 780, 150, and 210 micrograms per liter (µg/L) of TPHG, respectively; 2, 6, and 3.6 µg/L of benzene, respectively; and 2,500, 2,700, and 20,000 µg/L of MTBE, 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 third quarter of 1995 and the anticipated site activities for the fourth quarter of 1995.

Third Quarter 1995 Activities

- Prepared and submitted quarterly groundwater monitoring report for second quarter 1995.
- Performed quarterly groundwater monitoring for third quarter 1995.

Work Anticipated for Fourth Quarter 1995

- Prepare and submit quarterly groundwater monitoring report for third quarter 1995.
- Perform quarterly groundwater monitoring for fourth quarter 1995.

Please call if you have questions.

Sincerely,

EMCON

David Larsen
Project Coordinator

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

REGISTERED GEOLOGIST
LYNN A. GALLAGHER
RG6090
STATE OF CALIFORNIA

Attachments:

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

Table 1
Groundwater Monitoring Data
Third Quarter 1995

ARCO Service Station 6041
7249 Village Parkway, Dublin, California

Date: 12-04-95

Well Designation	Water Level Field Date	Top of Casing Elevation	Depth to Water	Groundwater Elevation	Floating Product Thickness	Groundwater Flow Direction	Hydraulic Gradient	Water Sample Field Date	TPHG LUFT Method	Benzene EPA 8020	Toluene EPA 8020	Ethylbenzene EPA 8020	Total Xylenes EPA 8020	MTBE EPA 8020	MTBE EPA 8240
		ft-MSL	feet	ft-MSL	feet	MWN	ft/ft		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
MW-1	08-25-95	336.56	10.30	326.26	ND	NW	0.006	08-25-95	780	2	<1	2	2	2500	--
MW-2	08-25-95	334.80	7.91	326.89	ND	NW	0.006	08-25-95	150	6	<1	<1	<1	2700	--
MW-3	08-25-95	335.53	9.27	326.26	ND	NW	0.006	08-25-95	210	3.6	<0.5	2.9	0.6	20000	--
MW-4	08-25-95	334.22	6.93	327.29	ND	NW	0.006	08-25-95	<50	<0.5	<0.5	<0.5	<0.5	<3	--
MW-5	08-25-95	335.87	9.43	326.44	ND	NW	0.006	08-25-95	Not sampled: not scheduled for chemical analysis						
MW-6	08-25-95	333.84	9.71	326.13	ND	NW	0.006	08-25-95	Not sampled: not scheduled for chemical analysis						

ft-MSL: elevation in feet, relative to mean sea level
MWN: ground-water flow direction and gradient apply to the entire monitoring well network
ft/ft: foot per foot
TPHG: total petroleum hydrocarbons as gasoline, California DHS LUFT Method
µg/L: micrograms per liter
EPA: United Statest Environmental Protection Agency
MTBE: methyl-tert-butyl ether
ND: none detected
NW: northwest
-- : not analyzed

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20805-132.002

Table 2
Historical Groundwater Elevation Data

ARCO Service Station 6041
7249 Village Parkway, Dublin, California

Date: 12-04-95

Well Designation	Water Level Field Date	Top of Casing Elevation ft-MSL	Depth to Water feet	Groundwater Elevation ft-MSL	Floating Product Thickness feet	Groundwater 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
MW-1	05-24-95	336.56	9.00	327.56	ND	ESE	0.002
MW-1	08-25-95	336.56	10.30	326.26	ND	NW	0.006

Table 2
Historical Groundwater Elevation Data

ARCO Service Station 6041
7249 Village Parkway, Dublin, California

Date: 12-04-95

Well Designation	Water Level Field Date	Top of Casing Elevation ft-MSL	Depth to Water feet	Groundwater Elevation ft-MSL	Floating Product Thickness feet	Groundwater 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
MW-2	05-24-95	334.80	6.88	327.92	ND	ESE	0.002
MW-2	08-25-95	334.80	7.91	326.89	ND	NW	0.006

Table 2
Historical Groundwater Elevation Data

ARCO Service Station 6041
7249 Village Parkway, Dublin, California

Date: 12-04-95

Well Designation	Water Level Field Date	Top of Casing Elevation ft-MSL	Depth to Water feet	Groundwater Elevation ft-MSL	Floating Product Thickness feet	Groundwater Flow Direction MWN	Hydraulic Gradient 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
MW-3	05-24-95	335.53	8.17	327.36	ND	ESE	0.002
MW-3	08-25-95	335.53	9.27	326.26	ND	NW	0.006

Table 2
Historical Groundwater Elevation Data

ARCO Service Station 6041
7249 Village Parkway, Dublin, California

Date: 12-04-95

Well Designation	Water Level Field Date	Top of Casing Elevation ft-MSL	Depth to Water feet	Groundwater Elevation ft-MSL	Floating Product Thickness feet	Groundwater Flow Direction MWN	Hydraulic Gradient 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-4	05-24-95	334.22	6.68	327.54	ND	ESE	0.002
MW-4	08-25-95	334.22	6.93	327.29	ND	NW	0.006

Table 2
Historical Groundwater Elevation Data

ARCO Service Station 6041
7249 Village Parkway, Dublin, California

Date: 12-04-95

Well Designation	Water Level Field Date	Top of Casing Elevation ft-MSL	Depth to Water feet	Groundwater Elevation ft-MSL	Floating Product Thickness feet	Groundwater Flow Direction MWN	Hydraulic Gradient foot/foot
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
MW-5	05-24-95	335.87	8.10	327.77	ND	ESE	0.002
MW-5	08-25-95	335.87	9.43	326.44	ND	NW	0.006

