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

12/26/96

ENVIRONMENTAL PROTECTION
96 DEC 20 PM 4:22

Date December 16, 1996
Project 20805-132.003

To:

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 1996 groundwater monitoring results for ARCO service station 6041, Dublin, California

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

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.

John C. Young
Project Manager

cc: Copy entire document:
Kevin Graves, RWQCB - SFBR
Paul Supple, ARCO Products Company
File

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

ARCO Products Company

Date: December 12, 1996

Re: ARCO Station #

6041 • 7249 Village Parkway • Dublin, CA
Third Quarter 1996 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:

Paul Supple
Environmental Engineer

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

December 16, 1996
Project 20805-132.003

Mr. Paul Supple
ARCO Products Company
P.O. Box 6549
Moraga, California 94570

Re: Third quarter 1996 groundwater monitoring program results, ARCO service station 6041, Dublin, California

Dear Mr. Supple:

This letter presents the results of the third quarter 1996 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.

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.

Please call if you have questions.

Sincerely,

EMCON

REGISTERED GEOLOGIST
JOHN CHARLES YOUNG
7/97
NO. 6407
STATE OF CALIFORNIA

John C. Young, R.G. 6407
Project Manager

December 16, 1996

ARCO QUARTERLY REPORT

Station No.: 6041	Address: 7249 Village Parkway, Dublin, California
EMCON Project No.	20805-132.003
ARCO Environmental Engineer/Phone No.:	Paul Supple /(510) 299-8891
EMCON Project Manager/Phone No.:	John Young /(408) 453-7300
Primary Agency/Regulatory ID No.:	ACHCSA /Eva Chu

WORK PERFORMED THIS QUARTER (Third- 1996):

1. Conducted quarterly groundwater monitoring and sampling for third quarter 1996.
2. Prepared and submitted quarterly report for second quarter 1996.
3. Received a letter from ACHCSA, on August 27, 1996, regarding groundwater monitoring. EMCON will discontinue sampling wells MW-4, MW-5, and MW-6. Groundwater monitoring wells MW-1, MW-2, and MW-3 will be sampled semi-annually, during February and August of each year. If groundwater is in vapor well VW-2, then it will also be sampled semi-annually.

WORK PROPOSED FOR NEXT QUARTER (Fourth- 1996):

1. Perform quarterly groundwater monitoring and sampling for fourth quarter 1996.
2. Prepare and submit quarterly report for third quarter 1996.

WORK PROJECTED FOR 1997:

1. Initiate permitting for line replacement.

QUARTERLY MONITORING:

Current Phase of Project:	Quarterly Groundwater Monitoring
Frequency of Sampling:	Quarterly (groundwater)
Frequency of Monitoring:	Quarterly (groundwater)
Is Floating Product (FP) Present On-site:	☐ Yes ☒ No
Bulk Soil Removed to Date :	15 cubic yards of TPH impacted soil
Bulk Soil Removed This Quarter :	None
Water Wells or Surface Waters, within 2000 ft., impacted by site:	None
Current Remediation Techniques:	None
Approximate Depth to Groundwater:	8.45 feet
Groundwater Gradient (Average):	Flat Gradient

ATTACHED:

- Table 1 - Groundwater Monitoring Data, Third Quarter 1996
- Table 2 - Historical Groundwater Elevation and Analytical Data, Petroleum Hydrocarbons and Their Constituents
- Table 3 - Historical Groundwater Elevation Data, BP, Shell, and UNOCAL Stations
- Figure 1 - Site Location
- Figure 2 - Groundwater Data, Third Quarter 1996

- Figure 3 - Groundwater Data, ARCO, BP, Shell, and UNOCAL Stations, Third Quarter 1996
- Appendix A - Field Data Sheets, Third Quarter 1996 Groundwater Monitoring Event
- Appendix B - Analytical Results and Chain of Custody Documentation, Third Quarter 1996 Groundwater Monitoring Event

cc: Eva Chu, ACHCSA
Kevin Graves, RWQCB-SFBR

Table 1
Groundwater Monitoring Data
Third Quarter 1996

ARCO Service Station 6041
7249 Village Parkway, Dublin, California

Date: 11-21-96

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	08-23-96	336.56	10.25	326.31	ND	FG	FG	08-23-96	860	<1	<1	<4	2	5600	- -
MW-2	08-23-96	334.80	8.45	326.35	ND	FG	FG	08-23-96	180	0.8	2	0.7	2.6	4000	- -
MW-3	08-23-96	335.53	9.25	326.28	ND	FG	FG	08-23-96	1700	85	2.1	61	5.3	11000	- -
MW-4	08-23-96	334.22	7.66	326.56	ND	FG	FG	08-23-96	Not sampled: not scheduled for chemical analysis						
MW-5	08-23-96	335.87	9.46	326.41	ND	FG	FG	08-23-96	Not sampled: not scheduled for chemical analysis						
MW-6	08-23-96	335.84	9.58	326.26	ND	FG	FG	08-23-96	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
FG: flat gradient; the groundwater gradient over the local area was nearly flat
- - : not analyzed

Table 2
Historical Groundwater Elevation and Analytical Data
Petroleum Hydrocarbons and Their Constituents
1994 - Present*

