



Date: December 12, 1996

Re: ARCO Station #

601 • 712 Lewelling Boulevard • San Leandro, 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:

A handwritten signature in black ink, appearing to read "Paul Supple". The signature is fluid and cursive, with the first name "Paul" and last name "Supple" clearly distinguishable.

Paul Supple
Environmental Engineer



EMCON

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

December 12, 1996
Project 20805-121.003

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

Re: Third quarter 1996 groundwater monitoring program results, ARCO service station 601, San Leandro, California

Dear Mr. Supple:

This letter presents the results of the third quarter 1996 groundwater monitoring program at ARCO Products Company (ARCO) service station 601, 712 Lewelling Boulevard, San Leandro, California (Figure 1). The quarterly monitoring program complies with Alameda County Health Care Services Agency (ACHCSA) requirements regarding underground tank investigations.

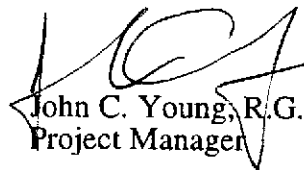
LIMITATIONS

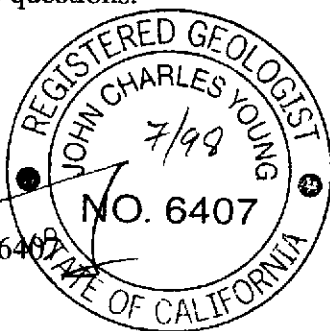
No monitoring event is thorough enough to describe all geologic and hydrogeologic conditions of interest at a given site. If conditions have not been identified during the monitoring event, such a finding should not therefore be construed as a guarantee of the absence of such conditions at the site,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


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



EMCON





EMCON

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

December 12, 1996
Project 20805-121.003

Mr. John Sullivan
17760 Sweetbriar Place
Castro Valley, California 94546

Re: Third quarter 1996 laboratory analytical results, groundwater samples, Chateau Manor Apartments, 724 Lewelling Boulevard, San Leandro, California

Dear Mr. Sullivan:

Enclosed please find copies of the laboratory analytical results for groundwater samples collected from wells MW-9 and MW-10 during the third quarter of 1996. These wells are located at Chateau Manor Apartments, 724 Lewelling Boulevard, San Leandro, California. The groundwater samples were collected on August 26, 1996, during quarterly sampling of the ARCO Products Company service station 601, 712 Lewelling Boulevard, San Leandro. The laboratory analytical results indicate that the groundwater sample concentrations were not detectable for total petroleum hydrocarbons as gasoline, and the gasoline constituents benzene, toluene, ethylbenzene, and total xylenes.

Please call if you have questions.

Sincerely,

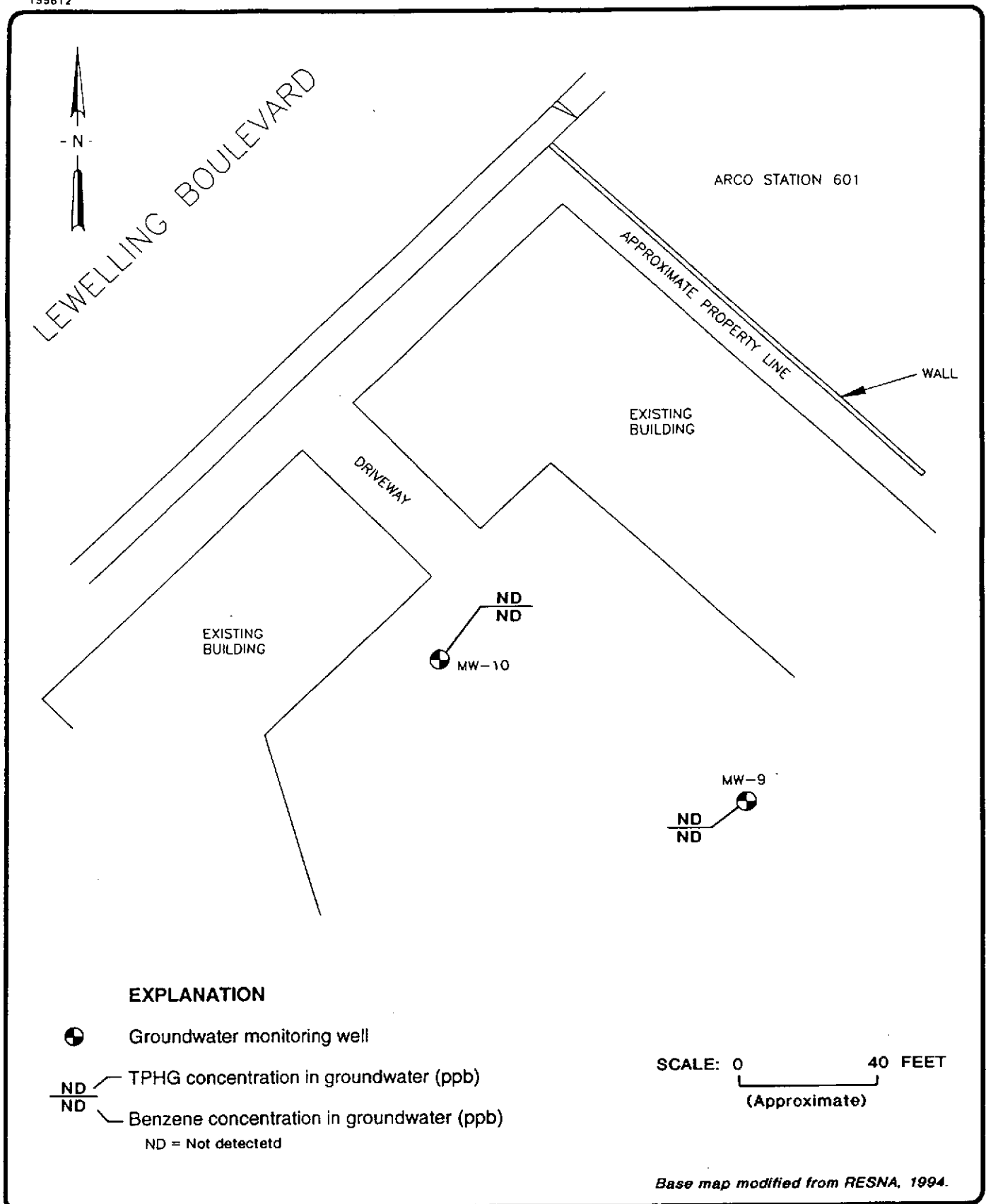
EMCON


John C. Young
Project Manager

Attachments: Figure 1 - Generalized Site Plan
Attachment A - Copy of Analytical Results and Chain-of-Custody
Documentation, Wells MW-9 and MW-10,
Third Quarter 1996

cc: Scott Seery, ACHCSA
Kevin Graves, RWQCB - SFBR
Paul Supple, ARCO Products Company
File





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CHATEAU MANOR APARTMENTS
724 LEWELLING BLVD.
QUARTERLY GROUNDWATER MONITORING
SAN LEANDRO, CALIFORNIA

GENERALIZED SITE PLAN

FIGURE

1

PROJECT NO.
805-121.03

ATTACHMENT A

**COPY OF ANALYTICAL RESULTS AND CHAIN-OF-CUSTODY
DOCUMENTATION, WELLS MW-9 AND MW-10,
THIRD QUARTER 1996**



September 9, 1996

Service Request No.: S9601405

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

RE: 601 SAN LEANDRO/20805-121.003/TO#19350.00

Dear Mr. Young:

Attached are the results of the samples submitted to our lab on August 26, 1996.
For you reference, our service request number for this work is S9601405.

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 7, 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,

A handwritten signature in black ink, appearing to read "Steven L. Green", is written over a horizontal line.

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
TTLIC	Total Threshold Limit Concentration
VOA	Volatile Organic Analyte(s)

ACRONLST.DOC 7/14/95

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client: ARCO Products Company
Project: 601 SAN LEANDRO/20805-121.003/TO#19350.00
Sample Matrix: Water

Service Request: S9601405
Date Collected: 8/26/96
Date Received: 8/26/96
Date Extracted: NA

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

Sample Name:	MW-9 (16)	MW-10 (18)	Method Blank
Lab Code:	S9601405-007	S9601405-008	S960905-WB1
Date Analyzed:	9/5/96	9/5/96	9/5/96

Analyte	MRL			
TPH as Gasoline	50	ND	ND	ND
Benzene	0.5	ND	ND	ND
Toluene	0.5	ND	ND	ND
Ethylbenzene	0.5	ND	ND	ND
Total Xylenes	0.5	ND	ND	ND
Methyl <i>tert</i> -Butyl Ether	3	ND	ND	ND

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: ARCO Products Company
Project: 601 SAN LEANDRO/20805-121.003/TO#19350.00
Sample Matrix: Water

Service Request: S9601405
Date Collected: 8/26/96
Date Received: 8/26/96
Date Extracted: NA
Date Analyzed: 9/4-6/96

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

Sample Name	Lab Code	PID Detector	FID Detector
		Percent Recovery 4-Bromofluorobenzene	Percent Recovery α,α,α -Trifluorotoluene
MW-9 (16)	S9601405-007	100	96
MW-10 (18)	S9601405-008	101	97
Batch QC	S9601405-009	101	98
Batch QC (MS)	S9601405-009MS	97	104
Batch QC (DMS)	S9601405-009DMS	98	105
Method Blank	S960905-WB1	100	95

CAS Acceptance Limits: 69-116 69-116

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: ARCO Products Company
Project: 601 SAN LEANDRO/20805-121.003/TO#19350.00
Sample Matrix: Water

Service Request: S9601405
Date Collected: 8/26/96
Date Received: 8/26/96
Date Extracted: NA
Date Analyzed: 9/5/96

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

Sample Name: Batch QC
Lab Code: S9601405-009

Analyte	Spike Level		Sample Result	Spike Result		Percent Recovery		CAS Acceptance Limits	Relative Percent Difference
						MS	DMS		
Gasoline	250	250	ND	250	260	100	104	67-121	4

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: ARCO Products Company
Project: 601 SAN LEANDRO/20805-121.003/TO#19350.00

Service Request: S9601405
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 <i>tert</i> -Butyl Ether	50	52	104	85-115

ARCO QUARTERLY REPORT

Station No.: 601 Address: 712 Lewelling Boulevard, San Leandro, California
 EMCON Project No. 20805-121.003
 ARCO Environmental Engineer/Phone No.: Paul Supple /(510) 299-8891
 EMCON Project Manager/Phone No.: John C. Young /(408) 453-7300
 Primary Agency/Regulatory ID No.: ACHCSA /Scott Seery

WORK PERFORMED THIS QUARTER (Third- 1996):

1. Performed quarterly groundwater monitoring for third quarter 1996.
2. Prepared and submitted quarterly groundwater monitoring report for second quarter 1996.

WORK PROPOSED FOR NEXT QUARTER (Fourth- 1996):

1. Perform quarterly groundwater monitoring and sampling for fourth quarter 1996.
2. Prepare and submit quarterly groundwater monitoring report for third quarter 1996.
3. Install oxygen releasing compounds (ORCs) into groundwater monitoring well MW-8.
4. Evaluate potential off-site plume migration.
5. Perform a risk-based corrective action evaluation.

