



EMCON

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ENVIRONMENTAL
PROTECTION

95 MAR 21 PM 1:42

Date March 17, 1995
Project 0805-134.01

To:

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

We are enclosing:

Copies	Description
<u>1</u>	<u>Fourth quarter 1994 groundwater monitoring report</u> <u>for ARCO service station 6113, Livermore, California</u>

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

Comments:

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

David Larsen
Project Coordinator

cc: Sum Arigala, RWQCB - SFBR
Danielle Stefani, LFD
Michael Whelan, ARCO Products Company
David Larsen, EMCON
File



ARCO Products Company
2000 Alameda de las Pulgas
Mailing Address: Box 5811
San Mateo, California 94402
Telephone 415 571 2400



Date: March 17, 1995

Re: ARCO Station # 6113 • 785 East Stanley Boulevard • Livermore, CA
Fourth Quarter 1994 Groundwater Monitoring Report

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

Submitted by:

A handwritten signature in black ink that reads "Michael R. Whelan". The signature is written in a cursive, flowing style.

Michael R. Whelan
Environmental Engineer



March 7, 1995
Project 0805-134.01

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

Re: Fourth quarter 1994 groundwater monitoring program results, ARCO service station 6113, Livermore, California

Dear Mr. Whelan:

This letter presents the results of the fourth quarter 1994 groundwater monitoring program at ARCO Products Company (ARCO) service station 6113, 785 East Stanley Boulevard, Livermore, California (Figure 1). The quarterly monitoring program complies with Alameda County Health Care Services Agency (ACHCSA) requirements regarding underground tank investigations.

BACKGROUND

Between January and February 1989, one 280-gallon waste-oil tank was removed by Crosby and Overton. In September 1989, the initial phase of subsurface environmental investigation was conducted by RESNA and included installing groundwater monitoring wells MW-1, MW-2, and MW-3. In February 1991, a limited surface investigation was conducted by RESNA, which included installing an additional groundwater monitoring well MW-4.

Between June and August 1992, RESNA conducted an additional subsurface investigation, which included installing five additional groundwater monitoring wells, MW-5 through MW-9, and two vadose wells, VW-1 and VW-2, and conducting a soil-vapor extraction (SVE) pilot test. Between December 1992 and March 1993, all product, vapor-return, and vent lines were removed and replaced by Wilkey's Engineering under the supervision of Roux Associates. During this phase of work, subgrade remediation piping for the interim SVE and groundwater remediation systems was also installed.

Between March and June 1993, RESNA installed three additional groundwater monitoring wells, MW-10, MW-11, and MW-12 and two additional vadose wells, VW-3 and VW-4.

RESNA submitted a remedial action plan (RAP) in July 1993, for installation of the proposed soil and groundwater remediation systems. The proposed SVE system was designed and construction completed in December 1993.

The SVE system has not been activated as yet due to a rise in groundwater elevations submerging available SVE well screen.



Mr. Michael Whelan
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Startup of the SVE system is anticipated to occur in the first quarter of 1995, after installation of the phase converter and evaluation of fourth quarter 1994 groundwater monitoring data.

Groundwater monitoring and sampling at this site was initiated in June 1990. There are currently 12 groundwater monitoring wells and 4 vadose wells on site. For additional background information, please refer to the letter report, *Results of Vapor Extraction Well Installation at ARCO Station 6113, 785 East Stanley Boulevard, Livermore, California* (RESNA, June 2, 1994).

Wells MW-1 through MW-12 are monitored quarterly.

MONITORING PROGRAM FIELD PROCEDURES AND RESULTS

The fourth quarter 1994 groundwater monitoring event was performed by Integrated Wastestream Management (IWM) on November 29, 1994. Field work performed by IWM during this quarter included (1) measuring depths to groundwater and subjectively analyzing groundwater for the presence of floating product in wells MW-1 through MW-12, (2) purging and subsequently sampling groundwater monitoring wells MW-1 through MW-12 for laboratory analysis, and (3) directing a state-certified laboratory to analyze the groundwater samples. The results of IWM's field work were transmitted to EMCON in a report dated December 21, 1994. These data are presented in Appendix A.

ANALYTICAL PROCEDURES

Groundwater samples collected during fourth quarter 1994 monitoring were analyzed for total petroleum hydrocarbons as gasoline (TPHG), and benzene, toluene, ethylbenzene, and total xylenes (BTEX). Groundwater samples were prepared for analysis by U.S. Environmental Protection Agency (USEPA) method 5030 (purge and trap). Groundwater was analyzed for TPHG by the methods accepted by the Department of Toxic Substances Control, California Environmental Protection Agency (Cal-EPA), and referenced in the *Leaking Underground Fuel Tank (LUFT) Field Manual* (State Water Resources Control Board, October 1989). Samples were analyzed for BTEX by USEPA method 8020, as described in *Test Methods for Evaluating Solid Waste: Physical/Chemical Methods* (USEPA, SW-846, November 1986, Third Edition). Groundwater samples collected from well MW-1 were also analyzed for total recoverable petroleum hydrocarbons (TRPH) by USEPA method 418.1. These methods are recommended for samples from petroleum-hydrocarbon-impacted sites in the *Tri-Regional Board Staff Recommendations for Preliminary Evaluation and Investigation of Underground Tank Sites* (August 10, 1990).

MONITORING PROGRAM RESULTS

Results of the fourth quarter 1994 groundwater monitoring event are summarized in Table 1 and illustrated in Figure 2. Historical groundwater elevation data, including top-of-casing elevations, depth-to-water measurements, calculated groundwater elevations, floating-product thickness measurements, and groundwater flow direction and gradient data, are summarized in Table 2. Table 3 summarizes historical laboratory data for TPHG, BTEX, and TRPH analyses. Table 4 summarizes historical laboratory data for halogenated volatile organic compound (VOC), total petroleum hydrocarbons as diesel (TPHD), and metals analyses. Copies of the fourth quarter 1994 analytical results and chain-of-custody documentation are included in Appendix B.

MONITORING PROGRAM EVALUATION

Groundwater elevation data collected on November 29, 1994, illustrate that groundwater beneath the site flows north at an approximate hydraulic gradient of 0.025 foot per foot. Figure 2 illustrates groundwater contours and analytical data for the fourth quarter of 1994.

Groundwater samples collected from wells MW-1, MW-2, MW-3, and MW-7 through MW-12 did not contain detectable concentrations of TPHG or BTEX. Groundwater samples collected from wells MW-4 and MW-5 contained 280 and 1,100 parts per billion (ppb) TPHG, and 1.8 and 280 ppb benzene, respectively. Groundwater samples collected from well MW-1 did not contain detectable concentrations of TRPH (<500 ppb). Groundwater samples collected from well MW-6 contained 1.3 ppb benzene, but did not contain detectable concentrations of TPHG. Well MW-6 contained floating product from the third quarter of 1992 through the fourth quarter of 1993. TPHG and BTEX concentrations in MW-6 dropped to nondetectable levels during the second and third quarters of 1994.

LIMITATIONS

Field procedures were performed by, and field data were acquired from, IWM. EMCON does not warrant the accuracy of data supplied by IWM. EMCON's scope of work was limited to interpreting field data, which included evaluating trends in the groundwater gradient, groundwater flow direction, and dissolved-petroleum-hydrocarbon concentrations beneath the site.

No monitoring event is thorough enough to describe all geologic/hydrogeologic conditions of interest at a given site. If conditions have not been identified during the monitoring

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event, such a finding should not therefore be construed as a guarantee of the absence of such conditions at the site, but rather as the result of the scope, limitations, and cost of work performed during the monitoring event.

SITE STATUS UPDATE

This update reports site activities performed during the fourth quarter of 1994 and the anticipated site activities for the first quarter of 1995.

Fourth Quarter 1994 Activities

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


Work Anticipated First Quarter 1995

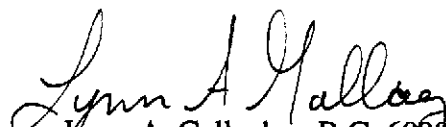
- Prepare and submit quarterly groundwater monitoring report for fourth quarter 1994.
- Perform quarterly groundwater monitoring for first quarter 1995. Based on six or more consecutive quarters of nondetectable TPHG and BTEX analytical results in monitoring wells MW-1, MW-2, MW-3, and MW-8 through MW-12, ARCO will begin sampling wells MW-11 and MW-12 semiannually (second and fourth quarters) and wells MW-1, MW-2, MW-3, MW-8, MW-9, and MW-10 annually (fourth quarter). Wells MW-4 through MW-7 will be sampled quarterly. Water levels will be measured in all wells quarterly.

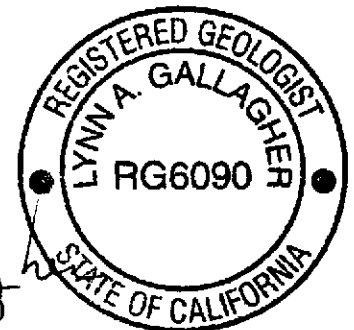
Please call if you have questions.

Sincerely,

EMCON


David Larsen
Project Coordinator


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



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Attachments: Table 1 - Groundwater Monitoring Data, Fourth Quarter 1994
Table 2 - Historical Groundwater Elevation Data
Table 3 - Historical Groundwater Analytical Data (TPHG, BTEX,
and TRPH)
Table 4 - Historical Groundwater Analytical Data (VOCs, TPHD, and
Metals)
Figure 1 - Site Location
Figure 2 - Groundwater Data, Fourth Quarter 1994
Appendix A - Field Data Report, Integrated Wastestream Management,
December 21, 1994
Appendix B - Analytical Results and Chain-of-Custody Documentation,
Fourth Quarter 1994

cc: Susan Hugo, HSA
Sum Arigala, RWQCB - SFBR
Danielle Stefani, LFD

Table 1
Groundwater Monitoring Data
Fourth Quarter 1994
Summary Report

ARCO Service Station 6113
785 East Stanley Boulevard, Livermore, California

Date: 03-06-95
Project Number: 0805-134.01

Well Designation	Water Level Field Date	TOC Elevation ft-MSL	Depth to Water feet	Ground-Water Elevation ft-MSL	Floating Product Thickness feet	Ground-Water Flow Direction MWN	Hydraulic Gradient foot/foot	Water Sample Field Date	TPHG ppb	Benzene ppb	Toluene ppb	Ethyl-benzene ppb	Total Xylenes ppb	TOG or TRPH ppb
MW-1	11-29-94	457.04	19.12	437.92	ND	N	0.025	11-29-94	<50	<0.5	<0.5	<0.5	<0.5	<500
MW-2	11-29-94	457.74	18.89	438.85	ND	N	0.025	11-29-94	<50	<0.5	<0.5	<0.5	<0.5	NA
MW-3	11-29-94	456.97	19.13	437.84	ND	N	0.025	11-29-94	<50	<0.5	<0.5	<0.5	<0.5	NA
MW-4	11-29-94	456.55	19.77	436.78	ND	N	0.025	11-29-94	280	1.8	<0.5	<1.2	<0.8	NA
MW-5	11-29-94	455.84	19.72	436.12	ND	N	0.025	11-29-94	1100	280	11	82	31	NA
MW-6	11-29-94	454.93	18.89	436.04	ND	N	0.025	11-29-94	<50	1.3	<0.5	<0.5	<0.5	NA
MW-7	11-29-94	454.92	18.73	436.19	ND	N	0.025	11-29-94	<50	<0.5	<0.5	<0.5	<0.5	NA
MW-8	11-29-94	456.97	16.83	440.14	ND	N	0.025	11-29-94	<50	<0.5	<0.5	<0.5	<0.5	NA
MW-9	11-29-94	456.18	17.32	438.86	ND	N	0.025	11-29-94	<50	<0.5	<0.5	<0.5	<0.5	NA
MW-10	11-29-94	456.85	20.50	436.35	ND	N	0.025	11-29-94	<50	<0.5	<0.5	<0.5	<0.5	NA
MW-11	11-29-94	455.07	20.67	434.40	ND	N	0.025	11-29-94	<50	<0.5	<0.5	<0.5	<0.5	NA
MW-12	11-29-94	455.04	20.82	434.22	ND	N	0.025	11-29-94	<50	<0.5	<0.5	<0.5	<0.5	NA

TOC = Top of casing

ft-MSL = Elevation in feet, relative to mean sea level

MWN = Ground-water flow direction and gradient apply to the entire monitoring well network

TPHG = Total petroleum hydrocarbons as gasoline

TOG = Total oil and grease measured by USEPA Method 5520 C&F

TRPH = Total recoverable petroleum hydrocarbons measured by USEPA Method 418.1

ppb = Parts per billion or micrograms per liter ($\mu\text{g/l}$)