Table 2
Historical Groundwater Elevation Data

ARCO Service Station 6041
7249 Village Parkway, Dublin, California

Date: 12-04-95

Well Designation	Water Level Field Date	Top of Casing Elevation ft-MSL	Depth to Water feet	Groundwater Elevation ft-MSL	Floating Product Thickness feet	Groundwater 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
MW-6	05-24-95	335.84	8.35	327.49	ND	ESE	0.002
MW-6	08-25-95	335.84	9.71	326.13	ND	NW	0.006

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
ESE: east-southeast
NW: northwest

Table 3
Historical Groundwater Analytical Data
Petroleum Hydrocarbons and Their Constituents

ARCO Service Station 6041
7249 Village Parkway, Dublin, California

Date: 12-04-95

Well Designation	Water Sample Field Date	TPHG LUFT Method µg/L	Benzene EPA 8020 µg/L	Toluene EPA 8020 µg/L	Ethylbenzene EPA 8020 µg/L	Total Xylenes EPA 8020 µg/L	MTBE EPA 8020 µg/L	MTBE EPA 8240 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-1	05-24-95	640	12	<1	7.3	<1	--	--
MW-1	08-25-95	780	2	<1	2	2	2500	--
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	76	<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	56	--	--
MW-2	05-24-95	370	110	<1	17	1.9	--	--
MW-2	08-25-95	150	6	<1	<1	<1	2700	--

Table 3
Historical Groundwater Analytical Data
Petroleum Hydrocarbons and Their Constituents

ARCO Service Station 6041
7249 Village Parkway, Dublin, California

Date: 12-04-95

Well Designation	Water Sample Field Date	TPHG LUFT Method	Benzene EPA 8020	Toluene EPA 8020	Ethylbenzene EPA 8020	Total Xylenes EPA 8020	MTBE EPA 8020	MTBE EPA 8240
		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	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-3	05-24-95	110	8	<0.5	2.7	<0.5	--	--
MW-3	08-25-95	210	3.6	<0.5	2.9	0.6	20000	--
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-4	05-24-95	Not sampled: not scheduled for chemical analysis						
MW-4	08-25-95	<50	<0.5	<0.5	<0.5	<0.5	<3	--

Table 3
Historical Groundwater Analytical Data
Petroleum Hydrocarbons and Their Constituents

ARCO Service Station 6041
7249 Village Parkway, Dublin, California

Date: 12-04-95

Well Designation	Water Sample Field Date	TPHG LUFT Method	Benzene EPA 8020	Toluene EPA 8020	Ethylbenzene EPA 8020	Total Xylenes EPA 8020	MTBE EPA 8020	MTBE EPA 8240
		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
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	--	--
MW-5	05-24-95	Not sampled: not scheduled for chemical analysis						
MW-5	08-25-95	Not sampled: not scheduled for chemical analysis						
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	--	--
MW-6	05-24-95	Not sampled: not scheduled for chemical analysis						
MW-6	08-25-95	Not sampled: not scheduled for chemical analysis						

TPHG: total petroleum hydrocarbons as gasoline, California DHS LUFT Method
µg/L: micrograms per liter
EPA: United Statest Environmental Protection Agency
MTBE: Methyl-tert-butyl ether
- - : not analyzed

Table 4
Historical Groundwater Elevation Data

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

Date: 12-04-95

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-1	05-24-95	335.17	6.80	328.37	
MW-1	08-25-95	335.17	8.61	326.56	
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-2	05-24-95	334.58	6.50	328.08	
MW-2	08-25-95	334.58	8.30	326.28	
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	
MW-3	05-24-95	335.13	6.83	328.30	
MW-3	08-25-95	335.13	8.84	326.29	

Table 4
Historical Groundwater Elevation Data

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

Date: 12-04-95

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-4	05-24-95	333.41	5.32	328.09	
AW-4	08-25-95	333.41	7.22	326.19	
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-5	05-24-95	334.81	7.27	327.54	
AW-5	08-25-95	334.81	8.52	326.29	
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	
AW-6	05-24-95	334.90	6.87	328.03	
AW-6	08-25-95	334.90	8.29	326.61	

Table 4
Historical Groundwater Elevation Data

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

Date: 12-04-95

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-1	05-24-95	334.83	7.91	326.92	
MW-1	08-25-95	334.83	8.11	326.72	
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-2	05-24-95	336.96	10.02	326.94	
MW-2	08-25-95	336.96	10.24	326.72	
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	
MW-3	05-24-95	336.93	9.67	327.26	
MW-3	08-25-95	336.93	9.36	327.57	

Table 4
Historical Groundwater Elevation Data

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

Date: 12-04-95

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	337.14	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-4	05-24-95	337.14	10.73	326.41	
MW-4	08-25-95	337.14	10.22	326.92	
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-5	05-24-95	334.96	8.04	326.92	
MW-5	08-25-95	334.96	8.34	326.62	
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	
MW-6	05-24-95	335.42	8.80	326.62	
MW-6	08-25-95	335.42	8.50	326.92	

Table 4
Historical Groundwater Elevation Data

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

Date: 12-04-95

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-7	05-24-95	333.23	6.82	326.41	
MW-7	08-25-95	333.23	6.46	326.77	
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-8	05-24-95	335.80	7.56	328.24	
MW-8	08-25-95	335.80	8.60	327.20	
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	
MW-9	05-24-95	334.57	7.75	326.82	
MW-9	08-25-95	334.57	7.90	326.67	