ARCO Service Station 6041
7249 Village Parkway, Dublin, California

Date: 11-21-96

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	02-11-94	336.56	10.35	326.21	ND	NR	NR	02-11-94	2000	<2.5	<2.5	25	5.7	- -	- -
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	05-17-94	1400	79	1.4	11	2.4	- -	- -
MW-1	08-25-94	336.56	10.11	326.45	ND	NR	NR	08-25-94	880	2.4	<1	4.6	<1	- -	- -
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	11-18-94	2500	1.5	<0.5	1.4	<1	- -	- -
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-1	05-24-95	336.56	9.00	327.56	ND	ESE	0.002	05-24-95	640	12	<1	7.3	<1	- -	-
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-1	11-28-95	336.56	11.01	325.55	ND	N	0.006	11-28-95	570	2.2	<0.5	1.4	0.9	- -	- -
MW-1	02-26-96	336.56	7.35	329.21	ND	E	0.012	03-13-96	1100	28	<7	13	7	3400	- -
MW-1	05-23-96	336.56	8.73	327.83	ND	FG	FG	05-23-96	560	8.5	<1	1.1	<1	3900	- -
MW-1	08-23-96	336.56	10.25	326.31	ND	FG	FG	08-23-96	860	<1	<1	<4	2	5600	- -
MW-2	02-11-94	334.80	8.59	326.21	ND	NR	NR	02-11-94	<50	2.4	0.7	<0.5	<0.5	- -	- -
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	05-17-94	150	19	<0.5	2.5	1.2	- -	- -
MW-2	08-25-94	334.80	9.23	325.57	ND	NR	NR	08-25-94	<50	<0.5	<0.5	<0.5	<0.5	- -	- -
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	11-18-94	237	1.9	0.6	<0.5	<1	- -	- -
MW-2	02-15-95	334.80	6.75	328.05	ND	NR	NR	02-15-95	730	110	1.7	25	66	- -	- -
MW-2	05-24-95	334.80	6.88	327.92	ND	ESE	0.002	05-24-95	370	110	<1	17	1.9	- -	- -
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-2	11-28-95	334.80	9.06	325.74	ND	N	0.006	11-28-95	<50	<0.5	<0.5	<0.5	0.8	- -	- -
MW-2	02-26-96	334.80	6.65	328.15	ND	E	0.012	03-13-96	350	66	<0.5	11	1.7	<3	- -
MW-2	05-23-96	334.80	6.90	327.90	ND	FG	FG	05-23-96	540	140	<2.5	13	<2.5	4600	- -
MW-2	08-23-96	334.80	8.45	326.35	ND	FG	FG	08-23-96	180	0.8	2	0.7	2.6	4000	- -

Table 2
Historical Groundwater Elevation and Analytical Data
Petroleum Hydrocarbons and Their Constituents
1994 - Present*

ARCO Service Station 6041
7249 Village Parkway, Dublin, California

Date: 11-21-96

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-3	02-11-94	335.53	9.60	325.93	ND	NR	NR	02-11-94	220	42	<1.0	84	<1.0	--	--
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	05-17-94	200	44	<0.5	9.3	<0.5	--	--
MW-3	08-25-94	335.53	11.09	324.44	ND	NR	NR	08-25-94	100	4.3	<0.5	1.1	<0.5	--	--
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	11-18-94	1850	3.5	<0.5	0.9	<1	--	--
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-3	05-24-95	335.53	8.17	327.36	ND	ESE	0.002	05-24-95	110	8	<0.5	2.7	<0.5	--	--
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-3	11-28-95	335.53	9.91	325.62	ND	N	0.006	11-28-95	81	1.5	<0.5	1.4	<0.5	--	15000
MW-3	02-26-96	335.53	8.42	327.11	ND	E	0.012	03-13-96	16000	1600	1200	300	2000	9500	--
MW-3	05-23-96	335.53	7.70	327.83	ND	FG	FG	05-23-96	6500	690	<10	120	14	8600	--
MW-3	08-23-96	335.53	9.25	326.28	ND	FG	FG	08-23-96	1700	85	2.1	61	5.3	11000	--
MW-4	02-11-94	334.22	8.15	326.07	ND	NR	NR	02-11-94	<50	<0.5	<0.5	<0.5	<0.5	--	--
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	05-17-94	<50	<0.5	<0.5	<0.5	<0.5	--	--
MW-4	08-25-94	334.22	8.79	325.43	ND	NR	NR	08-25-94	<50	<0.5	<0.5	<0.5	<0.5	--	--
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	11-18-94	<50	<0.5	<0.5	<0.5	<1	--	--
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-4	05-24-95	334.22	6.68	327.54	ND	ESE	0.002	05-24-95	Not sampled: not scheduled for chemical analysis						
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-4	11-28-95	334.22	8.21	326.01	ND	N	0.006	11-28-95	Not sampled: not scheduled for chemical analysis						
MW-4	02-26-96	334.22	6.65	327.57	ND	E	0.012	03-13-96	<50	<0.5	<0.5	<0.5	<0.5	<3	--
MW-4	05-23-96	334.22	6.47	327.75	ND	FG	FG	05-23-96	Not sampled: not scheduled for chemical analysis						
MW-4	08-23-96	334.22	7.66	326.56	ND	FG	FG	08-23-96	Not sampled: not scheduled for chemical analysis						

Table 2
Historical Groundwater Elevation and Analytical Data
Petroleum Hydrocarbons and Their Constituents
1994 - Present*

ARCO Service Station 6041
7249 Village Parkway, Dublin, California

Date: 11-21-96

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-5	02-11-94	335.87	9.63	326.24	ND	NR	NR	02-11-94	<50	<0.5	<0.5	<0.5	<0.5	--	--
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	05-17-94	<50	<0.5	<0.5	<0.5	<0.5	--	--
MW-5	08-25-94	335.87	10.23	325.64	ND	NR	NR	08-25-94	<50	<0.5	<0.5	<0.5	<0.5	--	--
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	11-18-94	<50	<0.5	<0.5	<0.5	<1	--	--
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-5	05-24-95	335.87	8.10	327.77	ND	ESE	0.002	05-24-95	Not sampled: not scheduled for chemical analysis						
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-5	11-28-95	335.87	10.12	325.75	ND	N	0.006	11-28-95	Not sampled: not scheduled for chemical analysis						
MW-5	02-26-96	335.87	6.73	329.14	ND	E	0.012	03-13-96	<50	<0.5	<0.5	<0.5	<0.5	<3	--
MW-5	05-23-96	335.87	7.87	328.00	ND	FG	FG	05-23-96	Not sampled: not scheduled for chemical analysis						
MW-5	08-23-96	335.87	9.46	326.41	ND	FG	FG	08-23-96	Not sampled: not scheduled for chemical analysis						
MW-6	02-11-94	335.84	9.66	326.18	ND	NR	NR	02-11-94	<50	<0.5	<0.5	<0.5	<0.5	--	--
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	05-17-94	<50	<0.5	<0.5	<0.5	<0.5	--	--
MW-6	08-25-94	335.84	10.39	325.45	ND	NR	NR	08-25-94	<50	<0.5	<0.5	<0.5	<0.5	--	--
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	11-18-94	<50	<0.5	<0.5	<0.5	<1	--	--
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	--	--
MW-6	05-24-95	335.84	8.35	327.49	ND	ESE	0.002	05-24-95	Not sampled: not scheduled for chemical analysis						
MW-6	08-25-95	335.84	9.71	326.13	ND	NW	0.006	08-25-95	Not sampled: not scheduled for chemical analysis						
MW-6	11-28-95	335.84	10.28	325.56	ND	N	0.006	11-28-95	Not sampled: not scheduled for chemical analysis						
MW-6	02-26-96	335.84	6.60	329.24	ND	E	0.012	03-13-96	<50	<0.5	<0.5	<0.5	<0.5	<3	--
MW-6	05-23-96	335.84	8.05	327.79	ND	FG	FG	05-23-96	Not sampled: not scheduled for chemical analysis						
MW-6	08-23-96	335.84	9.58	326.26	ND	FG	FG	08-23-96	Not sampled: not scheduled for chemical analysis						