ND = None detected

N = North

NA = Not analyzed

Table 2
 Historical Groundwater Elevation Data
 Summary Report

ARCO Service Station 6113
 785 East Stanley Boulevard, Livermore, California

Date: 02-10-95
 Project Number: 0805-134.01

Well Designation	Water Level Field Date	TOC Elevation ft-MSL	Depth to Water feet	Ground-Water Elevation ft-MSL	Floating Product Thickness feet	Ground-Water Flow Direction MWN	Hydraulic Gradient foot/foot
MW-1	09-20-89	457.04	21.03	436.01	ND	NR	NR
MW-1	10-12-89	457.04	19.64	437.40	ND	NR	NR
MW-1	06-21-90	457.04	21.72	435.32	ND	NR	NR
MW-1	09-20-90	457.04	19.79	437.25	ND	NR	NR
MW-1	12-18-90	457.04	19.28	437.76	ND	NR	NR
MW-1	02-21-91	457.04	22.45	434.59	ND	NR	NR
MW-1	03-20-91	457.04	19.87	437.17	ND	NR	NR
MW-1	04-10-91	457.04	19.42	437.62	ND	NR	NR
MW-1	05-20-91	457.04	25.95	431.09	ND	NR	NR
MW-1	06-20-91	457.04	32.55	424.49	ND	NR	NR
MW-1	07-25-91	457.04	38.22	418.82	ND	NR	NR
MW-1	08-13-91	457.04	40.74	416.30	ND	NR	NR
MW-1	09-12-91	457.04	43.16	413.88	ND	NR	NR
MW-1	10-22-91	457.04	DRY	DRY	ND	DRY	DRY
MW-1	11-13-91	457.04	DRY	DRY	ND	DRY	DRY
MW-1	12-21-91	457.04	DRY	DRY	ND	DRY	DRY
MW-1	01-18-92	457.04	DRY	DRY	ND	DRY	DRY
MW-1	02-21-92	457.04	DRY	DRY	ND	DRY	DRY
MW-1	03-19-92	457.04	36.16	420.88	ND	NR	NR
MW-1	04-24-92	457.04	38.14	418.90	ND	NR	NR
MW-1	05-20-92	457.04	40.74	416.30	ND	NR	NR
MW-1	06-29-92	457.04	DRY	DRY	ND	DRY	DRY
MW-1	07-28-92	457.04	DRY	DRY	ND	DRY	DRY
MW-1	08-26-92	457.04	DRY	DRY	ND	DRY	DRY
MW-1	09-11-92	457.04	DRY	DRY	ND	DRY	DRY
MW-1	10-29-92	457.04	DRY	DRY	ND	DRY	DRY
MW-1	11-11-92	457.04	DRY	DRY	ND	DRY	DRY
MW-1	12-14-92	457.04	Not surveyed: inaccessible due to construction activities				
MW-1	01-27-93	457.04	30.10	426.94	ND	NR	NR
MW-1	02-26-93	457.04	24.72	432.32	ND	NR	NR
MW-1	03-30-93	457.04	20.87	436.17	ND	NR	NR
MW-1	04-30-93	457.04	19.46	437.58	ND	NR	NR
MW-1	05-14-93	457.04	19.27	437.77	ND	NR	NR
MW-1	06-17-93	457.04	19.21	437.83	ND	NR	NR
MW-1	07-27-93	457.04	19.95	437.09	ND	NR	NR
MW-1	08-30-93	457.04	20.72	436.32	ND	NR	NR
MW-1	11-04-93	457.04	20.61	436.43	ND	NR	NR
MW-1	03-25-94	457.04	17.54	439.50	ND	NR	NR
MW-1	06-02-94	457.04	21.30	435.74	ND	NR	NR
MW-1	09-16-94	457.04	19.98	437.06	ND	N	0.014
MW-1	11-29-94	457.04	19.12	437.92	ND	N	0.025

Table 2
 Historical Groundwater Elevation Data
 Summary Report

ARCO Service Station 6113
 785 East Stanley Boulevard, Livermore, California

Date: 02-10-95
 Project Number: 0805-134.01

Well Desig- nation	Water Level Field Date	TOC Elevation ft-MSL	Depth to Water feet	Ground- Water Elevation ft-MSL	Floating Product Thickness feet	Ground- Water Flow Direction MWN	Hydraulic Gradient foot/foot
MW-2	09-20-89	457.74	20.67	437.07	ND	NR	NR
MW-2	10-12-89	457.74	18.98	438.76	ND	NR	NR
MW-2	06-21-90	457.74	21.88	435.86	ND	NR	NR
MW-2	09-20-90	457.74	19.90	437.84	ND	NR	NR
MW-2	12-18-90	457.74	19.32	438.42	ND	NR	NR
MW-2	02-21-91	457.74	23.02	434.72	ND	NR	NR
MW-2	03-20-91	457.74	20.01	437.73	ND	NR	NR
MW-2	04-10-91	457.74	19.81	437.93	ND	NR	NR
MW-2	05-20-91	457.74	26.62	431.12	ND	NR	NR
MW-2	06-20-91	457.74	33.15	424.59	ND	NR	NR
MW-2	07-25-91	457.74	37.10	420.64	ND	NR	NR
MW-2	08-13-91	457.74	37.20	420.54	ND	NR	NR
MW-2	09-12-91	457.74	DRY	DRY	ND	DRY	DRY
MW-2	10-22-91	457.74	DRY	DRY	ND	DRY	DRY
MW-2	11-13-91	457.74	DRY	DRY	ND	DRY	DRY
MW-2	12-21-91	457.74	DRY	DRY	ND	DRY	DRY
MW-2	01-18-92	457.74	DRY	DRY	ND	DRY	DRY
MW-2	02-21-92	457.74	DRY	DRY	ND	DRY	DRY
MW-2	03-19-92	457.74	35.82	421.92	ND	NR	NR
MW-2	04-24-92	457.74	36.64	421.10	ND	NR	NR
MW-2	05-20-92	457.74	37.23	420.51	ND	NR	NR
MW-2	06-29-92	457.74	DRY	DRY	ND	DRY	DRY
MW-2	07-28-92	457.74	DRY	DRY	ND	DRY	DRY
MW-2	08-26-92	457.74	DRY	DRY	ND	DRY	DRY
MW-2	09-11-92	457.74	DRY	DRY	ND	DRY	DRY
MW-2	10-29-92	457.74	DRY	DRY	ND	DRY	DRY
MW-2	11-11-92	457.74	DRY	DRY	ND	DRY	DRY
MW-2	12-14-92	457.74	Not surveyed: inaccessible due to construction activities				
MW-2	01-27-93	457.74	32.87	424.87	ND	NR	NR
MW-2	02-26-93	457.74	Not surveyed: inaccessible due to construction activities				
MW-2	03-30-93	457.74	20.47	437.27	ND	NR	NR
MW-2	04-30-93	457.74	19.02	438.72	ND	NR	NR
MW-2	05-14-93	457.74	18.65	439.09	ND	NR	NR
MW-2	06-17-93	457.74	18.21	439.53	ND	NR	NR
MW-2	07-27-93	457.74	17.95	439.79	ND	NR	NR
MW-2	08-30-93	457.74	18.43	439.31	ND	NR	NR
MW-2	11-04-93	457.74	19.73	438.01	ND	NR	NR
MW-2	03-25-94	457.74	17.26	440.48	ND	NR	NR
MW-2	06-02-94	457.74	21.23	436.51	ND	NR	NR
MW-2	09-16-94	457.74	19.64	438.10	ND	N	0.014
MW-2	11-29-94	457.74	18.89	438.85	ND	N	0.025

Table 2
Historical Groundwater Elevation Data
Summary Report

ARCO Service Station 6113
785 East Stanley Boulevard, Livermore, California

Date: 02-10-95
Project Number: 0805-134.01

Well Designation	Water Level Field Date	TOC	Depth to	Ground-	Floating	Ground-	Hydraulic Gradient
		Elevation	Water	Water	Product	Water	
		ft-MSL	feet	ft-MSL	Thickness	Flow Direction	foot/foot
					feet	MWN	
MW-3	09-20-89	456.97	20.98	435.99	ND	NR	NR
MW-3	10-12-89	456.97	19.66	437.31	ND	NR	NR
MW-3	06-21-90	456.97	21.72	435.25	ND	NR	NR
MW-3	09-20-90	456.97	19.72	437.25	ND	NR	NR
MW-3	12-18-90	456.97	19.21	437.76	ND	NR	NR
MW-3	02-21-91	456.97	22.36	434.61	ND	NR	NR
MW-3	03-20-91	456.97	19.79	437.18	ND	NR	NR
MW-3	04-10-91	456.97	19.35	437.62	ND	NR	NR
MW-3	05-20-91	456.97	25.86	431.11	ND	NR	NR
MW-3	06-20-91	456.97	32.45	424.52	ND	NR	NR
MW-3	07-25-91	456.97	38.06	418.91	ND	NR	NR
MW-3	08-13-91	456.97	38.40	418.57	ND	NR	NR
MW-3	09-12-91	456.97	DRY	DRY	ND	DRY	DRY
MW-3	10-22-91	456.97	DRY	DRY	ND	DRY	DRY
MW-3	11-13-91	456.97	DRY	DRY	ND	DRY	DRY
MW-3	12-21-91	456.97	DRY	DRY	ND	DRY	DRY
MW-3	01-18-92	456.97	DRY	DRY	ND	DRY	DRY
MW-3	02-21-92	456.97	DRY	DRY	ND	DRY	DRY
MW-3	03-19-92	456.97	36.03	420.94	ND	NR	NR
MW-3	04-24-92	456.97	37.92	419.05	ND	NR	NR
MW-3	05-20-92	456.97	DRY	DRY	ND	DRY	DRY
MW-3	06-29-92	456.97	DRY	DRY	ND	DRY	DRY
MW-3	07-28-92	456.97	DRY	DRY	ND	DRY	DRY
MW-3	08-26-92	456.97	DRY	DRY	ND	DRY	DRY
MW-3	09-11-92	456.97	DRY	DRY	ND	DRY	DRY
MW-3	10-29-92	456.97	DRY	DRY	ND	DRY	DRY
MW-3	11-11-92	456.97	DRY	DRY	ND	DRY	DRY
MW-3	12-14-92	456.97	Not surveyed: inaccessible due to construction activities				
MW-3	01-27-93	456.97	30.36	426.61	ND	NR	NR
MW-3	02-26-93	456.97	24.96	432.01	ND	NR	NR
MW-3	03-30-93	456.97	21.45	435.52	ND	NR	NR
MW-3	04-30-93	456.97	19.43	437.54	ND	NR	NR
MW-3	05-14-93	456.97	19.37	437.60	ND	NR	NR
MW-3	06-17-93	456.97	19.38	437.59	ND	NR	NR
MW-3	07-27-93	456.97	20.10	436.87	ND	NR	NR
MW-3	08-30-93	456.97	20.98	435.99	ND	NR	NR
MW-3	11-04-93	456.97	20.91	436.06	ND	NR	NR
MW-3	03-25-94	456.97	17.57	439.40	ND	NR	NR
MW-3	06-02-94	456.97	21.30	435.67	ND	NR	NR
MW-3	09-16-94	456.97	20.03	436.94	ND	N	0.014
MW-3	11-29-94	456.97	19.13	437.84	ND	N	0.025

Table 2
Historical Groundwater Elevation Data
Summary Report

ARCO Service Station 6113
785 East Stanley Boulevard, Livermore, California

Date: 02-10-95
Project Number: 0805-134.01

Well Desig- nation	Water Level Field Date	TOC Elevation ft-MSL	Depth to Water feet	Ground- Water Elevation ft-MSL	Floating Product Thickness feet	Ground- Water Flow Direction MWN	Hydraulic Gradient foot/foot
MW-4	02-21-91	456.55	22.01	434.54	ND	NR	NR
MW-4	03-20-91	456.55	20.31	436.24	ND	NR	NR
MW-4	04-10-91	456.55	19.55	437.00	ND	NR	NR
MW-4	05-20-91	456.55	25.24	431.31	ND	NR	NR
MW-4	06-20-91	456.55	DRY	DRY	ND	DRY	DRY
MW-4	07-25-91	456.55	DRY	DRY	ND	DRY	DRY
MW-4	08-13-91	456.55	DRY	DRY	ND	DRY	DRY
MW-4	09-12-91	456.55	DRY	DRY	ND	DRY	DRY
MW-4	10-22-91	456.55	DRY	DRY	ND	DRY	DRY
MW-4	11-13-91	456.55	DRY	DRY	ND	DRY	DRY
MW-4	12-21-91	456.55	DRY	DRY	ND	DRY	DRY
MW-4	01-18-92	456.55	DRY	DRY	ND	DRY	DRY
MW-4	02-21-92	456.55	DRY	DRY	ND	DRY	DRY
MW-4	03-19-92	456.55	DRY	DRY	ND	DRY	DRY
MW-4	04-24-92	456.55	DRY	DRY	ND	DRY	DRY
MW-4	05-20-92	456.55	DRY	DRY	ND	DRY	DRY
MW-4	06-29-92	456.55	DRY	DRY	ND	DRY	DRY
MW-4	07-28-92	456.55	DRY	DRY	ND	DRY	DRY
MW-4	08-26-92	456.55	DRY	DRY	ND	DRY	DRY
MW-4	09-11-92	456.55	DRY	DRY	ND	DRY	DRY
MW-4	10-29-92	456.55	DRY	DRY	ND	DRY	DRY
MW-4	11-11-92	456.55	DRY	DRY	ND	DRY	DRY
MW-4	12-14-92	456.55	Not surveyed: inaccessible due to construction activities				
MW-4	01-27-93	456.55	DRY	DRY	ND	DRY	DRY
MW-4	02-26-93	456.55	23.60	432.95	ND	NR	NR
MW-4	03-30-93	456.55	20.87	435.68	ND	NR	NR
MW-4	04-30-93	456.55	19.73	436.82	ND	NR	NR
MW-4	05-14-93	456.55	19.75	436.80	ND	NR	NR
MW-4	06-17-93	456.55	19.69	436.86	ND	NR	NR
MW-4	07-27-93	456.55	20.40	436.15	ND	NR	NR
MW-4	08-30-93	456.55	21.10	435.45	ND	NR	NR
MW-4	11-04-93	456.55	21.60	434.95	ND	NR	NR
MW-4	03-25-94	456.55	18.59	437.96	ND	NR	NR
MW-4	06-02-94	456.55	21.41	435.14	ND	NR	NR
MW-4	09-16-94	456.55	20.51	436.04	ND	N	0.014
MW-4	11-29-94	456.55	19.77	436.78	ND	N	0.025