Table 4
Historical Groundwater Elevation Data

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

Date: 12-04-95

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-11	05-24-95	334.20	7.69	326.51	
MW-11	08-25-95	334.20	7.70	326.50	
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-12	05-24-95	332.53	6.95	325.58	
MW-12	08-25-95	332.53	5.63	326.90	
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	
MW-13	05-24-95	335.64	9.90	325.74	
MW-13	08-25-95	335.64	8.32	327.32	
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	
RW-1	05-24-95	336.19	9.66	326.53	
RW-1	08-25-95	336.19	9.37	326.82	

Table 4
Historical Groundwater Elevation Data

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

Date: 12-04-95

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-1	05-24-95	336.07	8.98	327.09	
MW-1	08-25-95	336.07	9.68	326.39	
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-2	05-24-95	336.78	8.33	328.45	
MW-2	08-25-95	336.78	9.76	327.02	
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	
MW-3	05-24-95	336.98	8.26	328.72	
MW-3	08-25-95	336.98	10.03	326.95	

Table 4
Historical Groundwater Elevation Data

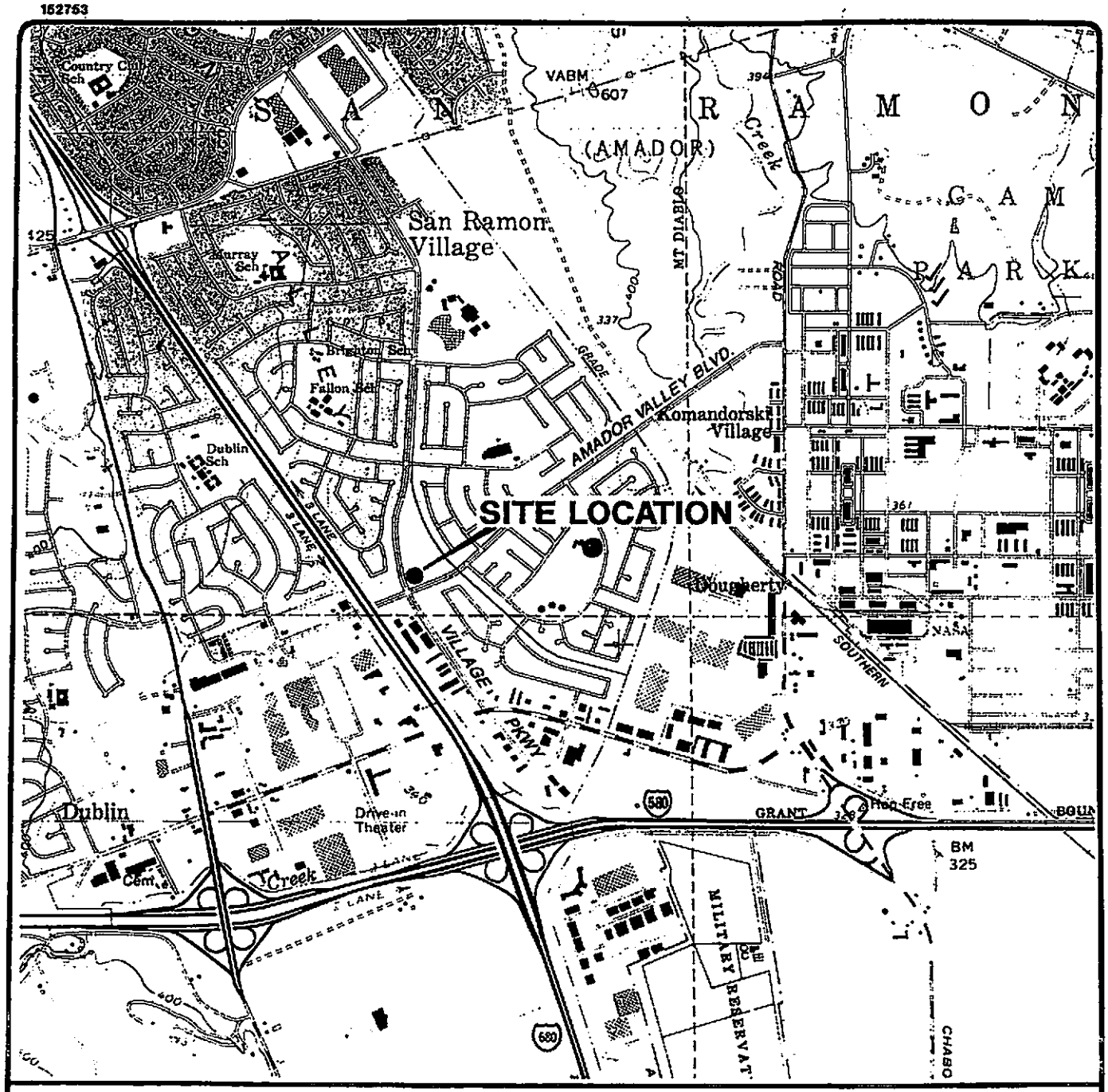
BP Station 1116, 7197 Village Parkway
Former Shell Station, 7194 Amador Valley Boulevard
UNOCAL Station, 7375 Amador Valley Boulevard

Date: 12-04-95

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	337.00	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-4	05-24-95	336.43	8.68	327.75	
MW-4	08-25-95	336.43	10.08	326.35	
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	
MW-5	05-24-95	335.96	7.98	327.98	
MW-5	08-25-95	335.96	9.57	326.39	

