

PACIFIC ENVIRONMENTAL GROUP INC.

ALCO HAZMAT
94 JAN 11 AM 11:00

Date January 10, 1994
Project 330-06.05

To: Mr. Michael Whelan
ARCO Products Company
P.O. Box 5811
San Mateo, California 94402

We have enclosed:

Copies	Description
<u>1</u>	<u>Text and Tables for the Third Quarter 1993 - Quarterly Monitoring and Remedial System Performance Evaluation Report for ARCO Service Station 0608.</u>
<u> </u>	<u> </u>
<u> </u>	<u> </u>

For your: Use
 Approval
 Review
 Information

Comments: Michael, the above mentioned report was incorrectly dated, please replace the text and tables with the correct date which is January 7, 1994 instead of January 7, 1993. We hope we have not caused any inconvenience. Please call with any questions. Thanks.

Kelly Brown

cc: Ms. Juliett Shin, Alameda County Environmental Health Care Services
Ms. Susan Hugo, Alameda County Environmental Health Care Services
Mr. Richard Hiatt, Regional Water Quality Control Board, S.F. Bay Region



PACIFIC
ENVIRONMENTAL
GROUP, INC.

ALCO
HAZMAT
94 JAN 12 PM 3:19

January 10, 1994
Project 330-03.05

Mr. Michael Whelan
ARCO Products Company
P. O. Box 5811
San Mateo, California 94402

Re: Monthly Status Letter
ARCO Service Station 0608
17601 Hesperian Boulevard at Hacienda Avenue
San Lorenzo, California

Dear Mr. Whelan:

This letter provides an update on activities for the site referenced above. This update reports site activities performed during the month of December 1993 and site activities anticipated for the month of January 1994.

STATUS OF DECEMBER 1993 ACTIVITIES:

- o Continued monitoring groundwater treatment system performance.
- o Continued domestic irrigation water well owner reimbursement program with owners who have discontinued well use.
- o Preparation of third quarter 1993 groundwater monitoring and remedial system performance evaluation report.
- o Preparation of domestic irrigation water well monitoring reports.
- o Performed fourth quarter 1993 groundwater monitoring.
- o Performed fourth quarter 1993 sampling of domestic irrigation wells.
- o Preparation of letter requesting authorization to sample domestic irrigation wells and homeowner not to use their wells in 1994.
- o Conducted monthly meeting with ARCO regarding site activities.

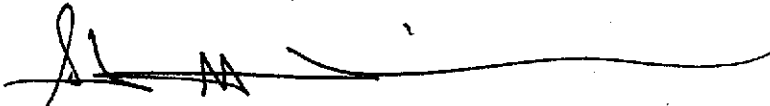
ANTICIPATED WORK TO BE PERFORMED IN JANUARY 1994:

- o Submittal of third quarter 1993 groundwater monitoring and remedial system performance evaluation report.
- o Preparation of fourth quarter 1993 groundwater monitoring and remedial system performance evaluation report.
- o Preparation of domestic irrigation water well monitoring reports.
- o Continue monitoring groundwater treatment system performance.
- o Continue domestic irrigation water well owner reimbursement program with owners who have discontinued well use.

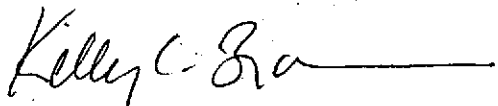
Please call if you have any questions concerning this letter.

Sincerely,

Pacific Environmental Group, Inc.



Shaw E. Garakani
Project Engineer



Kelly C. Brown
Project Geologist

cc: Ms. Juliett Shin, Alameda County Health Care Services
Ms. Susan Hugo, Alameda County Health Care Services
Mr. Richard Hiatt, Regional Water Quality Control Board - S.F. Bay Region



PACIFIC
ENVIRONMENTAL
GROUP, INC.

January 7, 1994
Project 330-06.05

Mr. Michael Whelan
ARCO Products Company
P.O. Box 5811
San Mateo, California 94402

Re: Quarterly Report - Third Quarter 1993
Remedial System Performance Evaluation
ARCO Service Station 0608
17601 Hesperian Boulevard at Hacienda Avenue
San Lorenzo, California

Dear Mr. Whelan:

This report, prepared by Pacific Environmental Group, Inc. (PACIFIC) on behalf of ARCO Products Company (ARCO) presents the results of the third quarter 1993 groundwater monitoring and remedial system performance evaluation at the site referenced above. In addition, a summary of work completed and anticipated at the site is included.

QUARTERLY GROUNDWATER MONITORING RESULTS

Depth to water data collected on September 13, 1993, indicate that groundwater elevations have declined in site groundwater monitoring wells an average of 1.0 feet since June 15, 1993. Groundwater flow was to the west with an approximate gradient of 0.002. As discussed below, a groundwater depression has developed as a result of pumping extraction Well E-1A. Groundwater elevation data are presented in Table 1. A groundwater elevation contour map based on the September 13, 1993 data is shown on Figure 1.

Groundwater samples were collected on September 14 through 17, 1993, and analyzed for total petroleum hydrocarbons calculated as gasoline (TPH-g), benzene, toluene, ethylbenzene, and xylenes (BTEX compounds). Field and laboratory procedures are presented as Attachment A.

The results of groundwater monitoring this quarter indicate that TPH-g and benzene concentrations are generally consistent with previous quarters. TPH-g was detected at concentrations ranging from 140 parts per billion (ppb) in

Well MW-17 to 4,500 ppb in Well MW-10. Benzene was detected at concentrations ranging from 36 ppb in Well MW-8 to 670 ppb in Well MW-10. Wells MW-7, MW-9, MW-11, MW-13 through MW-16, MW-18, MW-19, and MW-21 through MW-26 had non-detectable levels of TPH-g and BTEX compounds. Separate-phase hydrocarbons were not observed in any site well this quarter. Groundwater analytical data for TPH-g and BTEX compounds are presented in Table 2. A TPH-g and benzene concentration map is shown on Figure 2. Certified analytical reports, chain-of-custody documentation, and field data sheets are presented as Attachment B.

REMEDIAL PERFORMANCE EVALUATION

The remedial action currently in progress at this site consists of groundwater extraction (GWE). The GWE system has been in operation since October 15, 1991. The objectives of the remedial action include: (1) migration control of the impacted groundwater plume, and (2) petroleum hydrocarbon mass reduction. A brief description of the GWE system, along with an evaluation of its performance are summarized below. In order to evaluate treatment system performance, PACIFIC monitored well water levels, instantaneous and average extracted water flow rates, and sampled the influent and effluent of the treatment system for TPH-g and BTEX compounds on a monthly basis. Treatment system effluent is also analyzed for arsenic as requested by the Oro Loma Sanitary District. The data presented in this section covers the period from June 4 through September 13, 1993.

Groundwater Extraction System Description

The GWE system is comprised of one extraction well (E-1A) containing an electrical submersible pump. The treatment system uses three granular activated carbon vessels to treat the influent groundwater stream before it is discharged into the sanitary sewer. The carbon vessels are arranged in series, with valving to permit bed order rotation. This allows for the primary vessel to become the secondary vessel after the carbon has been renewed. Sample ports are located at the treatment system influent, effluent, the mid-point between the carbon vessels, and at each individual well head. A sanitary sewer discharge permit was obtained from the Oro Loma Sanitary District on April 4, 1991. The updated permit is effective through April 4, 1994.