Table 2
 Historical Groundwater Elevation Data
 Summary Report

ARCO Service Station 6113
 785 East Stanley Boulevard, Livermore, California

Date: 02-10-95
 Project Number: 0805-134.01

Well Desig- nation	Water Level Field Date	TOC	Depth	Ground-	Floating	Ground-	Hydraulic	
		Elevation	to	Water	Product	Water		
		ft-MSL	Water	Elevation	Thickness	Flow	Gradient	
			feet	ft-MSL	feet	Direction	foot/foot	
						MWN		
MW-5	06-29-92	455.84	50.53	405.31	ND	NR	NR	
MW-5	07-28-92	455.84	54.92	400.92	ND	NR	NR	
MW-5	08-26-92	455.84	59.58	396.26	ND	NR	NR	
MW-5	09-11-92	455.84	60.88	394.96	ND	NR	NR	
MW-5	10-29-92	455.84	DRY	DRY	ND	DRY	DRY	
MW-5	11-11-92	455.84	DRY	DRY	ND	DRY	DRY	
MW-5	12-14-92	455.84	Not surveyed: inaccessible due to construction activities					
MW-5	01-27-93	455.84	29.08	426.76	ND	NR	NR	
MW-5	02-26-93	455.84	23.56	432.28	ND	NR	NR	
MW-5	03-30-93	455.84	20.32	435.52	ND	NR	NR	
MW-5	04-30-93	455.84	19.57	436.27	ND	NR	NR	
MW-5	05-14-93	455.84	19.29	436.55	ND	NR	NR	
MW-5	06-17-93	455.84	18.66	437.18	ND	NR	NR	
MW-5	07-27-93	455.84	20.16	435.68	ND	NR	NR	
MW-5	08-30-93	455.84	Not surveyed:					
MW-5	11-04-93	455.84	21.05	434.79	ND	NR	NR	
MW-5	03-25-94	455.84	17.95	437.89	ND	NR	NR	
MW-5	06-02-94	455.84	21.32	434.52	ND	NR	NR	
MW-5	09-16-94	455.84	20.41	435.43	ND	N	0.014	
MW-5	11-29-94	455.84	19.72	436.12	ND	N	0.025	
MW-6	06-29-92	454.93	49.72	405.21	ND	NR	NR	
MW-6	07-28-92	454.93	54.63	400.30	ND	NR	NR	
MW-6	08-26-92	454.93	59.45	395.48	ND	NR	NR	
MW-6	09-11-92	454.93	^60.73	^394.20	0.04	NR	NR	
MW-6	10-29-92	454.93	62.14	392.79	ND	NR	NR	
MW-6	11-11-92	454.93	^62.42	^392.51	0.03	NR	NR	
MW-6	12-14-92	454.93	Not surveyed: inaccessible due to construction activities					
MW-6	01-27-93	454.93	Not surveyed: inaccessible due to construction activities					
MW-6	02-26-93	454.93	22.73	432.20	ND	NR	NR	
MW-6	03-30-93	454.93	19.53	435.40	ND	NR	NR	
MW-6	04-30-93	454.93	18.76	436.17	ND	NR	NR	
MW-6	05-14-93	454.93	^19.19	^435.74	0.01	NR	NR	
MW-6	06-17-93	454.93	18.54	436.39	ND	NR	NR	
MW-6	07-27-93	454.93	19.47	435.46	ND	NR	NR	
MW-6	08-30-93	454.93	^20.33	^434.60	0.01	NR	NR	
MW-6	11-04-93	454.93	^20.33	^434.60	0.01	NR	NR	
MW-6	03-25-94	454.93	17.13	437.80	ND	NR	NR	
MW-6	06-02-94	454.93	20.45	434.48	ND	NR	NR	
MW-6	09-16-94	454.93	19.62	435.31	ND	N	0.014	
MW-6	11-29-94	454.93	18.89	436.04	ND	N	0.025	

Table 2
Historical Groundwater Elevation Data
Summary Report

ARCO Service Station 6113
785 East Stanley Boulevard, Livermore, California

Date: 02-10-95
Project Number: 0805-134.01

Well Designation	Water Level Field Date	TOC	Depth to Water	Ground-Water Elevation	Floating Product Thickness	Ground-Water Flow Direction	Hydraulic Gradient	
		ft-MSL	feet	ft-MSL	feet	MWN		foot/foot
MW-7	06-29-92	454.92	49.57	405.35	ND	NR	NR	
MW-7	07-28-92	454.92	54.60	400.32	ND	NR	NR	
MW-7	08-26-92	454.92	59.60	395.32	ND	NR	NR	
MW-7	09-11-92	454.92	60.74	394.18	ND	NR	NR	
MW-7	10-29-92	454.92	62.23	392.69	ND	NR	NR	
MW-7	11-11-92	454.92	62.69	392.23	ND	NR	NR	
MW-7	12-14-92	454.92 Not surveyed: inaccessible due to construction activities						
MW-7	01-27-93	454.92	27.97	426.95	ND	NR	NR	
MW-7	02-26-93	454.92	22.57	432.35	ND	NR	NR	
MW-7	03-30-93	454.92	19.29	435.63	ND	NR	NR	
MW-7	04-30-93	454.92	18.79	436.13	ND	NR	NR	
MW-7	05-14-93	454.92	18.35	436.57	ND	NR	NR	
MW-7	06-17-93	454.92	18.36	436.56	ND	NR	NR	
MW-7	07-27-93	454.92	19.49	435.43	ND	NR	NR	
MW-7	08-30-93	454.92	20.26	434.66	ND	NR	NR	
MW-7	11-04-93	454.92	20.33	434.59	ND	NR	NR	
MW-7	03-25-94	454.92	16.91	438.01	ND	NR	NR	
MW-7	06-02-94	454.92	20.31	434.61	ND	NR	NR	
MW-7	09-16-94	454.92	19.47	435.45	ND	N	0.014	
MW-7	11-29-94	454.92	18.73	436.19	ND	N	0.025	
MW-8	06-29-92	456.97	50.40	406.57	ND	NR	NR	
MW-8	07-28-92	456.97	55.79	401.18	ND	NR	NR	
MW-8	08-26-92	456.97	60.79	396.18	ND	NR	NR	
MW-8	09-11-92	456.97	61.97	395.00	ND	NR	NR	
MW-8	10-29-92	456.97	63.51	393.46	ND	NR	NR	
MW-8	11-11-92	456.97	64.21	392.76	ND	NR	NR	
MW-8	12-14-92	456.97 Not surveyed: inaccessible due to construction activities						
MW-8	01-27-93	456.97	25.57	431.40	ND	NR	NR	
MW-8	02-26-93	456.97	19.86	437.11	ND	NR	NR	
MW-8	03-30-93	456.97	16.69	440.28	ND	NR	NR	
MW-8	04-30-93	456.97	15.83	441.14	ND	NR	NR	
MW-8	05-14-93	456.97	15.79	441.18	ND	NR	NR	
MW-8	06-17-93	456.97	15.79	441.18	ND	NR	NR	
MW-8	07-27-93	456.97	16.80	440.17	ND	NR	NR	
MW-8	08-30-93	456.97	17.37	439.60	ND	NR	NR	
MW-8	11-04-93	456.97	17.60	439.37	ND	NR	NR	
MW-8	03-25-94	456.97	15.04	441.93	ND	NR	NR	
MW-8	06-02-94	456.97	18.43	438.54	ND	NR	NR	
MW-8	09-16-94	456.97	17.02	439.95	ND	N	0.014	
MW-8	11-29-94	456.97	16.83	440.14	ND	N	0.025	

Table 2
 Historical Groundwater Elevation Data
 Summary Report

ARCO Service Station 6113
 785 East Stanley Boulevard, Livermore, California

Date: 02-10-95
 Project Number: 0805-134.01

Well Designation	Water Level Field Date	TOC Elevation ft-MSL	Depth to Water feet	Ground-Water Elevation ft-MSL	Floating Product Thickness feet	Ground-Water Flow Direction MWN	Hydraulic Gradient foot/foot	
MW-9	06-29-92	456.18	50.29	405.89	ND	NR	NR	
MW-9	07-28-92	456.18	55.53	400.65	ND	NR	NR	
MW-9	08-26-92	456.18	60.62	395.56	ND	NR	NR	
MW-9	09-11-92	456.18	61.67	394.51	ND	NR	NR	
MW-9	10-29-92	456.18	63.17	393.01	ND	NR	NR	
MW-9	11-11-92	456.18	63.68	392.50	ND	NR	NR	
MW-9	12-14-92	456.18	Not surveyed: inaccessible due to construction activities					
MW-9	01-27-93	456.18	26.48	429.70	ND	NR	NR	
MW-9	02-26-93	456.18	Not surveyed: inaccessible due to construction activities					
MW-9	03-30-93	456.18	17.77	438.41	ND	NR	NR	
MW-9	04-30-93	456.18	17.01	439.17	ND	NR	NR	
MW-9	05-14-93	456.18	16.55	439.63	ND	NR	NR	
MW-9	06-17-93	456.18	16.68	439.50	ND	NR	NR	
MW-9	07-27-93	456.18	17.77	438.41	ND	NR	NR	
MW-9	08-30-93	456.18	18.74	437.44	ND	NR	NR	
MW-9	11-04-93	456.18	18.72	437.46	ND	NR	NR	
MW-9	03-25-94	456.18	15.78	440.40	ND	NR	NR	
MW-9	06-02-94	456.18	19.03	437.15	ND	NR	NR	
MW-9	09-16-94	456.18	17.84	438.34	ND	N	0.014	
MW-9	11-29-94	456.18	17.32	438.86	ND	N	0.025	
MW-10	03-30-93	456.85	21.33	435.52	ND	NR	NR	
MW-10	04-30-93	456.85	20.51	436.34	ND	NR	NR	
MW-10	05-14-93	456.85	20.26	436.59	ND	NR	NR	
MW-10	06-17-93	456.85	20.30	436.55	ND	NR	NR	
MW-10	07-27-93	456.85	20.29	436.56	ND	NR	NR	
MW-10	08-30-93	456.85	22.19	434.66	ND	NR	NR	
MW-10	11-04-93	456.85	22.11	434.74	ND	NR	NR	
MW-10	03-25-94	456.85	18.84	438.01	ND	NR	NR	
MW-10	06-02-94	456.85	22.40	434.45	ND	NR	NR	
MW-10	09-16-94	456.85	21.25	435.60	ND	N	0.014	
MW-10	11-29-94	456.85	20.50	436.35	ND	N	0.025	

Table 2
Historical Groundwater Elevation Data
Summary Report

ARCO Service Station 6113
785 East Stanley Boulevard, Livermore, California

Date: 02-10-95
Project Number: 0805-134.01

Well Designation	Water Level Field Date	TOC	Depth to Water	Ground-Water Elevation	Floating Product Thickness	Ground-Water Flow Direction	Hydraulic Gradient
		Elevation ft-MSL	feet	ft-MSL	feet	MWN	
MW-11	03-30-93	455.07	20.78	434.29	ND	NR	NR
MW-11	04-30-93	455.07	20.71	434.36	ND	NR	NR
MW-11	05-14-93	455.07	20.01	435.06	ND	NR	NR
MW-11	06-17-93	455.07	20.18	434.89	ND	NR	NR
MW-11	07-27-93	455.07	21.31	433.76	ND	NR	NR
MW-11	08-30-93	455.07	21.09	433.98	ND	NR	NR
MW-11	11-04-93	455.07	21.40	433.67	ND	NR	NR
MW-11	03-25-94	455.07	18.28	436.79	ND	NR	NR
MW-11	06-02-94	455.07	21.78	433.29	ND	NR	NR
MW-11	09-16-94	455.07	20.98	434.09	ND	N	0.014
MW-11	11-29-94	455.07	20.67	434.40	ND	N	0.025
MW-12	03-30-93	455.04	21.33	433.71	ND	NR	NR
MW-12	04-30-93	455.04	20.23	434.81	ND	NR	NR
MW-12	05-14-93	455.04	19.97	435.07	ND	NR	NR
MW-12	06-17-93	455.04	20.00	435.04	ND	NR	NR
MW-12	07-27-93	455.04	20.94	434.10	ND	NR	NR
MW-12	08-30-93	455.04	21.79	433.25	ND	NR	NR
MW-12	11-04-93	455.04	21.95	433.09	ND	NR	NR
MW-12	03-25-94	455.04	18.74	436.30	ND	NR	NR
MW-12	06-02-94	455.04	22.21	432.83	ND	NR	NR
MW-12	09-16-94	455.04	21.62	433.42	ND	N	0.014
MW-12	11-29-94	455.04	20.82	434.22	ND	N	0.025

TOC = Top of casing

ft-MSL = Elevation in feet, relative to mean sea level

MWN = Ground-water flow direction and gradient apply to the entire monitoring well network

