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

ENVIRONMENTAL
PROTECTION

97 SEP 30 AM 9:17

Date September 30, 1997
Project 20805-132.005

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	Second quarter 1997 groundwater monitoring status report
	for ARCO service station 6041, Dublin, California

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

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

Gary P. Messerotes
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: September 30, 1997

Re: ARCO Station #

6041 • 7249 Village Parkway • Dublin, CA
Second Quarter 1997 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

August 29, 1997
Project 20805-132.005

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

Re: Second quarter 1997 groundwater monitoring status report, ARCO service station 6041, Dublin, California

Dear Mr. Supple:

This letter presents the status of the second quarter 1997 groundwater monitoring program at ARCO Products Company (ARCO) service station 6041, 7249 Village Parkway,, Dublin, California (Figure 1). The semi-annual 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, results should not be construed as a guarantee of the absence of such conditions at the site, but rather as the product of the scope, and limitations, of work performed during the monitoring event.

Please call if you have questions.

Sincerely,

EMCON

Gary P. Messerotes, R.G. 5650
Project Manager

REGISTERED GEOLOGIST
GARY P. MESSEROTES
5650
STATE OF CALIFORNIA

August 29, 1997

ARCO STATUS REPORT

Station No.: 6041	Address: 7249 Village Parkway, Dublin, California
EMCON Project No.	20805-132.005
ARCO Environmental Engineer/Phone No.:	Paul Supple /(510) 299-8891
EMCON Project Manager/Phone No.:	Gary P. Messerotes/(408) 453-7300
Primary Agency/Regulatory ID No.:	ACHCSA /Eva Chu

WORK PERFORMED THIS QUARTER (Second- 1997):

1. Prepared status report for second quarter 1997.

WORK PROPOSED FOR NEXT QUARTER (Third- 1997):

1. Perform quarterly groundwater monitoring and sampling for third quarter 1997.

WORK PROJECTED FOR 1997:

1. Prepare and submit semi-annual groundwater monitoring report for third quarter 1997.
2. Prepare and submit status report for fourth quarter 1997.

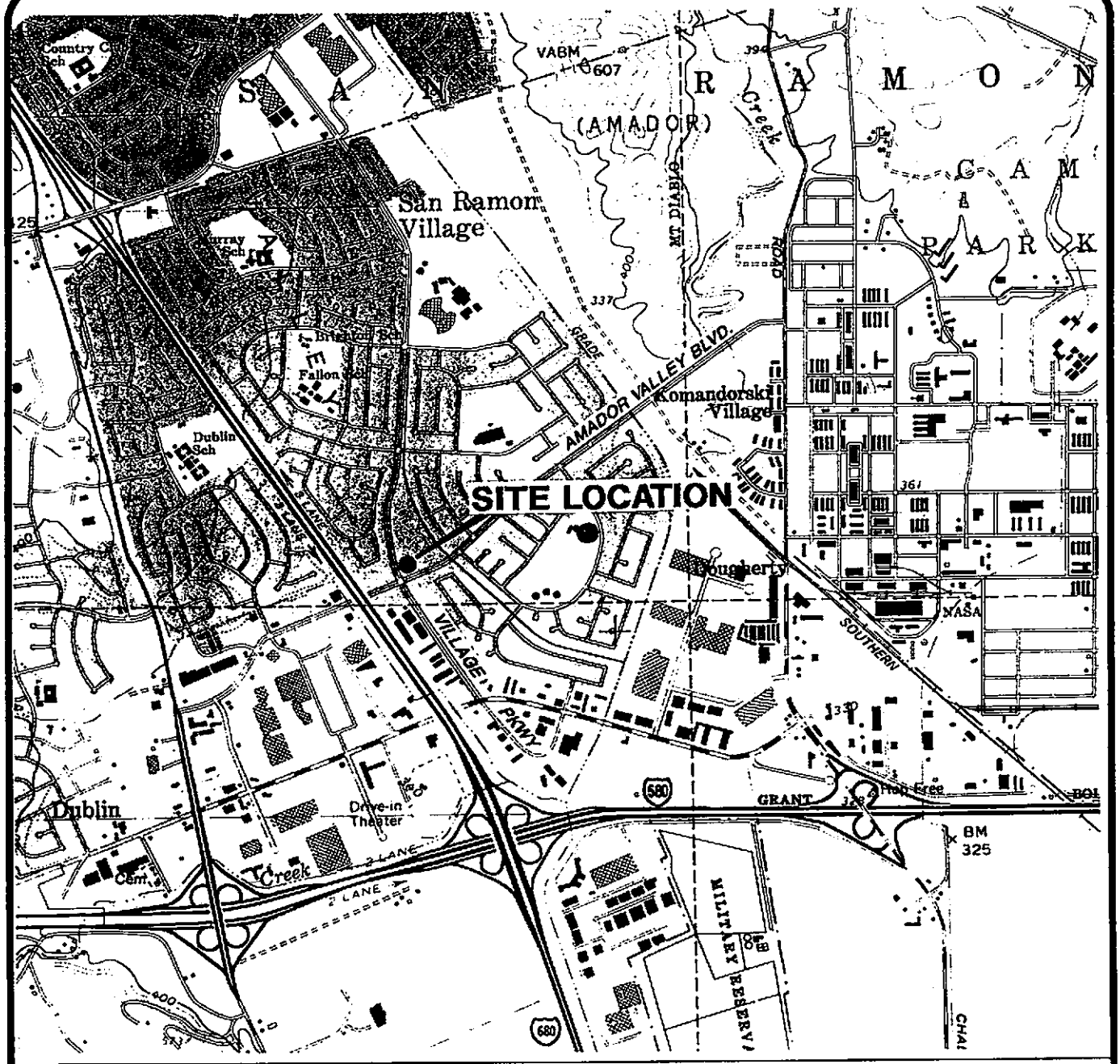
SEMI-ANNUAL MONITORING:

Current Phase of Project:	Semi-Annual Groundwater Monitoring
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

ATTACHED:

- Figure 1 - Site Location

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



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

EMCON

DATE	APR. 1997
DWN	KAJ
APP	
REV	
PROJECT NO.	805-132.005

FIGURE 1
ARCO PRODUCTS COMPANY
SERVICE STATION 6041, 7249 VILLAGE PKWY.
DUBLIN, CALIFORNIA
QUARTERLY GROUNDWATER MONITORING
SITE LOCATION

EA-SANJOSE-CAD/DRAWINGS: I:\0Z002\SITELOC.dwg Xrefs: <NONE>
Scale: 1 = 1.00 DimScale: 1 = 1.00 Date: 3/12/97 Time: 5:19 PM Operator: KAJ

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

Date June 27, 1997
Project 20805-132.005

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: 7249 Village Pkwy

Copies	Description
1	First quarter 1997 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.

Valli Voruganti
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:
June 25, 1997

Re: ARCO Station #

6041 • 7249 Village Parkway • Dublin, CA
First Quarter 1997 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

June 27, 1997
Project 20805-132.005

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

Re: First quarter 1997 groundwater monitoring program results, ARCO service station 6041, Dublin, California

Dear Mr. Supple:

This letter presents the results of the first quarter 1997 groundwater monitoring program at ARCO Products Company (ARCO) service station 6041, 7249 Village Parkway,, Dublin, California (Figure 1). The semi-annual 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

Lynn Gallagher, R.G. 6090
Project Geologist

REGISTERED GEOLOGIST
LYNN A. GALLAGHER
RG6090
STATE OF CALIFORNIA

June 27, 1997

ARCO SEMI-ANNUAL REPORT

Station No.: 6041	Address: 7249 Village Parkway, Dublin, California
EMCON Project No.	20805-132.005
ARCO Environmental Engineer/Phone No.:	Paul Supple /(510) 299-8891
EMCON Project Manager/Phone No.:	Valli Voruganti /(408) 453-7300
Primary Agency/Regulatory ID No.:	ACHCSA /Eva Chu

WORK PERFORMED THIS QUARTER (First- 1997):

1. Conducted quarterly groundwater monitoring and sampling for first quarter 1997.

WORK PROPOSED FOR NEXT QUARTER (Second- 1997):

1. Prepare and submit semi-annual groundwater monitoring report for first quarter 1997.

WORK PROJECTED FOR 1997:

1. Prepare and submit status report for second quarter 1997.
2. Perform quarterly groundwater monitoring and sampling for third quarter 1997.
3. Prepare and submit semi-annual groundwater monitoring report for third quarter 1997.
4. Prepare and submit status report for fourth quarter 1997.

SEMI-ANNUAL MONITORING:

Current Phase of Project:	Semi-Annual Groundwater Monitoring
Frequency of Sampling:	Semi-Annual (groundwater)
Frequency of Monitoring:	Semi-Annual (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
Average Depth to Groundwater:	8.22 feet
Groundwater Gradient (Average):	0.005 ft/ft toward south-southeast

ATTACHED:

- Table 1 - Groundwater Monitoring Data, First Quarter 1997
- 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, First Quarter 1997
- Figure 3 - Groundwater Data, ARCO, BP, Shell, and UNOCAL Stations, First Quarter 1997
- Appendix A - Analytical Results and Chain of Custody Documentation, First Quarter 1997 Groundwater Monitoring Event