Table 2
Historical Groundwater Elevation and Analytical Data
Petroleum Hydrocarbons and Their Constituents
1994 - Present*

ARCO Service Station 6041
7249 Village Parkway, Dublin, California

Date: 11-21-96

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

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 States Environmental Protection Agency
MTBE: Methyl-tert-butyl ether
ND: none detected
NR: not reported; data not available or not measurable
ESE: east-southeast
NW: northwest
N: north
E: east
FG: flat gradient; the groundwater gradient over the local area was nearly flat
- -: not analyzed or not applicable
*: For previous historical groundwater elevation and analytical data please refer to *Fourth Quarter 1995 Groundwater Monitoring Program Results, ARCO Service Station 6041, Dublin, California,* (EMCON, February 26, 1996).

Table 3
Historical Groundwater Elevation Data

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

Date: 11-21-96

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	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-1	11-28-95	335.17	9.54	325.63	
MW-1	02-26-96	335.17	Not surveyed:		
MW-1	05-23-96	335.17	7.13	328.04	
MW-1	08-23-96	335.17	6.71	328.46	
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-2	11-28-95	334.58	9.05	325.53	
MW-2	02-26-96	334.58	Not surveyed:		
MW-2	05-23-96	334.58	6.95	327.63	
MW-2	08-23-96	334.58	6.53	328.05	
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	
MW-3	11-28-95	335.13	8.57	326.56	
MW-3	02-26-96	335.13	Not surveyed:		
MW-3	05-23-96	335.13	7.26	327.87	
MW-3	08-23-96	335.13	6.84	328.29	
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-4	11-28-95	333.41	7.81	325.60	
AW-4	02-26-96	333.41	Not surveyed:		
AW-4	05-23-96	333.41	5.17	328.24	
AW-4	08-23-96	333.41	4.73	328.68	

Table 3
Historical Groundwater Elevation Data

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

Date: 11-21-96

Well Designation	Water Level Field Date	TOC Elevation ft-MSL	Depth to Water feet	Ground-Water Elevation ft-MSL	Comments
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-5	11-28-95	334.81	9.32	325.49	
AW-5	02-26-96	334.81	7.13	327.68	
AW-5	05-23-96	334.81	8.58	326.23	
AW-5	08-23-96	334.81	8.18	326.63	
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	
AW-6	11-28-95	334.90	9.20	325.70	
AW-6	02-26-96	334.90	5.78	329.12	
AW-6	05-23-96	334.90	6.94	327.96	
AW-6	08-23-96	334.90	6.50	328.40	
Former Shell Station					
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-1	11-28-95	334.83			Not surveyed: not scheduled for monitoring
MW-1	02-26-96	334.83	5.60	329.23	
MW-1	05-23-96	334.83			Not surveyed: not scheduled for monitoring
MW-1	08-23-96	334.83	8.23	326.60	
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-2	11-28-95	336.96			Not surveyed: not scheduled for monitoring
MW-2	02-26-96	336.96	7.54	329.42	
MW-2	05-23-96	336.96			Not surveyed: not scheduled for monitoring
MW-2	08-23-96	336.96	10.29	326.67	

Table 3
Historical Groundwater Elevation Data

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

Date: 11-21-96

Well Designation	Water Level Field Date	TOC Elevation ft-MSL	Depth to Water feet	Ground-Water Elevation ft-MSL	Comments
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	
MW-3	11-28-95	336.93	Not surveyed: not scheduled for monitoring		
MW-3	02-26-96	336.93	7.04	329.89	
MW-3	05-23-96	336.93	Not surveyed: not scheduled for monitoring		
MW-3	08-23-96	336.93	10.00	326.93	
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-4	11-28-95	337.14	Not surveyed: not scheduled for monitoring		
MW-4	02-26-96	337.14	7.52	329.62	
MW-4	05-23-96	337.14	Not surveyed: not scheduled for monitoring		
MW-4	08-23-96	337.14	9.84	327.30	
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-5	11-28-95	334.96	Not surveyed: not scheduled for monitoring		
MW-5	02-26-96	334.96	Not surveyed: not scheduled for monitoring		
MW-5	05-23-96	334.96	Not surveyed: not scheduled for monitoring		
MW-5	08-23-96	334.96	Not surveyed: not scheduled for monitoring		
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	
MW-6	11-28-95	335.42	Not surveyed: not scheduled for monitoring		
MW-6	02-26-96	335.42	5.94	329.48	
MW-6	05-23-96	335.42	Not surveyed: not scheduled for monitoring		
MW-6	08-23-96	335.42	8.88	326.54	