ND = None detected

NR = Not reported; data not available

DRY = Dry well; groundwater was not detected

N = North

^ = Groundwater elevation (GWE) and depth to water (DTW) adjusted to include 80 percent of the floating product thickness (FPT):

$$[GWE = (TOC - DTW) + (FPT \times 0.8)]$$

Table 3
 Historical Groundwater Analytical Data
 (TPHG, BTEX, and TRPH)

ARCO Service Station 6113
 785 East Stanley Boulevard, Livermore, California

Date: 02-10-95
 Project Number: 0805-134.01

Well Designation	Water Sample Field Date	TPHG ppb	Benzene ppb	Toluene ppb	Ethylbenzene ppb	Total Xylenes ppb	TOG or TRPH ppb
MW-1	09-20-89	80	3	1	0.7	1	<5000
MW-1	06-21-90	<20	<0.5	0.66	<0.5	<0.5	13000
MW-1	09-20-90	<50	<0.5	1	<0.5	1.8	<5000
MW-1	12-18-90	<50	<0.5	1.8	<0.5	1.7	NA
MW-1	02-21-91	<50	1.2	2.3	<0.5	2.2	NA
MW-1	05-20-91	<30	<0.3	<0.3	<0.3	<0.3	NA
MW-1	08-13-91	Not sampled: dry well					
MW-1	11-13-91	Not sampled: dry well					
MW-1	03-19-92	400	<3.5	<1.2	<0.8	<1.0	NA
MW-1	06-29-92	Not sampled: dry well					
MW-1	09-11-92	Not sampled: dry well					
MW-1	11-12-92	Not sampled: dry well					
MW-1	03-30-93	<50	<0.5	<0.5	<0.5	<0.5	NA
MW-1	05-14-93	<50	<0.5	<0.5	<0.5	<0.5	120000
MW-1	08-30-93	<50	<0.5	<0.5	<0.5	<0.5	900
MW-1	11-04-93	<50	<0.5	<0.5	<0.5	<0.5	2900
MW-1	03-25-94	<50	<0.5	<0.5	<0.5	<0.5	<600
MW-1	06-02-94	<50	<0.5	<0.5	<0.5	<0.5	<500
MW-1	09-16-94	<50	<0.5	<0.5	<0.5	<0.5	<500
MW-1	11-29-94	<50	<0.5	<0.5	<0.5	<0.5	<500
MW-2	09-20-89	<50	<0.5	<0.5	<0.5	1	<5000
MW-2	06-21-90	<20	<0.5	<0.5	<0.5	<0.5	<5000
MW-2	09-20-90	<50	<0.5	0.7	<0.5	1.4	<5000
MW-2	12-18-90	<50	0.6	1.5	<0.5	1.9	<5000
MW-2	02-21-91	<50	<0.5	<0.5	<0.5	<0.5	<5000
MW-2	05-20-91	<30	<0.3	<0.3	<0.3	<0.3	<75000
MW-2	08-13-91	Not sampled: dry well					
MW-2	11-13-91	Not sampled: dry well					
MW-2	03-19-92	<50	<0.5	<0.5	<0.5	<0.5	NA
MW-2	06-29-92	<50	<0.5	<0.5	<0.5	<0.5	NA
MW-2	09-11-92	Not sampled: dry well					
MW-2	11-12-92	Not sampled: dry well					
MW-2	03-30-93	<50	<0.5	<0.5	<0.5	<0.5	NA
MW-2	05-14-93	<50	<0.5	<0.5	<0.5	<0.5	NA
MW-2	08-30-93	<50	<0.5	<0.5	<0.5	<0.5	NA
MW-2	11-04-93	<50	<0.5	<0.5	<0.5	<0.5	NA
MW-2	03-25-94	<50	<0.5	<0.5	<0.5	<0.5	NA
MW-2	06-02-94	<50	<0.5	<0.5	<0.5	<0.5	NA
MW-2	09-16-94	<50	<0.5	<0.5	<0.5	<0.5	NA
MW-2	11-29-94	<50	<0.5	<0.5	<0.5	<0.5	NA

Table 3
 Historical Groundwater Analytical Data
 (TPHG, BTEX, and TRPH)

ARCO Service Station 6113
 785 East Stanley Boulevard, Livermore, California

Date: 02-10-95
 Project Number: 0805-134.01

Well Designation	Water Sample Field Date	TPHG ppb	Benzene ppb	Toluene ppb	Ethylbenzene ppb	Total Xylenes ppb	TOG or TRPH ppb	
MW-3	09-20-89	170	8.9	0.6	1.1	<1	<5000	
MW-3	06-21-90	<20	<0.5	1	<0.5	<0.5	10000	
MW-3	09-20-90	<50	<0.5	1	<0.5	1.9	<5000	
MW-3	12-18-90	<50	<0.5	1.7	<0.5	2	<5000	
MW-3	02-21-91	<50	<0.5	<0.5	<0.5	<0.5	<5000	
MW-3	05-20-91	97	1.3	1.1	6.2	8.4	<75000	
MW-3	08-13-91	Not sampled: dry well						
MW-3	11-13-91	Not sampled: dry well						
MW-3	03-19-92	220	<1.1	<1.9	<0.6	<0.8	<5000	
MW-3	06-29-92	Not sampled: dry well						
MW-3	09-11-92	Not sampled: dry well						
MW-3	11-12-92	Not sampled: dry well						
MW-3	03-30-93	200*	<4.0	<0.5	<0.5	<0.5	NA	
MW-3	05-14-93	72*	<3.0	<0.5	<0.5	<0.5	NA	
MW-3	08-30-93	<50	<0.5	<0.5	<0.5	<0.5	NA	
MW-3	11-04-93	<50	<0.5	<0.5	<0.5	<0.5	NA	
MW-3	03-25-94	<50	<0.5	<0.5	<0.5	<0.5	NA	
MW-3	06-02-94	<50	<0.5	<0.5	<0.5	<0.5	NA	
MW-3	09-16-94	<50	<0.5	<0.5	<0.5	<0.5	NA	
MW-3	11-29-94	<50	<0.5	<0.5	<0.5	<0.5	NA	
MW-4	02-21-91	3500	410	7.6	30	47	<5000	
MW-4	05-20-91	1400	150	6	4.4	3.1	<75000	
MW-4	08-13-91	Not sampled: dry well						
MW-4	11-13-91	Not sampled: dry well						
MW-4	03-19-92	Not sampled: dry well						
MW-4	06-29-92	Not sampled: dry well						
MW-4	09-11-92	Not sampled: dry well						
MW-4	11-12-92	Not sampled: dry well						
MW-4	03-31-93	680	110	5.2	3	7.4	NA	
MW-4	05-14-93	1200	200	6.2	15	9.2	NA	
MW-4	08-30-93	620	22	0.9	3.6	2.1	NA	
MW-4	11-04-93	320	11	<0.5	1.3	0.9	NA	
MW-4	03-25-94	480	5.4	<0.5	1.6	1.7	NA	
MW-4	06-02-94	270	4.2	<0.5	1	<1.7	NA	
MW-4	09-16-94	250	1	<0.5	<0.6	<1	NA	
MW-4	11-29-94	280	1.8	<0.5	<1.2	<0.8	NA	

Table 3
Historical Groundwater Analytical Data
(TPHG, BTEX, and TRPH)

ARCO Service Station 6113
785 East Stanley Boulevard, Livermore, California

Date: 02-10-95
Project Number: 0805-134.01

Well Designation	Water Sample Field Date	TPHG ppb	Benzene ppb	Toluene ppb	Ethylbenzene ppb	Total Xylenes ppb	TOG or TRPH ppb	
MW-5	06-29-92	8900	1700	640	310	1100	NA	
MW-5	09-11-92	13000	2200	1500	130	930	NA	
MW-5	11-12-92	Not sampled: dry well						
MW-5	03-31-93	9700	1700	430	220	880	NA	
MW-5	05-14-93	9800	1300	820	270	1100	NA	
MW-5	08-30-93	Not sampled: well inaccessible						
MW-5	11-04-93	41000	3500	3100	890	5400	NA	
MW-5	03-25-94	780	36	1.5	4.8	5.7	NA	
MW-5	06-02-94	500	25	7.4	6	33	NA	
MW-5	09-16-94	1500	370	28	110	120	NA	
MW-5	11-29-94	1100	280	11	82	31	NA	
MW-6	06-29-92	8600	1800	460	52	450	NA	
MW-6	09-11-92	Not sampled: well contained floating product						
MW-6	11-12-92	Not sampled: well contained floating product						
MW-6	03-31-93	Not sampled: well contained floating product						
MW-6	05-14-93	Not sampled: well contained floating product						
MW-6	08-30-93	Not sampled: well contained floating product						
MW-6	11-04-93	Not sampled: well contained floating product						
MW-6	03-25-94	530	<2.5	<2.5	<2.5	4.6	NA	
MW-6	06-02-94	<50	<0.5	<0.5	<0.5	<0.5	NA	
MW-6	09-16-94	<50	<0.5	<0.5	<0.5	<0.5	NA	
MW-6	11-29-94	<50	1.3	<0.5	<0.5	<0.5	NA	
MW-7	06-29-92	270	38	3.7	1.1	4.4	NA	
MW-7	09-11-92	420	20	0.7	<0.5	<0.5	NA	
MW-7	11-12-92	470	31	1	<0.5	0.8	NA	
MW-7	03-31-93	190	20	1	<0.5	<0.5	NA	
MW-7	05-14-93	170	17	0.6	<0.5	0.5	NA	
MW-7	08-30-93	<50	1.8	<0.5	<0.5	0.5	NA	
MW-7	11-04-93	<50	6.6	<0.5	<0.5	0.8	NA	
MW-7	03-25-94	<50	<0.5	<0.5	<0.5	<0.5	NA	
MW-7	06-02-94	<50	<0.5	<0.5	<0.5	<0.5	NA	
MW-7	09-16-94	<50	<0.5	<0.5	<0.5	<0.5	NA	
MW-7	11-29-94	<50	<0.5	<0.5	<0.5	<0.5	NA	

Table 3
 Historical Groundwater Analytical Data
 (TPHG, BTEX, and TRPH)

ARCO Service Station 6113
 785 East Stanley Boulevard, Livermore, California

Date: 02-10-95
 Project Number: 0805-134.01

Well Designation	Water Sample Field Date	TPHG ppb	Benzene ppb	Toluene ppb	Ethylbenzene ppb	Total Xylenes ppb	TOG or TRPH ppb
MW-8	06-29-92	<50	<0.5	<0.5	<0.5	<0.5	<500
MW-8	09-11-92	<50	<0.5	<0.5	<0.5	<0.5	<500
MW-8	11-12-92	<50	<0.5	<0.5	<0.5	<0.5	NA
MW-8	03-30-93	<50	<0.5	<0.5	<0.5	<0.5	NA
MW-8	05-14-93	<50	<0.5	<0.5	<0.5	<0.5	NA
MW-8	08-30-93	<50	<0.5	<0.5	<0.5	<0.5	NA
MW-8	11-04-93	<50	<0.5	<0.5	<0.5	<0.5	NA
MW-8	03-25-94	<50	<0.5	<0.5	<0.5	<0.5	NA
MW-8	06-02-94	<50	<0.5	<0.5	<0.5	<0.5	NA
MW-8	09-16-94	<50	<0.5	<0.5	<0.5	<0.5	NA
MW-8	11-29-94	<50	<0.5	<0.5	<0.5	<0.5	NA
MW-9	06-29-92	<50	<0.5	<0.5	<0.5	<0.5	NA
MW-9	09-11-92	<50	<0.5	<0.5	<0.5	<0.5	NA
MW-9	11-12-92	<50	<0.5	<0.5	<0.5	<0.5	NA
MW-9	03-31-93	<50	<0.5	<0.5	<0.5	<0.5	NA
MW-9	05-14-93	<50	<0.5	<0.5	<0.5	<0.5	NA
MW-9	08-30-93	<50	<0.5	<0.5	<0.5	<0.5	NA
MW-9	11-04-93	<50	<0.5	<0.5	<0.5	<0.5	NA
MW-9	03-25-94	<50	<0.5	<0.5	<0.5	<0.5	NA
MW-9	06-02-94	<50	<0.5	<0.5	<0.5	<0.5	NA
MW-9	09-16-94	<50	<0.5	<0.5	<0.5	<0.5	NA
MW-9	11-29-94	<50	<0.5	<0.5	<0.5	<0.5	NA
MW-10	03-31-93	230*	<0.5	<0.5	<1	0.6	NA
MW-10	05-14-93	440*	<10	<0.6	<0.9	<0.5	NA
MW-10	08-30-93	280*	<4	<0.5	<1.3	0.6	NA
MW-10	11-04-93	<50	<0.5	<0.5	<0.5	<0.5	NA
MW-10	03-25-94	<50	<0.5	<0.5	<0.5	<0.5	NA
MW-10	06-02-94	<50	<0.5	<0.5	<0.5	<0.5	NA
MW-10	09-16-94	<50	<0.5	<0.5	<0.5	<0.5	NA
MW-10	11-29-94	<50	<0.5	<0.5	<0.5	<0.5	NA

Table 3
 Historical Groundwater Analytical Data
 (TPHG, BTEX, and TRPH)

ARCO Service Station 6113
 785 East Stanley Boulevard, Livermore, California

Date: 02-10-95
 Project Number: 0805-134.01

Well Designation	Water Sample Field Date	TPHG	Benzene	Toluene	Ethylbenzene	Total Xylenes	TOG or TRPH
		ppb	ppb	ppb	ppb	ppb	ppb
MW-11	03-31-93	<50	<0.5	<0.5	<0.5	<0.5	NA
MW-11	05-14-93	<50	<0.5	<0.5	<0.5	<0.5	NA
MW-11	08-30-93	<50	<0.5	<0.5	<0.5	<0.5	NA
MW-11	11-04-93	<50	<0.5	<0.5	<0.5	<0.5	NA
MW-11	03-25-94	<50	<0.5	<0.5	<0.5	<0.5	NA
MW-11	06-02-94	<50	<0.5	<0.5	<0.5	<0.5	NA
MW-11	09-16-94	<50	<0.5	<0.5	<0.5	<0.5	NA
MW-11	11-29-94	<50	<0.5	<0.5	<0.5	<0.5	NA
MW-12	03-31-93	150	20	<0.5	<0.5	<0.5	NA
MW-12	05-14-93	<50	<0.5	<0.5	<0.5	<0.5	NA
MW-12	08-30-93	<50	<0.5	<0.5	<0.5	<0.5	NA
MW-12	11-04-93	<50	<0.5	<0.5	<0.5	<0.5	NA
MW-12	03-25-94	<50	<0.5	<0.5	<0.5	<0.5	NA
MW-12	06-02-94	<50	<0.5	<0.5	<0.5	<0.5	NA
MW-12	09-16-94	<50	<0.5	<0.5	<0.5	<0.5	NA
MW-12	11-29-94	<50	<0.5	<0.5	<0.5	<0.5	NA

TPHG = Total petroleum hydrocarbons as gasoline
 TOG = Total oil and grease measured by EPA Method 5520 C&F
 TRPH = Total recoverable petroleum hydrocarbons measured by EPA Method 418.1
 ppb = Parts per billion or micrograms per liter (µg/l)
 NA = Not analyzed
 * = Chromatogram does not match the typical gasoline fingerprint.