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

Table 1
Groundwater Monitoring Data
First Quarter 1997

ARCO Service Station 6041
7249 Village Parkway, Dublin, California

Date: 06-13-97

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	03-21-97	336.56	9.35	327.21	ND	SSE	0.005	03-21-97	520	12	<0.5	2.7	1.5	6200	- -
MW-2	03-21-97	334.80	7.28	327.52	ND	SSE	0.005	03-21-97	410	90	<1^	14	4	3800	- -
MW-3	03-21-97	335.53	8.72	326.81	ND	SSE	0.005	03-21-97	100	2	<1^	1	<1^	6600	- -
MW-4	03-21-97	334.22	6.84	327.38	ND	SSE	0.005	03-21-97	Not sampled: well not part of sampling program						
MW-5	03-21-97	335.87	8.23	327.64	ND	SSE	0.005	03-21-97	Not sampled: well not part of sampling program						
MW-6	03-21-97	335.84	8.39	327.45	ND	SSE	0.005	03-21-97	Not sampled: well not part of sampling program						
VW-2	03-21-97	NR	8.22	NR	ND	SSE	0.005	03-21-97	150	8.9	<0.5	<0.5	0.6	270	- -

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
SSE: south-southeast
^: method reporting limit was raised due to: (1) high analyte concentration requiring sample dilution, or (2) matrix interference
- - : not available, not analyzed

esj/h:\6041\6041mdb.xls\Table 1:imi
20805-132.005

Table 2
Historical Groundwater Elevation and Analytical Data
Petroleum Hydrocarbons and Their Constituents
1995 - Present*

ARCO Service Station 6041
7249 Village Parkway, Dublin, California

Date: 06-13-97

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	02-15-95	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-1	03-21-97	336.56	9.35	327.21	ND	SSE	0.005	03-21-97	520	12	<0.5	2.7	1.5	6200	--
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	--
MW-2	03-21-97	334.80	7.28	327.52	ND	SSE	0.005	03-21-97	410	90	<1^	14	4	3800	--

Table 2
Historical Groundwater Elevation and Analytical Data
Petroleum Hydrocarbons and Their Constituents
1995 - Present*

ARCO Service Station 6041
7249 Village Parkway, Dublin, California

Date: 06-13-97

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	02-15-95	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-3	03-21-97	335.53	8.72	326.81	ND	SSE	0.005	03-21-97	100	2	<1^	1	<1^	6600	- -
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: well sampled semi-annually, during the first and third quarters						
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: well sampled semi-annually, during the first and third quarters						
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: well sampled semi-annually, during the first and third quarters						
MW-4	08-23-96	334.22	7.66	326.56	ND	FG	FG	08-23-96	Not sampled: well not part of sampling program						
MW-4	03-21-97	334.22	6.84	327.38	ND	SSE	0.005	03-21-97	Not sampled: well not part of sampling program						

Table 2
Historical Groundwater Elevation and Analytical Data
Petroleum Hydrocarbons and Their Constituents
1995 - Present*

ARCO Service Station 6041
7249 Village Parkway, Dublin, California

Date: 06-13-97

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	02-15-95	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: well sampled annually, during the first quarter						
MW-5	08-25-95	335.87	9.43	326.44	ND	NW	0.006	08-25-95	Not sampled: well sampled annually, during the first quarter						
MW-5	11-28-95	335.87	10.12	325.75	ND	N	0.006	11-28-95	Not sampled: well sampled annually, during the first quarter						
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: well sampled annually, during the first quarter						
MW-5	08-23-96	335.87	9.46	326.41	ND	FG	FG	08-23-96	Not sampled: well not part of sampling program						
MW-5	03-21-97	335.87	8.23	327.64	ND	SSE	0.005	03-21-97	Not sampled: well not part of sampling program						
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: well sampled annually, during the first quarter						
MW-6	08-25-95	335.84	9.71	326.13	ND	NW	0.006	08-25-95	Not sampled: well sampled annually, during the first quarter						
MW-6	11-28-95	335.84	10.28	325.56	ND	N	0.006	11-28-95	Not sampled: well sampled annually, during the first quarter						
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: well sampled annually, during the first quarter						
MW-6	08-23-96	335.84	9.58	326.26	ND	FG	FG	08-23-96	Not sampled: well not part of sampling program						
MW-6	03-21-97	335.84	8.39	327.45	ND	SSE	0.005	03-21-97	Not sampled: well not part of sampling program						
VW-2	03-21-97	NR	8.22	NR	ND	SSE	0.005	03-21-97	150	8.9	<0.5	<0.5	0.6	270	--

Table 2
Historical Groundwater Elevation and Analytical Data
Petroleum Hydrocarbons and Their Constituents
1995 - Present*

ARCO Service Station 6041
7249 Village Parkway, Dublin, California

Date: 06-13-97

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
SSE: south-southeast
N: north
E: east
FG: flat gradient; the groundwater gradient over the local area was nearly flat
^: method reporting limit was raised due to: (1) high analyte concentration requiring sample dilution, or (2) matrix interference
- -: 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: 06-13-97

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-1	12-02-96	335.17	8.58	326.59	
MW-1	03-21-97	335.17	Not surveyed		
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-2	12-02-96	334.58	8.40	326.18	
MW-2	03-21-97	334.58	Not surveyed		
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	
MW-3	12-02-96	335.13	8.61	326.52	
MW-3	03-21-97	335.13	Not surveyed		