Table 3
Historical Groundwater Elevation Data

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

Date: 11-21-96

Well Designation	Water Level Field Date	TOC Elevation ft-MSL	Depth to Water feet	Ground-Water Elevation ft-MSL	Comments
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-7	11-28-95	333.23			Not surveyed: not scheduled for monitoring
MW-7	02-26-96	333.23			Not surveyed: not scheduled for monitoring
MW-7	05-23-96	333.23			Not surveyed: not scheduled for monitoring
MW-7	08-23-96	333.23			Not surveyed: not scheduled for monitoring
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-8	11-28-95	335.80			Not surveyed: not scheduled for monitoring
MW-8	02-26-96	335.80			Not surveyed: not scheduled for monitoring
MW-8	05-23-96	335.80			Not surveyed: not scheduled for monitoring
MW-8	08-23-96	335.80			Not surveyed: not scheduled for monitoring
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	
MW-9	11-28-95	334.57			Not surveyed: not scheduled for monitoring
MW-9	02-26-96	334.57			Not surveyed: not scheduled for monitoring
MW-9	05-23-96	334.57			Not surveyed: not scheduled for monitoring
MW-9	08-23-96	334.57			Not surveyed: not scheduled for monitoring
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-11	11-28-95	334.20			Not surveyed: not scheduled for monitoring
MW-11	02-26-96	334.20			Not surveyed: not scheduled for monitoring
MW-11	05-23-96	334.20			Not surveyed: not scheduled for monitoring
MW-11	08-23-96	334.20			Not surveyed: not scheduled for monitoring

Table 3
Historical Groundwater Elevation Data

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

Date: 11-21-96

Well Designation	Water Level Field Date	TOC Elevation ft-MSL	Depth to Water feet	Ground-Water Elevation ft-MSL	Comments
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-12	11-28-95	332.53			Not surveyed: not scheduled for monitoring
MW-12	02-26-96	332.53			Not surveyed: not scheduled for monitoring
MW-12	05-23-96	332.53			Not surveyed: not scheduled for monitoring
MW-12	08-23-96	332.53			Not surveyed: not scheduled for monitoring
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	
MW-13	11-28-95	335.64			Not surveyed: not scheduled for monitoring
MW-13	02-26-96	335.64	5.76	329.88	
MW-13	05-23-96	335.64			Not surveyed: not scheduled for monitoring
MW-13	08-23-96	335.64	8.66	326.98	
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	
RW-1	11-28-95	336.19			Not surveyed: not scheduled for monitoring
RW-1	02-26-96	336.19			Not surveyed: not scheduled for monitoring
RW-1	05-23-96	336.19			Not surveyed: not scheduled for monitoring
RW-1	08-23-96	336.19			Not surveyed: not scheduled for monitoring
UNOCAL Station					
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-1	11-28-95	336.07	10.45	325.62	
MW-1	02-26-96	336.07	6.45	329.62	
MW-1	05-23-96	336.07			Not surveyed: not scheduled for monitoring
MW-1	08-23-96	336.07			Not surveyed: not scheduled for monitoring

Table 3
Historical Groundwater Elevation Data

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

Date: 11-21-96

Well Designation	Water Level Field Date	TOC Elevation ft-MSL	Depth to Water feet	Ground-Water Elevation ft-MSL	Comments
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-2	11-28-95	336.78	10.65	326.13	
MW-2	02-26-96	336.78	6.39	330.39	
MW-2	05-23-96	336.78	Not surveyed: not scheduled for monitoring		
MW-2	08-23-96	336.78	Not surveyed: not scheduled for monitoring		
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	
MW-3	11-28-95	336.98	10.85	326.13	
MW-3	02-26-96	336.98	6.39	330.59	
MW-3	05-23-96	336.98	Not surveyed: not scheduled for monitoring		
MW-3	08-23-96	336.98	Not surveyed: not scheduled for monitoring		
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-4	11-28-95	336.43	10.81	325.62	
MW-4	02-26-96	336.43	6.75	329.68	
MW-4	05-23-96	336.43	Not surveyed: not scheduled for monitoring		
MW-4	08-23-96	336.43	Not surveyed: not scheduled for monitoring		

Table 3
Historical Groundwater Elevation Data

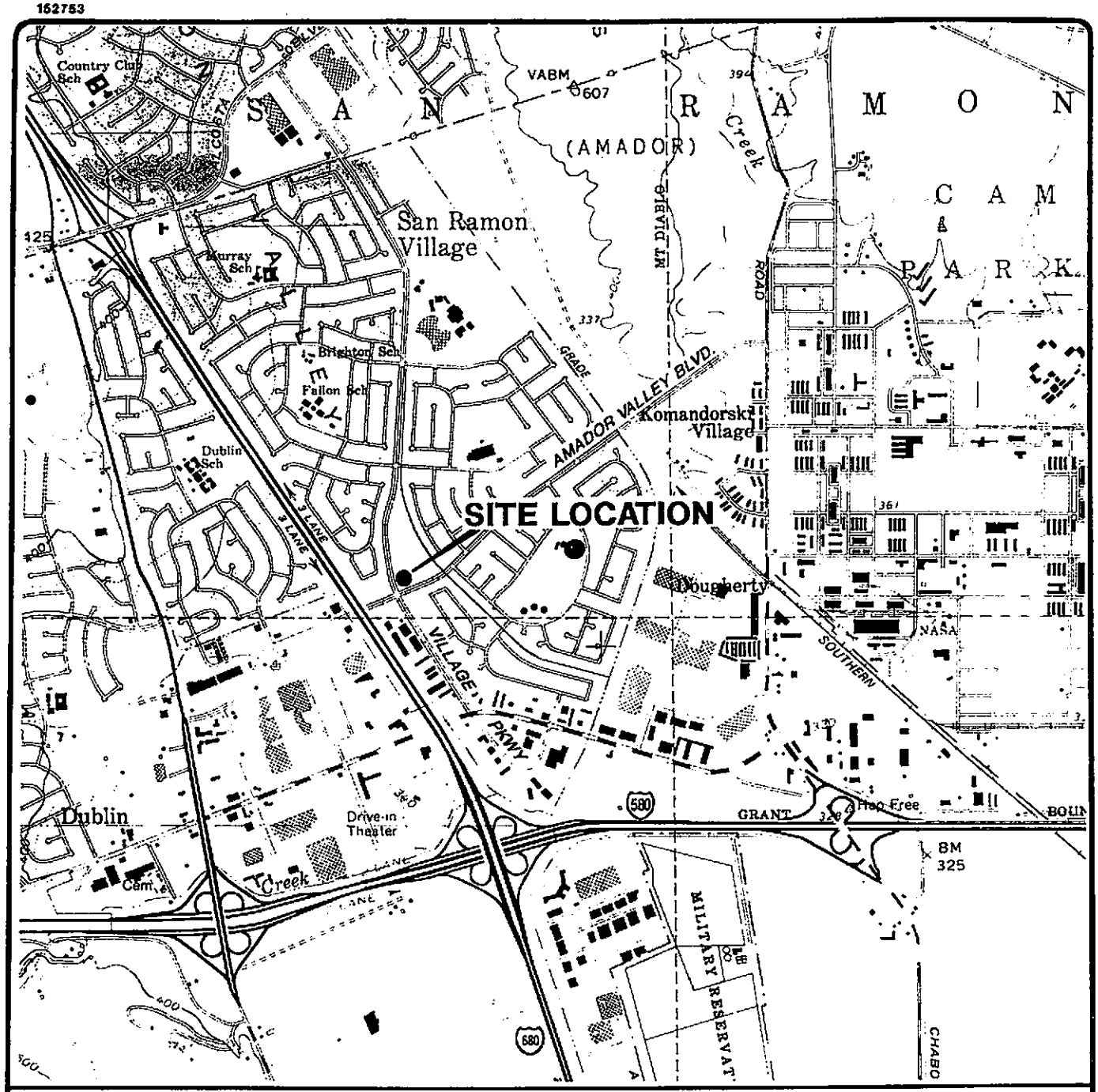
BP Station 1116, 7197 Village Parkway
Former Shell Station, 7194 Amador Valley Boulevard
UNOCAL Station, 7375 Amador Valley Boulevard