Table 4
 Historical Groundwater Analytical Data
 (VOCs, TPHD, and Metals)

ARCO Service Station 6113
 785 East Stanley Boulevard, Livermore, California

Date: 02-10-95
 Project Number: 0805-134.01

Well Designation	Water Sample Field Date	Total VOCs ppb	TPHD ppb	Cadmium by EPA 6010 ppb	Chromium by EPA 6010 ppb	Lead by EPA 7421 ppb	Zinc by EPA 6010 ppb	Nickel by EPA 6010 ppb
MW-1	09-20-89	NA	<50	NA	NA	NA	NA	NA
MW-1	06-21-90	NA	<100	NA	NA	NA	NA	NA
MW-1	09-20-90	NA	<50	NA	NA	NA	NA	NA
MW-1	12-18-90	NA	<5000	NA	NA	NA	NA	NA
MW-1	02-21-91	NA	<5000	NA	NA	NA	NA	NA
MW-1	05-20-91	NA	<75000	NA	NA	NA	NA	NA
MW-1	08-13-91	Not sampled: dry well						
MW-1	11-13-91	Not sampled: dry well						
MW-1	03-19-92	NA	NA	NA	NA	NA	NA	NA
MW-1	06-29-92	Not sampled: dry well						
MW-1	09-11-92	Not sampled: dry well						
MW-1	11-12-92	Not sampled: dry well						
MW-1	03-30-93	NA	NA	NA	NA	NA	NA	NA
MW-1	05-14-93	NA	NA	NA	NA	NA	NA	NA
MW-1	08-30-93	NA	NA	NA	NA	NA	NA	NA
MW-1	11-04-93	NA	NA	NA	NA	NA	NA	NA
MW-1	03-25-94	NA	NA	NA	NA	NA	NA	NA
MW-1	06-02-94	NA	NA	NA	NA	NA	NA	NA
MW-2	09-20-89	NA	<50	NA	NA	NA	NA	NA
MW-2	06-21-90	NA	<100	NA	NA	NA	NA	NA
MW-2	09-20-90	NA	<50	NA	NA	NA	NA	NA
MW-2	12-18-90	NA	NA	NA	NA	NA	NA	NA
MW-2	02-21-91	NA	NA	NA	NA	NA	NA	NA
MW-2	05-20-91	NA	NA	NA	NA	NA	NA	NA
MW-2	08-13-91	Not sampled: dry well						
MW-2	11-13-91	Not sampled: dry well						
MW-2	03-19-92	NA	NA	NA	NA	NA	NA	NA
MW-2	06-29-92	NA	NA	NA	NA	NA	NA	NA
MW-2	09-11-92	Not sampled: dry well						
MW-2	11-12-92	Not sampled: dry well						
MW-2	03-30-93	NA	NA	NA	NA	NA	NA	NA
MW-2	05-14-93	NA	NA	NA	NA	NA	NA	NA

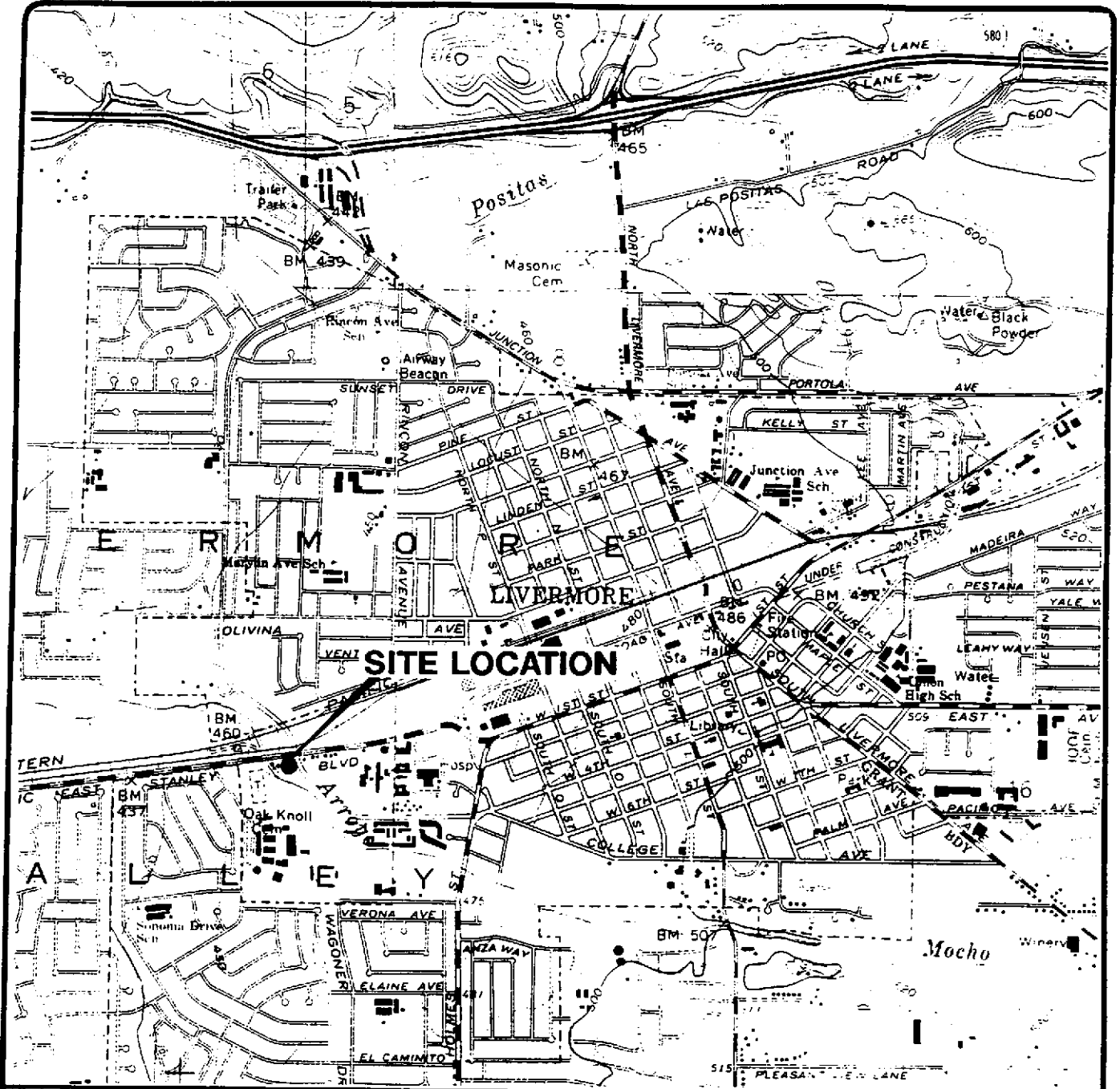
Table 4
Historical Groundwater Analytical Data
(VOCs, TPHD, and Metals)

ARCO Service Station 6113
785 East Stanley Boulevard, Livermore, California

Date: 02-10-95
Project Number: 0805-134.01

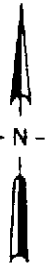
Well Designation	Water Sample Field Date	Total VOCs ppb	TPHD ppb	Cadmium by EPA 6010 ppb	Chromium by EPA 6010 ppb	Lead by EPA 7421 ppb	Zinc by EPA 6010 ppb	Nickel by EPA 6010 ppb
MW-3	09-20-89	NA	<50	NA	NA	NA	NA	NA
MW-3	06-21-90	NA	<100	NA	NA	NA	NA	NA
MW-3	09-20-90	NA	<50	NA	NA	NA	NA	NA
MW-3	12-18-90	NA	NA	NA	NA	NA	NA	NA
MW-3	02-21-91	NA	NA	NA	NA	NA	NA	NA
MW-3	05-20-91	NA	NA	NA	NA	NA	NA	NA
MW-3	08-13-91	Not sampled: dry well						
MW-3	11-13-91	Not sampled: dry well						
MW-3	03-19-92	NA	<50	NA	NA	NA	NA	NA
MW-3	06-29-92	Not sampled: dry well						
MW-3	09-11-92	Not sampled: dry well						
MW-3	11-12-92	Not sampled: dry well						
MW-3	03-30-93	NA	NA	NA	NA	NA	NA	NA
MW-3	05-14-93	NA	NA	NA	NA	NA	NA	NA
MW-4	02-21-91	NA	NA	NA	NA	NA	NA	NA
MW-4	05-20-91	NA	NA	NA	NA	NA	NA	NA
MW-4	08-13-91	Not sampled: dry well						
MW-4	11-13-91	Not sampled: dry well						
MW-4	03-19-92	Not sampled: dry well						
MW-4	06-29-92	Not sampled: dry well						
MW-4	09-11-92	Not sampled: dry well						
MW-4	11-12-92	Not sampled: dry well						
MW-4	03-31-93	NA	NA	NA	NA	NA	NA	NA
MW-4	05-14-93	NA	NA	NA	NA	NA	NA	NA
MW-8	06-29-92	ND	<50	<3	1780	143	1310	5100
MW-8	09-11-92	NA	<50	13	3580	308	2620	10300
MW-8	11-12-92	NA	NA	28	3440	221	2550	9840
MW-8	03-30-93	NA	NA	NA	NA	NA	NA	NA
MW-8	05-14-93	NA	NA	NA	NA	NA	NA	NA
MW-9	11-12-92	NA	NA	10	1080	101	859	3070
MW-9	03-31-93	NA	NA	NA	NA	NA	NA	NA
MW-9	05-14-93	NA	NA	NA	NA	NA	NA	NA

VOCs = Halogenated volatile organic compounds by EPA Method 5030/601
 TPHD = Total petroleum hydrocarbons as diesel by EPA Method 3510/California DHS LUFT Method
 ppb = Parts per billion or micrograms per liter (µg/l)
 NA = Not analyzed
 ND = Not detected (31 compounds tested for VOCs were nondetectable)