QUARTERLY MONITORING:

Current Phase of Project:	<u>Quarterly Groundwater Monitoring</u>
Frequency of Sampling:	<u>Quarterly (groundwater)</u>
Frequency of Monitoring:	<u>Quarterly (groundwater)</u>
Is Floating Product (FP) Present On-site:	☐ Yes ☒ No
Cumulative FP Recovered to Date :	<u>3.45 gallons, Well MW-1</u>
FP Recovered This Quarter :	<u>None</u>
Bulk Soil Removed to Date :	<u>1,565 cubic yards of TPH impacted soil</u>
Bulk Soil Removed This Quarter :	<u>None</u>
Water Wells or Surface Waters within 2000 ft., impacted by site:	<u>None</u>
Current Remediation Techniques:	<u>Enhanced bioremediation</u> <i>ORC in well !</i>
Approximate Depth to Groundwater:	<u>7.57 feet</u>
Groundwater Gradient (Average):	<u>0.004 ft/ft toward south-southwest (consistent with past events)</u>

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 Analytical Data, Metals
- Table 4 - Historical Groundwater Analytical Data, Volatile and Semivolatile Organic Compounds
- Table 5 - Approximate Cumulative Floating Product Recovered, Monitoring Well MW-1
- Figure 1 - Site Location
- Figure 2 - Groundwater Data, Third Quarter 1996
- Appendix A - Field Data Sheets, Third Quarter 1996 Groundwater Monitoring Event

EMCON

- Appendix B - Analytical Results and Chain of Custody Documentation, Third Quarter 1996
Groundwater Monitoring Event

cc: Scott Seery, ACHCSA
Kevin Graves, RWQCB-SFBR
Mike Bakaldin, SLFD

EMCON

Table 1
Groundwater Monitoring Data
Third Quarter 1996

ARCO Service Station 601
712 Lewelling Boulevard, San Leandro, California

Date: 11-22-96

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	TRPH EPA 418.1	TPHD LUFT Method
		ft-MSL	feet	ft-MSL	feet	MWN	ft/ft		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L
MW-1	08-26-96	22.26	8.16	14.10	ND	SSW	0.004	08-26-96	210000	7900	320	3400	15000	<1000*	--	--	--
MW-2	08-26-96	21.33	7.30	14.03	ND	SSW	0.004	08-26-96	Not sampled: not scheduled for chemical analysis								
MW-3	08-26-96	20.11	7.04	13.07	ND	SSW	0.004	08-26-96	260000	4000	6100	4200	24000	<2000*	--	--	--
MW-4	08-26-96	20.75	7.57	13.18	ND	SSW	0.004	08-26-96	14000	2400	510	350	2100	<100*	--	--	--
MW-5	08-26-96	20.90	7.15	13.75	ND	SSW	0.004	08-26-96	47000	5300	2100	780	3200	<300*	--	--	--
MW-6	08-26-96	22.08	7.93	14.15	ND	SSW	0.004	08-26-96	23000	3800	<50*	2000	560	<300*	--	--	--
MW-7	08-26-96	22.89	8.81	14.08	ND	SSW	0.004	08-26-96	Not sampled: not scheduled for chemical analysis								
MW-8	08-26-96	20.97	7.08	13.89	ND	SSW	0.004	08-26-96	970	<1*	<1*	3	<1*	300	--	--	--
MW-9	08-26-96	20.89	8.00	12.89	ND	SSW	0.004	08-26-96	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--	--
MW-10	08-26-96	21.12	8.00	13.12	ND	SSW	0.004	08-26-96	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--	--
MW-11	08-26-96	22.38	8.22	14.16	ND	SSW	0.004	08-26-96	Not sampled: not scheduled for chemical analysis								
MW-12	08-26-96	22.77	8.63	14.14	ND	SSW	0.004	08-26-96	Not sampled: not scheduled for chemical analysis								
MW-13	08-26-96	22.45	7.85	14.60	ND	SSW	0.004	08-26-96	Not sampled: not scheduled for chemical analysis								
MW-14	08-26-96	22.99	8.83	14.16	ND	SSW	0.004	08-26-96	Not sampled: not scheduled for chemical analysis								
MW-15	08-26-96	19.19	6.05	13.14	ND	SSW	0.004	08-26-96	<50	<0.5	<0.5	<0.5	<0.5	300	--	--	--

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

TRPH: total recoverable petroleum hydrocarbons

TPHD: total petroleum hydrocarbons as diesel, California DHS LUFT Method

SSW: south-southwest

--: not analyzed

ND: none detected

*: method reporting limit was raised due to: (1) high analyte concentration requiring sample dilution, or (2) matrix interference

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

ARCO Service Station 601
712 Lewelling Boulevard, San Leandro, California

Date: 11-21-96

Well Designation	Water Level Field Date	Top of Casing Elevation ft-MSL	Depth to Water feet	Groundwater Elevation ft-MSL	Floating Product Thickness feet	Groundwater Flow Direction MWN	Hydraulic Gradient ft/ft	Water Sample Field Date	TPHG LUFT Method µg/L	Benzene EPA 8020 µg/L	Toluene EPA 8020 µg/L	Ethylbenzene EPA 8020 µg/L	Total Xylenes EPA 8020 µg/L	MTBE EPA 8020 µg/L	MTBE EPA 8240 µg/L	TRPH EPA 418.1 µg/L	TPHD LUFT Method µg/L
MW-1	02-14-94	22.26	7.72	14.54	Sheen	NR	NR	02-14-94	Not sampled: well contained floating product								
MW-1	05-05-94	22.26	8.47	13.79	Sheen	NR	NR	05-05-94	Not sampled: well contained floating product								
MW-1	08-04-94	22.26	8.72	13.54	Sheen	SW	0.004	08-04-94	Not sampled: well contained floating product								
MW-1	11-20-94	22.26	7.81	14.45	Sheen	SW	0.002	11-20-94	Not sampled: well contained floating product								
MW-1	03-17-95	22.26	6.57	15.69	ND	WSW	0.006	03-17-95	120000	5300	370	1500	13000	--	--	48000	6200^
MW-1	06-01-95	22.26	7.87	14.39	ND	SW	0.003	06-01-95	250000	7100	950	3500	21000	--	--	38000	190000^
MW-1	08-31-95	22.26	8.12	** 14.15	0.01	SSW	0.005	08-31-95	Not sampled: well contained floating product								
MW-1	11-27-95	22.26	8.42	13.84	Sheen	SSW	0.004	11-27-95	310000	4600	770	5700	21000	--	--	--	--
MW-1	02-22-96	22.26	6.01	** 16.26	0.01	NW	0.007	03-14-96	100000	6200	320	2500	12000	<1000*	--	--	--
MW-1	05-20-96	22.26	7.03	15.23	ND	SW	0.007	05-21-96	340000	6600	240	4500	22000	<1000*	--	150	<2500^
MW-1	08-26-96	22.26	8.16	14.10	ND	SSW	0.004	08-26-96	210000	7900	320	3400	15000	<1000*	--	--	--
MW-2	02-14-94	21.33	6.88	14.45	ND	NR	NR	02-14-94	8700	670	370	50	1400	--	--	--	--
MW-2	05-05-94	21.33	7.51	13.82	ND	NR	NR	05-05-94	5600	390	140	120	480	--	--	--	--
MW-2	08-04-94	21.33	8.00	13.33	ND	SW	0.004	08-04-94	2300	180	<2.5*	<2.5*	230	--	--	--	--
MW-2	11-20-94	21.33	6.86	14.47	ND	SW	0.002	11-20-94	4900	170	150	120	390	--	--	--	--
MW-2	03-17-95	21.33	6.12	15.21	ND	WSW	0.006	03-17-95	10000	460	77	260	550	--	--	--	--
MW-2	06-01-95	21.33	6.56	14.77	ND	SW	0.003	06-01-95	13000	400	78	210	410	--	--	--	--
MW-2	08-31-95	21.33	7.18	14.15	ND	SSW	0.005	08-31-95	5000	280	18	120	140	<50*	--	--	--
MW-2	11-27-95	21.33	7.39	13.94	ND	SSW	0.004	11-27-95	3200	230	12	77	90	--	--	--	--
MW-2	02-22-96	21.33	5.78	15.55	ND	NW	0.007	03-14-96	11000	290	67	190	330	<50*	--	--	--
MW-2	05-20-96	21.33	6.27	15.06	ND	SW	0.007	05-21-96	Not sampled: not scheduled for chemical analysis								
MW-2	08-26-96	21.33	7.30	14.03	ND	SSW	0.004	08-26-96	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 601
712 Lewelling Boulevard, San Leandro, California

Date: 11-21-96

Well Designation	Water Level Field Date	Top of Casing Elevation ft-MSL	Depth to Water feet	Groundwater Elevation ft-MSL	Floating Product Thickness feet	Groundwater Flow Direction MWN	Hydraulic Gradient ft/ft	Water Sample Field Date	TPHG LUFT Method µg/L	Benzene EPA 8020 µg/L	Toluene EPA 8020 µg/L	Ethylbenzene EPA 8020 µg/L	Total Xylenes EPA 8020 µg/L	MTBE EPA 8020 µg/L	MTBE EPA 8240 µg/L	TRPH EPA 418.1 µg/L	TPHD LUFT Method µg/L
MW-3	02-14-94	20.11	5.81	14.30	ND	NR	NR	02-14-94	85000	4200	12000	2500	16000	--	--	--	--
MW-3	05-05-94	20.11	6.81	13.30	ND	NR	NR	05-05-94	560000	4600	14000	5300	40000	--	--	--	--
MW-3	08-04-94	20.11	7.31	12.80	ND	SW	0.004	08-04-94	64000	4200	7600	1700	12000	--	--	--	--
MW-3	11-20-94	20.11	5.88	14.23	ND	SW	0.002	11-20-94	80000	4700	9700	2400	15000	--	--	--	--
MW-3	03-17-95	20.11	5.46	14.65	ND	WSW	0.006	03-17-95	370000	4800	12000	5800	34000	--	--	--	--
MW-3	06-01-95	20.11	6.34	13.77	ND	SW	0.003	06-01-95	270000	6000	11000	5200	28000	--	--	--	--
MW-3	08-31-95	20.11	6.60	** 13.52	0.02	SSW	0.005	08-31-95	Not sampled: well contained floating product								
MW-3	11-27-95	20.11	6.76	** 13.36	0.01	SSW	0.004	11-27-95	150000	5100	8800	3900	21000	--	--	--	--
MW-3	02-22-96	20.11	5.14	** 14.98	0.01	NW	0.007	03-14-96	150000	4400	7600	4100	22000	<3000*	--	--	--
MW-3	05-20-96	20.11	5.17	14.94	ND	SW	0.007	05-21-96	410000	4700	8000	6300	36000	<3000*	--	--	--
MW-3	08-26-96	20.11	7.04	13.07	ND	SSW	0.004	08-26-96	260000	4000	6100	4200	24000	<2000*	--	--	--
MW-4	02-14-94	20.75	DRY	DRY	ND	DRY	DRY	02-14-94	Not sampled: dry well								
MW-4	05-05-94	20.75	7.73	13.02	ND	NR	NR	05-05-94	1900	510	78	31	150	--	--	--	--
MW-4	08-04-94	20.75	7.83	12.92	ND	SW	0.004	08-04-94	1300	360	17	<5*	190	--	--	--	--
MW-4	11-20-94	20.75	7.73	13.02	ND	SW	0.002	11-20-94	<50	2.9	0.5	<0.5	14	--	--	--	--
MW-4	03-17-95	20.75	6.65	14.10	ND	WSW	0.006	03-17-95	16000	1800	970	310	2500	--	--	--	--
MW-4	06-01-95	20.75	7.25	13.50	ND	SW	0.003	06-01-95	16000	2800	870	380	2700	--	--	--	--
MW-4	08-31-95	20.75	7.75	13.00	ND	SSW	0.005	08-31-95	9000	2000	270	270	1400	<100*	--	--	--
MW-4	11-27-95	20.75	7.87	12.88	ND	SSW	0.004	11-27-95	3800	890	130	130	550	--	--	--	--
MW-4	02-22-96	20.75	7.29	13.46	ND	NW	0.007	03-14-96	940	150	82	19	130	<20*	--	--	--
MW-4	05-20-96	20.75	7.30	13.45	ND	SW	0.007	05-21-96	6700	1100	330	120	1100	<100*	--	--	--
MW-4	08-26-96	20.75	7.57	13.18	ND	SSW	0.004	08-26-96	14000	2400	510	350	2100	<100*	--	--	--