Date: 11-21-96

Well Designation	Water Level Field Date	TOC Elevation ft-MSL	Depth to Water feet	Ground-Water Elevation ft-MSL	Comments
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	
MW-5	11-28-95	335.96	10.33	325.63	
MW-5	02-26-96	335.96	7.15	328.81	
MW-5	05-23-96	335.96	8.65	327.31	
MW-5	08-23-96	335.96	10.02	325.94	

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

152753

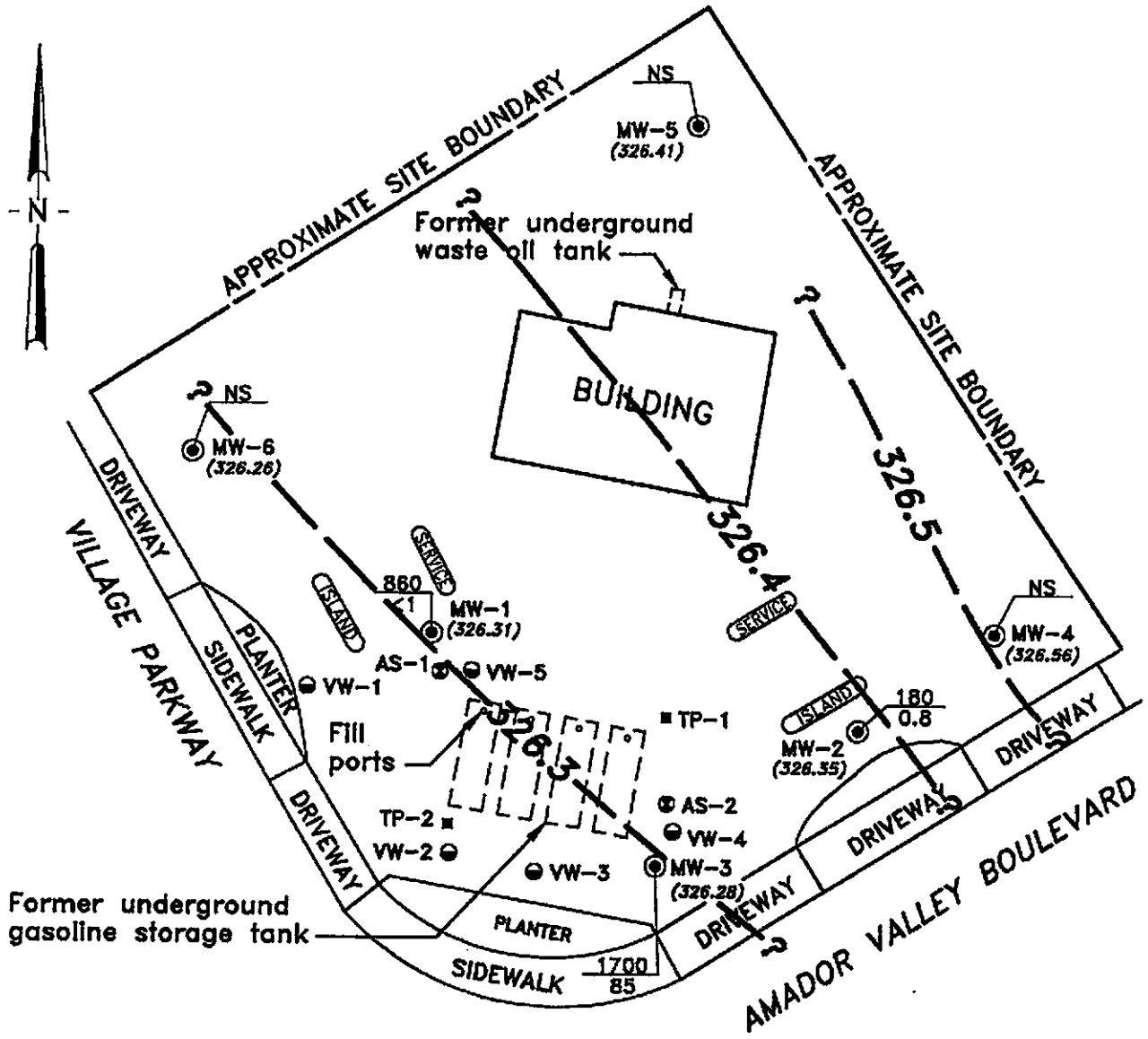


EMCON

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

SITE LOCATION

FIGURE
1
PROJECT NO.
805-132.03



EXPLANATION

- ◉ Groundwater monitoring well
- ■ Tank pit observation well
- ◒ Vapor extraction well
- ◍ Air sparge well
- NS Not sampled; not scheduled for chemical analysis
- ND Not detected at or above the method reporting limit for TPHG (50 µg/L) and benzene (0.5 ug/L)

(326.28) Groundwater elevation (Ft.–MSL) measured 8/23/96

? Groundwater elevation contour (Ft.–MSL)