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

Scale : 0 2000 4000 Feet



EMCON
Associates

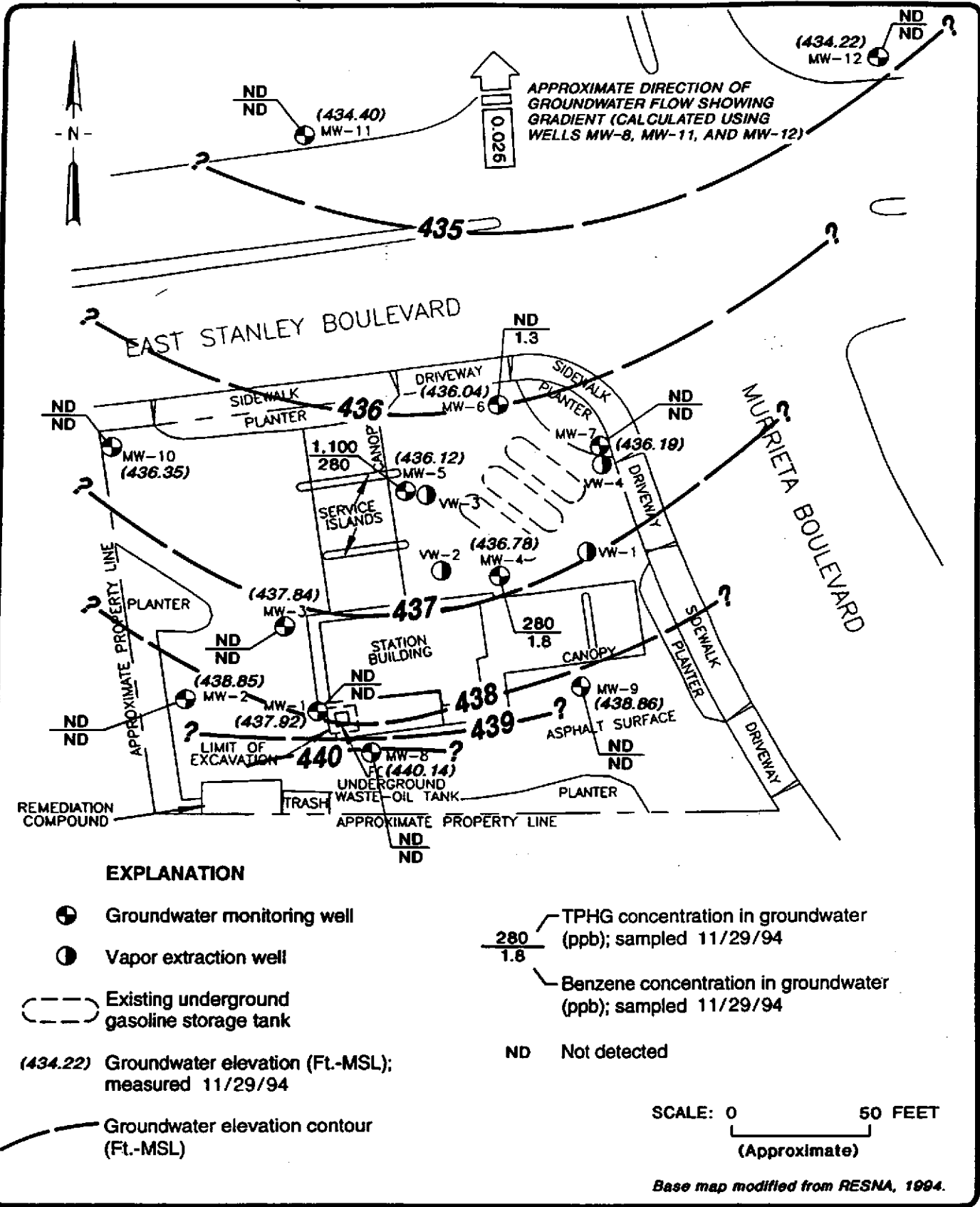
ARCO PRODUCTS COMPANY
SERVICE STATION 6113, 785 E. STANLEY BLVD.
QUARTERLY GROUNDWATER MONITORING
LIVERMORE, CALIFORNIA

SITE LOCATION

FIGURE

1

PROJECT NO.
805-134.01



ARCO PRODUCTS COMPANY
 SERVICE STATION 6113, 785 E. STANLEY BLVD.
 QUARTERLY GROUNDWATER MONITORING
 LIVERMORE, CALIFORNIA

GROUNDWATER DATA
 FOURTH QUARTER 1994

FIGURE
2
 PROJECT NO.
 805-134.01

APPENDIX A

**FIELD DATA REPORT,
INTEGRATED WASTESTREAM MANAGEMENT,
DECEMBER 21, 1994**

I NTEGRATED
W ASTESTREAM
M ANAGEMENT

December 21, 1994

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

Dear Mr. Young:

Attached are the field data sheets and analytical results for quarterly ground water sampling at ARCO Facility No. 6113 in Livermore, California. Integrated Wastestream Management measured the depth to water and collected samples from wells at this site on November 29, 1994.

Sampling was carried out in accordance with the protocols described in the "Request for Bid for Quarterly Sampling at ARCO Facilities in Northern California".

Please call us if you have any questions.

Sincerely,
Integrated Wastestream Management



Tom DeLon
Project Manager



Walter H. Howe
Registered Geologist

EMCON ASSOCIATES

DEC 28 1994

RECEIVED



Summary of Ground Water Sample Analyses for ARCO Facility A-6113, Livermore, California

WELL NUMBER	MW-1	MW-2	MW-3	MW-4	MW-5	MW-6	MW-7	MW-8	MW-9	MW-10	MW-11	MW-12
DATE SAMPLED	11/29/94	11/29/94	11/29/94	11/29/94	11/29/94	11/29/94	11/29/94	11/29/94	11/29/94	11/29/94	11/29/94	11/29/94
DEPTH TO WATER	19.12	18.89	19.13	19.77	19.72	18.89	18.73	16.83	17.32	20.50	20.67	20.82
SHEEN	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE
PRODUCT THICKNESS	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
TPHg	ND	ND	ND	280	1,100	ND	ND	ND	ND	ND	ND	ND
BTEX												
BENZENE	ND	ND	ND	1.8	280	1.3	ND	ND	ND	ND	ND	ND
TOLUENE	ND	ND	ND	ND	11	ND	ND	ND	ND	ND	ND	ND
ETHYLBENZENE	ND	ND	ND	<1.2#	82	ND	ND	ND	ND	ND	ND	ND
XYLENES	ND	ND	ND	<0.8#	31	ND	ND	ND	ND	ND	ND	ND
EPA 418.1/SM 503E	ND	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

FOOTNOTES:

Concentrations reported in ug/L (ppb)

TPHg = Total Purgeable Petroleum Hydrocarbons (USEPA Method 8015 Modified)

BTEX Distinction (USEPA Method 8020)

PCE = Tetrachloroethene (USEPA Method 8010)

* = Well inaccessible

** = Not sampled per consultant request

DCE = cis-1, 2-Dichloroethene (USEPA Method 8010)

TCE = Trichloroethene (USEPA Method 8010)

ND = Not Detected

NA = Not applicable

FP = Floating product

= See laboratory analytical report

FIELD REPORT

Depth To Water / Floating Product Survey

Site Arrival Time: 1200

Site Departure Time: 2100

Weather Conditions: Sunny
clear

DTW: Well Box or Well Casing (circle one)

Project No.: _____

Location: 785 E. Stanley Dr.

Date: November 29, 1994

Client / Station#: Orco 6113

Field Technician: Vinny/Cisco

Day of Week: Tuesday

DTW ORDER	WELL ID	SURFACE SEAL	LID SECURE	GASKET	LOCK	EXPANDING CAP	TOTAL DEPTH (Feet)	FIRST DEPTH TO WATER (Feet)	SECOND DEPTH TO WATER (Feet)	DEPTH TO FLOATING PRODUCT (Feet)	FLOATING PRODUCT THICKNESS (Feet)	SHOEN (Y= YES, N=NO) FP= FLOATING PRODUCT	COMMENTS	MATERIALS
8	mw-1	OK	Yes	OK	22	OK	44.65	19.12	19.12	N/A	N/A	N	2"	HOPE WELLBOX
9	mw-2	OK	Yes	OK	22	OK	38.50	18.89	18.89	N/A	N/A	N	2"	HOPE WELLBOX
10	mw-3	OK	Yes	OK	22	OK	38.88	19.13	19.13	N/A	N/A	N	2"	HOPE WELLBOX
11	mw-4	OK	Yes	OK	22	OK	26.55	19.77+	19.77+	N/A	N/A	N	4"	15/16
12	mw-5	OK	Yes	OK	None	None	62.40	19.72	19.72	N/A	N/A	N	4"	ALCOHOL
1	mw-6	OK	Yes	OK	22	OK	66.40	18.89+	18.89+	N/A	N/A	N	4"	15/16
2	mw-7	OK	Yes	OK	22	OK	67.40	18.73	18.73	N/A	N/A	N	4"	15/16
3	mw-8	OK	Yes	OK	22	OK	66.50	16.83	16.83	N/A	N/A	N	4"	15/16
4	mw-9	OK	Yes	OK	22	OK	67.75	17.32	17.32	N/A	N/A	N	4"	15/16
5	mw-10	OK	Yes	OK	22	OK	49.90	20.50	20.50	N/A	N/A	N	4"	15/16
6	mw-11	OK	Yes	OK	22	OK	44.31	20.67	20.67	N/A	N/A	N	2" OFF site wall	15/16
7	mw-12	OK	Yes	OK	22	OK	32.78	20.82	20.82	N/A	N/A	N	2" OFF site wall H2O filled well box	15/16

WELL ID: MW-10 TD 49.90 DTW 20.50 X 0.60 X 3 58.20
Linear Ft. Volume Purge

DATE PURGED: 11-29-94 START (2400 HR): 1630 END (2400 HR): 1701
 DATE SAMPLED: 11-29-94 TIME (2400 HR): 1707 DTW: 23

TIME (2400 HR)	VOLUME (GAL)	pH (UNITS)	(E.C. X 1,000) (UMHOS/CM@25 C)	TEMP. (F)	COLOR (VISUAL)
<u>1638</u>	<u>11</u>	<u>7.23</u>	<u>0.45</u>	<u>66.8</u>	<u>clear</u>
<u>1649</u>	<u>34</u>	<u>7.17</u>	<u>0.45</u>	<u>65.3</u>	<u>clear</u>
<u>1654</u>	<u>49</u>	<u>7.13</u>	<u>0.44</u>	<u>64.9</u>	<u>clear</u>
<u>1701</u>	<u>60</u>	<u>7.11</u>	<u>0.43</u>	<u>63.9</u>	<u>clear</u>

Total purge: 60
 PURGING EQUIP.: Centrifugal Pump / Bailer Disp. SAMPLING EQUIP: Bailer Disp.
 REMARKS:

WELL ID: MW-3 TD 38.88 DTW 19.13 X 0.60 X 3 58.09
Linear Ft. Volume Purge

DATE PURGED: 11-29-94 START (2400 HR): 1720 END (2400 HR): 1727
 DATE SAMPLED: 11-29-94 TIME (2400 HR): 1729 DTW: 20.1

TIME (2400 HR)	VOLUME (GAL)	pH (UNITS)	(E.C. X 1,000) (UMHOS/CM@25 C)	TEMP. (F)	COLOR (VISUAL)
<u>1723</u>	<u>1</u>	<u>7.26</u>	<u>0.42</u>	<u>64.3</u>	<u>clear</u>
<u>1725</u>	<u>5</u>	<u>7.21</u>	<u>0.34</u>	<u>63.7</u>	<u>clear</u>
<u>1726</u>	<u>7</u>	<u>7.16</u>	<u>0.55</u>	<u>63.5</u>	<u>clear</u>
<u>1727</u>	<u>11</u>	<u>7.14</u>	<u>0.54</u>	<u>63.4</u>	<u>clear</u>

Total purge: 11
 PURGING EQUIP.: Centrifugal Pump / Bailer Disp. SAMPLING EQUIP: Bailer Disp.
 REMARKS:

WELL ID: MW-2 TD 38.50 DTW 18.29 X 0.17 X 3 9.99
Linear Ft. Volume Purge

DATE PURGED: 11-29-94 START (2400 HR): 1739 END (2400 HR): 1746
 DATE SAMPLED: 11-29-94 TIME (2400 HR): 1748 DTW: 19.6

TIME (2400 HR)	VOLUME (GAL)	pH (UNITS)	(E.C. X 1,000) (UMHOS/CM@25 C)	TEMP. (F)	COLOR (VISUAL)
<u>1742</u>	<u>1</u>	<u>7.09</u>	<u>0.63</u>	<u>67.0</u>	<u>clear</u>
<u>1744</u>	<u>5</u>	<u>7.01</u>	<u>0.56</u>	<u>64.8</u>	<u>clear</u>
<u>1745</u>	<u>8</u>	<u>6.98</u>	<u>0.56</u>	<u>63.4</u>	<u>clear</u>
<u>1746</u>	<u>10</u>	<u>6.96</u>	<u>0.54</u>	<u>63.2</u>	<u>clear</u>

Total purge: 10
 PURGING EQUIP.: Centrifugal Pump / Bailer Disp. SAMPLING EQUIP: Bailer Disp.
 REMARKS:

WELL ID: MW-1 TD 44.65 DTW 19.12 X 0.17 X 3 13.02
Linear Ft. Volume Purge

DATE PURGED: 11-29-94 START (2400 HR): 1816 END (2400 HR): 1824
 DATE SAMPLED: 11-29-94 TIME (2400 HR): 1826 DTW: 20.9

TIME (2400 HR)	VOLUME (GAL)	pH (UNITS)	(E.C. X 1,000) (UMHOS/CM@25 C)	TEMP. (F)	COLOR (VISUAL)
<u>1819</u>	<u>2</u>	<u>6.93</u>	<u>0.56</u>	<u>67.2</u>	<u>clear</u>
<u>1820</u>	<u>5</u>	<u>6.90</u>	<u>0.51</u>	<u>66.0</u>	<u>clear</u>
<u>1822</u>	<u>8</u>	<u>6.88</u>	<u>0.53</u>	<u>65.1</u>	<u>clear</u>
<u>1824</u>	<u>13</u>	<u>6.87</u>	<u>0.54</u>	<u>64.7</u>	<u>clear</u>

Total purge: 13
 PURGING EQUIP.: Centrifugal Pump / Bailer Disp. SAMPLING EQUIP: Bailer Disp.
 REMARKS:

PRINT NAME: Vince Valdes

SIGNATURE: Vince Valdes

CASING DIAMETER (inches):	<u>2</u>	<u>3</u>	<u>4</u>	<u>6</u>	<u>8</u>	<u>12</u>	Other: _____
GALLON/LINEAR FOOT:	<u>0.17</u>	<u>0.38</u>	<u>0.66</u>	<u>1.5</u>	<u>2.6</u>	<u>5.8</u>	Other: _____

WELL ID: MW-9 TD 67.75 DTW 17.32 X 0.66 Gal. X 3 Casing - 99.84 Calculated
Linear Ft. Volume Purge