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

ARCO Service Station 601
712 Lewelling Boulevard, San Leandro, California

Date: 11-21-96

Well Designation	Water Level Field Date	Top of Casing Elevation ft-MSL	Depth to Water feet	Groundwater Elevation ft-MSL	Floating Product Thickness feet	Groundwater Flow Direction MWN	Hydraulic Gradient ft/ft	Water Sample Field Date	TPHG LUFT Method µg/L	Benzene EPA 8020 µg/L	Toluene EPA 8020 µg/L	Ethylbenzene EPA 8020 µg/L	Total Xylenes EPA 8020 µg/L	MTBE EPA 8020 µg/L	MTBE EPA 8240 µg/L	TRPH EPA 418.1 µg/L	TPHD LUFT Method µg/L
MW-5	02-14-94	20.90	6.49	14.41	ND	NR	NR	02-14-94	46000	7300	5300	940	5200	--	--	--	--
MW-5	05-05-94	20.90	7.18	13.72	ND	NR	NR	05-05-94	54000	9700	4700	1000	6400	--	--	--	--
MW-5	08-04-94	20.90	7.83	13.07	ND	SW	0.004	08-04-94	57000	14000	3200	1200	7200	--	--	--	--
MW-5	11-20-94	20.90	6.34	14.56	ND	SW	0.002	11-20-94	33000	5700	1800	720	4700	--	--	--	--
MW-5	03-17-95	20.90	5.51	15.39	ND	WSW	0.006	03-17-95	48000	6400	2000	740	5100	--	--	--	--
MW-5	06-01-95	20.90	6.55	14.35	ND	SW	0.003	06-01-95	76000	11000	5400	1400	7700	--	--	--	--
MW-5	08-31-95	20.90	6.80	14.10	ND	SSW	0.005	08-31-95	53000	12000	1600	1000	6000	<500*	--	--	--
MW-5	11-27-95	20.90	7.13	13.77	ND	SSW	0.004	11-27-95	43000	7900	3300	950	4900	--	--	--	--
MW-5	02-22-96	20.90	5.12	15.78	ND	NW	0.007	03-14-96	52000	9100	3300	940	5000	<500*	--	--	--
MW-5	05-20-96	20.90	5.87	15.03	ND	SW	0.007	05-21-96	55000	9300	3800	1100	5400	<500*	--	--	--
MW-5	08-26-96	20.90	7.15	13.75	ND	SSW	0.004	08-26-96	47000	5300	2100	780	3200	<300*	--	--	--
MW-6	02-14-94	22.08	7.78	14.30	ND	NR	NR	02-14-94	47000	14000	390	1000	5100	--	--	--	--
MW-6	05-05-94	22.08	8.24	13.84	ND	NR	NR	05-05-94	45000	14000	<200*	1300	4500	--	--	--	--
MW-6	08-04-94	22.08	DRY	DRY	ND	DRY	DRY	08-04-94	Not sampled: dry well								
MW-6	11-20-94	22.08	7.41	14.67	ND	SW	0.002	11-20-94	30000	11000	<100*	1200	2300	--	--	--	--
MW-6	03-17-95	22.08	6.66	15.42	ND	WSW	0.006	03-17-95	45000	9300	<100*	1900	3600	--	--	--	--
MW-6	06-01-95	22.08	7.60	14.48	ND	SW	0.003	06-01-95	23000	5600	<50*	1300	1900	--	--	--	--
MW-6	08-31-95	22.08	7.92	14.16	ND	SSW	0.005	08-31-95	26000	8000	<100*	1900	900	<500*	--	--	--
MW-6	11-27-95	22.08	8.21	13.87	ND	SSW	0.004	11-27-95	6700	1800	<20*	480	230	--	--	--	--
MW-6	02-22-96	22.08	6.21	15.87	ND	NW	0.007	03-14-96	17000	3100	69	810	1500	<300*	--	--	--
MW-6	05-20-96	22.08	7.07	15.01	ND	SW	0.007	05-21-96	16000	3700	<50*	1100	1100	<300*	--	--	--
MW-6	08-26-96	22.08	7.93	14.15	ND	SSW	0.004	08-26-96	23000	5800	<50*	2000	560	<300*	--	--	--

Table 2
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Petroleum Hydrocarbons and Their Constituents
1994 - Present***

ARCO Service Station 601
712 Lewelling Boulevard, San Leandro, 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	TRPH EPA 418.1	TPHD LUFT Method		
		ft-MSL	feet	ft-MSL	feet	MWN	ft/ft		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L		
MW-7	02-14-94	22.89	8.80	14.09	ND	NR	NR	02-14-94	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--		
MW-7	05-05-94	22.89	9.11	13.78	ND	NR	NR	05-05-94	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--		
MW-7	08-04-94	22.89	DRY	DRY	ND	DRY	DRY	08-04-94	Not sampled: dry well										
MW-7	11-20-94	22.89	8.72	14.17	ND	SW	0.002	11-20-94	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--		
MW-7	03-17-95	22.89	7.68	15.21	ND	WSW	0.006	03-17-95	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--		
MW-7	06-01-95	22.89	8.40	14.49	ND	SW	0.003	06-01-95	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--		
MW-7	08-31-95	22.89	9.09	13.80	ND	SSW	0.005	08-31-95	<50	<0.5	<0.5	0.6	<0.5	<3	--	--	--		
MW-7	11-27-95	22.89	9.15	13.74	ND	SSW	0.004	11-27-95	<50	<0.5	<0.5	0.9	<0.5	--	--	--	--		
MW-7	02-22-96	22.89	7.44	15.45	ND	NW	0.007	03-14-96	110	1.4	<0.5	3.8	3	<3	--	--	--		
MW-7	05-20-96	22.89	8.47	14.42	ND	SW	0.007	05-21-96	Not sampled: not scheduled for chemical analysis										
MW-7	08-26-96	22.89	8.81	14.08	ND	SSW	0.004	08-26-96	Not sampled: not scheduled for chemical analysis										
MW-8	02-14-94	20.97	7.00	13.97	ND	NR	NR	02-14-94	3600	3	<1*	72	<1*	--	--	2000	3900^		
MW-8	05-05-94	20.97	7.46	13.51	ND	NR	NR	05-05-94	2100	<2.5*	<2.5*	8.3	<2.5*	--	--	700	440^		
MW-8	08-04-94	20.97	8.17	12.80	ND	SW	0.004	08-04-94	1200	1.5	<1*	6.7	<1*	--	--	700	<50		
MW-8	11-20-94	20.97	6.78	14.19	ND	SW	0.002	11-20-94	2300	1.2	1.1	20	2.2	--	--	<500	2100^		
MW-8	03-17-95	20.97	6.14	14.83	ND	WSW	0.006	03-17-95	5400	<5*	<5*	35	<5*	--	--	--	--		
MW-8	06-01-95	20.97	6.50	14.47	ND	SW	0.003	06-01-95	2600	<2.5*	<2.5*	15	<2.5*	--	--	--	--		
MW-8	08-31-95	20.97	7.35	13.62	ND	SSW	0.005	08-31-95	1400	<3*	<3*	5	<3*	520	--	900	--		
MW-8	11-27-95	20.97	7.60	13.37	ND	SSW	0.004	11-27-95	620	<0.5	<0.5	<0.5	0.5	--	560	900	510^		
MW-8	02-22-96	20.97	5.35	15.62	ND	NW	0.007	03-14-96	5800	<5*	<5*	28	<5*	110	--	1900	6800^		
MW-8	05-20-96	20.97	5.92	15.05	ND	SW	0.007	05-21-96	6100	<5*	<5*	26	<5*	240	--	--	--		
MW-8	08-26-96	20.97	7.08	13.89	ND	SSW	0.004	08-26-96	970	<1*	<1*	3	<1*	710	--	--	--		

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ARCO Service Station 601
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Date: 11-21-96

Well Designation	Water Level Field Date	Top of Casing Elevation ft-MSL	Depth to Water feet	Groundwater Elevation ft-MSL	Floating Product Thickness feet	Groundwater Flow Direction MWN	Hydraulic Gradient ft/ft	Water Sample Field Date	TPHG LUFT Method µg/L	Benzene EPA 8020 µg/L	Toluene EPA 8020 µg/L	Ethylbenzene EPA 8020 µg/L	Total Xylenes EPA 8020 µg/L	MTBE EPA 8020 µg/L	MTBE EPA 8240 µg/L	TRPH EPA 418.1 µg/L	TPHD LUFT Method µg/L
MW-9	02-14-94	20.89	7.47	13.42	ND	NR	NR	02-14-94	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--
MW-9	05-05-94	20.89	8.04	12.85	ND	NR	NR	05-05-94	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--
MW-9	08-04-94	20.89	8.78	12.11	ND	SW	0.004	08-04-94	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--
MW-9	11-20-94	20.89	6.83	14.06	ND	SW	0.002	11-20-94	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--
MW-9	03-17-95	20.89	6.94	13.95	ND	WSW	0.006	03-17-95	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--
MW-9	06-01-95	20.89	8.15	12.74	ND	SW	0.003	06-01-95	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--
MW-9	08-31-95	20.89	8.10	12.79	ND	SSW	0.005	08-31-95	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--	--
MW-9	11-27-95	20.89	8.38	12.51	ND	SSW	0.004	11-27-95	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--
MW-9	02-22-96	20.89	7.36	13.53	ND	NW	0.007	03-14-96	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--	--
MW-9	05-20-96	20.89	7.81	13.08	ND	SW	0.007	05-21-96	Not sampled: not scheduled for chemical analysis								
MW-9	08-26-96	20.89	8.00	12.89	ND	SSW	0.004	08-26-96	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--	--
MW-10	02-14-94	21.12	7.13	13.99	ND	NR	NR	02-14-94	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--
MW-10	05-05-94	21.12	8.08	13.04	ND	NR	NR	05-05-94	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--
MW-10	08-04-94	21.12	8.84	12.28	ND	SW	0.004	08-04-94	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--
MW-10	11-20-94	21.12	7.05	14.07	ND	SW	0.002	11-20-94	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--
MW-10	03-17-95	21.12	6.26	14.86	ND	WSW	0.006	03-17-95	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--
MW-10	06-01-95	21.12	7.63	13.49	ND	SW	0.003	06-01-95	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--
MW-10	08-31-95	21.12	8.17	12.95	ND	SSW	0.005	08-31-95	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--	--
MW-10	11-27-95	21.12	8.38	12.74	ND	SSW	0.004	11-27-95	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--
MW-10	02-22-96	21.12	5.41	15.71	ND	NW	0.007	03-14-96	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--	--
MW-10	05-20-96	21.12	6.78	14.34	ND	SW	0.007	05-21-96	Not sampled: not scheduled for chemical analysis								
MW-10	08-26-96	21.12	8.00	13.12	ND	SSW	0.004	08-26-96	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--	--

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Well Designation	Water Level Field Date	Top of Casing Elevation ft-MSL	Depth to Water feet	Groundwater Elevation ft-MSL	Floating Product Thickness feet	Groundwater Flow Direction MWN	Hydraulic Gradient ft/ft	Water Sample Field Date	TPHG LUFT Method µg/L	Benzene EPA 8020 µg/L	Toluene EPA 8020 µg/L	Ethylbenzene EPA 8020 µg/L	Total Xylenes EPA 8020 µg/L	MTBE EPA 8020 µg/L	MTBE EPA 8240 µg/L	TRPH EPA 418.1 µg/L	TPHD LUFT Method µg/L
MW-11	02-14-94	22.38	7.94	14.44	ND	NR	NR	02-14-94	650	<1*	<1*	2	4	--	--	--	--
MW-11	05-05-94	22.38	8.55	13.83	ND	NR	NR	05-05-94	210	<0.5	<0.5	2.5	0.6	--	--	--	--
MW-11	08-04-94	22.38	9.13	13.25	ND	SW	0.004	08-04-94	390	<0.5	<0.7*	1.9	2.2	--	--	--	--
MW-11	11-20-94	22.38	7.73	14.65	ND	SW	0.002	11-20-94	1300	1.3	0.5	1.5	21	--	--	--	--
MW-11	03-17-95	22.38	6.94	15.44	ND	WSW	0.006	03-17-95	100	<0.5	<0.5	<0.5	<0.5	--	--	--	--
MW-11	06-01-95	22.38	7.90	14.48	ND	SW	0.003	06-01-95	210	<0.5	<0.5	0.9	0.7	--	--	--	--
MW-11	08-31-95	22.38	8.18	14.20	ND	SSW	0.005	08-31-95	680	<0.5	<0.5	4	1.8	<3	--	--	--
MW-11	11-27-95	22.38	8.48	13.90	ND	SSW	0.004	11-27-95	340	<0.5	<0.5	2.2	1.6	--	--	--	--
MW-11	02-22-96	22.38	6.63	15.75	ND	NW	0.007	03-14-96	150	<0.5	<0.5	<0.8*	0.8	<3	--	--	--
MW-11	05-20-96	22.38	7.25	15.13	ND	SW	0.007	05-21-96	Not sampled: not scheduled for chemical analysis								
MW-11	08-26-96	22.38	8.22	14.16	ND	SSW	0.004	08-26-96	Not sampled: not scheduled for chemical analysis								
MW-12	02-14-94	22.77	8.24	14.53	ND	NR	NR	02-14-94	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--
MW-12	05-05-94	22.77	8.97	13.80	ND	NR	NR	05-05-94	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--
MW-12	08-04-94	22.77	9.57	13.20	ND	SW	0.004	08-04-94	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--
MW-12	11-20-94	22.77	8.06	14.71	ND	SW	0.002	11-20-94	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--
MW-12	03-17-95	22.77	7.09	15.68	ND	WSW	0.006	03-17-95	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--
MW-12	06-01-95	22.77	8.40	14.37	ND	SW	0.003	06-01-95	Not sampled: not scheduled for chemical analysis								
MW-12	08-31-95	22.77	8.55	14.22	ND	SSW	0.005	08-31-95	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--	--
MW-12	11-27-95	22.77	8.95	13.82	ND	SSW	0.004	11-27-95	Not sampled: not scheduled for chemical analysis								
MW-12	02-22-96	22.77	6.81	15.96	ND	NW	0.007	03-14-96	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--	--
MW-12	05-20-96	22.77	7.56	15.21	ND	SW	0.007	05-21-96	Not sampled: not scheduled for chemical analysis								
MW-12	08-26-96	22.77	8.63	14.14	ND	SSW	0.004	08-26-96	Not sampled: not scheduled for chemical analysis								