Migration Control

Progress toward meeting the migration control objective is evaluated by comparison of the groundwater elevation contour map (Figure 1) and TPH-g and benzene concentration map (Figure 2) from previous and current groundwater monitoring events. As indicated by Figures 1 and 2, the GWE system is affecting the migra-

tion of the petroleum hydrocarbon plume by creating a groundwater depression at the extraction well. The groundwater depression extends approximately 30 feet radially around the GWE well.

Mass Reduction

Progress toward meeting the mass reduction objective is determined by evaluating GWE system mass removal data and the TPH-g concentration trends in associated groundwater monitoring wells. GWE system operational data are collected monthly. The system flow and influent sample analysis data are used to estimate TPH-g mass removal values. During this quarter, GWE removed approximately 0.4 pound (0.07 gallon) of TPH-g from the impacted groundwater beneath the site. To date, GWE has removed approximately 3.4 pounds (0.6 gallon) of TPH-g from impacted groundwater beneath the site. Mass removal data for the GWE system are presented in Table 3. Treatment system certified analytical reports, chain-of-custody documentation, and field data sheets are presented as Attachment B. Progress toward site remediation is presented in the table below.

Analyte	Total Mass Removed			
	Third Quarter 1993		Cumulative	
	(lbs)	(gal)	(lbs)	(gal)
<u>Groundwater Extraction</u>				
TPH-g	0.4	0.07	3.4	0.6
TPH-g = Total petroleum hydrocarbons calculated as gasoline lbs = Pounds gal = Gallons				

Groundwater Extraction System Operational Data

The GWE system was approximately 88.9 percent operational during the third quarter 1993. During this quarter, the GWE system discharged treated groundwater at an average flow rate of approximately 2.7 gallons per minute for a period discharge of 341,236 gallons.

The system experienced one automatic shutdown during the quarter resulting in approximately 11 days of downtime due to high pressure at the bag filter. Otherwise, the system operated continuously during the quarter.

Calculations based on 8 percent loading isotherm by weight indicate the primary carbon vessel is approximately 4.3 percent loaded. Treatment system analytical data are presented in Table 4.

During this quarter, the GWE system was in compliance with all conditions stipulated in the discharge permit. Operation and maintenance field data sheets are presented as Attachment B.

SUMMARY OF WORK

Work Completed Third Quarter 1993

- o Continued monitoring GWE system performance.
- o Preparation and submittal of second quarter 1993 groundwater monitoring report.
- o Preparation and submittal of domestic irrigation well sampling results letters.
- o Preparation and submittal of remedial investigation report.
- o Continued domestic irrigation well owner reimbursement program with owners who have discontinued well use.
- o Sampled site wells for third quarter 1993 groundwater monitoring program.
- o Sampled domestic irrigation wells.
- o Completed biodegradation numerical analysis.

Work Anticipated Fourth Quarter 1993

- o Continue monitoring GWE system performance.
- o Preparation and submittal of air sparge, soil vapor extraction, aquifer and biofeasibility testing report to Alameda County Health Care Services Agency (ACHCSA).
- o Preparation and submittal risk assessment summary letter to ACHCSA.
- o Preparation and submittal of risk assessment program outline for ACHCSA review.
- o Preparation and submittal of third quarter 1993 groundwater monitoring report.
- o Sample site wells for fourth quarter 1993 groundwater monitoring program.
- o Sample domestic irrigation wells.

- o Preparation and submittal of domestic irrigation well sampling result letters for fourth quarter 1993.
- o Continue domestic irrigation well owner reimbursement program with owners who have discontinued well use.
- o Well MW-20 was properly destroyed on October 11, 1993.
- o Notification letter regarding modifications to the remedial system investigation and feasibility study requirements and schedule was submitted to ACHCSA on November 4, 1993.

If there are any questions regarding the contents of this report, please call.

Sincerely,

Pacific Environmental Group, Inc.

ORIGINAL SIGNED BY:

Shaw Garakani
Project Engineer

ORIGINAL SIGNED BY:

Debra J. Moser
Senior Geologist
CEG 1293

Attachments: Table 1 - Groundwater Elevation Data
Table 2 - Groundwater Analytical Data -
Total Petroleum Hydrocarbons
(TPH as Gasoline and BTEX Compounds)
Table 3 - Estimated Total Dissolved TPH as Gasoline
Removal Data for Groundwater Extraction System
Table 4 - Treatment System Analytical Data -
Total Petroleum Hydrocarbons
(TPH as Gasoline and BTEX Compounds)
Figure 1 - Groundwater Elevation Contour Map
Figure 2 - TPH-g/Benzene Concentration Map
Attachment A- Field and Laboratory Procedures
Attachment B - Certified Analytical Reports, Chain-of-
Custody Documentation, and Field Data Sheets

cc: Ms. Susan Hugo, Alameda County Health Care Services
Ms. Juliatt Shin, Alameda County Health Care Services
Mr. Richard Hiatt, Regional Water Quality Control Board - S.F. Bay Region

Table 1
Groundwater Elevation Data

ARCO Service Station 0608
17601 Hesperian Boulevard at Hacienda Avenue
San Lorenzo, California

Well Number	Date Gauged	Well Elevation (feet, MSL)	Depth to Liquid (feet, TOB)	Separate-Phase Hydrocarbon Thickness (feet)	Liquid Surface Elevation (feet, MSL)
MW-1	01/11/88	NA	NA	--	NA
	06/14/88	----- Well Destroyed -----			
MW-2	07/05/85	NA	NA	--	NA
	01/11/88	NA	NA	--	NA
	06/14/88	----- Well Destroyed -----			
MW-3	01/11/88	33.27	NA	--	NA
	03/07/89		11.96	--	21.31
	06/21/89		12.85	--	20.42
	12/12/89		13.46	--	19.81
	03/29/90		13.21	--	20.06
	05/08/90		13.23	--	20.04
	06/22/90		NA	--	NA
	07/18/90	----- Well Destroyed -----			
	MW-4	01/11/88	32.43	NA	--
09/12/88			NA	--	NA
03/07/89			10.76	--	21.67
06/21/89			11.96	--	20.47
12/12/89			NA	--	NA
03/29/90			11.72	0.01	20.71
05/08/90			12.19	--	20.24
06/22/90			NA	--	NA
07/18/90		----- Well Destroyed -----			
MW-5	01/16/92	33.99	Dry	--	NA
	02/19/92		13.5	--	20.49
	03/17/92		11.90	--	22.09
	04/15/92		12.18	--	21.81
	05/14/92		12.78	--	21.21
	06/15/92	----- Well Dry -----			
	07/14/92	----- Well Dry -----			
	08/18/92	----- Well Dry -----			
	09/15/92	----- Well Dry -----			
	10/16/92	----- Well Dry -----			
	11/18/92	----- Well Dry -----			
	12/17/92		12.74	--	21.25
	01/19/93		10.92	--	23.07
	02/22/93		11.10	--	22.89
	03/15/93		11.13	--	22.86
04/09/93		11.46	--	22.53	