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: 06-13-97

Well Designation	Water Level Field Date	TOC Elevation ft-MSL	Depth to Water feet	Ground-Water Elevation ft-MSL	Comments
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	
AW-4	12-02-96	333.41	6.43	326.98	
AW-4	03-21-97	333.41	Not surveyed		
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-5	12-02-96	334.81	7.90	326.91	
AW-5	03-21-97	334.81	Not surveyed		
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	
AW-6	12-02-96	334.90	8.46	326.44	
AW-6	03-21-97	334.90	Not surveyed		

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: 06-13-97

Well Designation	Water Level Field Date	TOC Elevation ft-MSL	Depth to Water feet	Ground-Water Elevation ft-MSL	Comments
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-1	11-22-96	334.83	Not surveyed: not scheduled for monitoring		
MW-1	03-21-97	334.83	Not surveyed: not scheduled for monitoring		
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	
MW-2	11-22-96	336.96	Not surveyed: not scheduled for monitoring		
MW-2	03-21-97	336.96	Not surveyed: not scheduled for monitoring		
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-3	11-22-96	336.93	Not surveyed: not scheduled for monitoring		
MW-3	03-21-97	336.93	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: 06-13-97

Well Designation	Water Level Field Date	TOC Elevation ft-MSL	Depth to Water feet	Ground-Water Elevation ft-MSL	Comments
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-4	11-22-96	337.14	Not surveyed: not scheduled for monitoring		
MW-4	03-21-97	337.14	Not surveyed: not scheduled for monitoring		
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-5	11-22-96	334.96	Not surveyed: not scheduled for monitoring		
MW-5	03-21-97	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	
MW-6	11-22-96	335.42	Not surveyed: not scheduled for monitoring		
MW-6	03-21-97	335.42	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: 06-13-97

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-7	11-22-96	333.23	Not surveyed: not scheduled for monitoring		
MW-7	03-21-97	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-8	11-22-96	335.80	Not surveyed: not scheduled for monitoring		
MW-8	03-21-97	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-9	11-22-96	334.57	Not surveyed: not scheduled for monitoring		
MW-9	03-21-97	334.57	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: 06-13-97

Well Desig-nation	Water Level Field Date	TOC Elevation ft-MSL	Depth to Water feet	Ground-Water Elevation ft-MSL	Comments
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
MW-11	11-22-96	334.20			Not surveyed: not scheduled for monitoring
MW-11	03-21-97	334.20			Not surveyed: not scheduled for monitoring
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-12	11-22-96	332.53			Not surveyed: not scheduled for monitoring
MW-12	03-21-97	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	
MW-13	11-22-96	335.64			Not surveyed: not scheduled for monitoring
MW-13	03-21-97	335.64			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: 06-13-97

Well Designation	Water Level Field Date	TOC Elevation ft-MSL	Depth to Water feet	Ground-Water Elevation ft-MSL	Comments
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
RW-1	11-22-96	336.19			Not surveyed: not scheduled for monitoring
RW-1	03-21-97	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
MW-1	11-22-96	336.07			Not surveyed: not scheduled for monitoring
MW-1	02-12-97	336.07			Not surveyed: not scheduled for monitoring
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-2	11-22-96	336.78			Not surveyed: not scheduled for monitoring
MW-2	02-12-97	336.78			Not surveyed: not scheduled for monitoring

