

PACIFIC
ENVIRONMENTAL
GROUP, INC.

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November 30, 1992
Project 330-06.05

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

Re: Groundwater Monitoring Results and
Remedial Performance Evaluation
July to September Quarter 1992
ARCO Service Station 0608
17601 Hesperian Boulevard at Hacienda Avenue
San Lorenzo, California

Dear Mr. Whelan:

This report presents the results of groundwater monitoring performed by Pacific Environmental Group, Inc. (PACIFIC), on behalf of ARCO Products Company (ARCO), at the above referenced site. Groundwater samples were collected on September 15 and 16, 1992 and analyzed for total petroleum hydrocarbons calculated as gasoline (TPH-g), and benzene, toluene, ethylbenzene, and xylenes (BTEX compounds). Groundwater monitoring procedures are documented in Attachment A. Also included in this report is a performance evaluation of the groundwater remedial system.

RESULTS

During this quarter, all site wells either decreased in TPH-g concentrations or remained at non-detectable levels. TPH-g was detected at concentrations ranging from 77 parts per billion (ppb) in Well MW-17 to 2,000 ppb in Well MW-10. Benzene was detected at concentrations ranging from 1 ppb in Well MW-15 to 58 ppb in Well MW-8. Well MW-16 contained non-detectable levels of TPH-g and BTEX compounds for the first time during this quarter. Well MW-17 contained historically low concentrations of TPH-g and benzene during this quarter. Wells MW-7, MW-9, MW-11, MW-13, MW-14, and MW-18 through MW-23 remained at non-detectable levels of TPH-g and BTEX compounds. Well MW-5 was dry this quarter. Separate-phase hydrocarbons were not observed in any site well this quarter. Groundwater analytical results are presented in Table 1. A dissolved gasoline and benzene concentration map is presented as

Figure 1. Certified analytical reports, chain-of-custody documentation, and field data sheets are provided in Attachment B.

Depth to water data indicates that groundwater elevations have declined in site wells an average of 1.43 feet since the previous monitoring event. Groundwater flow was to the west with an approximate gradient of 0.003. As discussed below, a groundwater depression has developed as a result of pumping Extraction Well E-1A. Groundwater elevation data is presented in Table 2. A groundwater elevation contour map based on the September 1992 data is presented as Figure 2.

REMEDIAL PERFORMANCE EVALUATION

Groundwater Treatment System

The data presented in this section covers the period from June 19 to September 15, 1992. The system began continuous operation on October 15, 1991. The treatment system uses two 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, 1993.

In order to evaluate treatment system performance, PACIFIC monitored water levels, instantaneous and average flow rates, and sampled the influent and effluent of the treatment system for TPH-g and BTEX compounds, on a monthly basis. The effluent sample is also analyzed for arsenic, as requested by the Oro Loma Sanitary District.

The dissolved TPH-g removed to date was calculated based on influent concentrations and total flow through the system (Table 3). Influent concentrations of TPH-g have ranged from non-detectable (less than 50 ppb) to 97 ppb, while effluent concentrations have been non-detectable (less than 50 ppb). A plot of influent TPH-g concentration versus total flow is presented as Figure 3, and a plot of dissolved TPH-g removed versus total flow is presented as Figure 4. Analytical results for the treatment system are summarized in Table 4 and the certified analytical results, chain-of-custody documentation, field data sheets for the monthly sampling dates are included in Attachment B.

The treatment system utilizes one groundwater extraction well, Well E-1A. The average pumping rate for the treatment system during the period was 3.2 gallons per minute (gpm). A total of 305,680 gallons of groundwater was extracted, and 0.01 gallons of dissolved TPH-g was recovered during this period of operation (Table 5). A total of 1,535,640 gallons of groundwater has been extracted and

0.23 gallons of dissolved TPH-g has been recovered since the beginning of operation. Calculations indicate the primary carbon unit is 2 percent loaded and breakthrough is not expected during the next 12 months.


The treatment system experienced 10 days of down time between July 14 and 24, 1992. This down time was caused by a mechanical failure of the programmable logic controller (PLC). The PLC was replaced and the system was restarted.


Groundwater elevation data indicates the groundwater extraction system has achieved hydraulic control of the on-site dissolved hydrocarbon plume.

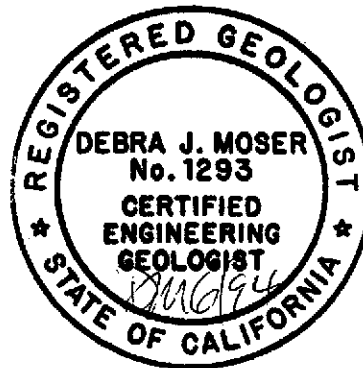
If there are any questions regarding the contents of this report, please call.

Sincerely,

Pacific Environmental Group, Inc.


Daniel J. Landry
Project Engineer


Debra J. Moser
Senior Geologist
CEG 1293



- Attachments:
- Table 1 - Groundwater Analytical Results - Total Petroleum Hydrocarbons
 - Table 2 - Groundwater Elevation Data
 - Table 3 - Estimated Total Dissolved TPH-g Removed by the Groundwater Extraction System
 - Table 4 - Treatment System Analytical Results
 - Table 5 - Treatment System Metered Volume
 - Figure 1 - Dissolved Gasoline and Benzene Concentration Map
 - Figure 2 - Groundwater Elevation Contour Map
 - Figure 3 - Influent TPH-g Concentration versus Total Flow
 - Figure 4 - Dissolved TPH-g Removed versus Total Flow
 - Attachment A - Groundwater Sampling and Analytical Procedures
 - Attachment B - Certified Analytical Reports, Chain-of-Custody Documentation, and Field Data Sheets

cc: Ms. Juliatt Shin, Alameda County, Environmental Health
Mr. Eddy So, Regional Water Quality Control Board -
San Francisco Bay Region

Table 1
Groundwater Analytical Results
 Total Petroleum Hydrocarbons

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

Well Number	Sample Date	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	----- Not Sampled--Insufficient Water Volume -----					
	03/29/90	1,100,000**	13,000	60,000	17,000	91,000	
	06/22/90	----- Not Sampled--Insufficient Water Volume -----					
MW-4	01/11/88	62,000	2,700	7,900	850	5,200	
	09/12/88	----- Not Sampled--Separate-Phase Hydrocarbon -----					
	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	----- Not Sampled--Well Dry -----					
	03/29/90	----- Not Sampled-0.01 foot Separate-Phase Hydrocarbon -----					
	06/22/90	----- Not Sampled--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	----- Not Sampled--Well Dry -----					
	03/29/90	----- Not Sampled--Insufficient Water Volume -----					
	06/22/90	----- Not Sampled--Insufficient Water Volume -----					
	09/19/90	----- Not Sampled--Well Dry -----					
	12/27/90	----- Not Sampled--Well Dry -----					
	03/21/91	----- Not Sampled--Well Dry -----					
	06/26/91	----- Not Sampled--Well Dry -----					
	09/24/91	----- Not Sampled--Well Dry -----					
	12/19/91	----- Not Sampled--Well Dry -----					
	03/18/92	11,000	110	2.0	410	150	
	06/15/92	----- Not Sampled--Well Dry -----					
09/16/92	----- Not Sampled--Well Dry -----						
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 -----					

Table 1 (continued)
Groundwater Analytical Results
 Total Petroleum Hydrocarbons

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

Well Number	Sample Date	Gasoline (ppb)	Benzene (ppb)	Toluene (ppb)	Ethylbenzene (ppb)	Xylenes (ppb)
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	<0.30	<0.30	<0.30	<0.30
	06/26/91	<30	<0.30	<0.30	<0.30	<0.30
	09/24/91	<30	<0.30	<0.30	<0.30	<0.30
	12/19/91	<30	<0.30	<0.30	<0.30	<0.30
	03/17/92	<30	<0.30	<0.30	<0.30	<0.30
	06/17/92	<30	<0.30	<0.30	<0.30	<0.30
09/16/92	<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	<0.30
	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	
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	<0.30	<0.30	<0.30	<0.30
	06/26/91	<30	<0.30	<0.30	<0.30	<0.30
	09/24/91	<30	<0.30	<0.30	<0.30	<0.30
	12/19/91	<30	<0.30	<0.30	<0.30	<0.30
	03/17/92	<30	<0.30	<0.30	<0.30	<0.30
	06/16/92	<30	<0.30	<0.30	<0.30	<0.30
09/16/92	<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	<0.30	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	