Table 1 (continued)
Groundwater Elevation Data

ARCO Service Station 0608
17601 Hesperian Boulevard at Hacienda Avenue
San Lorenzo, California

Well Number	Date Gauged	Well Elevation (feet, MSL)	Depth to Liquid (feet, TOB)	Separate-Phase Hydrocarbon Thickness (feet)	Liquid Surface Elevation (feet, MSL)
MW-5 (cont.)	05/13/93		12.19	--	21.80
	06/04/93		12.51	--	21.48
	06/15/93		12.59	--	21.40
	09/13/93		13.40	--	20.59
MW-6 (E-1)	06/21/89	32.95	12.48	--	20.47
	12/12/89		13.16	--	13.16
	03/29/90		12.39	--	12.39
	05/08/90		12.93	--	12.93
	06/22/90		12.94	--	12.94
	07/18/90				Well Destroyed
MW-7	01/16/92	34.40	13.33	--	21.83
	02/19/92		12.16	--	NA
	03/17/92		11.86	--	22.54
	04/15/92		12.30	--	22.10
	05/14/92		13.04	--	21.36
	06/15/92		13.78	--	20.62
	07/14/92		14.20	--	20.20
	08/18/92		14.79	--	19.61
	09/15/92		15.12	--	19.28
	10/16/92		15.38	--	19.02
	11/18/92		15.10	--	19.30
	12/17/92		13.69	--	20.71
	01/19/93		10.92	--	23.48
	02/22/93		10.91	--	23.49
	03/15/93		11.13	--	23.03
	04/09/93		11.46	--	22.94
	05/13/93		12.22	--	22.18
06/04/93		12.51	--	21.89	
06/15/93		12.66	--	21.74	
09/13/93		13.78	--	20.62	
MW-8	01/16/92	32.79	13.40	--	19.39
	02/19/92		11.26	--	21.53
	03/17/92		10.90	--	21.89
	04/15/92		11.35	--	21.44
	05/14/92		12.06	--	20.73
	06/15/92		12.83	--	19.96
	07/14/92		12.75	--	20.04
	08/18/92		13.83	--	18.96
	09/15/92		14.17	--	18.62
	10/16/92		14.51	--	18.28
	11/18/92		14.15	--	18.64

Table 1 (continued)
Groundwater Elevation Data

ARCO Service Station 0608
17601 Hesperian Boulevard at Hacienda Avenue
San Lorenzo, California

Well Number	Date Gauged	Well Elevation (feet, MSL)	Depth to Liquid (feet, TOB)	Separate-Phase Hydrocarbon Thickness (feet)	Liquid Surface Elevation (feet, MSL)
MW-8 (cont.)	12/17/92		12.68	--	20.11
	01/19/93		9.79	--	23.00
	02/22/93		9.95	--	22.84
	03/15/93		10.31	--	22.48
	04/09/93		10.47	--	22.32
	05/13/93		11.18	--	21.61
	06/04/93		11.47	--	21.32
	06/15/93		11.62	--	21.17
	09/13/93		12.70	--	20.09
MW-9	01/16/92	32.11	12.45	--	19.66
	02/19/92		10.25	--	21.86
	03/17/92		10.01	--	22.10
	04/15/92		10.49	--	21.62
	05/14/92		11.19	--	20.92
	06/15/92		11.86	--	20.25
	07/14/92		12.28	--	19.83
	08/18/92		12.89	--	19.22
	09/15/92		13.28	--	18.83
	10/16/92		13.60	--	18.51
	11/18/92		13.24	--	18.87
	12/17/92		11.76	--	20.35
	01/19/93		8.99	--	23.12
	02/22/93		9.13	--	22.98
	03/15/93		9.48	--	22.63
	04/09/93		9.63	--	22.48
	05/13/93		10.35	--	21.76
06/04/93		10.65	--	21.46	
06/15/93		10.81	--	21.30	
09/13/93		11.87	--	20.24	
MW-10	01/16/92	31.67	12.55	--	19.12
	02/19/92		10.50	--	21.17
	03/18/92		10.12	--	21.55
	04/15/92		10.59	--	21.08
	05/14/92		11.30	--	20.37
	06/15/92		11.93	--	19.74
	07/14/92		12.42	--	19.25
	08/18/92		13.03	--	18.64
	09/15/92		13.42	--	18.25
	10/16/92		13.74	--	17.93
	11/18/92		13.42	--	18.25
	12/17/92		11.94	--	19.73

Table 1 (continued)
Groundwater Elevation Data

ARCO Service Station 0608
17601 Hesperian Boulevard at Hacienda Avenue
San Lorenzo, California

Well Number	Date Gauged	Well Elevation (feet, MSL)	Depth to Liquid (feet, TOB)	Separate-Phase Hydrocarbon Thickness (feet)	Liquid Surface Elevation (feet, MSL)
MW-10 (cont.)	01/19/93		9.13	--	22.54
	02/22/93		9.22	--	22.45
	03/15/93		9.64	--	22.03
	04/09/93		9.75	--	21.92
	05/13/93		10.49	--	21.18
	06/04/93		10.78	--	20.89
	06/15/93		10.93	--	20.74
	09/13/93		12.01	--	19.66
MW-11	01/16/92	32.54	13.28	--	19.26
	02/19/92		11.29	--	21.25
	03/17/92		10.81	--	21.73
	04/15/92		11.23	--	21.31
	05/14/92		11.96	--	20.58
	06/15/92		12.64	--	19.90
	07/14/92		13.08	--	19.46
	08/18/92		13.72	--	18.82
	09/15/92		14.13	--	18.41
	10/16/92		14.45	--	18.09
	11/18/92		14.11	--	18.43
	12/17/92		12.69	--	19.85
	01/19/93		9.91	--	22.63
	02/22/93		9.95	--	22.59
	03/15/93		10.30	--	22.24
	04/09/93		10.42	--	22.12
	05/13/93		11.16	--	21.38
06/04/93		11.44	--	21.10	
06/15/93		11.59	--	20.95	
09/13/93		12.68	--	19.86	
E-1A (MW-12)	01/16/92	33.06	23.68	--	9.38
	02/19/92		18.71	--	14.35
	03/17/92		23.10	--	9.96
	04/15/92		20.54	--	12.52
	05/14/92		23.09	--	9.97
	06/15/92		23.72	--	9.34
	07/14/92		13.25	--	19.81
	08/18/92		23.73	--	9.33
	09/15/92		23.62	--	9.44
	10/16/92		23.78	--	9.28
	11/18/92		23.80	--	9.26
	12/17/92		22.65	--	10.41

Table 1 (continued)
Groundwater Elevation Data

ARCO Service Station 0608
17601 Hesperian Boulevard at Hacienda Avenue
San Lorenzo, California