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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	TRPH EPA 418.1	TPHD LUFT Method		
		ft-MSL	feet	ft-MSL	feet	MWN	ft/ft		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L		
MW-13	02-14-94	22.45	7.78	14.67	ND	NR	NR	02-14-94	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--		
MW-13	05-05-94	22.45	8.38	14.07	ND	NR	NR	05-05-94	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--		
MW-13	08-04-94	22.45	8.78	13.67	ND	SW	0.004	08-04-94	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--		
MW-13	11-20-94	22.45	7.68	14.77	ND	SW	0.002	11-20-94	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--		
MW-13	03-17-95	22.45	6.91	15.54	ND	WSW	0.006	03-17-95	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--		
MW-13	06-01-95	22.45	7.72	14.73	ND	SW	0.003	06-01-95	Not sampled: not scheduled for chemical analysis										
MW-13	08-31-95	22.45	7.58	14.87	ND	SSW	0.005	08-31-95	Not sampled: not scheduled for chemical analysis										
MW-13	11-27-95	22.45	7.98	14.47	ND	SSW	0.004	11-27-95	Not sampled: not scheduled for chemical analysis										
MW-13	02-22-96	22.45	6.71	15.74	ND	NW	0.007	03-14-96	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--	--		
MW-13	05-20-96	22.45	6.98	15.47	ND	SW	0.007	05-21-96	Not sampled: not scheduled for chemical analysis										
MW-13	08-26-96	22.45	7.85	14.60	ND	SSW	0.004	08-26-96	Not sampled: not scheduled for chemical analysis										
MW-14	02-14-94	22.99	8.80	14.19	ND	NR	NR	02-14-94	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--		
MW-14	05-05-94	22.99	9.49	13.50	ND	NR	NR	05-05-94	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--		
MW-14	08-04-94	22.99	10.11	12.88	ND	SW	0.004	08-04-94	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--		
MW-14	11-20-94	22.99	8.66	14.33	ND	SW	0.002	11-20-94	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--		
MW-14	03-17-95	22.99	8.17	14.82	ND	WSW	0.006	03-17-95	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--		
MW-14	06-01-95	22.99	8.57	14.42	ND	SW	0.003	06-01-95	Not sampled: not scheduled for chemical analysis										
MW-14	08-31-95	22.99	9.05	13.94	ND	SSW	0.005	08-31-95	Not sampled: not scheduled for chemical analysis										
MW-14	11-27-95	22.99	9.19	13.80	ND	SSW	0.004	11-27-95	Not sampled: not scheduled for chemical analysis										
MW-14	02-22-96	22.99	6.52	16.47	ND	NW	0.007	03-14-96	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--	--		
MW-14	05-20-96	22.99	7.88	15.11	ND	SW	0.007	05-21-96	Not sampled: not scheduled for chemical analysis										
MW-14	08-26-96	22.99	8.83	14.16	ND	SSW	0.004	08-26-96	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 601
712 Lewelling Boulevard, San Leandro, 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	TRPH EPA 418.1	TPHD LUFT Method		
		ft-MSL	feet	ft-MSL	feet	MWN	ft/ft		µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L		
MW-15	02-14-94	19.19	5.44	13.75	ND	NR	NR	02-14-94	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--		
MW-15	05-05-94	19.19	6.18	13.01	ND	NR	NR	05-05-94	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--		
MW-15	08-04-94	19.19	6.84	12.35	ND	SW	0.004	08-04-94	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--		
MW-15	11-20-94	19.19	5.31	13.88	ND	SW	0.002	11-20-94	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--		
MW-15	03-17-95	19.19	5.21	13.98	ND	WSW	0.006	03-17-95	<50	<0.5	<0.5	<0.5	<0.5	--	--	--	--		
MW-15	06-01-95	19.19	5.84	13.35	ND	SW	0.003	06-01-95	Not sampled: not scheduled for chemical analysis										
MW-15	08-31-95	19.19	6.18	13.01	ND	SSW	0.005	08-31-95	<50	<0.5	<0.5	<0.5	<0.5	<3	--	--	--		
MW-15	11-27-95	19.19	6.42	12.77	ND	SSW	0.004	11-27-95	Not sampled: not scheduled for chemical analysis										
MW-15	02-22-96	19.19	4.84	14.35	ND	NW	0.007	03-14-96	<50	<0.5	<0.5	<0.5	<0.5	12	--	--	--		
MW-15	05-20-96	19.19	5.31	13.88	ND	SW	0.007	05-21-96	Not sampled: not scheduled for chemical analysis										
MW-15	08-26-96	19.19	6.05	13.14	ND	SSW	0.004	08-26-96	<50	<0.5	<0.5	<0.5	<0.5	8	--	--	--		

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

ARCO Service Station 601
712 Lewelling Boulevard, San Leandro, 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	TPHC LUFT Method	Benzene EPA 8020	Toluene EPA 8020	Ethylbenzene EPA 8020	Total Xylenes EPA 8020	MTBE EPA 8020	MTBE EPA 8240	TRPH EPA 418.1	TPHD LUFT Method
		ft-MSL	feet	ft-MSL	feet	MWN	ft/ft		µg/L	µg/L	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

TPHC: 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

TRPH: total recoverable petroleum hydrocarbons

TPHD: total petroleum hydrocarbons as diesel, California DHS LUFT Method

NR: not reported; data not available or not measurable

ND: none detected

SW: southwest

WSW: west-southwest

SSW: south-southwest

NW: northwest

DRY: dry well; groundwater was not detected

- - : not analyzed

^: chromatogram fingerprint is not characteristic of diesel

*: method reporting limit was raised due to: (1) high analyte concentration requiring sample dilution, or (2) matrix interference

** : [corrected elevation (Z')] = Z + (h * 0.73) where: Z = measured elevation, h = floating product thickness, 0.73 = density ratio of oil to water

***: For previous historical groundwater elevation and analytical data please refer to *Fourth Quarter 1995 Groundwater Monitoring Program Results, ARCO Service Station 601, San Leandro, California*, (EMCON, March 14, 1996).

Table 3
Historical Groundwater Analytical Data
Metals*
1994 - Present**

ARCO Service Station 601

712 Lewelling Boulevard, San Leandro, California

Date: 11-21-96

Well Designation	Water Sample Field Date	Cadmium EPA 6010 µg/L	Chromium EPA 6010 µg/L	Lead EPA 7421 µg/L	Nickel EPA 6010 µg/L	Zinc EPA 6010 µg/L
MW-1	02-14-94	Not sampled: well contained floating product				
MW-1	05-05-94	Not sampled: well contained floating product				
MW-1	08-04-94	Not sampled: well contained floating product				
MW-1	11-20-94	Not sampled: well contained floating product				
MW-1	03-17-95	<5	20	20	<40	60
MW-1	06-01-95	<5	20	22	70	100
MW-1	08-31-95	Not sampled: well contained floating product				
MW-1	11-27-95	Not sampled: well contained floating product				
MW-1	03-14-96	Not sampled: well contained floating product				
MW-1	05-21-96	6	<10	<5	<20	<20
MW-2	03-23-92	Not analyzed: sampling for additional parameters was discontinued				
MW-3	03-23-92	Not analyzed: sampling for additional parameters was discontinued				
MW-4	06-10-91	Not analyzed: sampling for additional parameters was not initiated				
MW-5	06-08-92	Not analyzed: sampling for additional parameters was discontinued				
MW-6	06-10-91	Not analyzed: sampling for additional parameters was not initiated				
MW-7	06-10-91	Not analyzed: sampling for additional parameters was not initiated				
MW-8	02-14-94	<5	<10	4	<40	20
MW-8	05-05-94	<3	<5	4	<20	60
MW-8	08-04-94	<3	6	3	<20	27
MW-8	11-20-94	<3	<5	<2	<20	14
MW-8	03-17-95	Not analyzed: well MW-1 was sampled for additional parameters in lieu of well MW-8				
MW-8	06-01-95	Not analyzed: well MW-1 was sampled for additional parameters in lieu of well MW-8				
MW-8	08-31-95	<5	40	16	50	90
MW-8	11-27-95	<5	130	77	170	280
MW-8	03-14-96	<5	30	7	40	60
MW-8	05-21-96	Not analyzed: well MW-1 was sampled for additional parameters in lieu of well MW-8				
MW-9	06-11-93	Not analyzed: sampling for additional parameters was not initiated				
MW-10	06-11-93	Not analyzed: sampling for additional parameters was not initiated				
MW-11	11-16-92	Not analyzed: sampling for additional parameters was not initiated				
MW-12	11-16-92	Not analyzed: sampling for additional parameters was not initiated				
MW-13	11-16-92	Not analyzed: sampling for additional parameters was not initiated				
MW-14	09-15-92	Not analyzed: sampling for additional parameters was not initiated				
MW-15	05-13-93	Not analyzed: sampling for additional parameters was not initiated				

EPA: United States Environmental Protection Agency

µg/L: micrograms per liter

- - - not analyzed

*: Historically samples were analyzed for total metals. Since March 14, 1996, the samples were filtered and analyzed for dissolved metals.

**: For previous historical analytical data please refer to *Fourth Quarter 1995 Groundwater Monitoring Program Results, ARCO Service Station 601, San Leandro, California*, (EMCON, March 14, 1996).

Table 4
Historical Groundwater Analytical Data
Volatile and Semivolatile Organic Compounds
1994 - Present*

ARCO Service Station 601

712 Lewelling Boulevard, San Leandro, California

Date: 11-21-96

Well Designation	Water Sample Field Date	Volatile Organic Compounds by EPA Method 601/8010 or 624/8240							Semivolatile Organic Compounds by EPA Method 3520/8270				
		Methylene Chloride µg/L	1,2-Dichloro-ethane µg/L	1,1-Dichloro-ethane µg/L	Benzene µg/L	Toluene µg/L	Ethylbenzene µg/L	Total Xylenes µg/L	Naphthalene µg/L	2-Methyl-naphthalene µg/L	Bis (2-ethylhexyl) Phthalate µg/L	Phenol µg/L	2,4-Di-methyl-phenol µg/L
MW-1	02-14-94	Not sampled: well contained floating product											
MW-1	05-05-94	Not sampled: well contained floating product											
MW-1	08-04-94	Not sampled: well contained floating product											
MW-1	11-20-94	Not sampled: well contained floating product											
MW-1	03-17-95	--	--	--	--	--	--	--	1300	730	<50	ND	150
MW-1	06-01-95	--	--	--	--	--	--	--	2200	1700	<100	240	<100
MW-1	08-31-95	Not sampled: well contained floating product											
MW-1	11-27-95	Not sampled: well contained floating product											
MW-1	03-14-96	Not sampled: well contained floating product											
MW-1	05-21-96	--	--	--	--	--	--	--	1200	860	<50	<50	<50
MW-1	08-26-96	--	--	--	--	--	--	--	2300	1800	<500	<500	<1000
MW-2	03-23-92	Not analyzed: sampling for additional parameters was discontinued											
MW-8	02-14-94	--	--	--	--	--	--	--	350	65	ND	ND	ND
MW-8	05-05-94	<0.5	<0.5	0.7	--	--	--	--	23	<10	<10	ND	ND
MW-8	08-04-94	--	--	--	--	--	--	--	11	<10	10	ND	ND
MW-8	12-13-94	--	--	--	--	--	--	--	14	<10	14	ND	ND
MW-8	03-17-95	Not analyzed: well MW-1 was sampled for additional parameters in lieu of well MW-8											
MW-8	06-01-95	Not analyzed: well MW-1 was sampled for additional parameters in lieu of well MW-8											
MW-8	08-31-95	--	--	--	--	--	--	--	62	8	<5	<5	<5
MW-8	11-27-95	--	--	--	--	--	--	--	15	<5	<5	<5	<5
MW-8	03-14-96	--	--	--	--	--	--	--	400	55	<50	<50	<50
MW-8	05-21-96	Not analyzed: well MW-1 was sampled for additional parameters in lieu of well MW-8											
MW-8	08-26-96	Not analyzed: well MW-1 was sampled for additional parameters in lieu of well MW-8											

Table 4
Historical Groundwater Analytical Data
Volatile and Semivolatile Organic Compounds
1994 - Present*

ARCO Service Station 601
712 Lewelling Boulevard, San Leandro, California

Date: 11-21-96

Well Designation	Water Sample Field Date	Volatile Organic Compounds by EPA Method 601/8010 or 624/8240							Semivolatile Organic Compounds by EPA Method 3520/8270				
		Methylene Chloride µg/L	1,2-Dichloro- ethane µg/L	1,1-Dichloro- ethane µg/L	Benzene µg/L	Toluene µg/L	Ethylbenzene µg/L	Total Xylenes µg/L	Naphthalene µg/L	2-Methyl- naphthalene µg/L	Bis (2-ethylhexyl) Phthalate µg/L	Phenol µg/L	2,4-Di-methyl- phenol µg/L