Table 1 (continued)
Groundwater Analytical Results
 Total Petroleum Hydrocarbons

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

Well Number	Sample Date	Gasoline (ppb)	Benzene (ppb)	Toluene (ppb)	Ethylbenzene (ppb)	Xylenes (ppb)
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	<0.30	<0.30	<0.30	<0.30
	06/26/91	<30	<0.30	<0.30	<0.30	<0.30
	09/24/91	<30	<0.30	<0.30	<0.30	<0.30
	12/19/91	<30	<0.30	<0.30	<0.30	<0.30
	03/17/92	<30	<0.30	<0.30	<0.30	<0.30
	06/16/92	<30	<0.30	<0.30	<0.30	<0.30
	09/16/92	<50	<0.5	<0.5	<0.5	<0.5
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	<0.30	1.1	0.89
	06/26/91	41	6.3	<0.30	1.2	0.59
----- Converted to Extraction Well 8/91 -----						
MW-13	07/03/91	<30	<0.30	<0.30	<0.30	<0.30
	09/24/91	<30	<0.30	<0.30	<0.30	<0.30
	12/19/91	<30	<0.30	<0.30	<0.30	<0.30
	03/17/92	<30	<0.30	<0.30	<0.30	<0.30
	06/17/92	<30	<0.30	<0.30	<0.30	<0.30
	09/16/92	<50	<0.5	<0.5	<0.5	<0.5
MW-14	07/03/91	<30	<0.30	<0.30	<0.30	<0.30
	09/24/91	<30	<0.30	<0.30	<0.30	<0.30
	12/19/91	<30	<0.30	<0.30	<0.30	<0.30
	03/17/92	<30	<0.30	<0.30	<0.30	<0.30
	06/16/92	<30	<0.30	<0.30	<0.30	<0.30
	09/16/92	<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	<0.30	<0.30	<0.30	<0.30
	12/19/91	360	<0.60	<0.60	0.64	<0.60
	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
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	<0.30	<0.30	<0.30	<0.30

Table 1 (continued)
Groundwater Analytical Results
 Total Petroleum Hydrocarbons

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

Well Number	Sample Date	Gasoline (ppb)	Benzene (ppb)	Toluene (ppb)	Ethylbenzene (ppb)	Xylenes (ppb)
MW-16 (cont.)	03/18/92	1,500	4.0	0.73	2.2	1.3
	06/16/92	80	<0.30	<0.30	<0.30	<0.30
	09/16/92	<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	0.50	3.9	0.59
	12/19/91	370	2.6	<0.30	7.2	6.5
	03/18/92	470	3.1	<0.30	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
MW-18	10/04/91	<30	<0.30	<0.30	<0.30	<0.30
	12/19/91	<30	<0.30	<0.30	<0.30	<0.30
	03/18/92	<30	<0.30	<0.30	<0.30	<0.30
	06/15/92	<30	<0.30	<0.30	<0.30	<0.30
	09/15/92	<50	<0.5	<0.5	<0.5	<0.5
MW-19	10/04/91	<30	<0.30	<0.30	<0.30	<0.30
	12/19/91	<30	<0.30	<0.30	<0.30	<0.30
	03/18/92	<30	<0.30	<0.30	<0.30	<0.30
	06/15/92	<30	<0.30	<0.30	<0.30	<0.30
	09/15/92	<50	<0.5	<0.5	<0.5	<0.5
MW-20	10/04/91	<30	<0.30	<0.30	<0.30	<0.30
	12/19/91	<30	<0.30	<0.30	<0.30	<0.30
	03/18/92	<30	<0.30	<0.30	<0.30	<0.30
	06/15/92	<30	<0.30	<0.30	<0.30	<0.30
	09/15/92	<50	<0.5	<0.5	<0.5	<0.5
MW-21	10/04/91	<30	<0.30	<0.30	<0.30	<0.30
	12/19/91	<30	<0.30	<0.30	<0.30	<0.30
	03/18/92	<30	<0.30	<0.30	<0.30	<0.30
	06/15/92	<30	<0.30	<0.30	<0.30	<0.30
	09/15/92	<50	<0.5	<0.5	<0.5	<0.5
MW-22	10/04/91	<30	<0.30	<0.30	<0.30	<0.30
	12/19/91	<30	<0.30	<0.30	<0.30	<0.30
	03/17/92	<30	<0.30	<0.30	<0.30	<0.30
	06/15/92	<30	<0.30	<0.30	<0.30	<0.30
	09/15/92	<50	<0.5	<0.5	<0.5	<0.5

Table 1 (continued)
Groundwater Analytical Results
 Total Petroleum Hydrocarbons

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

Well Number	Sample Date	Gasoline (ppb)	Benzene (ppb)	Toluene (ppb)	Ethylbenzene (ppb)	Xylenes (ppb)
MW-23	10/04/91	<30	<0.30	<0.30	<0.30	<0.30
	12/19/91	<30	<0.30	<0.30	<0.30	<0.30
	03/17/92	<30	<0.30	<0.30	<0.30	<0.30
	06/15/92	<30	<0.30	<0.30	<0.30	<0.30
	09/15/92	<50	<0.5	<0.5	<0.5	<0.5

ppb = Parts per billion
 NA = Not available
 < = Denotes laboratory detection limits. See attached analytical reports.
 * = Ethylbenzene and xylenes given as a combined value.
 ** = Well contained slight product sheen.

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 2
Groundwater Elevation Data

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

Well Number	Sample Date	TOB Elevation (feet, MSL)	Depth to Liquid (feet)	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				
	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	01/11/88	33.99	NA	--	NA
	03/07/89		12.74	--	21.25
	06/21/89		13.26	--	20.73
	12/12/89		NA	--	NA
	03/29/90		13.30	--	20.69
	05/08/90		NA	--	NA
	06/22/90		13.52	--	20.47
	09/19/90		13.99	--	20.00
	12/27/90		NA	--	NA
	03/21/91		13.00	--	20.99
	06/26/91		13.25	--	20.74
	07/03/91		13.33	--	20.66
	09/24/91		Dry	--	NA
	10/04/91		Dry	--	NA
	12/19/91		Dry	--	NA
	01/16/92		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	

Table 2 (continued)
Groundwater Elevation Data

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

Well Number	Sample Date	TOB Elevation (feet, MSL)	Depth to Liquid (feet)	Separate-Phase Hydrocarbon Thickness (feet)	Liquid Surface Elevation (feet, MSL)
MW-5 (cont.)	06/15/92	-----	-----	Well Dry -----	-----
	07/14/92	-----	-----	Well Dry -----	-----
	08/18/92	-----	-----	Well Dry -----	-----
	09/15/92	-----	-----	Well Dry -----	-----
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	04/13/90	34.40	NA	--	NA
	05/08/90		13.98	--	20.42
	06/22/90		13.91	--	20.49
	09/19/90		15.09	--	19.31
	12/27/90		14.67	--	19.73
	03/21/91		12.88	--	21.52
	06/26/91		13.85	--	20.55
	07/03/91		13.95	--	20.45
	09/24/91		15.54	--	18.86
	10/04/91		15.60	--	18.80
	12/19/91		15.70	--	18.70
	01/16/92		13.33	--	21.83
	02/19/92		12.16	--	NA
	03/17/92		11.86	--	22.54
	04/15/92		12.30	--	21.69
	05/14/92		13.04	--	20.95
	06/15/92		13.78	--	20.21
07/14/92		14.20	--	19.79	
08/18/92		14.79	--	19.20	
09/15/92		15.12	--	18.87	
MW-8	04/13/90	32.79	NA	--	NA
	05/08/90		12.77	--	20.02
	06/22/90		12.73	--	20.06
	09/19/90		13.95	--	18.84
	12/27/90		13.56	--	19.23
	03/21/91		11.78	--	21.01
	06/26/91		12.66	--	20.13
	07/03/91		12.75	--	20.04
	09/24/91		13.97	--	18.82
	10/04/91		14.01	--	18.78
	12/19/91		13.35	--	19.44
	01/16/92		13.40	--	19.39
	02/19/92		11.26	--	21.53
03/17/92		10.90	--	21.89	

Table 2 (continued)
Groundwater Elevation Data

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

Well Number	Sample Date	TOB Elevation (feet, MSL)	Depth to Liquid (feet)	Separate-Phase Hydrocarbon Thickness (feet)	Liquid Surface Elevation (feet, MSL)
MW-8 (cont.)	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
MW-9	04/13/90	32.11	NA	--	NA
	05/08/90		12.02	--	20.09
	06/22/90		11.93	--	20.18
	09/19/90		13.18	--	18.93
	12/27/90		12.77	--	19.34
	03/21/91		10.94	--	21.17
	06/26/91		11.92	--	20.19
	07/03/91		12.02	--	20.09
	09/24/91		13.27	--	18.84
	10/04/91		13.29	--	18.82
	12/19/91		13.42	--	18.69
	01/16/92		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	
MW-10	04/13/90	31.67	NA	--	NA
	05/08/90		12.16	--	19.51
	06/22/90		12.10	--	19.57
	09/19/90		13.41	--	18.26
	12/27/90		13.67	--	18.00
	03/21/91		11.11	--	20.56
	06/26/91		12.00	--	19.67
	07/03/91		12.16	--	19.51
	09/24/91		13.40	--	18.27
	10/04/91		13.50	--	18.17
	12/19/91		13.57	--	18.10
	01/16/92		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	