TOC: top of casing
ft-MSL: elevation in feet, relative to mean sea level

152753

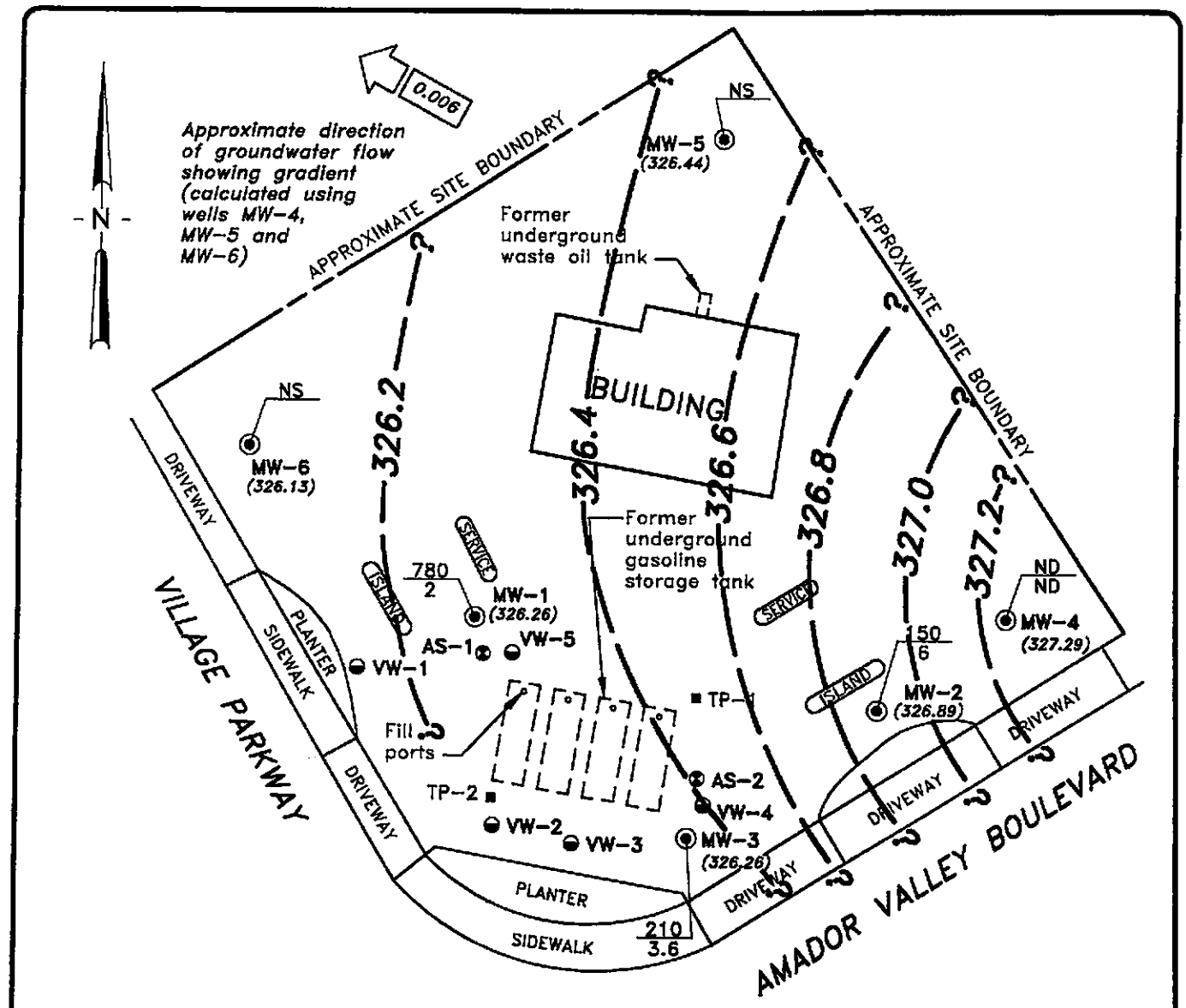


EMCON

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
- NS Not sampled; not scheduled for chemical analysis
- (326.26) Groundwater elevation (Ft.–MSL) measured 8/25/95
- ? — Groundwater elevation contour (Ft.–MSL)
- 780 / 2 — TPHG concentration (µg/L); sampled 8/25/95; Benzene concentration (µg/L); sampled 8/25/95