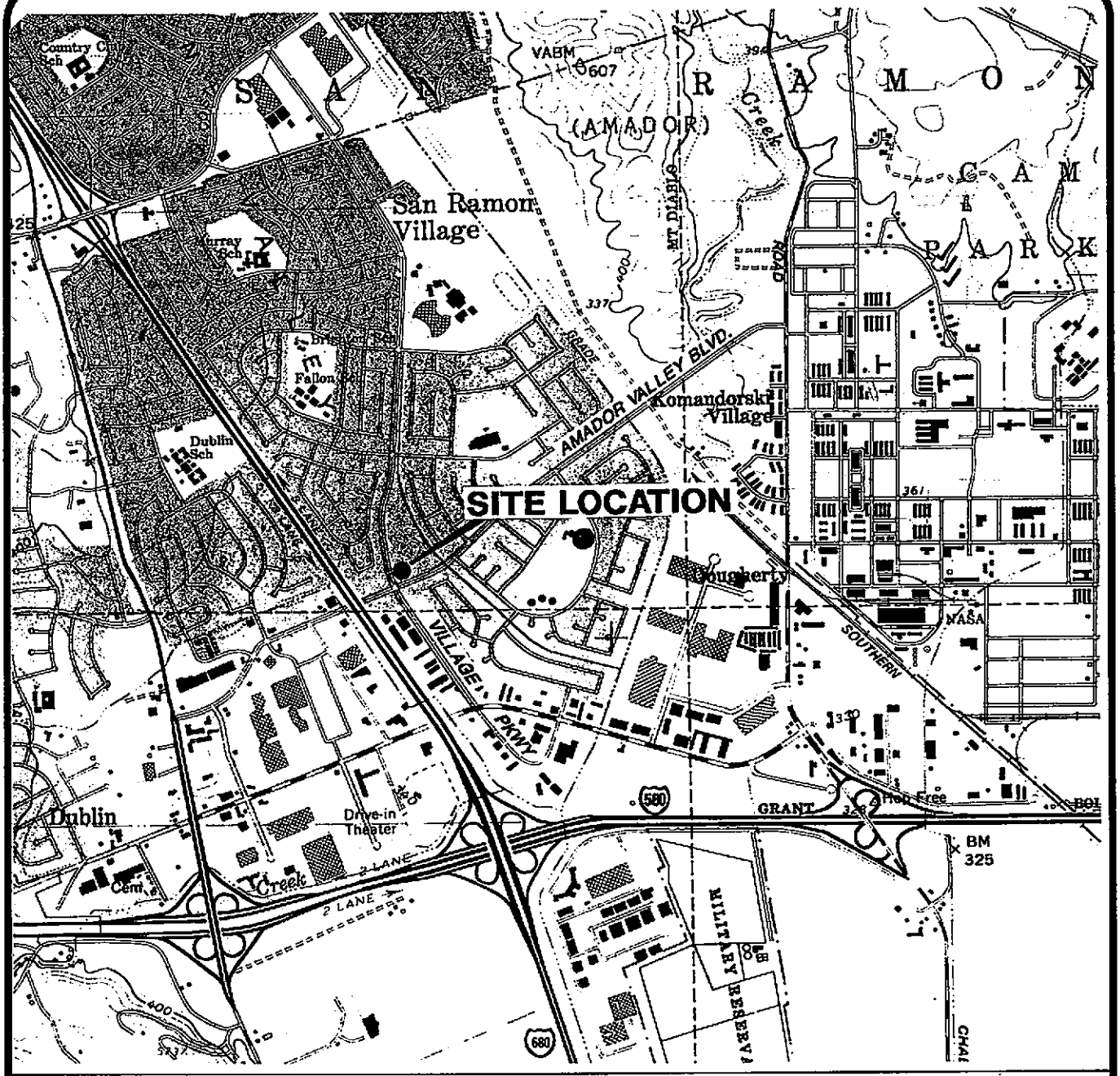
Table 3
Historical Groundwater Elevation Data

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

Date: 06-13-97

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	336.98	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-3	11-22-96	336.98	Not surveyed: not scheduled for monitoring		
MW-3	02-12-97	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		
MW-4	11-22-96	336.43	Not surveyed: not scheduled for monitoring		
MW-4	02-12-97	336.43	Not surveyed: not scheduled for monitoring		
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	
MW-5	11-22-96	335.96	10.16	325.80	
MW-5	02-12-97	335.96	7.18	328.78	