1700/85 TPHG concentration (ug/L); sampled 8/23/96

Benzene concentration (ug/L); sampled 8/23/96

SCALE: 0 40 80 FEET (Approximate)

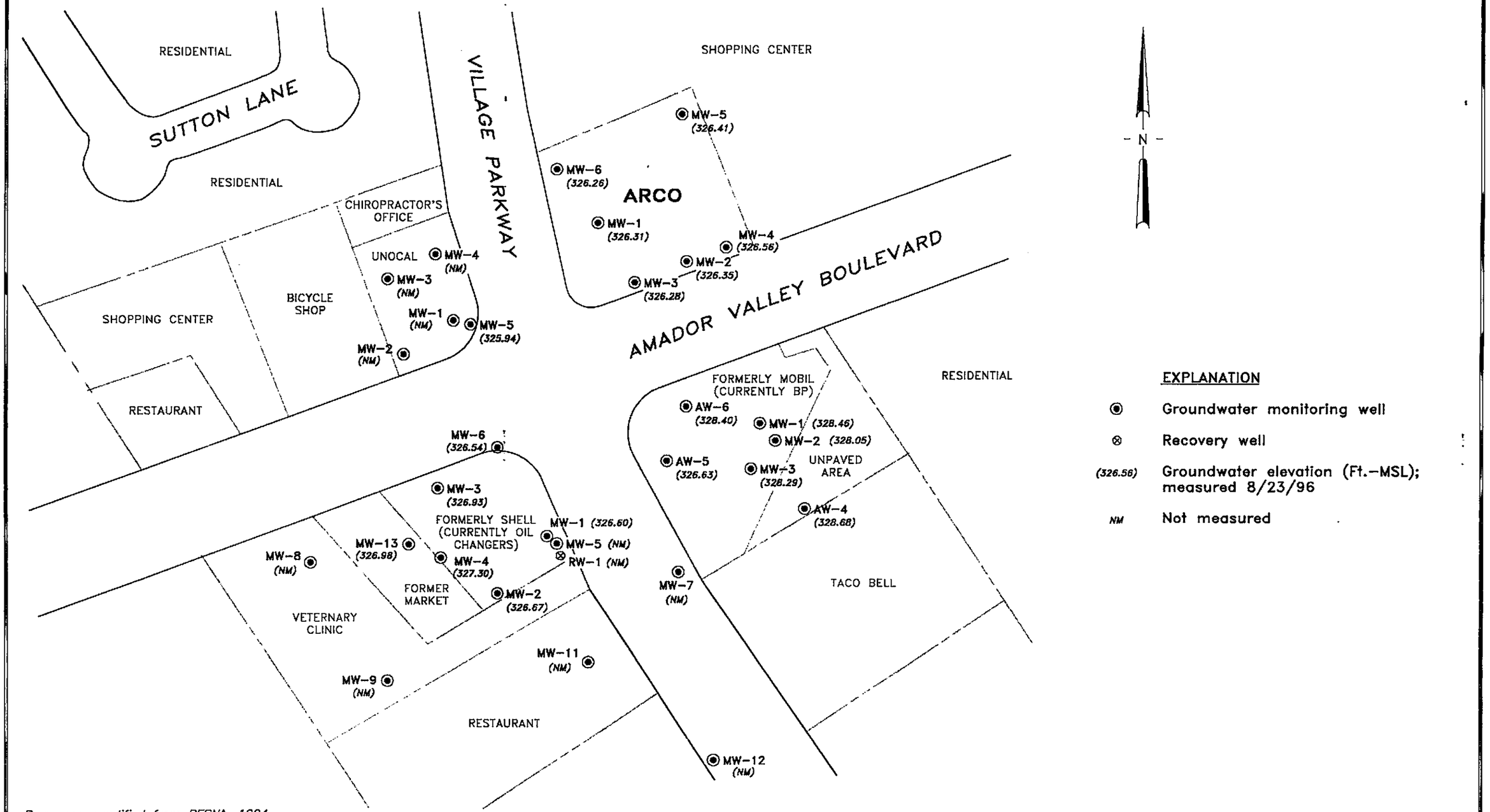
EMCON

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

GROUNDWATER DATA
THIRD QUARTER 1996

FIGURE 2

PROJECT NO. 805–132.003



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 1996

FIGURE
3
PROJECT NO.
805-132.03

G:\805-132\G00 REV 0 11/18/96 14:24:08 DD DJ

APPENDIX A

FIELD DATA SHEETS, THIRD QUARTER 1996 GROUNDWATER MONITORING EVENT

FIELD REPORT
DEPTH TO WATER / FLOATING PRODUCT SURVEY

PROJECT # : 21775-244.002 STATION ADDRESS : 7249 Village Parkway, Dublin DATE : 8-23-96

ARCO STATION # : 6041 FIELD TECHNICIAN : M. BOLLEGOS DAY : Friday

DTW Order	WELL ID	Well Box Seal	Well Lid Secure	Gasket Present	Lock Number	Type Of 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	Scr'd	15/16	YES	Arco	Lwc	7.66	7.66	NA	NP.	14.5	
2	MW-5		15/16				9.46	9.40			17.4	
3	MW-6		15/16				9.58	9.58			15.7	Well Box needs to be raised.
4	MW-2		15/16				8.45	8.45			14.1	
5	MW-1		15/16				10.25	10.25			17.5	
6	MW-3		15/16				9.25	9.25			14.7	

SURVEY POINTS ARE TOP OF WELL CASINGS

Rev. 3. 2/94

WATER SAMPLE FIELD DATA SHEET

EMCON ASSOCIATES

PROJECT NO: 21775-244.002 SAMPLE ID: MW-11 (17')

PURGED BY: M Gallegos 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.): 11.73

DEPTH TO WATER (feet): 10.25 CALCULATED PURGE (gal.): 14.21

DEPTH OF WELL (feet): 17.5 ACTUAL PURGE VOL. (gal.): 6.0

DATE PURGED: 8-22-96 Start (2400 Hr) 1052 End (2400 Hr) 1056

DATE SAMPLED: " Start (2400 Hr) 1105 End (2400 Hr) —

TIME (2400 Hr)	VOLUME (gal.)	pH (units)	E.C. (µmhos/cm @ 25° C)	TEMPERATURE (°F)	COLOR (visual)	TURBIDITY (visual)
1055	5.0	6.67	2970	74.2	cloudy	light
	well	dried	CL 60	Sallow		
1107	recharge	6.61	3070	75.2	↓	↓