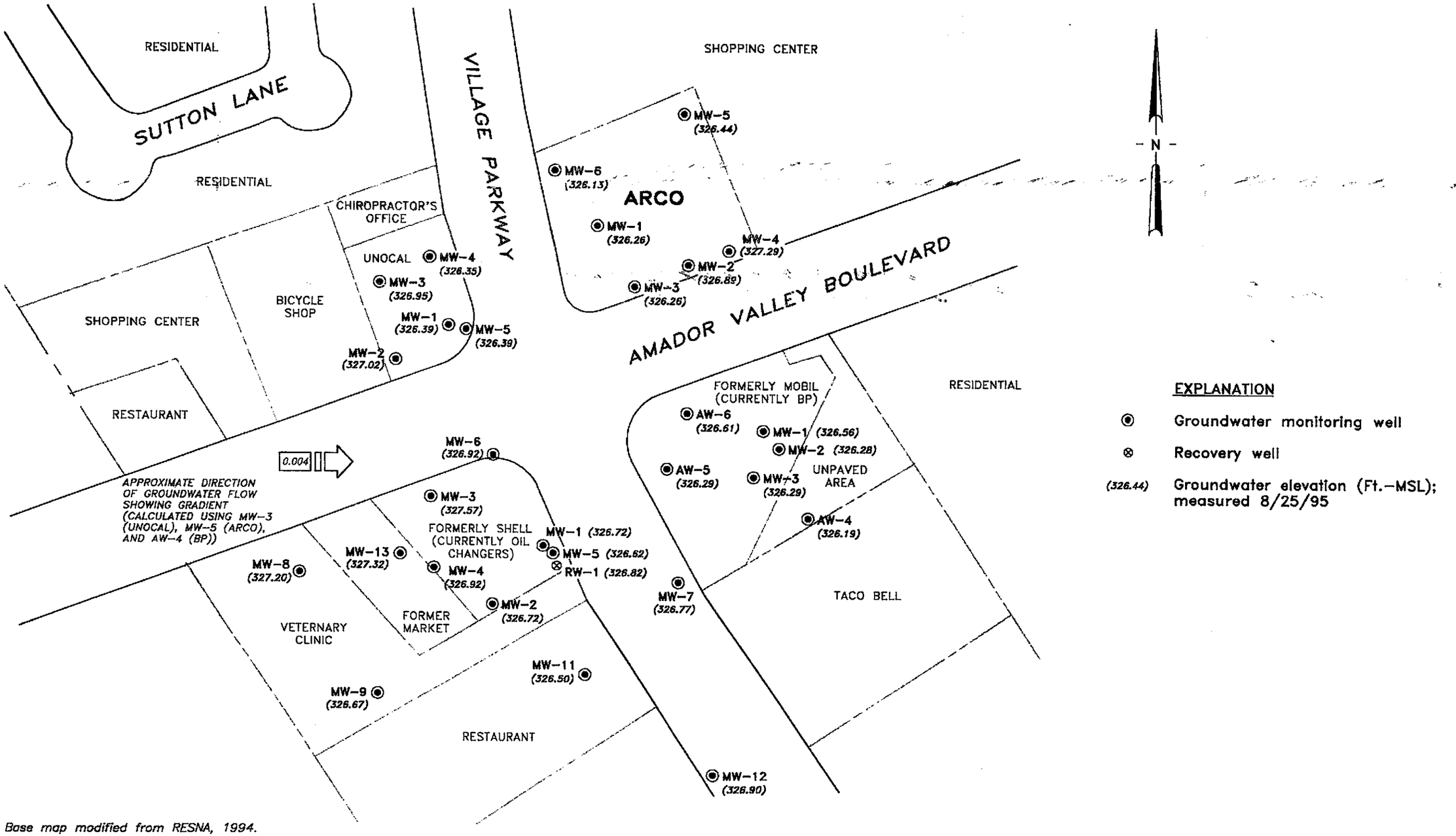
SCALE: 0 40 80 FEET
(Approximate)

EMCON

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

GROUNDWATER DATA
THIRD QUARTER 1995

FIGURE
2
PROJECT NO.
805-132.02



Base map modified from RESNA, 1994.

emcon

SCALE: 0 40 80 FEET

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

GROUNDWATER DATA
THIRD QUARTER 1995

FIGURE
3
PROJECT NO.
805-132.02

G:\805-132\G00 REV 0 12/05/95 13:01:53 DD DJ

APPENDIX A

FIELD DATA SHEETS, THIRD QUARTER 1995 GROUNDWATER MONITORING EVENT

FIELD REPORT
DEPTH TO WATER / FLOATING PRODUCT SURVEY

PROJECT # : 1775-244.01 STATION ADDRESS : 7249 Village Parkway, Dublin DATE : 8-25-95

ARCO STATION # : 6041 FIELD TECHNICIAN : M.G/J.W DAY : Friday

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	BAD	15/16	BAD	ARCO	OK	6.93	6.93	ND	ND	14.5	
2	MW-5	BAD	15/16	BAD	ARCO	OK	9.43	9.43	ND	ND	17.4	
3	MW-6	BAD	15/16	BAD	ARCO	BAD	9.71	9.71	ND	ND	15.8	WELD LOCKING CAP
4	MW-2	BAD	15/16	BAD	LOCK	OK	~~9.91~~ 7.91	~~9.91~~ 7.91	ND	ND	~~14.0~~	WATER IN BOX
5	MW-3	GOOD	15/16	GOOD	ARCO	OK	9.27	9.27	ND	ND	14.6	
6	MW-1	OK	15/16	OK	ARCO	OK	10.30	10.30	ND	ND	17.5	

SURVEY POINTS ARE TOP OF WELL CASINGS

ALISTO ENGINEERING GROUP
GROUNDWATER MONITORING

Client: BP
Alisto Project No: 10-017.05-001
Service Station No: 11116

Date: 8/25/95
Field Personnel: DS
Site Address: 7197 Village Pkwy (Dublin CA)

FIELD ACTIVITY:

✓ Groundwater Monitoring
___ Groundwater Sampling
___ Well Development

QUALITY CONTROL SAMPLES:

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

	Well ID	Well Diam	Order Measured/ Sampled	Total Depth	Depth to Water	Depth to Product	Product Thick-ness	Comments time
S-1	MW-3	2"	1	26.00'	8.84'	ϕ	ϕ	0947
S-2	AW-4	4"	2	34.10	7.22'			0954
S-3	MW-2	2"	3	25.60'	8.30'			0959
S-4	MW-1	2"	4	25.80'	8.61'			1004
S-5	AW-5	4"	5	33.00'	8.53'			1009
S-6	AW-6	4"	6	16.75'	8.29'	↓	↓	1014

Notes:

Pg 1 of 1

FORM: FS2/121592

WELL GAUGING DATA

Project # 950825-A1 Date 8-25-95 Client SHELL

Site 7194 AMADOR VALLEY BLVD., DUBLIN

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
MW1	4					8.11	24.62	TOC
MW2	4					10.24	24.10	
MW3	4					9.36	23.79	
MW4	4					10.22	24.30	
MW5	4					8.34	44.20	
MW6	4					8.50	22.48	
MW7	4					6.46	16.31	
MW8	4					8.60	16.12	
MW9	4					7.90	17.64	
MW11	4					7.70	16.32	
MW12	4					5.63	16.92	
MW13	4					8.32	16.88	
RW1	6					9.37	30.46	↓