DATE PURGED: 11-29-94 START (2400 HR): 1528 END (2400 HR) 1627
 DATE SAMPLED: 11-29-94 TIME (2400 HR): 1630 DTW: 20.4

TIME (2400 HR)	VOLUME (GAL)	pH (UNITS)	(E.C. X 1,000) (UMHOS/CM@25 C)	TEMP. (F)	COLOR (VISUAL)
1531	5	7.10	0.58	62.4	clear
1545	35	6.95	0.54	67.2	clear
1612	75	6.90	0.50	66.3	clear
1627	100	6.88	0.57	65.8	

Total purge: 100
 PURGING EQUIP.: Centrifugal Pump Bailer Disp. SAMPLING EQUIP: Bailer Disp.
 REMARKS:

WELL ID: MW-7 TD 67.40 DTW 18.73 X 0.66 Gal. X 3 Casing - 96.36 Calculated
Linear Ft. Volume Purge

DATE PURGED: 11-29-94 START (2400 HR): 1645 END (2400 HR) 1729
 DATE SAMPLED: 11-29-94 TIME (2400 HR): 1730 DTW: 19.8

TIME (2400 HR)	VOLUME (GAL)	pH (UNITS)	(E.C. X 1,000) (UMHOS/CM@25 C)	TEMP. (F)	COLOR (VISUAL)
1648	5	6.90	0.49	66.3	clear
1659	35	6.74	0.50	67.5	clear
1717	75	6.70	0.53	67.1	clear
1729	96	6.68	0.48	66.8	clear

Total purge: 96
 PURGING EQUIP.: Centrifugal Pump Bailer Disp. SAMPLING EQUIP: Bailer Disp.
 REMARKS:

WELL ID: MW-6 TD 66.40 DTW 18.89 X 0.66 Gal. X 3 Casing - 94.05 Calculated
Linear Ft. Volume Purge

DATE PURGED: 11-29-94 START (2400 HR): 1741 END (2400 HR) 1822
 DATE SAMPLED: 11-29-94 TIME (2400 HR): 1825 DTW: 19.5

TIME (2400 HR)	VOLUME (GAL)	pH (UNITS)	(E.C. X 1,000) (UMHOS/CM@25 C)	TEMP. (F)	COLOR (VISUAL)
1744	5	6.83	0.40	66.0	clear
1756	35	6.70	0.47	66.4	clear
1810	75	6.68	0.43	67.0	clear
1822	95	6.67	0.47	66.9	clear

Total purge: 95
 PURGING EQUIP.: Centrifugal Pump Bailer Disp. SAMPLING EQUIP: Bailer Disp.
 REMARKS:

WELL ID: MW-12 TD 32.78 DTW 20.82 X 0.17 Gal. X 3 Casing - 60.9 Calculated
Linear Ft. Volume Purge

DATE PURGED: 11-29-94 START (2400 HR): 1845 END (2400 HR) 1849
 DATE SAMPLED: 11-29-94 TIME (2400 HR): 1852 DTW: 25.5

TIME (2400 HR)	VOLUME (GAL)	pH (UNITS)	(E.C. X 1,000) (UMHOS/CM@25 C)	TEMP. (F)	COLOR (VISUAL)
1847	1	6.93	0.48	67.8	clear
1848	3	6.91	0.54	67.5	clear
1849	6	6.90	0.57	67.1	clear

Total purge: 6
 PURGING EQUIP.: Centrifugal Pump Bailer Disp. SAMPLING EQUIP: Bailer Disp.
 REMARKS:

PRINT NAME: Francisco Abunyan SIGNATURE: Francisco Abunyan

CASING DIAMETER (inches): 2 3 4 6 8 12 Other: _____
 GALLON/LINEAR FOOT: 0.17 0.38 0.66 1.5 2.6 5.8 Other: _____

WELL ID: MW-3 TD _____ DTW _____ X Gal. X Casing - Calculated
Linear Ft. Volume Purge

DATE PURGED: 11-29-94 START (2400 HR): _____ END (2400 HR) _____
 DATE SAMPLED: 11-29-94 TIME (2400 HR): _____ DTW: _____

TIME (2400 HR)	VOLUME (GAL)	pH (UNITS)	(E.C. X 1,000) (UMHOS/CM@25 C)	TEMP. (F)	COLOR (VISUAL)
		<u>u</u>			

Total purge: _____
 PURGING EQUIP.: Centrifugal Pump Bailer Disp. SAMPLING EQUIP: Bailer Disp.
 REMARKS: _____

WELL ID: MW-4 TD 26.55 DTW 1977 X Gal. X Casing - Calculated
Linear Ft. Volume Purge

DATE PURGED: 11-29-94 START (2400 HR): 1910 END (2400 HR) 1917
 DATE SAMPLED: 11-29-94 TIME (2400 HR): 1920 DTW: 22.8

TIME (2400 HR)	VOLUME (GAL)	pH (UNITS)	(E.C. X 1,000) (UMHOS/CM@25 C)	TEMP. (F)	COLOR (VISUAL)
<u>1912</u>	<u>3</u>	<u>6.79</u>	<u>0.47</u>	<u>61.7</u>	<u>CLEAR</u>
<u>1914</u>	<u>10</u>	<u>6.73</u>	<u>0.50</u>	<u>62.2</u>	<u>CLEAR</u>
<u>1917</u>	<u>17</u>	<u>6.71</u>	<u>0.45</u>	<u>62.0</u>	<u>CLEAR</u>

Total purge: 17
 PURGING EQUIP.: Centrifugal Pump Bailer Disp. SAMPLING EQUIP: Bailer Disp.
 REMARKS: WELL PUMPED DRN AT 17 GALLONS

WELL ID: MW-5 TD 62.40 DTW 19.72 X Gal. X Casing - Calculated
Linear Ft. Volume Purge

DATE PURGED: 11-29-94 START (2400 HR): 1934 END (2400 HR) 2020
 DATE SAMPLED: 11-29-94 TIME (2400 HR): 2023 DTW: 21.2

TIME (2400 HR)	VOLUME (GAL)	pH (UNITS)	(E.C. X 1,000) (UMHOS/CM@25 C)	TEMP. (F)	COLOR (VISUAL)
<u>1937</u>	<u>5</u>	<u>6.77</u>	<u>0.47</u>	<u>62.9</u>	<u>GRAY</u>
<u>1945</u>	<u>25</u>	<u>6.73</u>	<u>0.49</u>	<u>65.6</u>	<u>CLEAR</u>
<u>2005</u>	<u>60</u>	<u>6.72</u>	<u>0.48</u>	<u>64.7</u>	<u>CLEAR</u>
<u>2020</u>	<u>85</u>	<u>6.70</u>	<u>0.45</u>	<u>64.1</u>	<u>CLEAR</u>

Total purge: 85
 PURGING EQUIP.: Centrifugal Pump Bailer Disp. SAMPLING EQUIP: Bailer Disp.
 REMARKS: _____

WELL ID: _____ TD _____ DTW _____ X Gal. X Casing - Calculated
Linear Ft. Volume Purge

DATE PURGED: _____ START (2400 HR): _____ END (2400 HR) _____
 DATE SAMPLED: _____ TIME (2400 HR): _____ DTW: _____

TIME (2400 HR)	VOLUME (GAL)	pH (UNITS)	(E.C. X 1,000) (UMHOS/CM@25 C)	TEMP. (F)	COLOR (VISUAL)

Total purge: _____
 PURGING EQUIP.: Centrifugal Pump Bailer Disp. SAMPLING EQUIP: Bailer Disp.
 REMARKS: _____

PRINT NAME: Francisco Abunyan SIGNATURE: Francisco Abunyan

CASING DIAMETER (inches): 2 3 4 6 8 12 Other: _____
 GALLON/LINEAR FOOT: 0.17 0.38 0.66 1.5 2.6 5.8 Other: _____

WELL ID: MW-8 TD 66.50 DTW 16.83 X Gal. 0.66 X Casing 3 - Calculated 98.34
 Linear Ft. Volume Purge

DATE PURGED: 11-29-94 START (2400 HR): 1842 END (2400 HR) 1935
 DATE SAMPLED: 11-29-94 TIME (2400 HR): 1938 DTW: 22.1

TIME (2400 HR)	VOLUME (GAL)	pH (UNITS)	(E.C. X 1,000) (UMHOS/CM@25 C)	TEMP. (F)	COLOR (VISUAL)
1850	12	7.12	0.64	66.9	clear
1906	43	7.25	0.50	64.2	clear
1920	73	7.19	0.58	64.1	clear
1935	90	7.18	0.59	63.9	clear

Total purge: 90

PURGING EQUIP.: Centrifugal Pump Bailer Disp. SAMPLING EQUIP.: Bailer Disp.

REMARKS:

WELL ID: MW-11 TD 44.31 DTW 20.47 X Gal. 0.17 X Casing 3 - Calculated 12.03
 Linear Ft. Volume Purge

DATE PURGED: 11-29-94 START (2400 HR): 1916 END (2400 HR) 1951
 DATE SAMPLED: 11-29-94 TIME (2400 HR): 1951 DTW: 33.1

TIME (2400 HR)	VOLUME (GAL)	pH (UNITS)	(E.C. X 1,000) (UMHOS/CM@25 C)	TEMP. (F)	COLOR (VISUAL)
1948	1	6.95	0.68	65.4	cloudy
1949	4	6.90	0.74	63.1	cloudy
1951	3	6.89	0.52	62.5	cloudy

Total purge: 8

PURGING EQUIP.: Centrifugal Pump Bailer Disp. SAMPLING EQUIP.: Bailer Disp.

REMARKS: well pumped dry at 8 gallons

WELL ID: _____ TD _____ DTW _____ X Gal. _____ X Casing _____ - Calculated _____
 Linear Ft. Volume Purge

DATE PURGED: _____ START (2400 HR): _____ END (2400 HR) _____
 DATE SAMPLED: _____ TIME (2400 HR): _____ DTW: _____

TIME (2400 HR)	VOLUME (GAL)	pH (UNITS)	(E.C. X 1,000) (UMHOS/CM@25 C)	TEMP. (F)	COLOR (VISUAL)
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

Total purge: _____

PURGING EQUIP.: Centrifugal Pump Bailer Disp. SAMPLING EQUIP.: Bailer Disp.

REMARKS: _____

WELL ID: _____ TD _____ DTW _____ X Gal. _____ X Casing _____ - Calculated _____
 Linear Ft. Volume Purge

DATE PURGED: _____ START (2400 HR): _____ END (2400 HR) _____
 DATE SAMPLED: _____ TIME (2400 HR): _____ DTW: _____

TIME (2400 HR)	VOLUME (GAL)	pH (UNITS)	(E.C. X 1,000) (UMHOS/CM@25 C)	TEMP. (F)	COLOR (VISUAL)
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____

Total purge: _____

PURGING EQUIP.: Centrifugal Pump Bailer Disp. SAMPLING EQUIP.: Bailer Disp.

REMARKS: _____

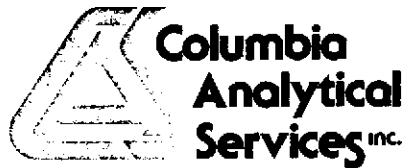
PRINT NAME: Vince Valdes

SIGNATURE: [Signature]

CASING DIAMETER (inches):	<u>2</u>	<u>3</u>	<u>4</u>	<u>6</u>	<u>8</u>	<u>12</u>	Other: _____
GALLON/LINEAR FOOT:	<u>0.17</u>	<u>0.38</u>	<u>0.66</u>	<u>1.5</u>	<u>2.6</u>	<u>5.8</u>	Other: _____

APPENDIX B

**ANALYTICAL RESULTS AND
CHAIN-OF-CUSTODY DOCUMENTATION,
FOURTH QUARTER 1994**



RECEIVED
DEC 14 1994

December 13, 1994

Service Request No. S941532

Gina Austin
Tom DeLon
IWM
950 Ames Avenue
Milpitas, CA 95035

Re: **ARCO Facility No. 6113**

Dear Ms. Austin/Mr. DeLon:

Attached are the results of the water samples submitted to our lab on November 30, 1994. For your reference, these analyses have been assigned our service request number S941532.

All analyses were performed consistent with our laboratory's quality assurance program. All results are intended to be considered in their entirety, and CAS is not responsible for use of less than the complete report. Results apply only to the samples analyzed.

Please call if you have any questions.

Respectfully submitted:

COLUMBIA ANALYTICAL SERVICES, INC.

A handwritten signature in black ink, appearing to read "Keoni A. Murphy".

Keoni A. Murphy
Program Director

A handwritten signature in black ink, appearing to read "Annelise J. Bazar".

Annelise J. Bazar
Regional QA Coordinator

KAM/ajb

COLUMBIA ANALYTICAL SERVICES, Inc.