Well Number	Date Gauged	Well Elevation (feet, MSL)	Depth to Liquid (feet, TOB)	Separate-Phase Hydrocarbon Thickness (feet)	Liquid Surface Elevation (feet, MSL)
E-1A (MW-12)	01/19/93		23.65	--	9.41
	02/22/93		23.70	--	9.36
	03/15/93		22.92	--	10.14
	04/09/93		22.50	--	10.56
	05/13/93		20.40	--	12.66
	06/04/93		18.74	--	14.32
	06/15/93		20.00	--	13.06
	09/13/93		19.50	--	13.56
MW-13	01/16/92	35.42	15.70	--	19.72
	02/19/92		13.60	--	21.82
	03/17/92		13.20	--	22.22
	04/15/92		13.64	--	21.78
	05/14/92		14.34	--	21.08
	06/15/92		15.13	--	20.29
	07/14/92		15.45	--	19.97
	08/18/92		16.15	--	19.27
	09/15/92		16.51	--	18.91
	10/16/92		16.81	--	18.61
	11/18/92		16.50	--	18.92
	12/17/92		15.07	--	20.35
	01/19/93		12.40	--	23.02
	02/22/93		12.35	--	23.07
	03/15/93		12.69	--	22.73
	04/09/93		12.85	--	22.57
	05/13/93		13.55	--	21.87
06/04/93		13.83	--	21.59	
06/15/93		13.97	--	21.45	
09/13/93		15.09	--	20.33	
MW-14	01/16/92	30.46	11.34	--	19.12
	02/19/92		9.32	--	21.14
	03/17/92		9.04	--	21.42
	06/15/92		10.83	--	19.63
	09/15/92		12.27	--	18.19
	12/17/92		10.69	--	19.77
	03/15/93		8.70	--	21.76
	06/15/93		9.90	--	20.56
	09/13/93		10.89	--	19.57
MW-15	01/16/92	31.41	12.80	--	18.61
	02/19/92		10.85	--	20.56
	03/18/92		10.41	--	21.00
	06/15/92		12.19	--	19.22
	09/15/92		13.69	--	17.72

Table 1 (continued)
Groundwater Elevation Data

ARCO Service Station 0608
17601 Hesperian Boulevard at Hacienda Avenue
San Lorenzo, California

Well Number	Date Gauged	Well Elevation (feet, MSL)	Depth to Liquid (feet, TOB)	Separate-Phase Hydrocarbon Thickness (feet)	Liquid Surface Elevation (feet, MSL)
MW-15 (cont.)	12/17/92		12.26	--	19.15
	03/15/93		10.05	--	21.36
	06/15/93		11.32	--	20.09
	09/13/93		12.35	--	19.06
MW-16	01/16/92	31.39	13.09	--	18.30
	02/19/92		10.99	--	20.40
	03/18/92		10.85	--	20.54
	06/15/92		12.64	--	18.75
	09/15/92		14.07	--	17.32
	12/17/92		12.56	--	18.83
	03/15/93		10.60	--	20.79
	06/15/93		11.86	--	19.53
MW-17	01/16/92	32.43	13.92	--	18.51
	02/19/92		11.65	--	20.78
	03/18/92		11.71	--	20.72
	06/15/92		13.50	--	18.93
	09/15/92		14.95	--	17.48
	12/17/92		13.34	--	19.09
	03/15/93		11.47	--	20.96
	06/15/93		12.69	--	19.74
MW-18	03/18/92	29.70	9.73	--	19.97
	06/15/92		11.50	--	18.20
	09/15/92		12.90	--	16.80
	12/17/92		11.21	--	18.49
	03/15/93		9.62	--	20.08
	06/15/93		10.85	--	18.85
	09/13/93		11.75	--	17.95
MW-19	03/18/92	29.02	9.22	--	19.80
	06/15/92		10.94	--	18.08
	09/15/92		12.38	--	16.64
	12/17/92		10.51	--	18.51
	03/15/93		9.23	--	19.79
	06/15/93		10.28	--	18.74
MW-20	09/13/93		11.16	--	17.86
	03/18/92	29.54	9.49	--	20.05
	06/15/92		11.11	--	18.43
	09/15/92		12.50	--	17.04
	12/17/92		10.74	--	18.80

Table 1 (continued)
Groundwater Elevation Data

ARCO Service Station 0608
17601 Hesperian Boulevard at Hacienda Avenue
San Lorenzo, California

Well Number	Date Gauged	Well Elevation (feet, MSL)	Depth to Liquid (feet, TOB)	Separate-Phase Hydrocarbon Thickness (feet)	Liquid Surface Elevation (feet, MSL)
MW-20 (cont.)	03/15/93		9.44	--	20.10
	06/05/93		10.45	--	19.09
	10/11/93	----- Well Destroyed -----			
MW-21	03/18/92	28.72	9.55	--	19.17
	06/15/92		11.30	--	17.42
	09/15/92		12.78	--	15.94
	12/17/92		10.80	--	17.92
	03/15/93		9.59	--	19.13
	06/15/93		10.77	--	17.95
	09/13/93		11.63	--	17.09
MW-22	03/17/92	29.29	10.05	--	19.24
	06/15/92		11.84	--	17.45
	09/15/92		13.27	--	16.02
	12/17/92		11.58	--	17.71
	03/15/93		10.03	--	19.26
	06/15/93		11.22	--	18.07
	09/13/93		12.17	--	17.12
MW-23	03/17/92	30.99	11.20	--	19.79
	06/15/92		12.94	--	18.05
	09/15/92		14.40	--	16.59
	12/17/92		13.01	--	17.98
	03/15/93		11.01	--	19.98
	06/15/93		12.26	--	18.73
	09/13/93		13.23	--	17.76
MW-24	06/15/93	34.38	13.39	--	20.99
	09/13/93		14.38	--	20.00
MW-25	04/09/93	34.12	11.18	--	22.94
	06/15/93		12.35	--	21.77
	09/13/93		13.45	--	20.67
MW-26	06/15/93	33.71	12.66	--	21.05
	09/13/93		13.70	--	20.01
<p>MSL = Mean sea level TOB = Top of box NA = Not available Well elevations are measured from set mark at top of vault box. For groundwater elevation data prior to January 1992, see previous groundwater monitoring reports.</p>					

Table 2
Groundwater Analytical Data
Total Petroleum Hydrocarbons
(TPH as Gasoline and BTEX Compounds)

ARCO Service Station 0608
 17601 Hesperian Boulevard at Hacienda Avenue
 San Lorenzo, California

Well Number	Date Sampled	TPH as Gasoline (ppb)	Benzene (ppb)	Toluene (ppb)	Ethylbenzene (ppb)	Xylenes (ppb)
MW-1	01/11/88	300	20	10	50	80
	06/14/88	----- Well Destroyed -----				
MW-2	07/05/85	32,000	1,000	690	NA*	1,500*
	01/11/88	3,300	804	115	168	166
	06/14/88	----- Well Destroyed -----				
MW-3	01/11/88	1,800	20	20	80	60
	03/07/89	150,000	4,600	5,200	5,600	13,000
	06/21/89	63,000	2,700	5,800	3,300	12,000
	12/12/89	----- Well Dry -----				
	03/29/90	1,100,000**	13,000	60,000	17,000	91,000
	06/22/90	----- Well Dry -----				
MW-4	01/11/88	62,000	2,700	7,900	850	5,200
	09/12/88	----- Separate-Phase Hydrocarbon Sheen -----				
	03/07/89	84,000	2,400	3,400	2,500	7,600
	06/21/89	31,000	400	800	200	1,500
	12/12/89	----- Well Dry -----				
	03/29/90	----- 0.01 foot of Separate-Phase Hydrocarbon -----				
	06/22/90	----- Well Dry -----				
	07/18/90	----- Well Destroyed -----				
MW-5	01/11/88	31,000	4,000	2,700	3,800	5,500
	03/07/89	1,300	340	ND	140	50
	06/21/89	1,100	200	ND	130	40
	12/12/89	----- Well Dry -----				
	03/29/90	----- Well Dry -----				
	06/22/90	----- Well Dry -----				
	09/19/90	----- Well Dry -----				
	12/27/90	----- Well Dry -----				
	03/21/91	----- Well Dry -----				
	06/26/91	----- Well Dry -----				
	09/24/91	----- Well Dry -----				
	12/19/91	----- Well Dry -----				
	03/18/92	11,000	110	2.0	410	150
	06/15/92	----- Well Dry -----				
	09/16/92	----- Well Dry -----				
	12/22/92	960	220	6.5	4.0	2.0
03/17/93	2,600	180	1.4	28	1.2	
06/17/93	2,500	450	7.5	55	<5	
09/17/93	1,400	230	<5.0	6.7	<5.0	