MPDS-UN5366-07
September 19, 1995
Page 1 of 10

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 August 25, 1995)						
MW1	326.39	9.68	19.50	0	No	7
MW2*	327.02	9.76	19.27	0	--	0
MW3*	326.95	10.03	18.90	0	--	0
MW4*	326.35	10.08	19.41	0	--	0
MW5	326.39	9.57	20.00	0	No	7.5
(Monitored and Sampled June 13, 1995)						
MW1	327.25	8.82	19.45	0	No	8
MW2*	327.61	8.97	19.24	0	--	0
MW3*	327.80	9.18	18.90	0	--	0
MW4*	327.22	9.21	19.40	0	--	0
MW5	327.31	8.65	19.68	0	No	8
(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 only.
♦ Measured from top of casing.

Rev. 3, 2/94

WATER SAMPLE FIELD DATA SHEET

EMCON ASSOCIATES

PROJECT NO: 1775-244-01 SAMPLE ID: MW-1 (17)

PURGED BY: M. GALLEGOS/JW CLIENT NAME: ARCO 6041

SAMPLED BY: ↓ LOCATION: Dublin Ca

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

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

CASING ELEVATION (feet/MSL): N/A VOLUME IN CASING (gal.): 4.70

DEPTH TO WATER (feet): 10.30 CALCULATED PURGE (gal.): 14.11

DEPTH OF WELL (feet): 17.5 ACTUAL PURGE VOL. (gal.): 8

DATE PURGED: 08-25-95 Start (2400 Hr) 1007 End (2400 Hr) 1011

DATE SAMPLED: ↓ Start (2400 Hr) 1016 End (2400 Hr) —

TIME (2400 Hr)	VOLUME (gal.)	pH (units)	E.C. (µmhos/cm @ 25° C)	TEMPERATURE (°F)	COLOR (visual)	TURBIDITY (visual)
10.09	4.5	6.61	2710	69.4	CLEAR	TRACE
	DRIED	8 GALLONS				
1019	Recharge	6.63	2710	69.1	GRAY	MOD

D. O. (ppm): N/R ODOR: STRONG

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

Field QC samples collected at this well: N/A

Parameters field filtered at this well: N/A

PURGING EQUIPMENT		SAMPLING EQUIPMENT	
___ 2" Bladder Pump	___ Bailer (Teflon®)	___ 2" Bladder Pump	✓ Bailer (Teflon®)
___ Centrifugal Pump	✓ 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: OK LOCK #: ARCO

REMARKS: ___

Meter Calibration: Date: 8-25-95 Time: ___ Meter Serial #: ___ Temperature °F: ___

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

Location of previous calibration: ___

Signature: [signature] Reviewed By: [signature] Page 1 of 4

Rev. 3, 2/94

WATER SAMPLE FIELD DATA SHEET

EMCON ASSOCIATES

PROJECT NO: 1775-244-01 SAMPLE ID: MW-8 (13)

PURGED BY: M. GALLEGOS/KW CLIENT NAME: ARCO 6041

SAMPLED BY: ↓ LOCATION: Dublin, Ca.

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

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

CASING ELEVATION (feet/MSL):	NR	VOLUME IN CASING (gal.):	39.4
DEPTH TO WATER (feet):	7.91	CALCULATED PURGE (gal.):	11.93
DEPTH OF WELL (feet):	14.0	ACTUAL PURGE VOL. (gal.):	12

DATE PURGED: 08-25-95 Start (2400 Hr) 0933 End (2400 Hr) 0941

DATE SAMPLED: ↓ Start (2400 Hr) 0944 End (2400 Hr) —

TIME (2400 Hr)	VOLUME (gal.)	pH (units)	E.C. (µmhos/cm @ 25° C)	TEMPERATURE (°F)	COLOR (visual)	TURBIDITY (visual)
0936	4	6.70	2840	70.4	GRAY	HEAVY
0938	8	6.63	3010	71.4	GRAY	HEAVY
0941	12	6.68	3070	72.2	GRAY	HEAVY

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

Field QC samples collected at this well: N/A

Parameters field filtered at this well: N/A

PURGING EQUIPMENT		SAMPLING EQUIPMENT	
___ 2" Bladder Pump	___ Bailer (Teflon®)	___ 2" Bladder Pump	✓ Bailer (Teflon®)
___ Centrifugal Pump	✓ 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: NEED NEW BOX LOCK #: ARCO

REMARKS: ___

Meter Calibration: Date: 8-25-95 Time: 0910 Meter Serial #: ___ Temperature °F: ___

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

Location of previous calibration: ___

Signature: [signature] Reviewed By: [signature] Page 2 of 4

Rev. 3, 2/94

WATER SAMPLE FIELD DATA SHEET

EMCON ASSOCIATES

PROJECT NO: 1775-244.01 SAMPLE ID: MW-3 (14)

PURGED BY: M. GALLEGOS/SA CLIENT NAME: ARCO 6041

SAMPLED BY: ↓ LOCATION: Dublin, Ca

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

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

CASING ELEVATION (feet/MSL):	NR	VOLUME IN CASING (gal.):	3.48
DEPTH TO WATER (feet):	9.27	CALCULATED PURGE (gal.):	10.44
DEPTH OF WELL (feet):	14.6	ACTUAL PURGE VOL. (gal.):	5