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

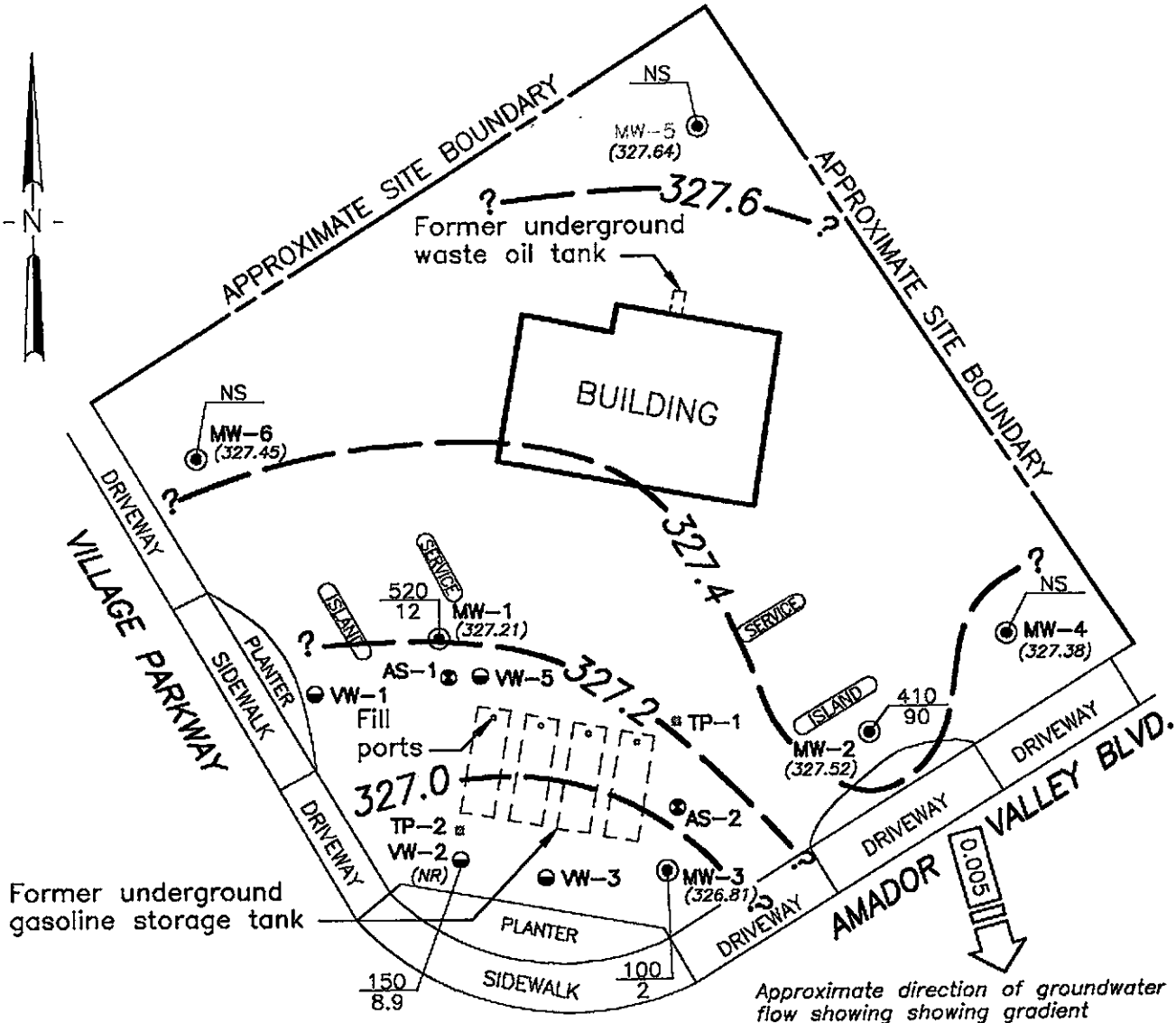


EMCON

DATE APR. 1997
DWN KAJ
APP
REV
PROJECT NO.
805-132.005

FIGURE 1
ARCO PRODUCTS COMPANY
SERVICE STATION 6041, 7249 VILLAGE PKWY.
DUBLIN, CALIFORNIA
QUARTERLY GROUNDWATER MONITORING
SITE LOCATION

EA-SANJOSE-CAD/DRAWINGS: I:\QZ002\SITELOC.dwg Xrefs: <NONE>
Scale: 1 = 1.00 DimScale: 1 = 1.00 Date: 3/12/97 Time: 5:19 PM Operator: KAJ



Approximate direction of groundwater flow showing showing gradient (Calculated using wells MW-3, MW-5, and MW-6)

EXPLANATION

- ◉ Groundwater monitoring well
- ▣ Tank pit observation well
- ◒ Vapor extraction well
- ⊗ Air sparge well
- NS Not sampled; not scheduled for chemical analysis
- NR Not recorded

(326.28) Groundwater elevation (Ft.–MSL) measured 3/21/97

Groundwater elevation contour (Ft.–MSL)

1700 / 85 TPHG concentration (ug/L); sampled 3/21/97 / Benzene concentration (ug/L); sampled 3/21/97