Table 2 (continued)
Groundwater Elevation Data

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

Well Number	Sample Date	TOB Elevation (feet, MSL)	Depth to Liquid (feet)	Separate-Phase Hydrocarbon Thickness (feet)	Liquid Surface Elevation (feet, MSL)
MW-11	04/13/90	32.54	NA	--	NA
	05/08/90		12.84	--	19.70
	06/22/90		12.82	--	19.72
	09/19/90		14.09	--	18.45
	12/27/90		13.66	--	18.88
	03/21/91		11.85	--	20.69
	06/26/91		12.69	--	19.85
	07/03/91		12.81	--	19.73
	09/24/91		14.03	--	18.51
	10/04/91		14.18	--	18.36
	12/19/91		14.29	--	18.25
	01/16/92		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		
E-1A (MW-12)	09/19/90	33.06	14.31	--	18.75
	12/27/90		13.97	--	19.09
	03/21/91		12.11	--	20.95
	06/26/91		12.90	--	20.16
	07/03/91		13.00	--	20.06
	09/24/91		22.47	--	10.59
	01/16/92		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		
MW-13	07/03/91	35.42	15.19	--	20.23
	09/24/91		16.45	--	18.97
	12/19/91		16.66	--	18.76
	01/16/92		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

Table 2 (continued)
Groundwater Elevation Data

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

Well Number	Sample Date	TOB Elevation (feet, MSL)	Depth to Liquid (feet)	Separate-Phase Hydrocarbon Thickness (feet)	Liquid Surface Elevation (feet, MSL)
MW-13 (cont.)	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
MW-14	07/03/91	30.46	11.05	--	19.41
	09/24/91		12.30	--	18.16
	10/04/91		12.38	--	18.08
	12/19/91		12.39	--	18.07
	01/16/92		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	
MW-15	07/03/91	31.41	12.43	--	18.89
	09/24/91		13.69	--	17.72
	10/04/91		13.80	--	17.61
	12/19/91		13.78	--	17.63
	01/16/92		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	
MW-16	07/03/91	31.39	12.92	--	18.47
	09/24/91		14.10	--	17.29
	10/04/91		14.20	--	17.19
	12/19/91		14.14	--	17.25
	01/16/92		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	
MW-17	07/03/91	32.43	13.75	--	18.68
	09/24/91		14.98	--	17.45
	10/04/91		15.20	--	17.23
	12/19/91		15.02	--	17.41
	01/16/92		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	

Table 2 (continued)
Groundwater Elevation Data

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

Well Number	Sample Date	TOB Elevation (feet, MSL)	Depth to Liquid (feet)	Separate-Phase Hydrocarbon Thickness (feet)	Liquid Surface Elevation (feet, MSL)
MW-18	10/04/91	29.70	13.00	--	16.59
	12/19/91		12.91	--	16.71
	03/18/92		9.73	--	19.97
	06/15/92		11.50	--	18.20
	09/15/92		12.90	--	16.80
MW-19	10/04/91	29.02	12.43	--	16.59
	12/19/91		12.31	--	16.71
	03/18/92		9.22	--	19.80
	06/15/92		10.94	--	18.08
	09/15/92		12.38	--	16.64
MW-20	10/04/91	29.54	12.56	--	16.98
	12/19/91		12.48	--	17.06
	03/18/92		9.49	--	20.05
	06/15/92		11.11	--	18.43
	09/15/92		12.50	--	17.04
MW-21	10/04/91	28.72	12.88	--	15.84
	12/19/91		12.68	--	16.04
	03/18/92		9.55	--	19.17
	06/15/92		11.30	--	17.42
	09/15/92		12.78	--	15.94
MW-22	10/04/91	29.29	13.37	--	15.92
	12/19/91		13.19	--	16.10
	03/17/92		10.05	--	19.24
	06/15/92		11.84	--	17.45
	09/15/92		13.27	--	16.02
MW-23	10/04/91	30.99	14.50	--	16.49
	12/19/91		14.38	--	16.61
	03/17/92		11.20	--	19.79
	06/15/92		12.94	--	18.05
	09/15/92		14.40	--	16.59

TOB = Top of box
MSL = Mean sea level
Well elevations are measured from set mark at top of vault box.

Table 3
**Estimated Total Dissolved TPH-g Removed
 by the Groundwater Extraction System**

ARCO Service Station 608
 17601 Hesperian Boulevard
 San Lorenzo, California

Sample ID	Sample Date	Volume Reading (gallon)	Net Volume (gallon)	Sample Concentration TPH-g (ug/L)	Net Dissolved TPH-g Removed (pound)	Dissolved TPH-g Removed To Date (pound)	Dissolved TPH-g Removed To Date (gallon)	Primary Carbon Loading (%)
INFL	09/25/91	0	0	34	0.00	0.00	0.00	0.00
INFL	09/26/91	1,144	1,144	38	0.00	0.00	0.00	0.00
INFL	10/22/91	12,844	11,700	34	0.00	0.00	0.00	0.00
INFL	11/22/91	52,532	39,688	34	0.01	0.02	0.00	0.02
INFL	12/19/91	122,540	70,008	34	0.02	0.03	0.01	0.04
INFL	01/16/92	283,289	160,749	34	0.05	0.08	0.01	0.10
INFL	02/19/92	485,200	201,911	370	0.34	0.42	0.07	0.53
INFL	03/17/92	662,847	177,647	160	0.39	0.81	0.14	1.02
INFL	04/15/92	851,100	188,253	200	0.28	1.10	0.19	1.37
INFL	05/14/92	1,030,086	178,986	45	0.18	1.28	0.23	1.60
INFL	06/19/92	1,229,960	199,874	49	0.08	1.36	0.24	1.70
INFL	07/14/92	1,291,201	61,241	97	0.04	1.39	0.25	1.74
INFL	08/18/92	1,410,018	118,817	49	0.07	1.47	0.26	1.83
INFL	09/15/92	1,535,640	125,622	49	0.05	1.52	0.27	1.90
INFL	10/16/92	1,651,623	115,983	49	0.05	1.56	0.28	1.96
TOTAL POUNDS OF TPH-g REMOVED:						1.56		
TOTAL GALLONS OF TPH-g REMOVED:							0.28	

ug/L = Parts per billion

TPH-g = Total petroleum hydrocarbons, calculated as gasoline

NA = Not available or not applicable

1. Net dissolved TPH-g removed data are approximate.

2. Density of Gasoline = 5.63 pounds per gallon.

3. The system uses three 1,000 pound carbons. The percent carbon loading calculation assumes a loading isotherm of 8 percent by weight.

4. The detection limits for TPH-g are 35 ug/L before 6/19/92 and 50 ug/L after 6/19/92. For estimating purposes 34 ug/L and 49 ug/L, respectively, were used as values to calculate effluent data.