EPA: United States Environmental Protection Agency

µg/L: micrograms per liter

--: not analyzed

ND: not detected at or above the method detection limit

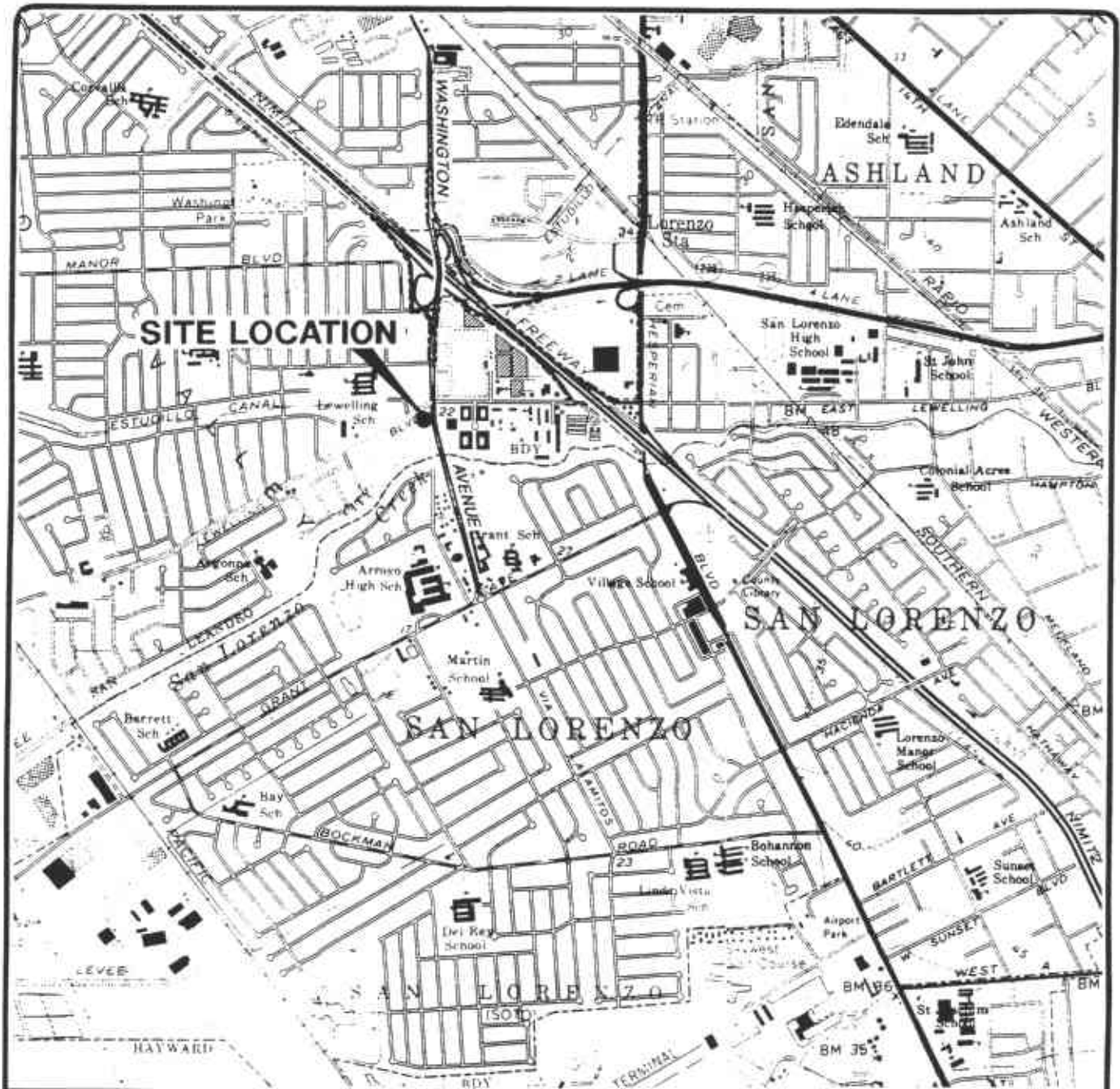
*: For previous historical analytical data please refer to *Fourth Quarter 1995 Groundwater Monitoring Program Results, ARCO Service Station 601, San Leandro, California*, (EMCON, March 14, 1996).

Table 5
Approximate Cumulative Floating Product Recovered

ARCO Service Station 601
712 Lewelling Boulevard, San Leandro, California

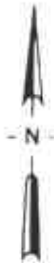
Date: 11-21-96

Well Design- nation	Date	Floating Product Recovered gallons
MW-1	1991	3.43
MW-1	1992	0.02
MW-1	1993	0.00
MW-1	1994	0.00
MW-1	1995	0.00
MW-1	1996	0.00
1991 to 1996 Total:		3.45



Base map from USGS 7.5' Quad. Maps:
Hayward and San Leandro, California.
Photorevised 1980.

Scale : 0 2000 4000 Feet



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ARCO PRODUCTS COMPANY
SERVICE STATION 601, 712 LEWELLING BLVD.
QUARTERLY GROUNDWATER MONITORING
SAN LEANDRO, CALIFORNIA

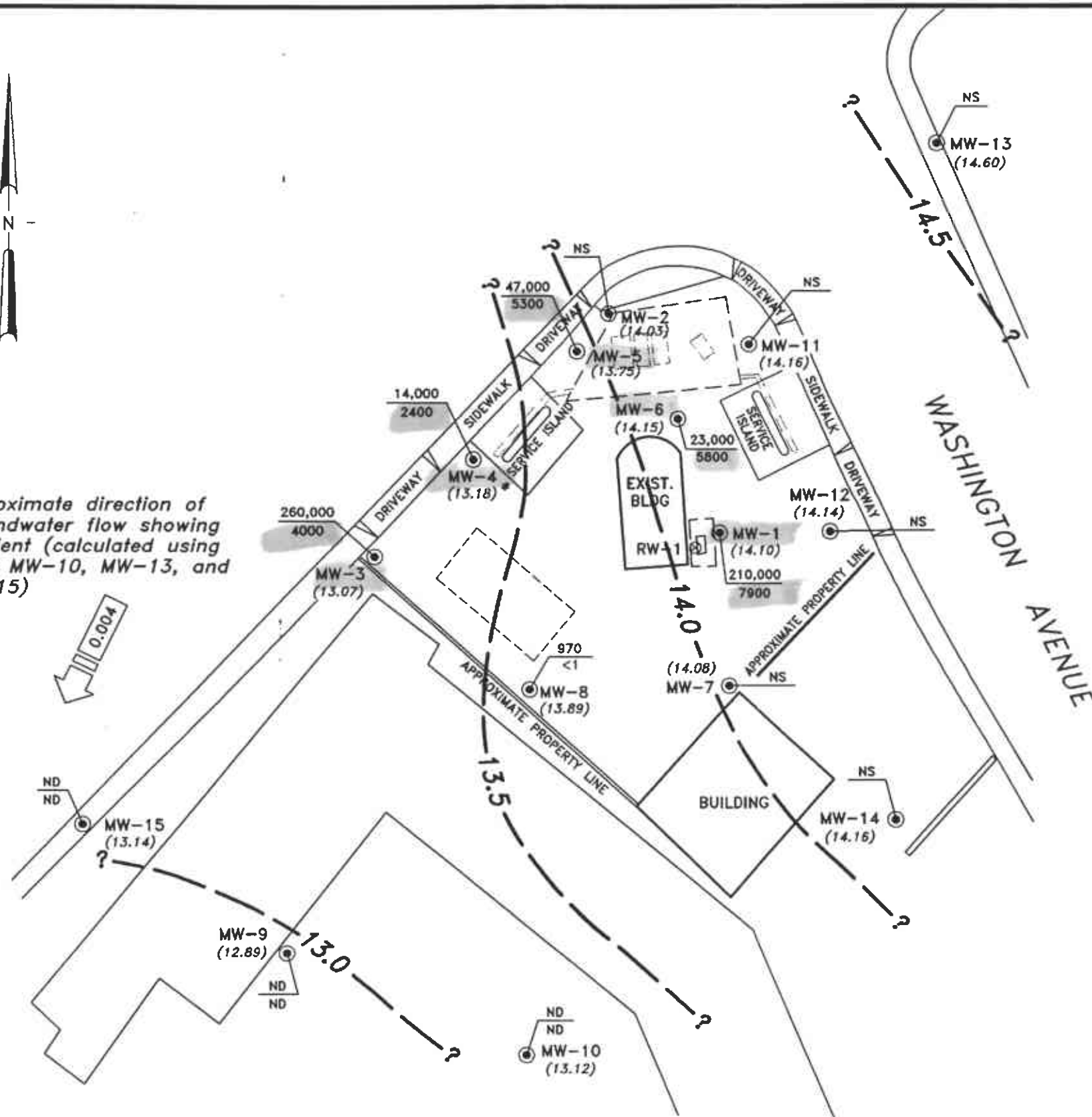
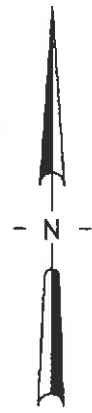
SITE LOCATION

FIGURE

1

PROJECT NO.
805-121.03

Approximate direction of groundwater flow showing gradient (calculated using wells MW-10, MW-13, and MW-15)



EXPLANATION

- Groundwater monitoring well
- Vapor extraction well
- Former underground gasoline storage tank
- Existing underground gasoline storage tank
- Approximate limit of gasoline tank excavation
- === Former product line
- (14.10) Groundwater elevation (Ft.-MSL) measured 8/26/96
- ?- Groundwater elevation contour (Ft.-MSL)
- 210,000 / 7900 TPHG, concentration in groundwater (ug/L); sampled 8/26/96
- 210,000 / 7900 Benzene concentration in groundwater (ug/L); sampled 8/26/96
- * The groundwater elevation was not used in contouring
- ND Not detected at or above the method reporting limit for TPHG (50 ug/L) or benzene (0.5 ug/L)
- NS Not sampled; not scheduled for chemical analysis



SCALE: 0 50 100 FEET
(Approximate)

ARCO PRODUCTS COMPANY
SERVICE STATION 601, 712 LEWELLING BLVD.
QUARTERLY GROUNDWATER MONITORING
SAN LEANDRO, CALIFORNIA

GROUNDWATER DATA
THIRD QUARTER 1996

FIGURE NO.

2

PROJECT NO.
805-121.003

APPENDIX A

**FIELD DATA SHEETS, THIRD QUARTER 1996
GROUNDWATER MONITORING EVENT**

FIELD REPORT
DEPTH TO WATER/FLOATING PRODUCT SURVEY

PROJECT # : 21775-208.002 STATION ADDRESS : 712 Lewelling Blvd., San Leandro

DATE : 8-26-96

ARCO STATION # : 601

FIELD TECHNICIAN : M. GALLEGO / D. Gambetta

DAY : Monday

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-9	Good	Good	Good	ARCO	LWC	8.00	8.00	ND	NA	16.2	
2	MW-10	Good	Good	Good	ARCO	LWC	8.00	8.00	ND	NA	18.4	
3	MW-12	Good	Good	Good	ARCO	LWC	8.63	8.63	ND	NA	11.6	
4	MW-13	Good	Good	Good	ARCO	LWC	7.85	7.85	ND	NA	13.1	
5	MW-14	Good	Good	Good	ARCO	LWC	8.83	8.83	ND	NA	13.0	
6	MW-15	Good	Good	Good	ARCO	LWC	6.05	6.05	ND	NA	10.1	
7	MW-7	Good	Good	Good	ARCO	LWC	8.81	8.81	ND	NA	9.5	
8	MW-11	Good	Good	Good	ARCO	LWC	8.22	8.22	ND	NA	11.8	
9	MW-8	Good	Good	Good	ARCO	LWC	7.08	7.08	ND	NA	10.2	
10	MW-4	Good	Good	Good	ARCO	LWC	7.57	7.57	ND	NA	8.5	
11	MW-2	Good	Good	Good	ARCO	LWC	7.30	7.30	ND	NA	12.2	
12	MW-6	Good	Good	Good	ARCO	LWC	7.93	7.93	ND	NA	8.6	
13	MW-5	Good	Good	Good	ARCO	LWC	7.15	7.15	NA	NA	10.1	
14	MW-3	Good	Good	Good	ARCO	LWC	7.04	7.04	NA	NA	11.9	
15	MW-1	Good	Good	Good	ARCO	LWC	8.14	8.14	ND	NA	12.0	

SURVEY POINTS ARE TOP OF WELL CASINGS



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WATER SAMPLE FIELD DATA SHEET

Rev. 3, 2/94

PROJECT NO: 21775-208-002

SAMPLE ID: MW-1 (12')

PURGED BY: ME/AH

CLIENT NAME: ARCO #601

SAMPLED BY: ✓

LOCATION: San Leandro, CA

TYPE: Ground Water 1 Surface Water _____ Treatment Effluent _____ Other _____

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

CASING ELEVATION (feet/MSL): N/A VOLUME IN CASING (gal.): 2.50
DEPTH TO WATER (feet): 8.16 CALCULATED PURGE (gal.): 7.52
DEPTH OF WELL (feet): 12.0 ACTUAL PURGE VOL. (gal.): 3.0

DATE PURGED: 8-26-94 Start (2400 Hr) 1532 End (2400 Hr) 1536
DATE SAMPLED: ✓ Start (2400 Hr) 1540 End (2400 Hr) —

TIME (2400 Hr)	VOLUME (gal.)	pH (units)	E.C. (μmhos/cm @ 25° C)	TEMPERATURE (°F)	COLOR (visual)	TURBIDITY (visual)
<u>1535</u>	<u>2.5</u>	<u>6.76</u>	<u>1793</u>	<u>76.5</u>	<u>cloudy</u>	<u>mod</u>
<u>1541</u>	<u>well</u>	<u>dry</u>	<u>cat 3.0</u>	<u>gallo-s.</u>	<u>✓</u>	<u>✓</u>
	<u>recharge</u>	<u>6.77</u>	<u>1796</u>	<u>76.2</u>	<u>✓</u>	<u>✓</u>

D. O. (ppm): N/A ODOR: strong N/A N/A
Field QC samples collected at this well: N/A Parameters field filtered at this well: N/A
(COBALT 0 - 500) (NTU 0 - 200 or 0 - 1000)

PURGING EQUIPMENT

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

Other: _____

SAMPLING EQUIPMENT

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

Other: _____

WELL INTEGRITY: Good LOCK #: ARCO-key

REMARKS: All sample taken

Meter Calibration: Date: 8/26/94 Time: _____ Meter Serial #: 9204 Temperature °F: _____
(EC 1000 _____ / _____) (DI _____) (pH 7 _____ / _____) (pH 10 _____ / _____) (pH 4 _____ / _____)

Location of previous calibration: MW-9

Signature: [Signature] Reviewed By: [Signature] Page 1 of 9



EMCON
ASSOCIATES

WATER SAMPLE FIELD DATA SHEET

Rev. 3, 2/94

PROJECT NO: 20775-208-002

SAMPLE ID: MW-3(11')

PURGED BY: M.G. / D.G.