Table 2 (continued)
Groundwater Analytical Data
Total Petroleum Hydrocarbons
(TPH as Gasoline and BTEX Compounds)

ARCO Service Station 0608
 17601 Hesperian Boulevard at Hacienda Avenue
 San Lorenzo, California

Well Number	Date Sampled	TPH as Gasoline (ppb)	Benzene (ppb)	Toluene (ppb)	Ethylbenzene (ppb)	Xylenes (ppb)
MW-6 (E-1)	06/21/89	1,700	170	170	85	290
	12/12/89	500	26	7	8	18
	03/29/90	130	14	9	4	11
	06/22/90	150	15	5	4	13
	07/18/90	----- Well Destroyed -----				
MW-7	04/13/90	<50	<0.3	<0.3	<0.3	<0.3
	06/22/90	<50	0.5	1	0.6	3
	09/19/90	<50	<0.3	<0.3	<0.3	<0.3
	12/27/90	69	<0.3	0.3	0.4	2
	03/21/91	<30	<0.3	<0.3	<0.3	<0.3
	06/26/91	<30	<0.3	<0.3	<0.3	<0.3
	09/24/91	<30	<0.3	<0.3	<0.3	<0.3
	12/19/91	<30	<0.3	<0.3	<0.3	<0.3
	03/17/92	<30	<0.3	<0.3	<0.3	<0.3
	06/17/92	<30	<0.3	<0.3	<0.3	<0.3
	09/16/92	<50	<0.5	<0.5	<0.5	<0.5
	12/21/92	<50	<0.5	<0.5	<0.5	<0.5
	03/17/93	<50	<0.5	<0.5	<0.5	<0.5
	06/15/93	<50	<0.5	<0.5	<0.5	<0.5
09/14/93	<50	<0.5	<0.5	<0.5	<0.5	
MW-8	04/13/90	4,900	350	16	450	33
	06/22/90	3,700	370	12	330	28
	09/19/90	140	4	3	3	3
	12/27/90	1,200	7	0.3	53	<0.3
	03/21/91	540	8.8	<6.0	21	9.6
	06/26/91	2,100	290	<6.0	56	<6.0
	09/24/91	260	51	0.34	7.9	<0.3
	12/19/91	5,300	300	<3.0	21	4.8
	03/17/92	9,200	370	3.0	48	4.9
	06/17/92	3,300	460	2.7	63	6.9
	09/16/92	1,500	58	<0.5	6.1	4.5
	12/22/92	3,600	410	56	62	4.4
	03/18/93	3,800	61	<0.5	11	1.2
06/17/93	2,400	430	<5	11	<5	
09/14/93	1,900	36	1.4	32	8.6	
MW-9	04/13/90	<50	<0.3	<0.3	<0.3	2
	06/22/90	12,000	200	3	250	180
	09/19/90	<50	<0.3	<0.3	<0.3	0.6
	12/27/90	<50	<0.3	<0.3	<0.3	<0.3
	03/21/91	<30	<0.3	<0.3	<0.3	<0.3
	06/26/91	<30	<0.3	<0.3	<0.3	<0.3

Table 2 (continued)
Groundwater Analytical Data
Total Petroleum Hydrocarbons
 (TPH as Gasoline and BTEX Compounds)

ARCO Service Station 0608
 17601 Hesperian Boulevard at Hacienda Avenue
 San Lorenzo, California

Well Number	Date Sampled	TPH as Gasoline (ppb)	Benzene (ppb)	Toluene (ppb)	Ethylbenzene (ppb)	Xylenes (ppb)
MW-9 (cont.)	09/24/91	<30	<0.3	<0.3	<0.3	<0.3
	12/19/91	<30	<0.3	<0.3	<0.3	<0.3
	03/17/92	<30	<0.3	<0.3	<0.3	<0.3
	06/16/92	<30	<0.3	<0.3	<0.3	<0.3
	09/16/92	<50	<0.5	<0.5	<0.5	<0.5
	12/21/92	75***	<0.5	<0.5	<0.5	<0.5
	03/16/93	<50	<0.5	<0.5	<0.5	<0.5
	06/15/93	<50	<0.5	<0.5	<0.5	<0.5
	09/14/93	<50	<0.5	<0.5	<0.5	<0.5
MW-10	04/13/90	10,000	150	4	280	200
	06/22/90	9,700	28	<0.3	131	210
	09/19/90	1,800	<0.3	4	0.8	10
	12/27/90	5,700	7	3	95	61
	03/21/91	6,900	22	<15	92	33
	06/26/91	9,300	51	<0.3	59	34
	09/24/91	360	8.6	5.2	14	6.2
	12/19/91	3,300	9.2	8.4	11	17
	03/18/92	4,700	14	<6.0	29	10
	06/16/92	4,800	0.46	0.34	7.4	3.8
	09/16/92	2,000	8.3	3.0	3.3	5.5
	12/22/92	2,700***	6.2	<1.0	7.5	2.8
	03/16/93	4,100	340	2.4	58	54
	06/17/93	4,900	860	<10	540	92
09/17/93	4,500	670	<10.0	240	7.2	
MW-11	04/13/90	<50	<0.3	<0.3	<0.3	<0.3
	06/22/90	63	0.4	0.9	0.7	3
	09/19/90	<50	<0.3	<0.3	<0.3	<0.3
	12/27/90	<50	<0.3	<0.3	<0.3	<0.3
	03/21/91	<30	<0.3	<0.3	<0.3	<0.3
	06/26/91	<30	<0.3	<0.3	<0.3	<0.3
	09/24/91	<30	<0.3	<0.3	<0.3	<0.3
	12/19/91	<30	<0.3	<0.3	<0.3	<0.3
	03/17/92	<30	<0.3	<0.3	<0.3	<0.3
	06/16/92	<30	<0.3	<0.3	<0.3	<0.3
	09/16/92	<50	<0.5	<0.5	<0.5	<0.5
	12/22/92	<50	<0.5	<0.5	<0.5	<0.5
	03/16/93	<50	<0.5	<0.5	<0.5	<0.5
	06/16/93	<50	<0.5	<0.5	<0.5	<0.5
	09/14/93	<50	<0.5	<0.5	<0.5	<0.5

Table 2 (continued)
Groundwater Analytical Data
Total Petroleum Hydrocarbons
 (TPH as Gasoline and BTEX Compounds)