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 Results

ARCO Service Station 608
17601 Hesperian Boulevard
San Lorenzo, California

Sample Date	Gasoline (ppb)	Benzene (ppb)	Toluene (ppb)	Ethylbenzene (ppb)	Xylenes (ppb)
INFL (influent to primary carbon)					
09/26/91	38	4.8	0.60	1.6	1.1
10/22/91	<30	<0.30	<0.30	<0.30	<0.30
11/22/91	<30	0.52	<0.30	<0.30	<0.30
12/19/91	<30	<0.30	<0.30	<0.30	<0.30
01/16/91	<30	<0.30	<0.30	<0.30	<0.30
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	<0.30	7.3	0.77
05/14/92	45	1.4	<0.30	<0.30	<0.30
06/19/92	<30	<0.30	<0.30	<0.30	<0.30
07/14/92	97	25	<0.50	8.5	<0.50
08/18/92	<50	<0.50	<0.50	<0.50	<0.50
09/15/92	<50	<0.50	<0.50	<0.50	<0.50
MID-1 (between carbons)					
09/26/91	<30	<0.30	<0.30	<0.30	<0.30
10/22/91	<30	<0.30	<0.30	<0.30	<0.30
12/19/91	<30	<0.30	<0.30	<0.30	<0.30
01/16/91	<30	<0.30	<0.30	<0.30	<0.30
02/19/92	<30	<0.30	<0.30	<0.30	<0.30
03/17/92	<30	<0.30	<0.30	<0.30	<0.30
04/15/92	<30	<0.30	<0.30	<0.30	<0.30
05/14/92	<30	<0.30	<0.30	<0.30	<0.30
06/19/92	<30	<0.30	<0.30	<0.30	<0.30
07/14/92	NS	NS	NS	NS	NS
08/18/92	NS	NS	NS	NS	NS
09/05/92	NS	NS	NS	NS	NS
EFFL (effluent to sewer)					
09/26/91	<30	<0.30	<0.30	<0.30	<0.30
10/22/91	<30	<0.30	<0.30	<0.30	<0.30
11/22/91	<30	<0.30	<0.30	<0.30	<0.30
12/19/91	<30	<0.30	<0.30	<0.30	<0.30
01/16/91	<30	<0.30	<0.30	<0.30	<0.30
02/19/92	<30	<0.30	<0.30	<0.30	<0.30
03/17/92	<30	<0.30	<0.30	<0.30	<0.30
04/15/92	<30	<0.30	<0.30	<0.30	<0.30
05/14/92	<30	<0.30	<0.30	<0.30	<0.30
06/19/92	<30	<0.30	<0.30	<0.30	<0.30
07/14/92	ND	ND	ND	ND	ND
08/18/92	<50	<0.50	<0.50	<0.50	<0.50
09/15/92	<50	<0.50	<0.50	<0.50	<0.50
ppb = Parts per billion < = Analyte was not present above the stated detection limit.					

Table 4 (continued)
Treatment System Analytical Results

ARCO Service Station 608
 17601 Hesperian Boulevard
 San Lorenzo, California

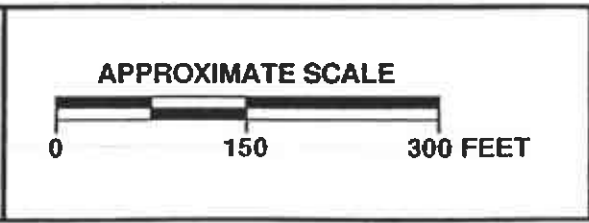
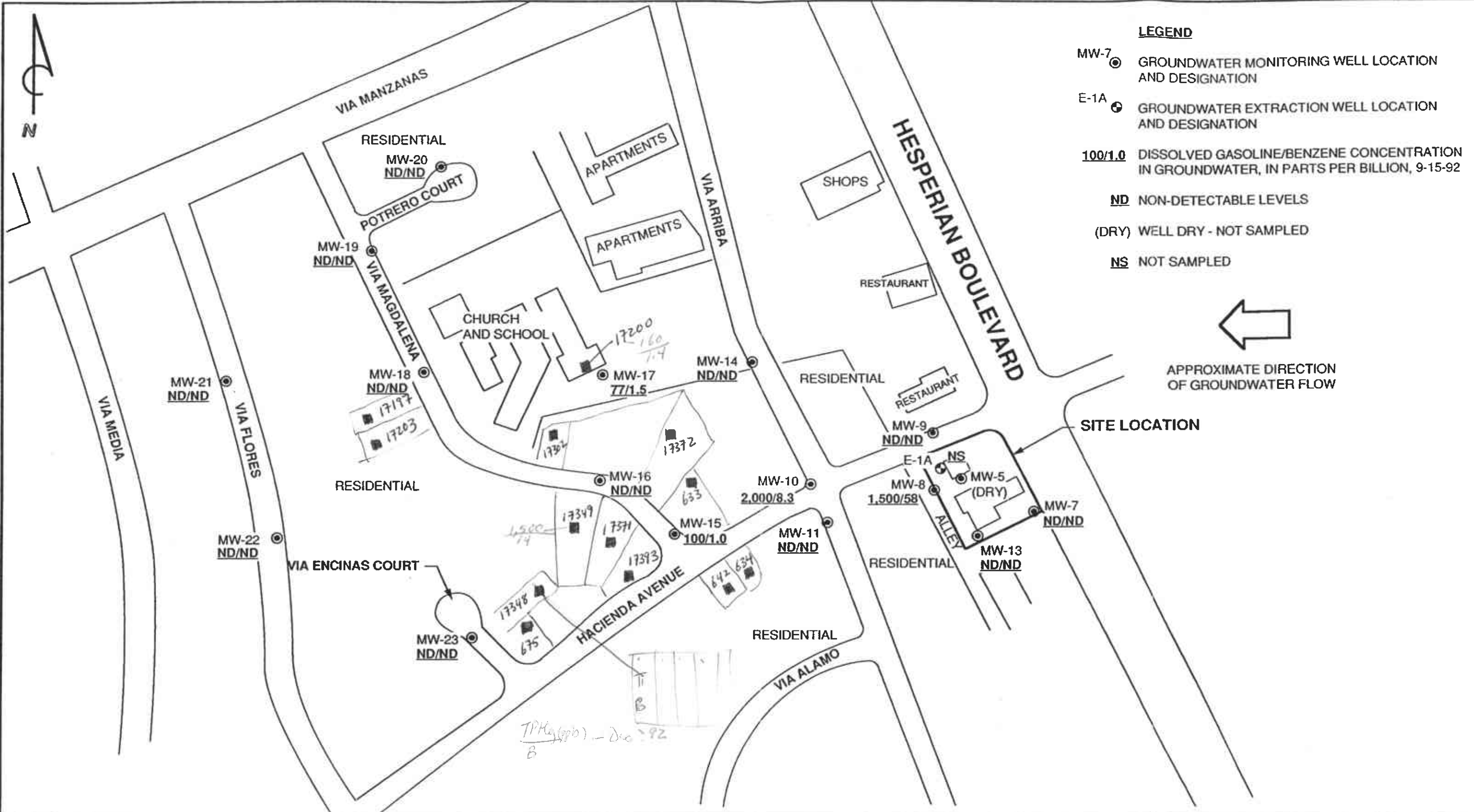
Sample Date	Chemical Oxygen Demand (mg/L)	Suspended Solids (mg/L)	pH (units)	Arsenic (mg/L)
Effluent Sample				
09/26/91	NA	NA	8.8	0.29
09/30/91	NA	NA	NA	0.39
10/07/91	NA	NA	NA	0.18
11/22/91	39	2.0	7.4	0.0063
12/19/91	16	<1.0	NA	NA
01/16/92	<20	4.0	7.1	<0.0050
02/19/92	<20	1.0	7.1	<0.0050
03/17/92	<20	1.0	7.3	<0.0050
04/15/92	<20	1.0	7.0	<0.0050
05/14/92	<20	1.0	7.2	<0.0050
06/19/92	<20	1.0	6.7	<0.0050
07/14/92	20	1.0	7.0	<0.0050
mg/L = Milligrams per liter < = Analyte was not present above the stated detection limit. NA = Not available or applicable				

**Table 5
Treatment System Metered Volume**

ARCO Service Station 608
17601 Hesperian Boulevard
San Lorenzo, California

Meter Reading Date	Meter Reading (gallons)	Volume Since Previous Reading (gallons)	Volume Since Start-up (gallons)	Approximate Flow Rate (gpm)
09/25/91	0	0	0	NA*
09/26/91	1,144	1,144	1,144	0.8
10/15/91	5,146	4,002	5,146	0.1
10/22/91	12,844	7,698	12,844	0.9
11/22/91	52,532	39,688	52,532	0.6
12/11/91	78,842	26,310	78,842	1.0
12/19/91	122,540	43,698	122,540	3.8
01/16/92	283,289	160,749	283,289	4.0
02/19/92	485,200	201,911	485,200	4.1
03/17/92	662,847	177,647	662,847	4.7
04/15/92	851,100	188,253	851,100	4.5
05/14/92	1,030,086	178,986	1,030,086	4.3
06/19/92	1,229,960	199,874	1,229,960	3.9
07/14/92	1,291,201	61,241	1,291,201	1.7
08/18/92	1,410,018	118,817	1,410,018	2.4
09/15/92	1,535,640	125,622	1,535,640	3.1