CLIENT NAME: ARCO #601

SAMPLED BY: ↓

LOCATION: San Leandro CA

TYPE: Ground Water ☒ Surface Water ☐ Treatment Effluent ☐ Other ☐

CASING DIAMETER (inches): 2 ☐ 3 ☐ 4 ☒ 4.5 ☐ 6 ☐ Other ☐

CASING ELEVATION (feet/MSL): NR

VOLUME IN CASING (gal.): 3.17

DEPTH TO WATER (feet): 7.04

CALCULATED PURGE (gal.): 9.52

DEPTH OF WELL (feet): 11.9

ACTUAL PURGE VOL. (gal.): 10.0

DATE PURGED: 8-26-96

Start (2400 Hr) 1546

End (2400 Hr) 1552

DATE SAMPLED: ↓

Start (2400 Hr) 1555

End (2400 Hr) —

TIME (2400 Hr)	VOLUME (gal.)	pH (units)	E.C. (µmhos/cm @ 25° C)	TEMPERATURE (°F)	COLOR (visual)	TURBIDITY (visual)
<u>1548</u>	<u>3.5</u>	<u>7.34</u>	<u>917</u>	<u>74.7</u>	<u>Cloudy</u>	<u>mod</u>
<u>1550</u>	<u>7.0</u>	<u>7.41</u>	<u>892</u>	<u>73.8</u>	<u>"</u>	<u>"</u>
<u>1552</u>	<u>10.0</u>	<u>7.42</u>	<u>898</u>	<u>73.2</u>	<u>"</u>	<u>"</u>

D. O. (ppm): NR

ODOR: Strong

NR

NR

Field QC samples collected at this well: NR

Parameters field filtered at this well: NR

(COBALT 0 - 500)

(NTU 0 - 200
or 0 - 1000)

PURGING EQUIPMENT

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

Other:

SAMPLING EQUIPMENT

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

Other:

WELL INTEGRITY: Good

LOCK #: ARCO-Key

REMARKS: All sample tubes

Meter Calibration: Date: 8/20/96

Time:

Meter Serial #: 9204

Temperature °F:

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

Location of previous calibration: MW-9

Signature: [Signature]

Reviewed By: SA

Page 2 of 9

EMCON
ASSOCIATES

WATER SAMPLE FIELD DATA SHEET

Rev. 3, 2/94

PROJECT NO: 21775-208.002SAMPLE ID: MW-4 (8')PURGED BY: M.C./AGCLIENT NAME: ARCO #601SAMPLED BY: ✓LOCATION: San Leandro, CATYPE: 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.): 0.60
 DEPTH TO WATER (feet): 7.57 CALCULATED PURGE (gal.): 1.82
 DEPTH OF WELL (feet): 8.5 ACTUAL PURGE VOL. (gal.): 1.0

DATE PURGED: 8-26-96 Start (2400 Hr) 1448 End (2400 Hr) 1450
 DATE SAMPLED: ✓ Start (2400 Hr) 1455 End (2400 Hr) _____

TIME (2400 Hr)	VOLUME (gal.)	pH (units)	E.C. (umhos/cm @ 25° C)	TEMPERATURE (°F)	COLOR (visual)	TURBIDITY (visual)
<u>1450</u>	<u>1.0</u>	<u>6.98</u>	<u>1254</u>	<u>75.3</u>	<u>Clear</u>	<u>Clear</u>
<u>1456</u>	<u>recheck</u>	<u>7.12</u>	<u>1209</u>	<u>74.1</u>	<u>✓</u>	<u>✓</u>
_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____

D. O. (ppm): N/A ODOR: Strong _____

Field QC samples collected at this well: N/A Parameters field filtered at this well: N/A

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®)
 _____ ODL Sampler _____ Bailer (Stainless Steel)
 _____ Dipper _____ Submersible Pump
 _____ Well Wizard™ _____ Dedicated

Other: _____

WELL INTEGRITY: Good LOCK #: MW-keyREMARKS: all samples taken

Meter Calibration: Date: 8/26/94 Time: _____ Meter Serial #: 9204 Temperature °F: _____
 (EC 1000 _____ / _____) (DI _____) (pH 7 _____ / _____) (pH 10 _____ / _____) (pH 4 _____ / _____)

Location of previous calibration: MW-9Signature: [Signature] Reviewed By: SA Page 3 of 9



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WATER SAMPLE FIELD DATA SHEET

Rev. 3, 2/94

PROJECT NO: 21775-208.002

SAMPLE ID: MW-5(10')

PURGED BY: M. Gallegos / A.G.

CLIENT NAME: ARCO#601

SAMPLED BY: ✓

LOCATION: San Leandro, CA

TYPE: Ground Water ✓ Surface Water Treatment Effluent Other

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

CASING ELEVATION (feet/MSL): NA

VOLUME IN CASING (gal.): 1.92

DEPTH TO WATER (feet): 7.15

CALCULATED PURGE (gal.): 5.78

DEPTH OF WELL (feet): 10.1

ACTUAL PURGE VOL (gal.): 2.5

DATE PURGED: 8-26-94

Start (2400 Hr) 1515

End (2400 Hr) 1519

DATE SAMPLED: ✓

Start (2400 Hr) 1524

End (2400 Hr)

TIME (2400 Hr)	VOLUME (gal.)	pH (units)	E.C. (µmhos/cm @ 25° C)	TEMPERATURE (°F)	COLOR (visual)	TURBIDITY (visual)
<u>1517</u>	<u>2.0</u>	<u>7.98</u>	<u>1665</u>	<u>75.1</u>	<u>BRA</u>	<u>Heavy</u>
	<u>well dried at</u>		<u>2.5 gal/ten</u>			
<u>1524</u>	<u>recharge</u>	<u>7.20</u>	<u>1717</u>	<u>76.1</u>	<u>✓</u>	<u>✓</u>

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
☐ Centrifugal Pump
☐ Submersible Pump
☐ Well Wizard™
☒ Bailer (Teflon®)
☒ Bailer (PVC)
☐ Bailer (Stainless Steel)
☐ Dedicated

Other:

SAMPLING EQUIPMENT

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

Other:

WELL INTEGRITY: Good

LOCK #: ARCO-KEY

REMARKS: All samples taken

Meter Calibration: Date: 8/24/94

Time:

Meter Serial #: 9204

Temperature °F:

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

Location of previous calibration: MW-9

Signature: [Signature]

Reviewed By: [Signature]

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EMCON
ASSOCIATES

WATER SAMPLE FIELD DATA SHEET

Rev. 3, 2/94

PROJECT NO: 21775-208-002

SAMPLE ID: MW-6 (9')

PURGED BY: M. Gallardo

CLIENT NAME: ARCO #601

SAMPLED BY: J

LOCATION: San Leandro, 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): <u>112</u>	VOLUME IN CASING (gal.): <u>0.143</u>
DEPTH TO WATER (feet): <u>7.93</u>	CALCULATED PURGE (gal.): <u>1.31</u>
DEPTH OF WELL (feet): <u>8.6</u>	ACTUAL PURGE VOL. (gal.): <u>1.5</u>

DATE PURGED: 8-26-96

Start (2400 Hr) 1501

End (2400 Hr) 1503

DATE SAMPLED: J

Start (2400 Hr) 1505

End (2400 Hr)

TIME (2400 Hr)	VOLUME (gal.)	pH (units)	E.C. (µmhos/cm @ 25° C)	TEMPERATURE (°F)	COLOR (visual)	TURBIDITY (visual)
<u>1503</u>	<u>.5</u>	<u>6.77</u>	<u>1489</u>	<u>75.6</u>	<u>Clear</u>	<u>Light</u>
	<u>well closed at</u>		<u>.5 gallon</u>			
<u>1506</u>	<u>recharge</u>	<u>6.76</u>	<u>1461</u>	<u>74.6</u>	<u>J</u>	<u>J</u>

D. O. (ppm): 112

ODOR: Strong

112

112

Field QC samples collected at this well:

112

Parameters field filtered at this well:

112

(COBALT 0 - 500)

(NTU 0 - 200
or 0 - 1000)

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 #: ARCO-ERY

REMARKS: all samples taken

Meter Calibration: Date: 8-26-96 Time: Meter Serial #: 9204 Temperature °F:
 (EC 1000 /) (DI) (pH 7 /) (pH 10 /) (pH 4 /)

Location of previous calibration: MW-9

Signature: M. Gallardo

Reviewed By: JA

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EMCON
ASSOCIATES

WATER SAMPLE FIELD DATA SHEET

Rev. 3, 2/94

PROJECT NO: 21775-208-002

SAMPLE ID: MW-8(10')

PURGED BY: M. Gallardo / A.G.

CLIENT NAME: ARCO # 601

SAMPLED BY: V

LOCATION: San Leandro, CA

TYPE: Ground Water ☒ Surface Water ☐ Treatment Effluent ☐ Other ☐

CASING DIAMETER (inches): 2 ☐ 3 ☐ 4 ☒ 4.5 ☐ 6 ☐ Other ☐

CASING ELEVATION (feet/MSL): NK VOLUME IN CASING (gal.): 2.03
DEPTH TO WATER (feet): 7.08 CALCULATED PURGE (gal.): 6.11
DEPTH OF WELL (feet): 10.2 ACTUAL PURGE VOL. (gal.): 3.5

DATE PURGED: 8-26-96 Start (2400 Hr) 1435 End (2400 Hr) 1439
DATE SAMPLED: V Start (2400 Hr) 1445 End (2400 Hr) —

TIME (2400 Hr)	VOLUME (gal.)	pH (units)	E.C. (µmhos/cm @ 25° C)	TEMPERATURE (°F)	COLOR (visual)	TURBIDITY (visual)
<u>1437</u>	<u>2.0</u> <u>40 well</u>	<u>6.98</u> <u>dried</u>	<u>702</u> <u>at 3.5</u>	<u>72.7</u> <u>gallons</u>	<u>BRN</u>	<u>Heavy</u>
<u>1446</u>	<u>Rechar</u>	<u>6.97</u>	<u>680</u>	<u>74.4</u>	<u>J</u>	<u>J</u>

D. O. (ppm): NK ODOR: Strong NK NK
Field QC samples collected at this well: NK Parameters field filtered at this well: NK
(COBALT 0 - 500) (NTU 0 - 200 or 0 - 1000)

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 #: ARCO-Key

REMARKS: all sampler taken

Meter Calibration: Date: 8-26-96 Time: Meter Serial #: 9204 Temperature °F:
(EC 1000 /) (DI) (pH 7 /) (pH 10 /) (pH 4 /)
Location of previous calibration: MW-9

Signature: M. Gallardo Reviewed By: SA Page 6 of 9



EMCON
ASSOCIATES

WATER SAMPLE FIELD DATA SHEET

Rev. 3, 2/94

PROJECT NO: 21775-208.002

SAMPLE ID: MW-9 (16')