D. O. (ppm): N/A ODOR: Moderate

COLOR (COBALT 0 - 500): N/A

TURBIDITY (NTU 0 - 200 or 0 - 1000): N/A

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 #: ARCO-KEY

REMARKS: All Samples taken

Meter Calibration: Date: 8/22/96 Time: ___ Meter Serial #: 9204 Temperature °F: ___

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

Location of previous calibration: MW-2

Signature: [signature] Reviewed By: SK

Rev. 3, 2/94

WATER SAMPLE FIELD DATA SHEET

EMCON ASSOCIATES

PROJECT NO: 21775-244.002 SAMPLE ID: MW-2 (14')

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.): 3.69

DEPTH TO WATER (feet): 8.45 CALCULATED PURGE (gal.): 11.07

DEPTH OF WELL (feet): 14.1 ACTUAL PURGE VOL. (gal.): 11.5

DATE PURGED: 8-23-94 Start (2400 Hr) 1024 End (2400 Hr) 1032

DATE SAMPLED: √ Start (2400 Hr) ~~1040~~ 1040 End (2400 Hr) —

TIME (2400 Hr)	VOLUME (gal.)	pH (units)	E.C. (µmhos/cm @ 25° C)	TEMPERATURE (°F)	COLOR (visual)	TURBIDITY (visual)
1027	4.0	6.44	3040	75.1	cloudy	mod
1030	8.0	6.73	3180	74.4	↓	Heavy
1032	11.5	6.76	3210	74.1	↓	↓

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

___ 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 #: ARCO-Key

REMARKS: All samples taken

Meter Calibration: Date: 8-23-94 Time: ___ Meter Serial #: 9204 Temperature °F: 73.1

(EC 1000 1027/1000) (DI ___) (pH 7 701/700) (pH 10 1000/1000) (pH 4 400/400)

Location of previous calibration: ___

Signature: [signature] Reviewed By: [signature] Page 2 of 3

Rev. 3. 2/94

WATER SAMPLE FIELD DATA SHEET

EMCON ASSOCIATES

PROJECT NO: 21775-244.002 SAMPLE ID: MW-3C (41')

PURGED BY: M. GALLEGOS CLIENT NAME: APIO # 60441

SAMPLED BY: ↓ LOCATION: LIVERMORE, CA

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

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

CASING ELEVATION (feet/MSL): N/R VOLUME IN CASING (gal.): 3.54

DEPTH TO WATER (feet): 9.25 CALCULATED PURGE (gal.): 10.68

DEPTH OF WELL (feet): 14.7 ACTUAL PURGE VOL. (gal.): 4.0

DATE PURGED: 8-23-94 Start (2400 Hr) 1122 End (2400 Hr) 1124

DATE SAMPLED: ↓ Start (2400 Hr) 1130 End (2400 Hr) —

TIME (2400 Hr)	VOLUME (gal.)	pH (units)	E.C. (µmhos/cm @ 25° C)	TEMPERATURE (°F)	COLOR (visual)	TURBIDITY (visual)
1124	4.0	6.70	2300	75.7	cloudy	light
	well	dried	at 840	gallons		
1132	recharge	6.63	2370	76.0	↓	↓

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

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

SAMPLING EQUIPMENT

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

WELL INTEGRITY: Good LOCK #: APIO-KEY

REMARKS: All Samples taken

Meter Calibration: Date: 8/23/94 Time: ___ Meter Serial #: 9204 Temperature °F: ___

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

Location of previous calibration: MW-3

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

ALISTO

ENGINEERING
GROUP

1575 TREAT BOULEVARD, SUITE 201
WALNUT CREEK CA 94598 (510) 295-1650 FAX 295-1823

Field Report / Sampling Data Sheet

Project No. 10-017-~~05-002~~ 06001
Address 7197 Village Parkway
Contract No. G602087
Station No. BP 11116
Sampler: LB

Date: 8/23/96
Day: M T W TH F
City: Dublin

DEPTH TO GROUNDWATER SUMMARY

WELL ID	SAMPLE ID	WELL DIAM	TOTAL DEPTH	DEPTH TO WATER	PRODUCT THICKNESS	TIME ~~SAMPLED~~	COMMENTS:
MW-1	~~SEMI~~ S-1	2"	25.90	6.71	0	1005	
MW-2	~~SEMI~~ S-2	"	25.45	6.53	"	1008	
MW-3	~~SEMI~~ S-3	"	25.90	6.84	"	1010	
AW-4	S-4	4"	34.15	4.73	"	1025	
AW-5	S-6	"	37.90	8.18	"	1027	S-7 (QC-1) From this well
AW-6	S-5	"	16.50	6.50	"	1030	

FIELD INSTRUMENT CALIBRATION DATA

pH METER Ayn Check 4.00 4 7.00 7 10.00 10 TEMPERATURE COMPENSATED (Y) N TIME _____ WEATHER Clear

D.O. METER Ayn Check ZERO d.O. SOLUTION 0 BAROMETRIC PRESSURE 760 TEMP 67

CONDUCTIVITY METER Ayn Check 10,000 TURBIDITY METER _____ 5.0 NTU _____ OTHER X

TABLE OF WELL GAUGING DATA

WELL I.D.	DATA COLLECTION DATE	MEASUREMENT REFERENCED TO	QUALITATIVE OBSERVATIONS (sheen)	DEPTH TO FIRST IMMISCIBLES LIQUID (FPZ) (feet)	THICKNESS OF IMMISCIBLES LIQUID ZONE (feet)	VOLUME OF IMMISCIBLES REMOVED (ml)	DEPTH TO WATER (feet)	DEPTH TO WELL BOTTOM (feet)	GW Elev
MW-1	8/23/96	TOC	--	NONE	--	--	8.23	25.12	326.60
MW-2	8/23/96	TOC	--	NONE	--	--	10.29	24.51	326.67
MW-3	8/23/96	TOC	--	NONE	--	--	10.00	24.20	326.93
MW-4 *	8/23/96	TOC	ODOR	NONE	--	--	9.84	24.72	327.30
MW-6	8/23/96	TOC	--	NONE	--	--	8.88	22.88	326.54
MW-13	8/23/96	TOC	ODOR	NONE	--	--	8.66	17.04	326.98

* Sample DUP was a duplicate sample taken from well MW-4.