0 40 80

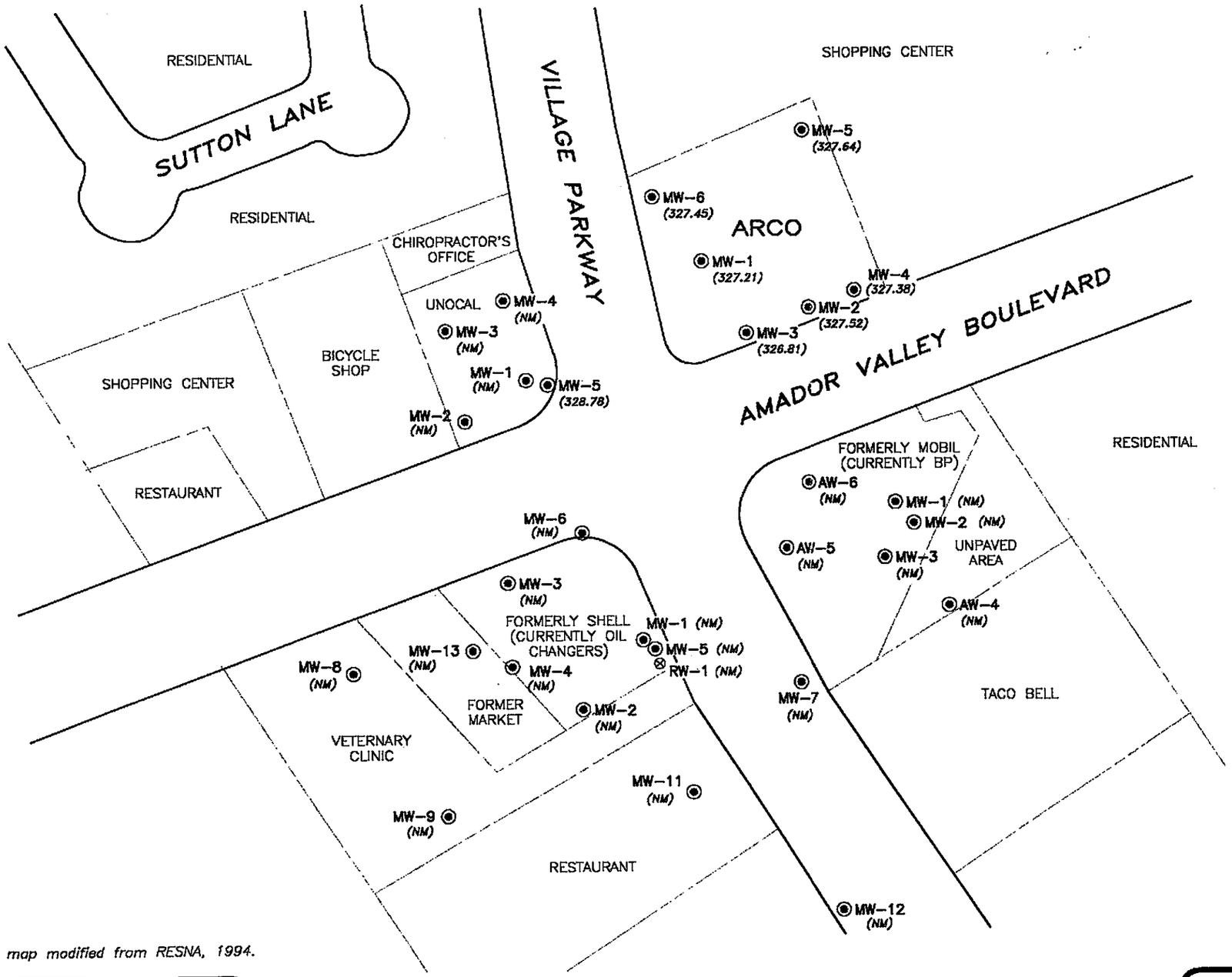
SCALE IN FEET

emcon

DATE JUNE 1997
DWN KMM
APP
REV 0
PROJECT NO.
10805-132.005

FIGURE 2
ARCO PRODUCTS COMPANY
SERVICE STATION 6041, 7249 VILLAGE PKWY
DUBLIN, CALIFORNIA
QUARTERLY GROUNDWATER MONITORING
GROUNDWATER DATA - 1ST QUARTER 1997

EA-SANJOSE-CAD/DRAWINGS: G:\805-132\SJGWEL-A.dwg Xrefs: <NONE>
Scale: 1 = 40.00 DimScale: 1 = 40.00 Date: 6/11/97 Time: 4:18 PM Operator: KMM



EXPLANATION

- ◉ Groundwater monitoring well
- ⊗ Recovery well
- (327.38) Groundwater elevation (Ft.–MSL); measured 3/21/97 (UNOCAL well MW–5 measured 2/12/97)
- NM Not measured

Base map modified from RESNA, 1994.

EMCON

DATE MAY 1997
DWN KMM
APP
REV 0
PROJECT NO. 20805–132.005

FIGURE 3
ARCO PRODUCTS COMPANY
SERVICE STATION 6041, 7249 VILLAGE PKWY.
DUBLIN, CALIFORNIA
QUARTERLY GROUNDWATER MONITORING
GROUNDWATER DATA - 1ST QUARTER 1997

EA–SANJOSE–CAD/DRAWINGS: G:\805–132\SJGWEL–B.dwg Xrefs: <NONE>
Scale: 1 = 40.00 DimScale: 1 = 1.00 Date: 6/13/97 Time: 1:21 PM Operator: KAJ

APPENDIX A

ANALYTICAL RESULTS AND CHAIN-OF-CUSTODY DOCUMENTATION, FIRST QUARTER 1997 GROUNDWATER MONITORING EVENT

Columbia Analytical Services, Inc.

April 7, 1997 Service Request No.: S9700523

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

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

Dear Mr. Young:

The following pages contain analytical results for sample(s) received by the laboratory on March 24, 1997. 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

Bernadette T. Cox for

Greg Anderson
Regional QA Coordinator

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)

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	ARCO Products Company	**Service Request:**	S9700523
Project:	6041 DUBLIN/20805-132.003/TO#19350.00	**Date Collected:**	3/21/97
Sample Matrix:	Water	**Date Received:**	3/24/97
		Date Extracted:	NA

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

Sample Name:	**VW-2 (9)**	**MW-2 (13)**	**MW-1 (16)**
Lab Code:	S9700523-001	S9700523-002	S9700523-003
Date Analyzed:	4/2/97	4/2/97	4/2/97

Analyte	**MRL**			
TPH as Gasoline	50	150	410	520
Benzene	0.5	8.9	90	12
Toluene	0.5	ND	<1 C1	ND
Ethylbenzene	0.5	ND	14	2.7
Total Xylenes	0.5	0.6	4	1.5
Methyl *tert*-Butyl Ether	3	270	3800	6200

C1 The MRL was elevated due to high analyte concentration requiring sample dilution.