PURGED BY: M. Gallegos

CLIENT NAME: ARCO # 601

SAMPLED BY: ✓

LOCATION: San Leandro, CA

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

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

CASING ELEVATION (feet/MSL): NR VOLUME IN CASING (gal.): 1.33

DEPTH TO WATER (feet): 8.00 CALCULATED PURGE (gal.): 4.01

DEPTH OF WELL (feet): 16.2 ACTUAL PURGE VOL (gal.): 4.5

DATE PURGED: 8-26-94

Start (2400 Hr) 1325

End (2400 Hr) 1332

DATE SAMPLED: ✓

Start (2400 Hr) 1340

End (2400 Hr) _____

TIME (2400 Hr)	VOLUME (gal.)	pH (units)	E.C. (umhos/cm @ 25° C)	TEMPERATURE (°F)	COLOR (visual)	TURBIDITY (visual)
<u>1327</u>	<u>1.5</u>	<u>6.64</u>	<u>1222</u>	<u>74.3</u>	<u>BRN</u>	<u>HEAVY</u>
<u>1330</u>	<u>3.0</u>	<u>7.10</u>	<u>1182</u>	<u>73.3</u>	<u>✓</u>	<u>✓</u>
<u>1332</u>	<u>4.5</u>	<u>7.15</u>	<u>1184</u>	<u>73.2</u>	<u>✓</u>	<u>✓</u>
_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____

D. O. (ppm): NR

ODOR: none

NR

NR

Field QC samples collected at this well:

Parameters field filtered at this well:

(COBALT 0 - 500)

(NTU 0 - 200
or 0 - 1000)

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 #: ARCO - Key

REMARKS: all samples taken

Meter Calibration: Date: 8/26/94 Time: 1320 Meter Serial #: 92041 Temperature °F: 75.2
 (EC 1000 993 / 1000) (DI _____) (pH 7 700 / 700) (pH 10 1000 / 1000) (pH 4 399 / _____)

Location of previous calibration: _____

Signature: M. Gallegos

Reviewed By: JA

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EMCON
ASSOCIATES

WATER SAMPLE FIELD DATA SHEET

Rev. 3, 2/94

PROJECT NO: 20775-208.002

SAMPLE ID: MW-10 (18)

PURGED BY: M. Gallagos

CLIENT NAME: ARCO#601

SAMPLED BY: ✓

LOCATION: San Leandro, CA

TYPE: Ground Water ✓ Surface Water Treatment Effluent Other

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

CASING ELEVATION (feet/MSL): NIR

VOLUME IN CASING (gal.): 1.69

DEPTH TO WATER (feet): 8.00

CALCULATED PURGE (gal.): 5.09

DEPTH OF WELL (feet): 18.4

ACTUAL PURGE VOL (gal.): 5.5

DATE PURGED: 8-26-94

Start (2400 Hr) 1348

End (2400 Hr) 1355

DATE SAMPLED: ✓

Start (2400 Hr) 1400

End (2400 Hr)

TIME (2400 Hr)	VOLUME (gal.)	pH (units)	E.C. (µmhos/cm @ 25° C)	TEMPERATURE (°F)	COLOR (visual)	TURBIDITY (visual)
<u>1350</u>	<u>2.0</u>	<u>7.18</u>	<u>1037</u>	<u>72.1</u>	<u>Cloudy</u>	<u>Light</u>
<u>1353</u>	<u>4.0</u>	<u>7.14</u>	<u>1027</u>	<u>71.3</u>	<u>BROWN</u>	<u>MOD</u>
<u>1355</u>	<u>5.5</u>	<u>7.17</u>	<u>1021</u>	<u>71.1</u>	<u>11</u>	<u>11</u>
<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>	<u> </u>

D. O. (ppm): NIR

ODOR: none

NIR

NIR

Field QC samples collected at this well:

NIR

Parameters field filtered at this well:

NIR

(COBALT 0 - 500)

(NTU 0 - 200
or 0 - 1000)

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 #: ARCO-key

REMARKS: All samples taken

Meter Calibration: Date: 8/26/94 Time: Meter Serial #: 9204 Temperature °F:

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

Location of previous calibration: MW-9

Signature: [Signature]

Reviewed By: [Signature]

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EMCON
ASSOCIATES

WATER SAMPLE FIELD DATA SHEET

Rev. 3, 2/94

PROJECT NO: 21775-208-002

SAMPLE ID: MW-15(10')

PURGED BY: M. GALLEGOS

CLIENT NAME: ARCO # 601

SAMPLED BY: ✓

LOCATION: San Leandro, CA

TYPE: Ground Water ✓ Surface Water Treatment Effluent Other

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

CASING ELEVATION (feet/MSL): NR

VOLUME IN CASING (gal.): 0.66

DEPTH TO WATER (feet): 6.05

CALCULATED PURGE (gal.): 1.98

DEPTH OF WELL (feet): 10.1

ACTUAL PURGE VOL (gal.): 2.0

DATE PURGED: 8-26-94

Start (2400 Hr) 1414

End (2400 Hr) 1418

DATE SAMPLED: ✓

Start (2400 Hr) 1425

End (2400 Hr)

TIME (2400 Hr)	VOLUME (gal.)	pH (units)	E.C. (µmhos/cm @ 25° C)	TEMPERATURE (°F)	COLOR (Visual)	TURBIDITY (Visual)
<u>1416</u>	<u>1.0</u>	<u>7.22</u>	<u>966</u>	<u>71.8</u>	<u>TAN</u>	<u>MOD</u>
<u>1417</u>	<u>1.5</u>	<u>7.20</u>	<u>967</u>	<u>71.5</u>	<u>✓</u>	<u>✓</u>
<u>1418</u>	<u>2.0</u>	<u>7.22</u>	<u>968</u>	<u>71.3</u>	<u>✓</u>	<u>✓</u>

D. O. (ppm): NR

ODOR: none

NR

NR

Field QC samples collected at this well:

Parameters field filtered at this well:

(COBALT 0 - 500)

(NTU 0 - 200
or 0 - 1000)

PURGING EQUIPMENT

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

Other:

SAMPLING EQUIPMENT

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

Other:

WELL INTEGRITY: Good

LOCK #: ARCO-Kea

REMARKS: all samples taken

Meter Calibration: Date: 8-20-94

Time:

Meter Serial #: 9204

Temperature °F:

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

Location of previous calibration: MW 9

Signature: [Signature]

Reviewed By: [Signature]

Page 9 of 9

DISSOLVED OXYGEN DATA SHEET



Project Number: #20805-121.003

Date: 8-26-96

Station Number: ARCO #601

Day: Monday

Location: San Leandro, CA

Sampler: M. Gallesos

Measuring Method(s): X D.O. Kit

 D.O. Meter

Well ID	Date	Time	D.O. Reading
MW-2	8/26/96	1145	3
MW-5		1153	6
MW-6		1205	1
MW-8		1219	1
MW-3		1233	1
MW-1	✓	1241	2

SIGNATURE: [Signature]

Page 1 of 1

APPENDIX B

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

**Columbia
Analytical
Services^{inc.}**

September 9, 1996

Service Request No.: S9601405

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

RE: 601 SAN LEANDRO/20805-121.003/TO#19350.00

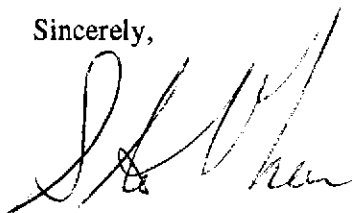
Dear Mr. Young:

Attached are the results of the samples submitted to our lab on August 26, 1996.
For you reference, our service request number for this work is S9601405.

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 16, 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
Project: 601 SAN LEANDRO/20805-121.003/TO#19350.00
Sample Matrix: Water

Service Request: S9601405
Date Collected: 8/26/96
Date Received: 8/26/96
Date Extracted: 8/29/96

Base Neutral/Acid Semivolatile Organic Compounds
 EPA Methods 3510/8270
 Units: ug/L (ppb)

Sample Name:	MW-1 (12)*	Method Blank
Lab Code:	S9601405-005	S960829-MB
Date Analyzed:	9/5/96	9/5/96

Base Neutral Analyte	MRL		
N-Nitrosodimethylamine	5	<500	ND
Aniline	5	<500	ND
Bis(2-chloroethyl) Ether	5	<500	ND
1,2-Dichlorobenzene	5	<500	ND
1,3-Dichlorobenzene	5	<500	ND
1,4-Dichlorobenzene	5	<500	ND
Bis(2-chloroisopropyl) Ether	5	<500	ND
N-Nitrosodi-n-propylamine	5	<500	ND
Hexachloroethane	10	<1000	ND
Nitrobenzene	5	<500	ND
Isophorone	5	<500	ND
Bis(2-chloroethoxy)methane	5	<500	ND
1,2,4-Trichlorobenzene	5	<500	ND
Naphthalene	5	2,300	ND
4-Chloroaniline	5	<500	ND
Hexachlorobutadiene	10	<1000	ND
2-Methylnaphthalene	5	1,800	ND
Hexachlorocyclopentadiene	10	<1000	ND
2-Chloronaphthalene	5	<500	ND
2-Nitroaniline	20	<2000	ND
Dimethyl Phthalate	5	<500	ND
Acenaphthylene	5	<500	ND
3-Nitroaniline	20	<2000	ND
Acenaphthene	5	<500	ND
Dibenzofuran	5	<500	ND
2,4-Dinitrotoluene	5	<500	ND

* The MRL is elevated due to high analyte concentration requiring sample dilution.

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client: ARCO Products Company
Project: 601 SAN LEANDRO/20805-121.003/TO#19350.00
Sample Matrix: Water

Service Request: S9601405
Date Collected: 8/26/96
Date Received: 8/26/96
Date Extracted: 8/29/96

Base Neutral/Acid Semivolatile Organic Compounds
 EPA Methods 3510/8270
 Units: ug/L (ppb)

Sample Name:	MW-1 (12)*	Method Blank
Lab Code:	S9601405-005	S960829-MB
Date Analyzed:	9/5/96	9/5/96

Base Neutral Analyte	MRL		
2,6-Dinitrotoluene	5	<500	ND
Diethyl Phthalate	5	<500	ND
4-Chlorophenyl Phenyl Ether	5	<500	ND
Fluorene	5	<500	ND
4-Nitroaniline	20	<2000	ND
N-Nitrosodiphenylamine	5	<500	ND
4-Bromophenyl Phenyl Ether	5	<500	ND
Hexachlorobenzene	5	<500	ND
Phenanthrene	5	<500	ND
Anthracene	5	<500	ND
Di-n-butyl Phthalate	5	<500	ND
Fluoranthene	5	<500	ND
Pyrene	5	<500	ND
Butylbenzyl Phthalate	5	<500	ND
3,3'-Dichlorobenzidine	20	<2000	ND
Benzo(a)anthracene	5	<500	ND
Bis(2-ethylhexyl) Phthalate	5	<500	ND
Chrysene	5	<500	ND
Di-n-octyl Phthalate	5	<500	ND
Benzo(b)fluoranthene	5	<500	ND
Benzo(k)fluoranthene	5	<500	ND
Benzo(a)pyrene	5	<500	ND
Indeno(1,2,3-c,d)pyrene	5	<500	ND
Dibenz(a,h)anthracene	5	<500	ND
Benzo(g,h,i)perylene	5	<500	ND
Pyridine	10	<1000	ND

* The MRL is elevated due to high analyte concentration requiring sample dilution.

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client: ARCO Products Company
Project: 601 SAN LEANDRO/20805-121.003/TO#19350.00
Sample Matrix: Water

Service Request: S9601405
Date Collected: 8/26/96
Date Received: 8/26/96
Date Extracted: 8/29/96

Base Neutral/Acid Semivolatile Organic Compounds
 EPA Methods 3510/8270
 Units: ug/L (ppb)

Sample Name:	MW-1 (12)*	Method Blank
Lab Code:	S9601405-005	S960829-MB
Date Analyzed:	9/5/96	9/5/96

Acid Analyte	MRL		
Phenol	5	<500	ND
2-Chlorophenol	5	<500	ND
Benzyl Alcohol	10	<1000	ND
2-Methylphenol	5	<500	ND
3- and 4-Methylphenol ^a	5	<500	ND
2-Nitrophenol	5	<500	ND
2,4-Dimethylphenol	10	<1000	ND
Benzoic Acid	50	<5000	ND
2,4-Dichlorophenol	5	<500	ND
4-Chloro-3-methylphenol	5	<500	ND
2,4,6-Trichlorophenol	5	<500	ND
2,4,5-Trichlorophenol	5	<500	ND
2,4-Dinitrophenol	50	<5000	ND
4-Nitrophenol	50	<5000	ND
2-Methyl-4,6-dinitrophenol	20	<2000	ND
Pentachlorophenol	30	<3000	ND

^a Quantified as 4-Methylphenol.