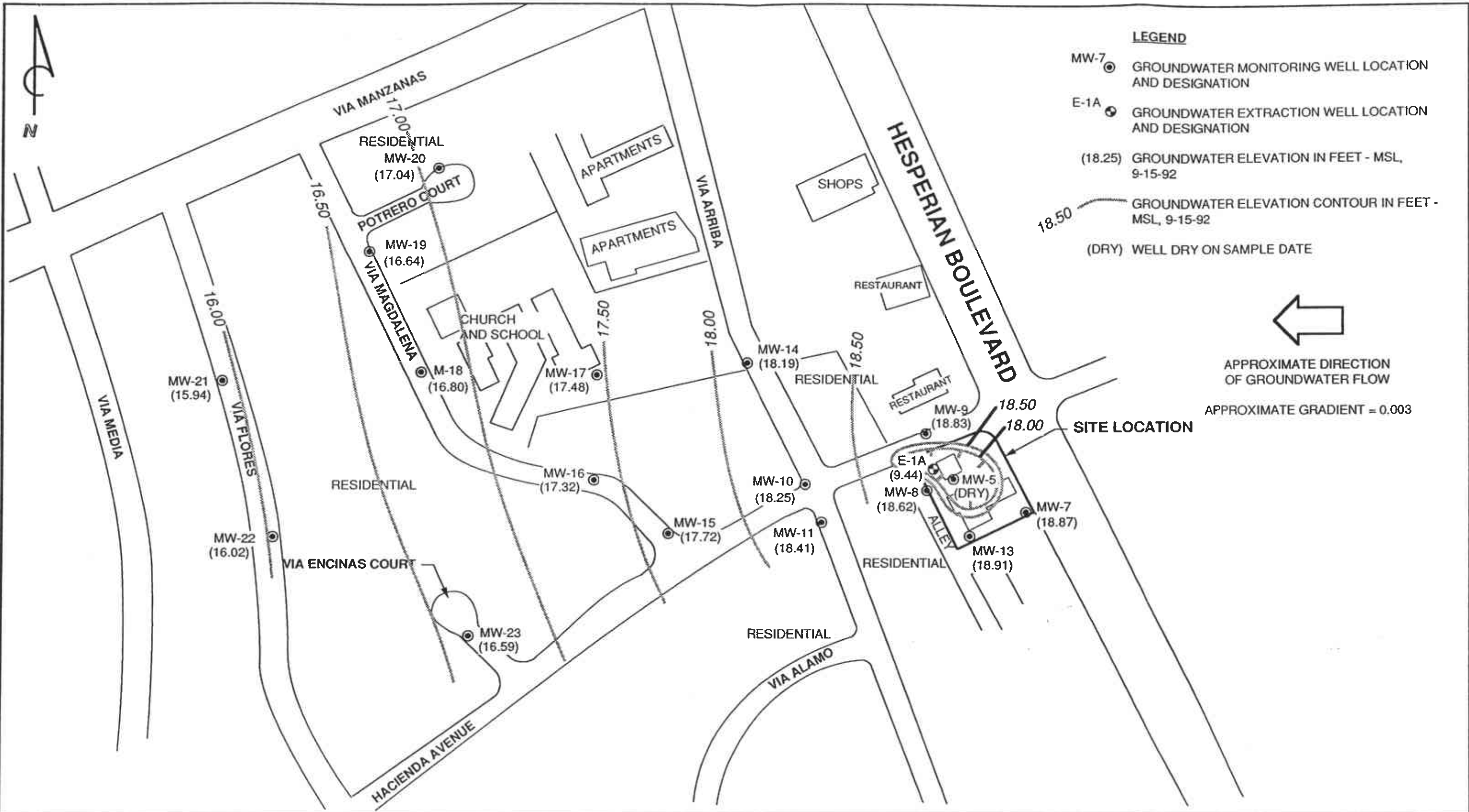
gpm = Gallons per minute
* = Start-up



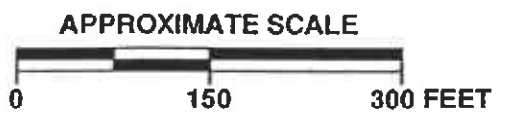
ARCO SERVICE STATION 0608
 17601 Hesperian Boulevard at Hacienda Avenue
 San Lorenzo, California

DISSOLVED GASOLINE AND BENZENE CONCENTRATION MAP

FIGURE: 1
 PROJECT: 330-06.05



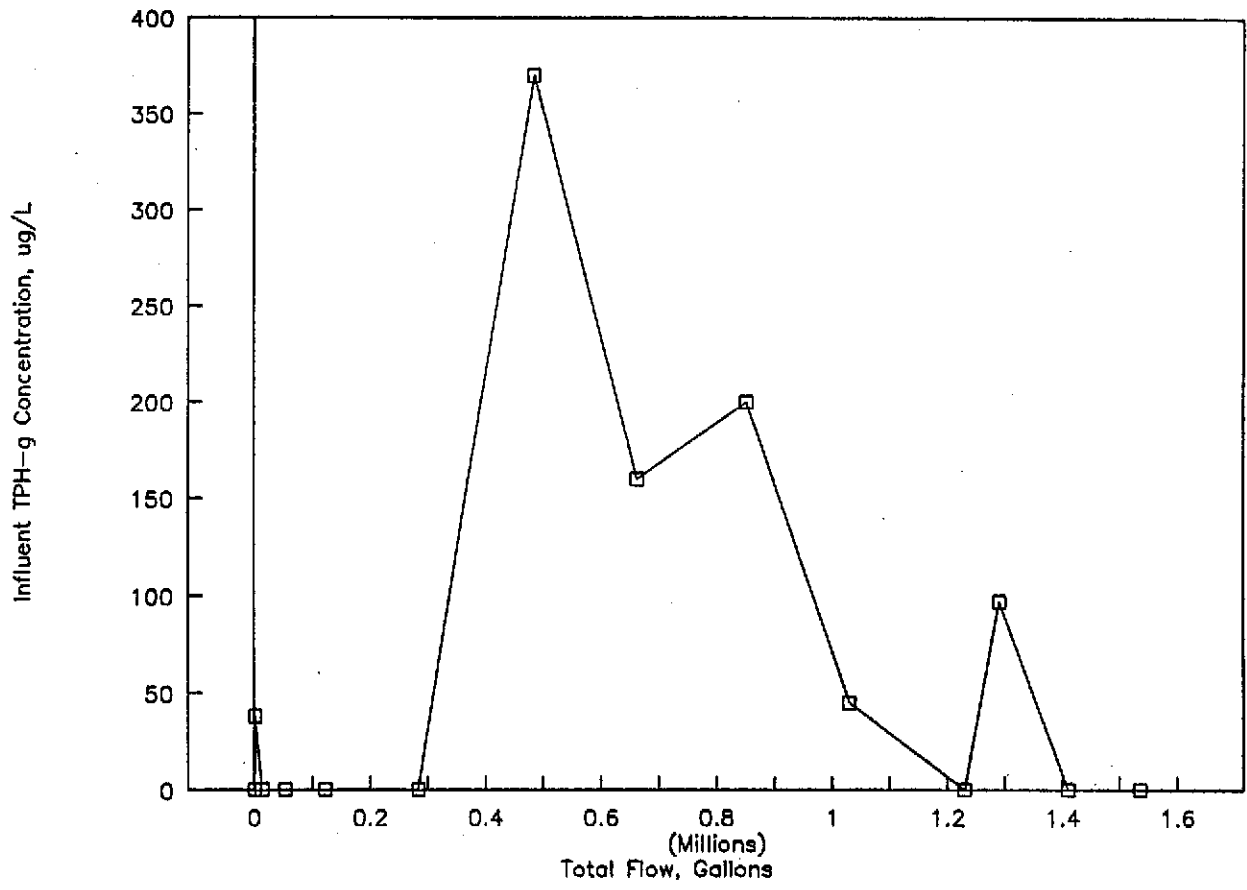
PACIFIC ENVIRONMENTAL GROUP, INC.



ARCO SERVICE STATION 0608
 17601 Hesperian Boulevard at Hacienda Avenue
 San Lorenzo, California