3S22/060194

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client:	ARCO Products Company	**Service Request:**	S9700523
Project:	6041 DUBLIN/20805-132.003/TO#19350.00	**Date Collected:**	3/21/97
Sample Matrix:	Water	**Date Received:**	3/24/97
		Date Extracted:	NA

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

		Sample Name:	**MW-3 (13)**	**Method Blank**	**Method Blank**
		Lab Code:	S9700523-004	S9700402-WB1	S9700401-WB2
		Date Analyzed:	4/2/97	4/2/97	4/1/97
Analyte	**MRL**				
TPH as Gasoline	50		100	ND	ND
Benzene	0.5		2	ND	ND
Toluene	0.5		<1 C1	ND	ND
Ethylbenzene	0.5		1	ND	ND
Total Xylenes	0.5		<1 C1	ND	ND
Methyl *tert*-Butyl Ether	3		6600	ND	ND

C1 The MRL was elevated due to high analyte concentration requiring sample dilution.

3S22/060194

QA/QC Report

Client: ARCO Products Company
Project: 6041 DUBLIN/20805-132.003/TO#19350.00
Sample Matrix: Water

Service Request: S9700523
Date Collected: 3/21/97
Date Received: 3/24/97
Date Extracted: NA
Date Analyzed: NA

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
VW-2 (9)	S9700523-001	96	106
MW-2 (13)	S9700523-002	100	92
MW-1 (16)	S9700523-003	74	115 B1
MW-3 (13)	S9700523-004	99	93
Method Blank	S9700402-WB1	97	92
Method Blank	S9700401-WB2	95	80
Batch QC	S9700526-001MS	103	95
Batch QC	S9700526-001DMS	102	96
	CAS Acceptance Limits:	69-116	69-116

B1 The surrogate used for this sample was 4-Bromofluorobenzene.

SUR2/060194

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	ARCO Products Company	**Service Request:**	S9700523
Project:	6041 DUBLIN/20805-132.003/TO#19350.00	**Date Collected:**	3/21/97
Sample Matrix:	Water	**Date Received:**	3/24/97
		Date Extracted:	NA
		Date Analyzed:	4/2/97

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

Sample Name: Batch QC
Lab Code: S9700526-001MS, DMS

	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	26	104	104	75-135	<1
Toluene	25	25	ND	26	26	104	104	73-136	<1
Ethylbenzene	25	25	ND	26	26	104	104	69-142	<1

DMS1S/060194

Client: ARCO Products Company
Project: 6041 DUBLIN/20805-132.003/TO#19350.00

Service Request: S9700523
Date Analyzed: 4/2/97

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	104	85-115
Toluene	25	27	108	85-115
Ethylbenzene	25	28	112	85-115
Xylenes, Total	75	81	108	85-115
Gasoline	250	230	92	90-110
Methyl *tert*-Butyl Ether	25	24	96	85-115

ICV25AL/060194

ARCO Products Company
Division of AtlanticRichfieldCompany

Task Order No. 19350.00

Chain of Custody

ARCO Facility no. 6041	City (Facility) Dublin	Project manager (Consultant) John Young	Laboratory name C.A.S.
ARCO engineer PMJL Supplz	Telephone no. (ARCO)	Telephone no. (Consultant) (408) 453-7300	Fax no. (Consultant) (408) 453-0452
Consultant name	Address (Consultant)		Contract number

Method of shipment: Sampler will deliver

Special detection Limit/reporting: Lowest Possible

Special QA/QC: A3 NORMAL

Remarks: 2 40 ml HCL VOA's

20805-132.003

Lab number: 59700523

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 (G) 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 ☐	MTBE by EPA 8020
VW-2 (9')	1	2		✓		✓	HCL	3-21-97	09:17	✓	✓										✓
MW-2 (13')	2	2		✓		✓			10:11	✓	✓										✓
MW-1 (16')	3	2		✓		✓			10:45	✓	✓										✓
MW-3 (13')	4	2		✓		✓			11:05	✓	✓										✓

Condition of sample: OK

Temperature received: cool

Relinquished by sampler	Date 3-24-97	Time 10:14	Received by
Relinquished by	Date	Time	Received by
Relinquished by	Date	Time	Received by laboratory: Joanne Brown — Date 3/24/97 — Time 10:14

Turnaround time

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

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

APPC-3292 (2-91)

RS