Acronyms

ASTM	American Society for Testing and Materials
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LUFT	Leaking Underground Fuel Tank
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MRL	Method Reporting Limit
NA	Not Applicable
NAN	Not Analyzed
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected at or above the MRL
NR	Not Requested
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
VPH	Volatile Petroleum Hydrocarbons

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client: IWM
Project: ARCO Facility No. 6113
Sample Matrix: Water

Service Request: S941532
Date Collected: 11/29/94
Date Received: 11/30/94
Date Extracted: NA
Date Analyzed: 12/7,8/94

BTEX and TPH as Gasoline
 EPA Methods 5030/8020/California DHS LUFT Method

Analyte:	TPH as Gasoline	Benzene	Toluene	Ethylbenzene	Xylenes, Total
Units:	ug/L (ppb)	ug/L (ppb)	ug/L (ppb)	ug/L (ppb)	ug/L (ppb)
Method Reporting Limit:	50	0.5	0.5	0.5	0.5

Sample Name	Lab Code	TPH as Gasoline	Benzene	Toluene	Ethylbenzene	Xylenes, Total
MW-1 (20.9)	S941532-001	ND	ND	ND	ND	ND
MW-2 (19.6)	S941532-002	ND	ND	ND	ND	ND
MW-3 (20.1)	S941532-003	ND	ND	ND	ND	ND
MW-4 (22.8)	S941532-004	280	1.8	ND	<1.2 *	<0.8 *
MW-5 (21.2)	S941532-005	1,100	280	11	82	31
MW-6 (19.5)	S941532-006	ND	1.3	ND	ND	ND
MW-7 (19.8)	S941532-007	ND	ND	ND	ND	ND
MW-8 (22.1)	S941532-008	ND	ND	ND	ND	ND
MW-9 (20.4)	S941532-009	ND	ND	ND	ND	ND
MW-10 (23)	S941532-010	ND	ND	ND	ND	ND
MW-11 (33.1)	S941532-011	ND	ND	ND	ND	ND
MW-12 (23.5)	S941532-012	ND	ND	ND	ND	ND
Method Blank	S941207-WB	ND	ND	ND	ND	ND
Method Blank	S941208-WB	ND	ND	ND	ND	ND

Approved By: 

Date: December 13, 1994

SABTXGAS/061694

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: IWM
Project: ARCO Facility No. 6113
Sample Matrix: Water

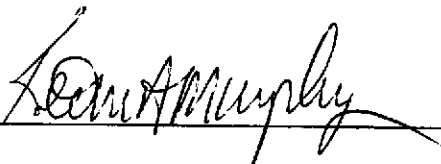
Service Request: S941532
Date Collected: 11/29/94
Date Received: 11/30/94
Date Extracted: NA
Date Analyzed: 12/7,8/94

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

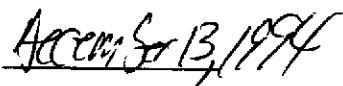
Sample Name	Lab Code	Percent Recovery α,α,α -Trifluorotoluene
MW-1 (20.9)	S941532-001	91
MW-2 (19.6)	S941532-002	89
MW-3 (20.1)	S941532-003	92
MW-4 (22.8)	S941532-004	101
MW-5 (21.2)	S941532-005	93
MW-6 (19.5)	S941532-006	93
MW-7 (19.8)	S941532-007	96
MW-8 (22.1)	S941532-008	93
MW-9 (20.4)	S941532-009	92
MW-10 (23)	S941532-010	97
MW-11 (33.1)	S941532-011	94
MW-12 (23.5)	S941532-012	93
MW-1 (20.9) MS	S941532-001MS	100
MW-1 (20.9) DMS	S941532-001DMS	98
Method Blank	S941207-WB	92
Method Blank	S941208-WB	87

CAS Acceptance Limits: 69-116

Approved By:



Date:



SLR1/062994

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

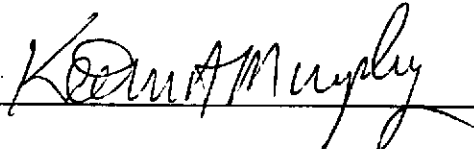
Client: IWM
Project: ARCO Facility No. 6113

Service Request: S941532
Date Analyzed: 12/7/94

Initial Calibration Verification (ICV) Summary
BTEX and TPH as Gasoline
EPA Methods 5030/8020/California DHS LUFT Method
Units: ppb

Analyte	True Value	Result	Percent Recovery	CAS Percent Recovery Acceptance Limits
Benzene	25	27.0	100	85-115
Toluene	25	26.2	105	85-115
Ethylbenzene	25	26.3	105	85-115
Xylenes, Total	75	76.9	102	85-115
Gasoline	250	254	102	90-110

Approved By:



Date:



ICV25AL/060194

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: IWM
Project: ARCO Facility No. 6113
Sample Matrix: Water

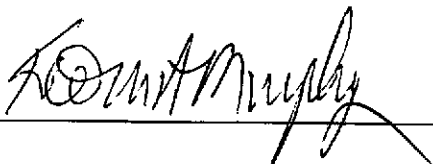
Service Request: S941532
Date Collected: 11/29/94
Date Received: 11/30/94
Date Extracted: NA
Date Analyzed: 12/7/94

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

Sample Name: MW-1 (20.9)
Lab Code: S941532-001

Analyte	Spike Level		Sample Result	Spike Result		Percent Recovery		CAS Acceptance Limits	Relative Percent Difference
	MS	DMS		MS	DMS	MS	DMS		
Gasoline	250	250	ND	241	228	96	91	67-121	5

Approved By: _____



Date: _____

December 13, 1994

DMS1S/060194

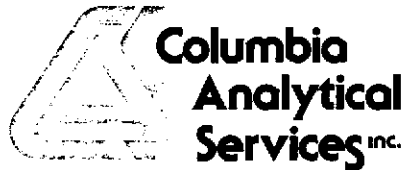
ARCO Facility no. A 6113	City (Facility) Livermore	Project manager (Consultant) Tom DeJen / R. Dardis	Laboratory name CA-S
ARCO engineer M.W.	Telephone no. (ARCO) 415/5712431	Telephone no. (Consultant) 408/942 8955	Contract number 07077
Consultant name IWM - Emcon		Address (Consultant) 950 Ames av. Milp CA 95035	Method of shipment CAS LORIEL
			Fax no. (Consultant) 408/942 1499

Sample I.D.	Lab no.	Container no.	Matrix			Preservation		Sampling date	Sampling time	BTEX 602/EPA 8020	BTEX/TPH EPA 1631/8020/8015	TPH Modified 8015 Gas <input type="checkbox"/> Diesel <input type="checkbox"/>	Oil and Grease 413.1 <input type="checkbox"/> 413.2 <input type="checkbox"/>	TPH EPA 418.1/SM503E	EPA 601/8010	EPA 624/8240	EPA 625/8270	TCIP Metals <input type="checkbox"/> VOA <input type="checkbox"/> VOA <input type="checkbox"/> Semi <input type="checkbox"/>	CAM Metals EPA 6010/7000 TLC <input type="checkbox"/> STLC <input type="checkbox"/>	Lead Cr/PHS Lead EPA 7420/7421 <input type="checkbox"/>		
			Soil	Water	Other	Ice	Acid Ac															
FB-1	13	2		✓		✓	✓	11-29-94	1215		✓	✓										
10.9 MW-1	1	4		✓		✓	✓	}	1826		✓	✓		✓								
14.6 MW-2	2	2		✓		✓	✓		1748		✓	✓										
0.1 MW-3	3	2		✓		✓	✓		1729		✓	✓										
2.8 MW-4	4	2		✓		✓	✓		1920		✓	✓										
1.2 MW-5	5	2		✓		✓	✓		2023		✓	✓										
4.5 MW-6	6	2		✓		✓	✓		1825		✓	✓										
4.8 MW-7	7	2		✓		✓	✓		1730		✓	✓										
2.1 MW-8	8	2		✓		✓	✓		1938		✓	✓										
0.4 MW-9	9	2		✓		✓	✓		1630		✓	✓										
2.3 MW-10	10	2		✓		✓	✓		1707		✓	✓										
3.1 MW-11	11	2		✓		✓	✓		1954		✓	✓										
1.35 MW-12	12	2		✓		✓	✓		6 0 1852		✓	✓										

Special detection Limit/reporting
Special QA/QC
Remarks Hold on FB-1
Lab number 5941532
Turnaround time
Priority Rush 1 Business Day <input type="checkbox"/>
Rush 2 Business Days <input type="checkbox"/>
Expedited 5 Business Days <input type="checkbox"/>
Standard 10 Business Days <input checked="" type="checkbox"/>

Condition of sample:				Temperature received: COOL			
Relinquished by sampler Shirley Salas	Date 11-30-94	Time 9:50	Received by				
Relinquished by	Date	Time	Received by				
Relinquished by	Date	Time	Received by laboratory Kevin Murphy	Date 11-30-94	Time 9:50		

RECEIVED DEC 12 1994



December 9, 1994

Service Request No.: K947507S

Tom Delon
IWM
950 Ames Avenue
Milpitas, CA 95035

Re: **ARCO 6113/Project Livermore #SJ941532**

Dear Tom:

Enclosed are the results of the sample(s) submitted to our laboratory on December 2, 1994. For your reference, these analyses have been assigned our service request number K947507S.

All analyses were performed consistent with our laboratory's quality assurance program. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for use of less than the complete report. Results apply only to the samples analyzed.

Please call if you have any questions. My extension is 239.

Respectfully submitted,
Columbia Analytical Services, Inc.

A handwritten signature in black ink, appearing to read "Howard Boorse", written in a cursive style.

Howard Boorse
Project Chemist

HB/tr

Page 1 of 7

COLUMBIA ANALYTICAL SERVICES, Inc.

Acronyms

ASTM	American Society for Testing and Materials
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LUFT	Leaking Underground Fuel Tank
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NAN	Not Analyzed
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected at or above the MRL
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons

00002

COLUMBIA ANALYTICAL SERVICES, INC.

Analytical Report

Client: IWM
Project: ARCO 6113/Livermore
Sample Matrix: Water

Service Request: K947507S
Date Collected: 11/29/94
Date Received: 12/2/94
Date Extracted: 12/6/94
Date Analyzed: 12/6/94

Total Recoverable Petroleum Hydrocarbons
EPA Methods 418.1/SM 503E
Units: mg/L (ppm)

Sample Name	Lab Code	MRL	Result
MW-1	K947507-001	0.5	ND
Method Blank	K941206-WB	0.5	ND

Approved By: _____

Howard Fournier

Date: _____

12/9/94

00003

APPENDIX A
LABORATORY QC RESULTS

00004

COLUMBIA ANALYTICAL SERVICES, INC.

QA/QC Report

Client: IWM
Project: ARCO 6113/Livermore
LCS Matrix: Water

Service Request: K947507S
Date Collected: NA
Date Received: NA
Date Extracted: 12/6/94
Date Analyzed: 12/6/94

Laboratory Control Sample Summary
Total Recoverable Petroleum Hydrocarbons
EPA Methods 418.1/SM 503E
Units: mg/L (ppm)

Analyte	True Value	Result	Percent Recovery	CAS Percent Recovery Acceptance Limits
Oil	20	16.8	84	81-110

Approved By: _____

Howard Fowle

Date: _____

12/9/94

00005

APPENDIX B
CHAIN OF CUSTODY INFORMATION

00006

ARCO Products Company

Division of AtlanticRichfieldCompany

Task Order No. Iwm - 94-500

Chain of Custody

ARCO Facility no. A 6113

City (Facility) Livermore

Project manager (Consultant) Tom DeJen / R. Dardis

ARCO engineer H.W.

Telephone no. (ARCO) 415/5712434

Telephone no. (Consultant) 408/942 8955

Fax no. (Consultant) 408/942 1499

Laboratory name CA-8

Consultant name IWM - Emeon

Address (Consultant) 950 Ames av. Milp. CA 95035

Contract number 07079

Sample I.D.	Lab no.	Container no.	Matrix			Preservation		Sampling date	Sampling time	BTEX EPA 8020	BTEX/TPH EPA 1631/8015	TPH Modified 8015 Gas/Diesel	Oil and Grease 413.1 413.2	TPH EPA 418.1/SMS/DOE	EPA 801/8010	EPA 824/8240	EPA 625/8270	TCLP Metals VOA VOA	Semi Metals EPA 8010/7000 TTLC STLC	Lead Org./DHS Lead EPA 7420/7421		
			Soil	Water	Other	Ice	Acid															
FB-1	13	2		✓		✓	✓	11-29-94	1215		✓	✓										
0.9 MW-1	1	4		✓		✓	✓	[Handwritten wavy line]	1826		✓	✓		✓								
1.6 MW-2	2	2		✓		✓	✓		1748		✓	✓										
0.1 MW-3	3	2		✓		✓	✓		1729		✓	✓										
2.8 MW-4	4	2		✓		✓	✓		1920		✓	✓										
1.2 MW-5	5	2		✓		✓	✓		2023		✓	✓										
4.5 MW-6	6	2		✓		✓	✓		1825		✓	✓										
4.8 MW-7	7	2		✓		✓	✓		1730		✓	✓										
2.1 MW-8	8	2		✓		✓	✓		1938		✓	✓										
0.4 MW-9	9	2		✓		✓	✓		1630		✓	✓										
2.3 MW-10	10	2		✓		✓	✓		1707		✓	✓										
3.1 MW-11	11	2		✓		✓	✓		1951		✓	✓										
3.5 MW-12	12	2		✓		✓	✓		1852		✓	✓										

Method of shipment CAS LOURTEL

Special detection Limit/reporting

Special QA/QC

Remarks Added on FB-1

Lab number S941532

Turnaround time

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

Condition of sample:

Temperature received: cool

Relinquished by sampler [Signature]

Date 11/30/94 Time 9:50

Received by

Relinquished by [Signature]

Date 12/1/94 Time 1800

Received by Ruth Nealey 12-2-94 1000

Relinquished by

Date

Received by laboratory [Signature]

Date 11-30-94 Time 9:50

Kelso; SM503E