DATE PURGED: 08-25-95 Start (2400 Hr) 0949 End (2400 Hr) 0952

DATE SAMPLED: ↓ Start (2400 Hr) 0958 End (2400 Hr) ___

TIME (2400 Hr)	VOLUME (gal.)	pH (units)	E.C. (µmhos/cm @ 25° C)	TEMPERATURE (°F)	COLOR (visual)	TURBIDITY (visual)
0951	3.5	6.68	2160	72.6	GRAY	MOD
	② DRIED 5 GALLONS					
0959	Recharge	6.68	2246	71.1	GRAY	HEAVY

D. O. (ppm): NR ODOR: Slight NR (COBALT 0 - 500) 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	✓ Bailer (Teflon®)
___ Centrifugal Pump	✓ 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: OK LOCK #: ARCO

REMARKS: ___

Meter Calibration: Date: 8-25-95 Time: 0910 Meter Serial #: ___ Temperature °F: ___

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

Location of previous calibration: ___

Signature: [signature] Reviewed By: [signature] Page 3 of 4

Rev. 3, 2/94

WATER SAMPLE FIELD DATA SHEET

EMCON ASSOCIATES

PROJECT NO: 1775-244-01 SAMPLE ID: MW-4 (14)

PURGED BY: M. Gallegos / T. Williams 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.):	4.94
DEPTH TO WATER (feet):	6.93	CALCULATED PURGE (gal.):	14.83
DEPTH OF WELL (feet):	14.5	ACTUAL PURGE VOL. (gal.):	10

DATE PURGED: 8-25-95 Start (2400 Hr) 0917 End (2400 Hr) 0922

DATE SAMPLED: ↓ Start (2400 Hr) 0926 End (2400 Hr) ___

TIME (2400 Hr)	VOLUME (gal.)	pH (units)	E.C. (µmhos/cm @ 25° C)	TEMPERATURE (°F)	COLOR (visual)	TURBIDITY (visual)
0920	5.0	6.63	5580	68.9	GRAY	HEAVY
0922	10.0	6.65	5570	68.8	GRAY	HEAVY
___	DRIED	10 GALLONS				
0928	Recharge	6.69	5550	67.9	GRAY	HEAVY
___	___	___	___	___	___	___

D. O. (ppm): NR ODOR: none NR (COBALT 0 - 500) 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 #: Arco Key

REMARKS: ___

Meter Calibration: Date: 8/25/95 Time: 0910 Meter Serial #: 9011 Temperature °F: 66.0

(EC 1000 1146 / 1000) (DI ___) (pH 7 7021 / 700) (pH 10 10041 / 1000) (pH 4 ___ / ___)

Location of previous calibration: ___

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

APPENDIX B

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

Columbia Analytical Services, Inc.

September 11, 1995

Service Request No: S951050

John Young
EMCON
1921 Ringwood Avenue
San Jose, CA 95131

Re: **0805-132.02 / TO# 17075.00 / 6041 Dublin**

Dear Mr. Young:

The following pages contain analytical results for sample(s) received by the laboratory on August 25, 1995. Results of sample analyses are followed by Appendix A which contains sample custody documentation and quality assurance deliverables requested for this project. The work requested has been assigned the Service Request No. listed above - to help expedite our service please refer to this number when contacting the laboratory.

Analytical results were produced by procedures consistent with Columbia Analytical Services' (CAS) Quality Assurance Manual (with any deviations noted). Signature of this CAS Analytical Report below confirms that pages 2 through 8, following, have been thoroughly reviewed and approved for release in accord with CAS Standard Operating Procedure ADM-DatRev3.

Please feel welcome to contact me should you have questions or further needs.

Sincerely:

Steven L. Green
Project Chemist

Annelise J. Bazar
Regional QA Coordinator

SLG/ajb

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

COLUMBIA ANALYTICAL SERVICES, Inc.
Acronyms

A2LA	American Association for Laboratory Accreditation
ASTM	American Society for Testing and Materials
BOD	Biochemical Oxygen Demand
BTEX	Benzene, Toluene, Ethylbenzene, Xylenes
CAM	California Assessment Metals
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
COD	Chemical Oxygen Demand
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DLCS	Duplicate Laboratory Control Sample
DMS	Duplicate Matrix Spike
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
IC	Ion Chromatography
ICB	Initial Calibration Blank sample
ICP	Inductively Coupled Plasma atomic emission spectrometry
ICV	Initial Calibration Verification sample
J	Estimated concentration. The value is less than the MRL, but greater than or equal to the MDL. If the value is equal to the MRL, the result is actually <MRL before rounding.
LCS	Laboratory Control Sample
LUFT	Leaking Underground Fuel Tank
M	Modified
MBAS	Methylene Blue Active Substances
MCL	Maximum Contaminant Level. 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
MS	Matrix Spike
MTBE	Methyl tert-Butyl Ether
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 method reporting/detection limit (MRL/MDL)
NIOSH	National Institute for Occupational Safety and Health
NTU	Nephelometric Turbidity Units
ppb	Parts Per Billion
ppm	Parts Per Million
PQL	Practical Quantitation Limit
QA/QC	Quality Assurance/Quality Control
RCRA	Resource Conservation and Recovery Act
RPD	Relative Percent Difference
SIM	Selected Ion Monitoring
SM	Standard Methods for the Examination of Water and Wastewater, 18th Ed., 1992
STLC	Solubility Threshold Limit Concentration
SW	Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW-846, 3rd Ed., 1986 and as amended by Updates I, II, IIA, and IIB.
TCLP	Toxicity Characteristic Leaching Procedure
TDS	Total Dissolved Solids
TPH	Total Petroleum Hydrocarbons
tr	Trace level. The concentration of an analyte that is less than the PQL but greater than or equal to the MDL. If the value is equal to the PQL, the result is actually <PQL before rounding.
TRPH	Total Recoverable Petroleum Hydrocarbons
TSS	Total Suspended Solids
TTLC	Total Threshold Limit Concentration
VOA	Volatile Organic Analyte(s)