GROUNDWATER ELEVATION CONTOUR MAP

FIGURE: 2
 PROJECT: 330-06.05

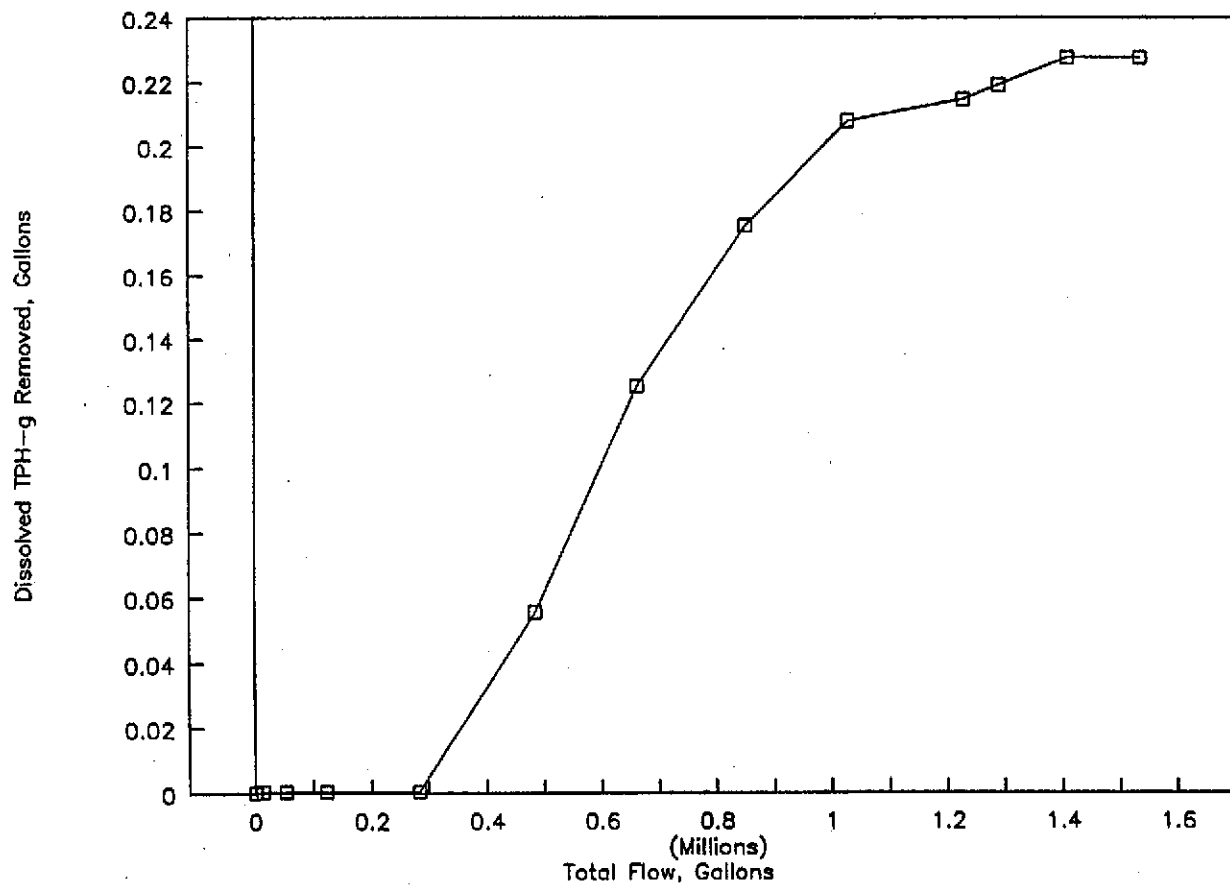


PACIFIC ENVIRONMENTAL GROUP, INC.

ARCO SERVICE STATION 0608
 17601 Hesperian Boulevard at Hacienda Avenue
 San Lorenzo, California

INFLUENT TPH-g CONCENTRATION VERSUS TOTAL FLOW

FIGURE:
3
 PROJECT:
 330-06.05



PACIFIC
ENVIRONMENTAL
GROUP INC.

ARCO SERVICE STATION 0608
17601 Hesperian Boulevard at Hacienda Avenue
San Lorenzo, California

DISSOLVED TPH-g REMOVED VERSUS TOTAL FLOW

FIGURE:
4
PROJECT:
330-06.05

RENDER NO. 45402

11/05/92

ATTACHMENT A
GROUNDWATER SAMPLING AND ANALYTICAL PROCEDURES

ATTACHMENT A

GROUNDWATER SAMPLING AND ANALYTICAL 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 (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 Analysis

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

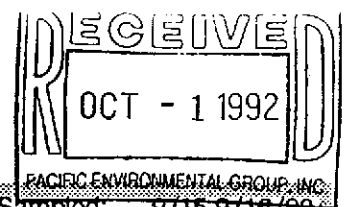
ATTACHMENT B

**CERTIFIED ANALYTICAL REPORTS,
CHAIN-OF-CUSTODY DOCUMENTATION, AND
FIELD DATA SHEETS**



SEQUOIA ANALYTICAL

1900 Bates Avenue • Suite LM • Concord, California 94520
(510) 686-9600 • FAX (510) 686-9689



Pacific Environmental Group
2025 Gateway Place, Ste., 440
San Jose, CA 95110
Attention: Kelly Brown

Client Project ID: #608-92-5/Arco #0608/330-06.15,
Sample Matrix: Water San Lorenzo
Analysis Method: EPA 5030/8015/8020
First Sample #: 209-0708

Sampled: 9/15-9/16/92
Received: Sep 17, 1992
Reported: Sep 25, 1992

TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX DISTINCTION

Analyte	Reporting Limit µg/L	Sample I.D. 209-0708 TB-1	Sample I.D. 209-0709 MW-7	Sample I.D. 209-0710 MW-8	Sample I.D. 209-0711 MW-9	Sample I.D. 209-0712 MW-10	Sample I.D. 209-0713 MW-11
Purgeable Hydrocarbons	50	N.D.	N.D.	1,500	N.D.	2,000	N.D.
Benzene	0.5	N.D.	N.D.	58	N.D.	8.3	N.D.
Toluene	0.5	N.D.	N.D.	N.D.	N.D.	3.0	N.D.
Ethyl Benzene	0.5	N.D.	N.D.	6.1	N.D.	3.3	N.D.
Total Xylenes	0.5	N.D.	N.D.	4.5	N.D.	5.5	N.D.
Chromatogram Pattern:		--	--	Gasoline	--	Gasoline	--

Quality Control Data

Report Limit Multiplication Factor:	1.0	1.0	4.0	1.0	4.0	1.0
Date Analyzed:	9/21/92	9/21/92	9/21/92	9/21/92	9/21/92	9/21/92
Instrument Identification:	HP-4	HP-4	HP-2	HP-4	HP-2	HP-5
Surrogate Recovery, %: (QC Limits = 70-130%)	104	103	111	103	118	106

Purgeable Hydrocarbons are quantitated against a fresh gasoline standard.
Analytes reported as N.D. were not detected above the stated reporting limit.

SEQUOIA ANALYTICAL

Karen L. Enstrom
Project Manager



SEQUOIA ANALYTICAL

1900 Bates Avenue • Suite LM • Concord, California 94520
(510) 686-9600 • FAX (510) 686-9689

Pacific Environmental Group 2025 Gateway Place, Ste., 440 San Jose, CA 95110 Attention: Kelly Brown	Client Project ID: #608-92-5/Arco #0608/330-06.15, Sample Matrix: Water Analysis Method: EPA 5030/8015/8020 First Sample #: 209-0714	San Lorenzo	Sampled: 9/16-9/17/92 Received: Sep 17, 1992 Reported: Sep 25, 1992
--	---	-------------	---

TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX DISTINCTION

Analyte	Reporting Limit µg/L	Sample I.D. 209-0714 MW-13	Sample I.D. 209-0715 MW-14	Sample I.D. 209-0716 MW-15	Sample I.D. 209-0717 MW-16	Sample I.D. 209-0718 MW-17	Sample I.D. 209-0719 MW-18
Purgeable Hydrocarbons	50	N.D.	N.D.	100	N.D.	77	N.D.
Benzene	0.5	N.D.	N.D.	1.0	N.D.	1.5	N.D.
Toluene	0.5	N.D.	N.D.	N.D.	N.D.	N.D.	N.D.
Ethyl Benzene	0.5	N.D.	N.D.	N.D.	N.D.	1.2	N.D.
Total Xylenes	0.5	N.D.	N.D.	N.D.	N.D.	1.0	N.D.
Chromatogram Pattern:		--	--	Non-Gasoline Mixture	--	Gasoline	--

Quality Control Data

Report Limit Multiplication Factor:	1.0	1.0	1.0	1.0	1.0	1.0
Date Analyzed:	9/21/92	9/21/92	9/22/92	9/21/92	9/22/92	9/21/92
Instrument Identification:	HP-5	HP-5	HP-2	HP-5	HP-2	HP-5
Surrogate Recovery, %: (QC Limits = 70-130%)	107	108	102	105	103	110

Purgeable Hydrocarbons are quantitated against a fresh gasoline standard.
Analytes reported as N.D. were not detected above the stated reporting limit.