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client: ARCO Products Company
Project: 601 SAN LEANDRO/20805-121.003/TO#19350.00
Sample Matrix: Water

Service Request: S9601405
Date Collected: 8/26/96
Date Received: 8/26/96
Date Extracted: NA

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

Sample Name:	MW-8 (10)	MW-4 (8)	MW-6 (8)
Lab Code:	S9601405-001	S9601405-002	S9601405-003
Date Analyzed:	9/5-6/96	9/5/96	9/6/96

Analyte	MRL			
TPH as Gasoline	50	970	14,000	23,000
Benzene	0.5	<1*	2,400	5,800
Toluene	0.5	<1*	510	<50*
Ethylbenzene	0.5	3	350	2,000
Total Xylenes	0.5	<1*	2,100	560
Methyl <i>tert</i> -Butyl Ether	3	710	<100*	<300*

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

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client: ARCO Products Company
Project: 601 SAN LEANDRO/20805-121.003/TO#19350.00
Sample Matrix: Water

Service Request: S9601405
Date Collected: 8/26/96
Date Received: 8/26/96
Date Extracted: NA

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

Sample Name:	MW-5 (10)	MW-1 (12)	MW-3 (11)
Lab Code:	S9601405-004	S9601405-005	S9601405-006
Date Analyzed:	9/6/96	9/5/96	9/6/96

Analyte	MRL			
TPH as Gasoline	50	47,000	210,000	260,000
Benzene	0.5	5,300	7,900	4,000
Toluene	0.5	2,100	320	6,100
Ethylbenzene	0.5	780	3,400	4,200
Total Xylenes	0.5	3,200	15,000	24,000
Methyl <i>tert</i> -Butyl Ether	3	<300*	<1,000*	<2,000**

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

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client: ARCO Products Company
Project: 601 SAN LEANDRO/20805-121.003/TO#19350.00
Sample Matrix: Water

Service Request: S9601405
Date Collected: 8/26/96
Date Received: 8/26/96
Date Extracted: NA

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

Sample Name: MW-15 (10)
Lab Code: S9601405-009
Date Analyzed: 9/5/96

Analyte	MRL	
TPH as Gasoline	50	ND
Benzene	0.5	ND
Toluene	0.5	ND
Ethylbenzene	0.5	ND
Total Xylenes	0.5	ND
Methyl <i>tert</i> -Butyl Ether	3	8

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client: ARCO Products Company
Project: 601 SAN LEANDRO/20805-121.003/TO#19350.00
Sample Matrix: Water

Service Request: S9601405
Date Collected: 8/26/96
Date Received: 8/26/96
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	Method Blank
Lab Code:	S960904-WB1	S960905-WB1	S960906-WB1
Date Analyzed:	9/4/96	9/5/96	9/6/96

Analyte	MRL			
TPH as Gasoline	50	ND	ND	ND
Benzene	0.5	ND	ND	ND
Toluene	0.5	ND	ND	ND
Ethylbenzene	0.5	ND	ND	ND
Total Xylenes	0.5	ND	ND	ND
Methyl <i>tert</i> -Butyl Ether	3	ND	ND	ND

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: ARCO Products Comapany
Project: 20805-121.003/TO#19350.00
Sample Matrix: Water

Service Request: S9601405
Date Collected: 8/26/96
Date Received: 8/26/96
Date Extracted: 8/29/96
Date Analyzed: 9/5/96

Surrogate Recovery Summary
Base Neutral/Acid Semivolatile Organic Compounds
EPA Methods 3510/8270

Sample Name	Lab Code	P e r c e n t			R e c o v e r y		
		2FP	PHL	TBP	NBZ	FBP	TPH
MW-1 (12)	S9601405-005	NA	NA	NA	NA	NA	NA
MW-1 (12) (MS)	S9601405-005MS	NA	NA	NA	NA	NA	NA
MW-1 (12) (DMS)	S9601405-005DMS	NA	NA	NA	NA	NA	NA
Laboratory Control Sample	S960829-LCS1	44	30	81	67	66	53
Method Blank	S960829-MB	45	31	61	71	72	55

CAS Acceptance Limits: 21-100 10-94 10-123 35-114 43-116 33-141

2FP 2-Fluorophenol
 PHL Phenol-D6
 TBP 2,4,6-Tribromophenol
 NBZ Nitrobenzene-D5
 FBP 2-Fluorobiphenyl
 TPH Terphenyl-D14

NA NA Not Applicable because of the sample matrix. Analysis of this sample required a dilution such that the surrogate concentration was diluted below the MRL.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: ARCO Products Comapany
Project: 20805-121.003/TO#19350.00
Sample Matrix: Water

Service Request: S9601405
Date Collected: 8/26/96
Date Received: 8/26/96
Date Extracted: 8/29/96
Date Analyzed: 9/5/96

Matrix Spike/Duplicate Matrix Spike Summary
 Base Neutral/Acid Semivolatile Organic Compounds
 EPA Methods 3510/8270
 Units: µg/L (ppb)

Sample Name: MW-1(12)
Lab Code: S9601405-005

Analyte	Percent Recovery								Relative Percent Difference
	Spike Level		Sample Result	Spike Result		CAS Acceptance Limits			
	MS	DMS		MS	DMS	MS	DMS		
Phenol	100	100	ND	NA	NA	NA	NA	12-89	
2-Chlorophenol	100	100	ND	NA	NA	NA	NA	27-123	
1,4-Dichlorobenzene	50	50	ND	NA	NA	NA	NA	36-97	
N-Nitrosodi-n-propylamine	50	50	ND	NA	NA	NA	NA	41-116	
1,2,4-Trichlorobenzene	50	50	ND	NA	NA	NA	NA	39-98	
4-Chloro-3-methylphenol	100	100	ND	NA	NA	NA	NA	23-97	
Acenaphthene	50	50	ND	NA	NA	NA	NA	46-118	
4-Nitrophenol	100	100	ND	NA	NA	NA	NA	10-80	
2,4-Dinitrotoluene	50	50	ND	NA	NA	NA	NA	24-96	
Pentachlorophenol	100	100	ND	NA	NA	NA	NA	9-103	
Pyrene	50	50	ND	NA	NA	NA	NA	26-127	

NA NA Not Applicable because of the sample matrix. Analysis of this sample required a dilution such that the spike concentration was diluted below the MRL.

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: ARCO Products Comapany
Project: 20805-121.003/TO#19350.00
LCS Matrix: Water

Service Request: S9601405
Date Collected: 8/26/96
Date Received: 8/26/96
Date Extracted: 8/29/96
Date Analyzed: 9/5/96

Laboratory Control Sample Summary
 Base Neutral/Acid Semivolatile Organic Compounds
 EPA Methods 3510/8270
 Units: µg/L (ppb)

Analyte	True Value	Result	Percent Recovery	CAS
				Percent Recovery Acceptance Limits
Phenol	100	35	35	5-112
2-Chlorophenol	100	79	79	23-134
1,4-Dichlorobenzene	50	29	58	20-124
N-Nitrosodi-n-propylamine	50	53	106	D-230
1,2,4-Trichlorobenzene	50	32	64	44-142
4-Chloro-3-methylphenol	100	88	88	22-147
Acenaphthene	50	42	84	47-145
4-Nitrophenol	100	34	34	D-132
2,4-Dinitrotoluene	50	48	96	39-139
Pentachlorophenol	100	66	66	14-176
Pyrene	50	47	94	52-115

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: ARCO Products Company
Project: 601 SAN LEANDRO/20805-121.003/TO#19350.00
Sample Matrix: Water

Service Request: S9601405
Date Collected: 8/26/96
Date Received: 8/26/96
Date Extracted: NA
Date Analyzed: 9/4-6/96

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

Sample Name	Lab Code	PID Detector	FID Detector
		Percent Recovery 4-Bromofluorobenzene	Percent Recovery α,α,α -Trifluorotoluene
MW-8 (10)	S9601405-001	99	102
MW-4 (8)	S9601405-002	101	102
MW-6 (8)	S9601405-003	97	97
MW-5 (10)	S9601405-004	98	110
MW-1 (12)	S9601405-005	96	110
MW-3 (11)	S9601405-006	96	115
MW-15 (10)	S9601405-009	101	98
MW-15 (10) (MS)	S9601405-009MS	97	104
MW-15 (10) (DMS)	S9601405-009DMS	98	105
Method Blank	S960904-WB1	100	96
Method Blank	S960905-WB1	100	95
Method Blank	S960906-WB1	99	94

CAS Acceptance Limits: 69-116 69-116

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client:	ARCO Products Company	Service Request:	S9601405
Project:	601 SAN LEANDRO/20805-121.003/TO#19350.00	Date Collected:	8/26/96
Sample Matrix:	Water	Date Received:	8/26/96
		Date Extracted:	NA
		Date Analyzed:	9/5/96

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

Sample Name: MW-15 (10)
 Lab Code: S9601405-009

Analyte	Spike Level		Sample Result	Spike Result		Percent Recovery			Relative Percent Difference
	MS	DMS		MS	DMS	CAS Acceptance Limits			
						MS	DMS		
Gasoline	250	250	ND	250	260	100	104	67-121	4

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: ARCO Products Company
Project: 601 SAN LEANDRO/20805-121.003/TO#19350.00

Service Request: S9601405
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 <i>tert</i> -Butyl Ether	50	52	104	85-115

Division of AtlanticRichfieldCompany

Task Order No.

Chain of Custody

601

(Facility)

San Leandro

(Consultant)

John Young

Mike Whelan

(ARCO)

(Consultant)

(408) 453 730

(Consum

stant) (408) 453 0452

EMCON

(Consultant)

1921 Ringwood Ave. San Jose, CA 95128

Library Name CAS

7

Sampler
will
deliver

Lowest Possible

As
Normal

2-40ml HCL
VOAs
All Wells
MW-1 add
2 liter Glass
#20835-171.003

3760/165

Formal name: _____

Business day

— **Service Day**

— **Business Day**

Relinquished by sampler.

Date _____

8/26/96

Time

37

Received by

Date:

— 514 —

Time

Time

Received by

	Date
--	-------------

8-26-76

Time

11.38

APPC-3292 (2-91)

R8, R20/S28

**Columbia
Analytical
Services^{inc.}**

September 9, 1996

Service Request No.: S9601405

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

RE: 601 SAN LEANDRO/20805-121.003/TO#19350.00

Dear Mr. Young:

Attached are the results of the samples submitted to our lab on August 26, 1996.
For you reference, our service request number for this work is S9601405.

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 7, 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
TTLIC	Total Threshold Limit Concentration
VOA	Volatile Organic Analyte(s)

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client: ARCO Products Company
Project: 601 SAN LEANDRO/20805-121.003/TO#19350.00
Sample Matrix: Water

Service Request: S9601405
Date Collected: 8/26/96
Date Received: 8/26/96
Date Extracted: NA

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

Sample Name:	MW-9 (16)	MW-10 (18)	Method Blank
Lab Code:	S9601405-007	S9601405-008	S960905-WB1
Date Analyzed:	9/5/96	9/5/96	9/5/96

Analyte	MRL			
TPH as Gasoline	50	ND	ND	ND
Benzene	0.5	ND	ND	ND
Toluene	0.5	ND	ND	ND
Ethylbenzene	0.5	ND	ND	ND
Total Xylenes	0.5	ND	ND	ND
Methyl <i>tert</i> -Butyl Ether	3	ND	ND	ND

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: ARCO Products Company
Project: 601 SAN LEANDRO/20805-121.003/TO#19350.00
Sample Matrix: Water

Service Request: S9601405
Date Collected: 8/26/96
Date Received: 8/26/96
Date Extracted: NA
Date Analyzed: 9/4-6/96

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

Sample Name	Lab Code	PID Detector	FID Detector
		Percent Recovery 4-Bromofluorobenzene	Percent Recovery α,α,α -Trifluorotoluene
MW-9 (16)	S9601405-007	100	96
MW-10 (18)	S9601405-008	101	97
Batch QC	S9601405-009	101	98
Batch QC (MS)	S9601405-009MS	97	104
Batch QC (DMS)	S9601405-009DMS	98	105
Method Blank	S960905-WB1	100	95

CAS Acceptance Limits: 69-116 69-116

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: ARCO Products Company **Service Request:** S9601405
Project: 601 SAN LEANDRO/20805-121.003/TO#19350.00 **Date Collected:** 8/26/96
Sample Matrix: Water **Date Received:** 8/26/96
Date Extracted: NA
Date Analyzed: 9/5/96

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

Sample Name: Batch QC
Lab Code: S9601405-009

Analyte	Spike Level		Sample Result	Spike Result		Percent Recovery				Relative Percent Difference
						CAS		Acceptance Limits		
	MS	DMS		MS	DMS	MS	DMS			
Gasoline	250	250	ND	250	260	100	104	67-121		4

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: ARCO Products Company
Project: 601 SAN LEANDRO/20805-121.003/TO#19350.00

Service Request: S9601405
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 <i>tert</i> -Butyl Ether	50	52	104	85-115