ARCO Service Station 0608
 17601 Hesperian Boulevard at Hacienda Avenue
 San Lorenzo, California

Well Number	Date Sampled	TPH as Gasoline (ppb)	Benzene (ppb)	Toluene (ppb)	Ethylbenzene (ppb)	Xylenes (ppb)
E-1A (MW-12)	09/19/90	<50	7	0.9	1	2
	12/27/90	<50	3	0.5	1	1
	03/21/91	<30	4.2	<0.3	1.1	0.89
	06/26/91	41	6.3	<0.3	1.2	0.59
----- Converted to Extraction Well 8/91 -----						
MW-13	07/03/91	<30	<0.3	<0.3	<0.3	<0.3
	09/24/91	<30	<0.3	<0.3	<0.3	<0.3
	12/19/91	<30	<0.3	<0.3	<0.3	<0.3
	03/17/92	<30	<0.3	<0.3	<0.3	<0.3
	06/17/92	<30	<0.3	<0.3	<0.3	<0.3
	09/16/92	<50	<0.5	<0.5	<0.5	<0.5
	12/21/92	<50	<0.5	<0.5	<0.5	<0.5
	03/17/93	<50	<0.5	<0.5	<0.5	<0.5
	06/15/93	<50	<0.5	<0.5	<0.5	<0.5
09/14/93	<50	<0.5	<0.5	<0.5	<0.5	
MW-14	07/03/91	<30	<0.3	<0.3	<0.3	<0.3
	09/24/91	<30	<0.3	<0.3	<0.3	<0.3
	12/19/91	<30	<0.3	<0.3	<0.3	<0.3
	03/17/92	<30	<0.3	<0.3	<0.3	<0.3
	06/16/92	<30	<0.3	<0.3	<0.3	<0.3
	09/16/92	<50	<0.5	<0.5	<0.5	<0.5
	12/22/92	<50	<0.5	<0.5	<0.5	<0.5
	03/16/93	<50	<0.5	<0.5	<0.5	<0.5
	06/15/93	<50	<0.5	<0.5	<0.5	<0.5
09/15/93	<50	<0.5	<0.5	<0.5	<0.5	
MW-15	07/03/91	570	1.8	1.0	1.0	2.2
	09/24/91	<30	<0.3	<0.3	<0.3	<0.3
	12/19/91	360	<0.6	<0.6	0.64	<0.6
	03/18/92	730	0.74	0.98	1.8	0.68
	06/16/92	310	0.54	0.34	0.96	2.5
	09/16/92	100	1.0	<0.5	<0.5	<0.5
	12/22/92	130***	<0.5	<0.5	<0.5	<0.5
	03/18/93	130***	<0.5	<0.5	<0.5	<0.5
	06/17/93	<50	<0.5	<0.5	<0.5	<0.5
09/17/93	<50	<0.5	<0.5	<0.5	<0.5	
MW-16	07/03/91	2,700	31	6.9	4.6	3.1
	09/24/91	430	1.8	1.3	1.9	1.5
	12/19/91	75	<0.3	<0.3	<0.3	<0.3
	03/18/92	1,500	4.0	0.73	2.2	1.3
	06/16/92	80	<0.3	<0.3	<0.3	<0.3

Table 2 (continued)
Groundwater Analytical Data
Total Petroleum Hydrocarbons
 (TPH as Gasoline and BTEX Compounds)

ARCO Service Station 0608
 17601 Hesperian Boulevard at Hacienda Avenue
 San Lorenzo, California

Well Number	Date Sampled	TPH as Gasoline (ppb)	Benzene (ppb)	Toluene (ppb)	Ethylbenzene (ppb)	Xylenes (ppb)
MW-16 (cont.)	09/16/92	<50	<0.5	<0.5	<0.5	<0.5
	12/22/92	<50	<0.5	<0.5	<0.5	<0.5
	03/18/93	380***	<0.5	<0.5	<0.5	<0.5
	06/17/93	<50	<0.5	<0.5	<0.5	<0.5
	09/17/93	<50	<0.5	<0.5	<0.5	<0.5
MW-17	07/03/91	1,200	12	1.9	28	40
	09/24/91	150	2.7	0.5	3.9	0.59
	12/19/91	370	2.6	<0.3	7.2	6.5
	03/18/92	470	3.1	<0.3	9.1	8.6
	06/16/92	310	1.7	0.56	12	9.6
	09/16/92	77	1.5	<0.5	1.2	1.0
	12/21/92	220	1.2	<0.5	9.8	9.4
	03/17/93	250	<0.5	<0.5	7.8	3.3
	06/17/93	90	0.92	<0.5	2.7	2.4
09/16/93	140	<0.5	<0.5	5.4	3.9	
MW-18	10/04/91	<30	<0.3	<0.3	<0.3	<0.3
	12/19/91	<30	<0.3	<0.3	<0.3	<0.3
	03/18/92	<30	<0.3	<0.3	<0.3	<0.3
	06/15/92	<30	<0.3	<0.3	<0.3	<0.3
	09/15/92	<50	<0.5	<0.5	<0.5	<0.5
	12/21/92	<50	<0.5	<0.5	<0.5	<0.5
	03/17/93	<50	<0.5	<0.5	<0.5	<0.5
	06/16/93	<50	<0.5	<0.5	<0.5	<0.5
09/16/93	<50	<0.5	<0.5	<0.5	<0.5	
MW-19	10/04/91	<30	<0.3	<0.3	<0.3	<0.3
	12/19/91	<30	<0.3	<0.3	<0.3	<0.3
	03/18/92	<30	<0.3	<0.3	<0.3	<0.3
	06/15/92	<30	<0.3	<0.3	<0.3	<0.3
	09/15/92	<50	<0.5	<0.5	<0.5	<0.5
	12/21/92	<50	<0.5	<0.5	<0.5	<0.5
	03/17/93	<50	<0.5	<0.5	<0.5	<0.5
	06/16/93	<50	<0.5	<0.5	<0.5	<0.5
09/16/93	<50	<0.5	<0.5	<0.5	<0.5	
MW-20	10/04/91	<30	<0.3	<0.3	<0.3	<0.3
	12/19/91	<30	<0.3	<0.3	<0.3	<0.3
	03/18/92	<30	<0.3	<0.3	<0.3	<0.3
	06/15/92	<30	<0.3	<0.3	<0.3	<0.3
	09/15/92	<50	<0.5	<0.5	<0.5	<0.5

Table 2 (continued)
Groundwater Analytical Data
Total Petroleum Hydrocarbons
 (TPH as Gasoline and BTEX Compounds)

ARCO Service Station 0608
 17601 Hesperian Boulevard at Hacienda Avenue
 San Lorenzo, California