SEQUOIA ANALYTICAL



Karen L. Enstrom
Project Manager



SEQUOIA ANALYTICAL

1900 Bates Avenue • Suite LM • Concord, California 94520
(510) 686-9600 • FAX (510) 686-9689

Pacific Environmental Group 2025 Gateway Place, Ste., 440 San Jose, CA 95110 Attention: Kelly Brown	Client Project ID: #608-92-5/Arco #0608/330-06.15, Sample Matrix: Water Analysis Method: EPA 5030/8015/8020 First Sample #: 209-0720	San Lorenzo	Sampled: 9/15-9/16/92 Received: Sep 17, 1992 Reported: Sep 25, 1992
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TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX DISTINCTION

Analyte	Reporting Limit µg/L	Sample I.D. 209-0720 MW-19	Sample I.D. 209-0721 MW-20	Sample I.D. 209-0722 MW-21	Sample I.D. 209-0723 MW-22	Sample I.D. 209-0724 MW-23
Purgeable Hydrocarbons	50	N.D.	N.D.	N.D.	N.D.	N.D.
Benzene	0.5	N.D.	N.D.	N.D.	N.D.	N.D.
Toluene	0.5	N.D.	N.D.	N.D.	N.D.	N.D.
Ethyl Benzene	0.5	N.D.	N.D.	N.D.	N.D.	N.D.
Total Xylenes	0.5	N.D.	N.D.	N.D.	N.D.	N.D.
Chromatogram Pattern:		--	--	--	--	--

Quality Control Data

Report Limit Multiplication Factor:	1.0	1.0	1.0	1.0	1.0
Date Analyzed:	9/21/92	9/21/92	9/21/92	9/21/92	9/21/92
Instrument Identification:	HP-5	HP-5	HP-2	HP-4	HP-4
Surrogate Recovery, %: (QC Limits = 70-130%)	111	111	100	105	104

Purgeable Hydrocarbons are quantitated against a fresh gasoline standard.
Analytes reported as N.D. were not detected above the stated reporting limit.

SEQUOIA ANALYTICAL



Karen L. Enstrom
Project Manager



SEQUOIA ANALYTICAL

1900 Bates Avenue • Suite LM • Concord, California 94520
(510) 686-9600 • FAX (510) 686-9689

Pacific Environmental Group
2025 Gateway Place, Ste., 440
San Jose, CA 95110
Attention: Kelly Brown

Client Project ID: #608-92-5/Arco #0608/330-06.15, San Lorenzo

QC Sample Group: 2090708-724

Reported: Sep 25, 1992

QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl-Benzene	Xylenes
---------	---------	---------	---------------	---------

Method:	EPA 8015/8020	EPA 8015/8020	EPA 8015/8020	EPA 8015/8020
Analyst:	J.F.	J.F.	J.F.	J.F.
Reporting Units:	µg/L	µg/L	µg/L	µg/L
Date Analyzed:	Sep 21, 1992	Sep 21, 1992	Sep 21, 1992	Sep 21, 1992
QC Sample #:	Matrix Blank	Matrix Blank	Matrix Blank	Matrix Blank

Sample Conc.: N.D. N.D. N.D. N.D.

Spike Conc. Added: 20 20 20 60

Conc. Matrix Spike: 21 20 20 64

Matrix Spike % Recovery: 105 100 100 106

Conc. Matrix Spike Dup.: 20 19 19 62

Matrix Spike Duplicate % Recovery: 100 95 95 103

Relative % Difference: 4.8 5.1 5.1 3.2

SEQUOIA ANALYTICAL

% Recovery:	$\frac{\text{Conc. of M.S.} - \text{Conc. of Sample}}{\text{Spike Conc. Added}} \times 100$
Relative % Difference:	$\frac{\text{Conc. of M.S.} - \text{Conc. of M.S.D.}}{(\text{Conc. of M.S.} + \text{Conc. of M.S.D.}) / 2} \times 100$

Karen L. Enstrom
Project Manager

ARCO Products Company
Division of AtlanticRichfieldCompany

330-06.15 Task Order No. 608-92-5

Chain of Custody

ARCO Facility no. 0608	City (Facility) San Lorenzo	Project manager (Consultant) Kelly Brown	Laboratory name Sequoia
ARCO engineer Chuck Carmel	Telephone no. (ARCO) -	Telephone no. (Consultant) 825-0855	Contract number
Consultant name Pacific Env. Group	Address (Consultant) 620 Contra Costa Blvd. #209 Pleasant Hill		Method of shipment
		Fax no. (Consultant) 825-0882	Special detection Limit/reporting

Sample I.D.	Lab no.	Container no.	Matrix			Preservation		Sampling date	Sampling time	BTEX EPA 802/EPA 8020	FAS BTEX/TPH EPA 1632/8020/8015	TPH Modified ReS 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/SM4503E	EPA 601/8010	EPA 624/8240	EPA 625/8270	TCUP Metals <input type="checkbox"/> VOA <input type="checkbox"/> VOA <input type="checkbox"/>	Semi Metals <input type="checkbox"/> VOA <input type="checkbox"/> VOA <input type="checkbox"/>	CAM Metals EPA 8010/7000 TLC <input type="checkbox"/> STLC <input type="checkbox"/>	Lead Cr/DOHS <input type="checkbox"/> Lead EPA <input type="checkbox"/> 7420/7421 <input type="checkbox"/>	
			Soil	Water	Other	Ice	Acid															
TB-1		2		X		X	HCl	9-15-92		X												2090708 AB
MW-7		3						9-16-92														709 AC
MW-8								9-16-92	15:30													710 AC
MW-9								9-16-92	14:55													711 AC
MW-10								9-16-92	11:00													712 AC
MW-11								9-16-92	12:25													713 AC
MW-13								9-16-92	14:30													714 AC
MW-14								9-16-92	9:30													715 AC
MW-15								9-16-92	8:55													716 AC
MW-16								9-16-92	10:20													717 AC
MW-17								9-16-92	8:20													718 AC
MW-18								9-15-92	14:20													719 AC
MW-19								9-15-92	13:55													720 AC
MW-20								9-15-92	12:55													721 AC
MW-21								9-15-92	12:35													722 AC
MW-22								9-15-92	12:15													723 AC

Special detection Limit/reporting

Special QA/QC Trip Blank from Sequoia 8-14-92

Remarks Concord Lab

Lab number

Turnaround time

Priority Rush 1 Business Day

Rush 2 Business Days

Expedited 5 Business Days

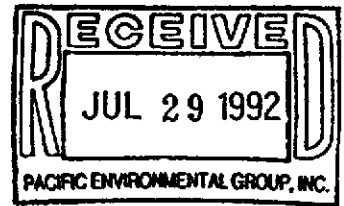
Standard 10 Business Days

Condition of sample:	Temperature received:
Relinquished by sampler <i>[Signature]</i>	Date 9-17-92 Time 9:30
Relinquished by	Received by <i>[Signature]</i>
Relinquished by	Received by
Relinquished by	Received by laboratory
	Date
	Time



SEQUOIA ANALYTICAL

680 Chesapeake Drive • Redwood City, CA 94063
(415) 364-9600 • FAX (415) 364-9233



Pacific Environmental Group
1601 Civic Center Drive, Suite 202
Santa Clara, CA 95050
Attention: Lance Geselbracht

Project: 330-06.12/ARCO 0608, San Lorenzo

Enclosed are the results from 2 water samples received at Sequoia Analytical on July 15, 1992. The requested analyses are listed below:

SAMPLE #	SAMPLE DESCRIPTION	DATE OF COLLECTION	TEST METHOD
2072032	Water, INFL	7/14/92	EPA 5030/8015/8020
2072033	Water, EFFL	7/14/92	EPA 5030/8015/8020 Chemical Oxygen Demand Total Suspended Solids pH Arsenic

Please contact me if you have any questions. In the meantime, thank you for the opportunity to work with you on this project.

Very truly yours,

SEQUOIA ANALYTICAL

Christine L. Middleton
Project Manager



SEQUOIA ANALYTICAL

680 Chesapeake Drive • Redwood City, CA 94063
(415) 364-9600 • FAX (415) 364-9233

Pacific Environmental Group	Client Project ID: 330-06.12/ARCO 0608, San Lorenzo	Sampled: Jul 14, 1992
1601 Civic Center Drive, Suite 202	Sample Matrix: Water	Received: Jul 15, 1992
Santa Clara, CA 95050	Analysis Method: EPA 5030/8015/8020	Reported: Jul 28, 1992
Attention: Lance Geselbracht	First Sample #: 207-2032	

TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX DISTINCTION

Analyte	Reporting Limit µg/L	Sample I.D. 207-2032 INFL	Sample I.D. 207-2033 EFFL
Purgeable Hydrocarbons	50	97	N.D.
Benzene	0.50	25	N.D.
Toluene	0.50	N.D.	N.D.
Ethyl Benzene	0.50	8.5	N.D.
Total Xylenes	0.50	N.D.	N.D.
Chromatogram Pattern:		Non-Gas Mix C4 - C12	--

Quality Control Data

Report Limit Multiplication Factor:	1.0	1.0
Date Analyzed:	7/27/92	7/27/92
Instrument Identification:	GCHP-2	GCHP-2
Surrogate Recovery, %: (QC Limits = 70-130%)	113	93

Purgeable Hydrocarbons are quantitated against a fresh gasoline standard.
Analytes reported as N.D. were not detected above the stated reporting limit.