ACRONLST.DOC 7/14/95

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	ARCO Products Company	**Service Request:**	S951050
Project:	0805-132.02 / TO# 17075.00 / 6041 Dublin	**Date Collected:**	8/24/95
Sample Matrix:	Water	**Date Received:**	8/25/95
		Date Extracted:	NA

BTEX, MTBE and TPH as Gasoline
EPA Methods 5030/8020/California DHS LUFT Method
Units: ug/L (ppb)

	Sample Name:	**MW-4 (14)**	**MW-2 (13)**	**MW-3 (14)**
	Lab Code:	S951050-001	S951050-002	S951050-003
	Date Analyzed:	9/6/95	9/7/95	9/7/95
Analyte	**MRL**			
TPH as Gasoline	50	ND	150	210
Benzene	0.5	ND	6	3.6
Toluene	0.5	ND	<1 *	ND
Ethylbenzene	0.5	ND	1	2.9
Total Xylenes	0.5	ND	<1 *	0.6
Methyl-tert-butyl ether	3	ND	2,700	20,000

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

3S22/060194

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	ARCO Products Company	**Service Request:**	S951050
Project:	0805-132.02 / TO# 17075.00 / 6041 Dublin	**Date Collected:**	8/24/95
Sample Matrix:	Water	**Date Received:**	8/25/95
		Date Extracted:	NA

BTEX, MTBE and TPH as Gasoline
EPA Methods 5030/8020/California DHS LUFT Method
Units: ug/L (ppb)

Sample Name:		**MW-1 (17)**	**Method Blank**	**Method Blank**
Lab Code:		S951050-004	S950906-WB	S950907-WB
Date Analyzed:		9/7/95	9/6/95	9/7/95
Analyte	**MRL**			
TPH as Gasoline	50	780	ND	ND
Benzene	0.5	2	ND	ND
Toluene	0.5	<1 *	ND	ND
Ethylbenzene	0.5	2	ND	ND
Total Xylenes	0.5	2	ND	ND
Methyl-tert-butyl ether	3	2,500	ND	ND

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

3S22/060194

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	ARCO Products Company	**Service Request:**	S951050
Project:	0805-132.02 / TO# 17075.00 / 6041 Dublin	**Date Collected:**	8/25/95
Sample Matrix:	Water	**Date Received:**	8/25/95
		Date Extracted:	NA
		Date Analyzed:	9/6,7/95

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

Sample Name	**Lab Code**	**Percent Recovery** α,α,α-Trifluorotoluene
MW-4 (14)	S951050-001	98
MW-2 (13)	S951050-002	98
MW-3 (14)	S951050-003	102
MW-1 (17)	S951050-004	107 *
MS	S951053-026MS	101
DMS	S951053-026DMS	97
Method Blank	S950906-WB	94
Method Blank	S950907-WB	101

CAS Acceptance Limits: 69-116

* The surrogate used for this sample was 4-Bromofluorobenzene.

SUR1/062994

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	ARCO Products Company	**Service Request:**	S951050
Project:	0805-132.02 / TO# 17075.00 / 6041 Dublin	**Date Analyzed:**	9/6/95

Initial Calibration Verification (ICV) Summary
BTEX, MTBE 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	25.6	102	85-115
Toluene	25	25.2	101	85-115
Ethylbenzene	25	24.9	100	85-115
Xylenes, Total	75	75.7	101	85-115
Gasoline	250	256	102	90-110
Methyl-tert-butyl Ether	50	51.5	103	85-115

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	ARCO Products Company	**Service Request:**	S951050
Project:	0805-132.02 / TO# 17075.00 / 6041 Dublin	**Date Collected:**	8/25/95
Sample Matrix:	Water	**Date Received:**	8/25/95
		Date Extracted:	NA
		Date Analyzed:	9/6,7/95

Matrix Spike/Duplicate Matrix Spike Summary
Benzene, Toluene, Ethylbenzene
EPA Methods 5030/8020
Units: ug/L (ppb)

Sample Name: Batch QC
Lab Code: S951053-026

	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	23.8	24.1	95	96	75-135	1
Toluene	25	25	ND	23.4	23.6	94	94	73-136	1
Ethylbenzene	25	25	ND	23.7	23.9	95	96	69-142	1

DMS1S/060194

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 Mike Whelan	Telephone no. (ARCO)	Telephone no. (Consultant) (408)453-7300	Fax no. (Consultant) (408)453-0452
Consultant name EMCON	Address (Consultant) 1921 Ringwood Ave San Jose, CA 95131		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 + MTBE 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 ☐		
MW-4(44)	1	2		X		X	HCL	8-25-95	0926		X											
MW-2(13)	2	2		X		X	HCL		0944		X											
MW-3(41)	3	2		X		X	HCL		0958		X											
MW-1(71)	4	2		X		X	HCL	↓	1016		X											

Method of shipment: Sampler will deliver

Special detection Limit/reporting: Lowest Possible

Include (MTBE)

Special QA/QC: As Normal

Remarks: 2 - 40ml HCL VOAs

#0805-132.02

Lab number: 9501050

Turnaround time

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

Condition of sample: ok		Temperature received: Cool	
Relinquished by sampler: M Hulley	Date: 8-25-95 Time:	Received by	
Relinquished by	Date Time	Received by	
Relinquished by	Date Time	Received by laboratory: Laurie Brown	Date: 8-25-95 Time: 11:42

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

APPC-3292 (2-91)

Due 9/11