MPDS-UN9366-11
September 17, 1996
Page 1 of 1

Table 1
Summary of Monitoring Data
Unocal Service Station Wells

Well #	Ground Water Elevation (feet)	Depth to Water (feet)	Total Well Depth (feet)
(Monitored and Sampled on August 23, 1996)			
MW5	325.94	10.02	19.99

APPENDIX B

ANALYTICAL RESULTS AND CHAIN-OF-CUSTODY DOCUMENTATION, THIRD QUARTER 1996 GROUNDWATER MONITORING EVENT

Columbia Analytical Services inc.

September 6, 1996 Service Request No.: S9601391

Mr. John Young
EMCON
1921 Ringwood Avenue
San Jose, CA 95131

RE: 6041 DUBLIN/20805-132.003/TO#19350.00

Dear Mr. Young:

Attached are the results of the samples submitted to our lab on August 23, 1996. For you reference, our service request number for this work is S9601391.

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.

If you have questions or further needs, please call me at (408) 428-1283.

Sincerely,

Steven L. Green
Project Chemist

SG/sh

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:**	S9601391
Project:	6041 DUBLIN/20805-132.003/TO#19350.00	**Date Collected:**	8/23/96
Sample Matrix:	Water	**Date Received:**	8/23/96
		Date Extracted:	NA

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

		Sample Name:	**MW-2 (14)**	**MW-1 (17)**	**MW-3 (14)**
		Lab Code:	S9601391-001	S9601391-002	S9601391-003
		Date Analyzed:	9/4/96	9/4-5/96	9/4/96
Analyte	**MRL**				
TPH as Gasoline	50		180	860	1,700
Benzene	0.5		0.8	<1*	85
Toluene	0.5		2	<1*	2.1
Ethylbenzene	0.5		0.7	<4**	61
Total Xylenes	0.5		2.6	2	5.3
Methyl *tert*-Butyl Ether	3		4,000	5,600	11,000

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

3S22/060194

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	ARCO Products Company	**Service Request:**	S9601391
Project:	6041 DUBLIN/20805-132.003/TO#19350.00	**Date Collected:**	8/23/96
Sample Matrix:	Water	**Date Received:**	8/23/96
		Date Extracted:	NA

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

		Sample Name:	**Method Blank**	**Method Blank**
		Lab Code:	S960904-WB1	S960905-WB1
		Date Analyzed:	9/4/96	9/5/96
Analyte	**MRL**			
TPH as Gasoline	50		ND	ND
Benzene	0.5		ND	ND
Toluene	0.5		ND	ND
Ethylbenzene	0.5		ND	ND
Total Xylenes	0.5		ND	ND
Methyl *tert*-Butyl Ether	3		ND	ND

3S22/060194

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	ARCO Products Company	**Service Request:**	S9601391
Project:	6041 DUBLIN/20805-132.003/TO#19350.00	**Date Collected:**	8/23/96
Sample Matrix:	Water	**Date Received:**	8/23/96
		Date Extracted:	NA
		Date Analyzed:	9/4-5/96

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

Sample Name	Lab Code	PID Detector Percent Recovery 4-Bromofluorobenzene	FID Detector Percent Recovery α,α,α–Trifluorotoluene
MW-2 (14)	S9601391-001	103	101
MW-1 (17)	S9601391-002	84	107*
MW-3 (14)	S9601391-003	100	109
Batch QC (MS)	S9601403-001MS	104	99
Batch QC (DMS)	S9601403-001DMS	104	98
Method Blank	S960804-WB1	100	96
Method Blank	S960805-WB1	100	95
CAS Acceptance Limits:		69-116	69-116

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

SUR2/060194

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	ARCO Products Company	**Service Request:**	S9601391
Project:	6041 DUBLIN/20805-132.003/TO#19350.00	**Date Collected:**	8/23/96
Sample Matrix:	Water	**Date Received:**	8/23/96
		Date Extracted:	NA
		Date Analyzed:	9/4/96

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

Sample Name: Batch QC
Lab Code: S9601403-001

	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	26.5	26.6	106	106	75-135	<1
Toluene	25	25	ND	25.8	25.8	103	103	73-136	<1
Ethylbenzene	25	25	ND	25.8	24.7	103	99	69-142	4

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	ARCO Products Company	**Service Request:**	S9601391
Project:	6041 DUBLIN/20805-132.003/TO#19350.00	**Date Analyzed:**	9/4/96

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	26.3	105	85-115
Toluene	25	25.8	103	85-115
Ethylbenzene	25	25.4	102	85-115
Xylenes, Total	75	76.2	102	85-115
Gasoline	250	239	96	90-110
Methyl *tert*-Butyl Ether	50	52	104	85-115

ARCO Products Company
Division of AtlanticRichfieldCompany

Task Order No. 17550.00

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 (gas) EPA M602/8020/8015	TPH Modified 8015 Gas ☐ Diesel ☐	Oil and Grease 413.1 ☐ 413.2 ☐	TPH EPA 418.1/SM503E	EPA 601/8010	EPA 624/8240	EPA 625/8270	TCLP Metals ☐ Semi VOA ☐ VOA ☐	CAM Metals EPA 6010/7000 TTLC ☐ STLC ☐	Lead Org./DHS ☐ Lead EPA 7420/7421 ☐		
MW-2(41)		2		X		X	HCL	8/23/96	1040		X											
MW-1(17)		2		X		X	HCL	↓	1105		X											
MW-3(41)		2		X		X	HCL	↓	1130		X											

Method of shipment: Sampler will Deliver

Special detection Limit/reporting: Lowest Possible

Special QA/QC: As Normal

Remarks: 2-40ml HCL VOAs

#20805-132.003

Lab number: 5960139

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. Talley	Date 8/23/96 Time 12:30	Received by	
Relinquished by	Date Time	Received by	
Relinquished by	Date Time	Received by laboratory: Joanne Brown	Date 8-23-96 Time 12:30

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

R8