Well Number	Date Sampled	TPH as Gasoline (ppb)	Benzene (ppb)	Toluene (ppb)	Ethylbenzene (ppb)	Xylenes (ppb)
MW-20 (cont.)	12/21/92	<50	<0.5	<0.5	<0.5	<0.5
	03/17/93	<50	<0.5	<0.5	<0.5	<0.5
	06/16/93	<50	<0.5	<0.5	<0.5	<0.5
	10/11/93	----- Well Destroyed -----				
MW-21	10/04/91	<30	<0.3	<0.3	<0.3	<0.3
	12/19/91	<30	<0.3	<0.3	<0.3	<0.3
	03/18/92	<30	<0.3	<0.3	<0.3	<0.3
	06/15/92	<30	<0.3	<0.3	<0.3	<0.3
	09/15/92	<50	<0.5	<0.5	<0.5	<0.5
	12/22/92	<50	<0.5	<0.5	<0.5	<0.5
	03/17/93	<50	<0.5	<0.5	<0.5	<0.5
	06/16/93	<50	<0.5	<0.5	<0.5	<0.5
MW-22	10/04/91	<30	<0.3	<0.3	<0.3	<0.3
	12/19/91	<30	<0.3	<0.3	<0.3	<0.3
	03/17/92	<30	<0.3	<0.3	<0.3	<0.3
	06/15/92	<30	<0.3	<0.3	<0.3	<0.3
	09/15/92	<50	<0.5	<0.5	<0.5	<0.5
	12/22/92	<50	<0.5	<0.5	<0.5	<0.5
	03/17/93	<50	<0.5	<0.5	<0.5	<0.5
	06/16/93	<50	<0.5	<0.5	<0.5	<0.5
MW-23	10/04/91	<30	<0.3	<0.3	<0.3	<0.3
	12/19/91	<30	<0.3	<0.3	<0.3	<0.3
	03/17/92	<30	<0.3	<0.3	<0.3	<0.3
	06/15/92	<30	<0.3	<0.3	<0.3	<0.3
	09/15/92	<50	<0.5	<0.5	<0.5	<0.5
	12/22/92	<50	<0.5	<0.5	<0.5	<0.5
	03/16/93	<50	<0.5	<0.5	<0.5	<0.5
	06/16/93	<50	<0.5	<0.5	<0.5	<0.5
MW-24	03/29/93	<50	<0.5	<0.5	<0.5	<0.5
	06/15/93	<50	<0.5	<0.5	<0.5	<0.5
	09/14/93	<50	<0.5	<0.5	<0.5	<0.5
MW-25	03/29/93	<50	0.69	<0.5	<0.5	<0.5
	06/15/93	<50	<0.5	<0.5	<0.5	<0.5
	09/14/93	<50	<0.5	<0.5	<0.5	<0.5

Table 2 (continued)
Groundwater Analytical Data
 Total Petroleum Hydrocarbons
 (TPH as Gasoline and BTEX Compounds)

ARCO Service Station 0608
 17601 Hesperian Boulevard at Hacienda Avenue
 San Lorenzo, California

Well Number	Date Sampled	TPH as Gasoline (ppb)	Benzene (ppb)	Toluene (ppb)	Ethylbenzene (ppb)	Xylenes (ppb)
MW-26	03/29/93	<50	<0.5	<0.5	<0.5	<0.5
	06/15/93	<50	<0.5	<0.5	<0.5	<0.5
	09/14/93	<50	<0.5	<0.5	<0.5	<0.5

ppb = Parts per billion
 NA = Not available
 * = Ethylbenzene and xylenes given as a combined value.
 ** = Well contained slight product sheen.
 *** = Non-typical gasoline chromatograph pattern.
 < = Denotes minimum laboratory detection limits. See attached certified analytical reports.
 MW-1 and MW-2 destroyed prior to March 7, 1989 sampling event.
 MW-3, MW-4, and MW-6 (E-1) destroyed June 18, 1990.

Table 3
**Estimated Total Dissolved TPH as Gasoline Removal Data
 for Groundwater Extraction System**

ARCO Service Station 0608
 17601 Hesperian Boulevard at Hacienda Avenue
 San Lorenzo, California

Influent Sample Date	Hour Meter Reading (hours)	System Down Time (%)	Volume Reading (gallon)	Net Volume (gallon)	Average Flow (gpm)	Dissolved TPH as Gasoline			Primary Carbon Loading (%)
						Influent Concentration (ug/L)	Net Removed (pound)	Removed To Date (pound)	
09/25/91	0.0	NA	0	0	0.0	<50	NA	0.0	0.0
09/26/91	NA	NA	1,144	1,144	NA	38	0.0	0.0	0.0
10/22/91	25.6	95.9	12,844	11,700	7.6	<50	NA	0.0	0.0
11/22/91	76.6	93.1	52,532	39,688	13.0	<50	NA	0.0	0.0
12/19/91	322.0	62.1	122,540	70,008	4.8	<50	NA	0.0	0.0
01/16/92	994.2	0.0	283,289	160,749	4.0	<50	NA	0.0	0.0
02/19/92	1,808.6	0.2	485,200	201,911	4.1	370	0.3	0.3	0.4
03/17/92	2,461.7	0.0	662,847	177,647	4.5	160	0.4	0.7	0.9
04/15/92	3,150.3	1.1	851,100	188,253	4.6	200	0.3	1.0	1.2
05/14/92	3,849.1	0.0	1,030,086	178,986	4.3	45	0.2	1.2	1.5
06/19/92	4,712.1	0.1	1,229,960	199,874	3.9	<50	NA	1.2	1.5
07/14/92	5,001.4	51.8	1,291,201	61,241	3.5	97	0.0	1.2	1.5
08/18/92	NA	NA	1,410,018	118,817	NA	<50	NA	1.2	1.5
09/15/92	6,298.2	NA	1,535,640	125,622	3.1	<50	NA	1.2	1.5
10/16/92	7,011.7	4.1	1,651,623	115,983	2.7	<50	NA	1.2	1.5
11/18/92	7,808.5	0.0	1,768,076	116,453	2.4	<50	NA	1.2	1.5
12/17/92	8,501.7	0.4	1,864,300	96,224	2.3	96	0.0	1.2	1.5
01/18/93	8,797.5	61.5	1,915,165	50,865	2.9	100	0.0	1.3	1.6
02/22/93	9,606.6	0.0	2,096,930	181,765	3.7	480	0.4	1.7	2.1
03/15/93	10,113.4	0.0	2,205,833	108,903	3.6	310	0.4	2.1	2.6
04/09/93	10,516.8	32.8	2,298,770	92,937	3.8	140	0.2	2.2	2.8
05/13/93	11,211.2	14.9	2,449,160	150,390	3.6	530	0.4	2.7	3.3
06/04/93	11,733.7	1.0	2,543,500	94,340	3.0	170	0.3	2.9	3.7
07/20/93	12,572.9	24.0	2,689,697	146,197	2.9	200	0.2	3.2	4.0
08/16/93	13,218.8	0.8	2,791,366	101,669	2.6	150	0.1	3.3	4.1
09/13/93	13,887.9	0.4	2,884,736	93,370	2.3	80	0.1	3.4	4.3
AVERAGE PERCENT OF SYSTEM DOWN TIME SINCE START-UP:									19.5
TOTAL POUNDS OF TPH AS GASOLINE REMOVED:									3.4
TOTAL GALLONS OF TPH AS GASOLINE REMOVED:									0.6
ug/L = Micrograms per liter									
NA = Not available or not applicable									
1. Net dissolved TPH as gasoline removed data are approximate.									
2. Density of Gasoline = 5.63 pounds per gallon.									
3. Primary carbon loading is estimated using an isotherm of 8 percent by weight.									
Equations:									
Net Dissolved TPH-g Removed [pounds] = TPH-g concentration, [ug/L] x net volume (gallon) x density of gasoline [pound/gallon]									
(Net dissolved TPH-g removed is calculated by averaging influent concentrations)									

Table 4
Treatment System Analytical Data
Total Petroleum Hydrocarbons
(TPH as Gasoline and BTEX Compounds)

ARCO Service Station 0608
 17601 Hesperian Boulevard at Hacienda Avenue
 San Lorenzo, California

Date Sampled	TPH as Gasoline (ppb)	Benzene (ppb)	Toluene (ppb)	Ethylbenzene (ppb)	Xylenes (ppb)
INFL (influent to primary carbon)					
09/26/91	38	4.8	0.6	1.6	1.1
10/22/91	<30	<0.3	<0.3	<0.3	<0.3
11/22/91	<30	0.52	<0.3	<0.3	<0.3
12/19/91	<30	<0.3	<0.3	<0.3	<0.3
01/16/91	<30	<0.3	<0.3	<0.3	<0.3
02/19/92	370	14	0.34	14	2.4
03/17/92	160	18	0.32	0.56	1.6
04/15/92	200	11	<0.3	7.3	0.77
05/14/92	45	1.4	<0.3	<0.3	<0.3
06/19/92	<30	<0.3	<0.3	<0.3	<0.3
07/14/92	97	25	<0.5	8.5	<0.5
08/18/92	<50	<0.5	<0.5	<0.5	<0.5
09/15/92	<50	<0.5	<0.5	<0.5	<0.5
10/16/92	<50	<0.5	<0.5	<0.5	<0.5
11/18/92	<50	<0.5	<0.5	<0.5	<0.5
12/17/92	96	7.7	13	0.56	9.7
01/18/93	100	13	6.6	1.1	11
02/22/93	480	36	29	4.9	96
03/15/93	310	29	14	4.9	55
04/09/93	140	11	2.8	2.6	17
05/13/93	530	27	12	18	96
06/04/93	170	5.2	1.6	2.5	23
07/20/93	200	12	0.91	8.2	29
08/16/93	150	4.9	0.63	2.9	15
09/13/93	80	2.2	<0.5	<0.5	4.8
MID-1 (between carbons)					
09/26/91	<30	<0.3	<0.3	<0.3	<0.3
10/22/91	<30	<0.3	<0.3	<0.3	<0.3
12/19/91	<30	<0.3	<0.3	<0.3	<0.3
01/16/91	<30	<0.3	<0.3	<0.3	<0.3
02/19/92	<30	<0.3	<0.3	<0.3	<0.3
03/17/92	<30	<0.3	<0.3	<0.3	<0.3
04/15/92	<30	<0.3	<0.3	<0.3	<0.3
05/14/92	<30	<0.3	<0.3	<0.3	<0.3
06/19/92	<30	<0.3	<0.3	<0.3	<0.3
07/14/92	NS	NS	NS	NS	NS
08/18/92	NS	NS	NS	NS	NS
09/15/92	NS	NS	NS	NS	NS
10/16/92	NS	NS	NS	NS	NS

Table 4 (continued)
Treatment System Analytical Data
Total Petroleum Hydrocarbons
 (TPH as Gasoline and BTEX Compounds)

ARCO Service Station 0608
 17601 Hesperian Boulevard at Hacienda Avenue
 San Lorenzo, California

Date Sampled	TPH as Gasoline (ppb)	Benzene (ppb)	Toluene (ppb)	Ethylbenzene (ppb)	Xylenes (ppb)
MID-1 (between carbons) (continued)					
11/18/92	NS	NS	NS	NS	NS
12/17/92	NS	NS	NS	NS	NS
01/18/93	NS	NS	NS	NS	NS
02/22/93	NS	NS	NS	NS	NS
03/15/93	NS	NS	NS	NS	NS
04/09/93	NS	NS	NS	NS	NS
05/13/93	NS	NS	NS	NS	NS
06/04/93	NS	NS	NS	NS	NS
EFFL (effluent to sewer)					
09/26/91	<30	<0.3	<0.3	<0.3	<0.3
10/22/91	<30	<0.3	<0.3	<0.3	<0.3
11/22/91	<30	<0.3	<0.3	<0.3	<0.3
12/19/91	<30	<0.3	<0.3	<0.3	<0.3
01/16/91	<30	<0.3	<0.3	<0.3	<0.3
02/19/92	<30	<0.3	<0.3	<0.3	<0.3
03/17/92	<30	<0.3	<0.3	<0.3	<0.3
04/15/92	<30	<0.3	<0.3	<0.3	<0.3
05/14/92	<30	<0.3	<0.3	<0.3	<0.3
06/19/92	<30	<0.3	<0.3	<0.3	<0.3
07/14/92	<50	<0.5	<0.5	<0.5	<0.5
08/18/92	<50	<0.5	<0.5	<0.5	<0.5
09/15/92	<50	<0.5	<0.5	<0.5	<0.5
10/16/92	<50	<0.5	<0.5	<0.5	<0.5
11/18/92	<50	<0.5	<0.5	<0.5	<0.5
12/17/92	<50	<0.5	<0.5	<0.5	<0.5
01/18/93	<50	<0.5	<0.5	<0.5	<0.5
02/22/93	<50	<0.5	<0.5	<0.5	<0.5
03/15/93	<50	<0.5	<0.5	<0.5	<0.5
04/09/93	<50	<0.5	<0.5	<0.5	<0.5
05/13/93	<50	<0.5	<0.5	<0.5	<0.5
06/04/93	<50	<0.5	<0.5	<0.5	<0.5
07/20/93	<50	<0.5	<0.5	<0.5	<0.5
08/16/93	<50	<0.5	<0.5	<0.5	<0.5
09/13/93	<50	<0.5	<0.5	<0.5	<0.5
ppb = Parts per billion < = Denotes minimum laboratory detection limit. NS = Not sampled					

ATTACHMENT A

FIELD AND LABORATORY PROCEDURES

Sampling Procedures

The sampling procedure for each well consists first of measuring the water level and checking for the presence of separate-phase hydrocarbons (SPH), using either an electronic indicator and a clear Teflon bailer or an oil-water interface probe. Wells not containing SPH are then purged of approximately four casing volumes of water (or to dryness) using a centrifugal pump, gas displacement pump, or bailer. Equipment used for the current sampling event is noted on the attached field data sheets. During purging, temperature, pH, and electrical conductivity are monitored in order to document that these parameters are stable prior to collecting samples. After purging, water levels are allowed to partially recover. Groundwater samples are collected using a Teflon bailer, placed into appropriate EPA-approved containers, labeled, logged onto chain-of-custody documents, and transported on ice to a California State-certified laboratory.

Laboratory Procedures

The groundwater samples were analyzed for the presence of total petroleum hydrocarbons calculated as gasoline, benzene, toluene, ethylbenzene, and xylenes. The analyses were performed according to EPA Methods 8015 (modified), 8020, and 5030 utilizing a purge and trap extraction technique. Final detection was by gas chromatography using flame- and photo-ionization detectors. The methods of analysis for the groundwater samples are documented in the certified analytical report. The certified analytical report, chain-of-custody documentation, and field data sheets are presented as Attachment B.