SEQUOIA ANALYTICAL

Christine L. Middleton
Christine L. Middleton
Project Manager



SEQUOIA ANALYTICAL

680 Chesapeake Drive • Redwood City, CA 94063
(415) 364-9600 • FAX (415) 364-9233

Pacific Environmental Group	Client Project ID: 330-06.12/ARCO 0608, San Lorenzo	Sampled: Jul 14, 1992
1601 Civic Center Drive, Suite 202	Sample Descript: Water, EFFL	Received: Jul 15, 1992
Santa Clara, CA 95050		Analyzed: 7/15-21/92
Attention: Lance Geselbracht	Lab Number: 207-2033	Reported: Jul 28, 1992

LABORATORY ANALYSIS

Analyte	Detection Limit mg/L	Sample Results mg/L
Chemical Oxygen Demand	20	20
Total Suspended Solids	1.0	1.0
pH, Units	N.A.	7.0
Arsenic	0.0050	N.D.

Analytes reported as N.D. were not present above the stated limit of detection.

SEQUOIA ANALYTICAL

Christine L. Middleton
 Christine L. Middleton
 Project Manager



SEQUOIA ANALYTICAL

680 Chesapeake Drive • Redwood City, CA 94063
(415) 364-9600 • FAX (415) 364-9233

Pacific Environmental Group
1601 Civic Center Drive, Suite 202
Santa Clara, CA 95050
Attention: Lance Geselbracht

Client Project ID: 330-06.12/ARCO 0608, San Lorenzo

QC Sample Group: 2072032-3

Reported: Jul 28, 1992

QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl- benzene	Xylenes
---------	---------	---------	-------------------	---------

Method:	EPA 8020	EPA 8020	EPA 8020	EPA 8020
Analyst:	M. Nipp	M. Nipp	M. Nipp	M. Nipp
Reporting Units:	µg/L	µg/L	µg/L	µg/L
Date Analyzed:	Jul 27, 1992	Jul 27, 1992	Jul 27, 1992	Jul 27, 1992
QC Sample #:	GBLK072792	GBLK072792	GBLK072792	GBLK072792
	MS/MSD	MS/MSD	MS/MSD	MS/MSD
Sample Conc.:	N.D.	N.D.	N.D.	N.D.
Spike Conc. Added:	10	10	10	30
Conc. Matrix Spike:	10	10	10	31
Matrix Spike % Recovery:	100	100	100	103
Conc. Matrix Spike Dup.:	11	11	11	32
Matrix Spike Duplicate % Recovery:	110	110	110	107
Relative % Difference:	9.5	9.5	9.5	6.5

Quality Assurance Statement: All standard operating procedures and quality control requirements have been met.

SEQUOIA ANALYTICAL

Christine L. Middleton
Christine L. Middleton
Project Manager

% Recovery:	$\frac{\text{Conc. of M.S.} - \text{Conc. of Sample}}{\text{Spike Conc. Added}} \times 100$
Relative % Difference:	$\frac{\text{Conc. of M.S.} - \text{Conc. of M.S.D.}}{(\text{Conc. of M.S.} + \text{Conc. of M.S.D.}) / 2} \times 100$



SEQUOIA ANALYTICAL

680 Chesapeake Drive • Redwood City, CA 94063
(415) 364-9600 • FAX (415) 364-9233

Pacific Environmental Group
1601 Civic Center Drive, Suite 202
Santa Clara, CA 95050
Attention: Lance Geselbracht

Client Project ID: 330-06.12/ARCO 0608, San Lorenzo

QC Sample Group: 207-2033

Reported: Jul 28, 1992

QUALITY CONTROL DATA REPORT

ANALYTE	Total Suspended Solids	Chemical Oxygen Demand	pH	Arsenic
Method:	EPA 160.2	EPA 410.4	EPA 9040	EPA 206.2
Analyst:	Y. Arteaga	Y. Arteaga	* Y. Arteaga	F. Contreras
Reporting Units:	mg/L	mg/L	N.A.	mg/L
Date Analyzed:	Jul 16, 1992	Jul 20, 1992	Jul 15, 1992	Jul 21, 1992
QC Sample #:	207-2033	207-2303	207-2033	207-2208
Sample Conc.:	1.0	310	7.0	N.D.
Spike Conc. Added:	N.A.	75	N.A.	1.0
Conc. Matrix Spike:	N.A.	390	N.A.	1.0
Matrix Spike % Recovery:	N.A.	106	N.A.	100
Conc. Matrix Spike Dup.:	1.0	370	7.0	1.0
Matrix Spike Duplicate % Recovery:	N.A.	80	N.A.	100
Relative % Difference:	0.0	7.1	0.0	0.0

Quality Assurance Statement: All standard operating procedures and quality control requirements have been met.

SEQUOIA ANALYTICAL

Christine L. Middleton
Christine L. Middleton
Project Manager

% Recovery:	$\frac{\text{Conc. of M.S.} - \text{Conc. of Sample}}{\text{Spike Conc. Added}} \times 100$
Relative % Difference:	$\frac{\text{Conc. of M.S.} - \text{Conc. of M.S.D.}}{(\text{Conc. of M.S.} + \text{Conc. of M.S.D.}) / 2} \times 100$

ARCO Facility no. 0608 City (Facility) San Lorenzo Project manager (Consultant) Lance Geselbracht
 ARCO engineer Charles Carmel Telephone no. (ARCO) Telephone no. (Consultant) (408) 984-6536 Fax no. (Consultant) 243-3911
 Consultant name Pacific Environ. Group Address (Consultant) 1601 Civic Center Dr. Suite 202 Santa Clara, CA 95050
 Laboratory name Sequoia
 Contract number 07-073

Sample I.D.	Lab no.	Container no.	Matrix			Preservation		Sampling date	Sampling time	BTEX 602/EPA 8020	BTEX/TPH 605 EPA 1602/6020/6015	TPH Modified 8015 Gas Diesel	Oil and Grease 413.1 413.2	TPH EPA 418.1/SM60E	EPA 824/8240	Arsenic	TCUP Metals VOA VOA	Cadmium EPA 8010/7000	Lead Org./DHS 7420/7421	COD	TSS	Method of shipment	
			Soil	Water	Other	Ice	Acid																
INFL		3		X		X	HCl	7/14/92	13:00	X													Special detection limits reporting 2072033 2072033 ↓ Special QA/QC ↓ Remarks
EFFL		3		↓		↓			13:05	X													
EFFL		3		↓		↓	H ₂ SO ₄																
EFFL		1		↓		↓	NP																
EFFL		1		↓		↓	NP							X									
EFFL		1		↓		↓	HNO ₃								X								

Condition of sample: good Temperature received: cool

Relinquished by sampler Mark L. Carter Date 7/15/92 Time 12:45 Received by

Relinquished by Date Time Received by

Relinquished by Date Time Received by Laboratory Date 7-15 Time 12:45

Priority Rush 1 Business Day

Rush 2 Business Days

Expedited 5 Business Days

Standard 10 Business Days

AK
 AK
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 G
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 I

SEQUOIA ANALYTICAL SAMPLE RECEIPT LOG

CLIENT NAME:
REC. BY (PRINT):

PEG
SP

MASTER LOG NO. / PAGE:
DATE OF LOG-IN:

X
7/15/92

CIRCLE THE APPROPRIATE RESPONSE		LAB SAMPLE #	DASH #	CLIENT IDENTIFICATION	CONTAINER DESCRIPTION	SAMPLE MATRIX	DATE SAMP.	REMARKS: CONDITION (ETC)
1. Custody Seal(s):	Present / <u>Absent</u> Intact / Broken	237203	AC	INFL	3 VOLS	W	7-14	
2. Custody Seal Nos.:		237203	A-F	EFF	6 VOLS			
3. Chain-of-Custody Records:	<u>Present</u> / Absent*	↓	G	↓	1 AMBER	↓	↓	R4C
			H		1 METALS			
			I		1/2 PLAIN			
4. Traffic Reports or Packing List:	Present / <u>Absent</u>							
5. Airbill:	Airbill / <u>Sticker</u> Present / <u>Absent</u>							
6. Airbill No.:								
7. Sample Tags:	<u>Present</u> / Absent*							
Sample Tag Nos.:	<u>Listed</u> / Not Listed on Chain-of-Custody							
8. Sample Condition:	<u>Intact</u> /Broken*/Leaking*							
9. Does information on custody reports, traffic reports and sample tags agree?	<u>Yes</u> / No*							
10. Proper Preservatives Used:	Yes / No*							
11. Date Rec. at Lab:	7-15							
12. Time Rec. at Lab:	12:45							

* If Circled, contact Project Manager and attach record of resolution

COPY



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1900 Bates Avenue • Suite LM • Concord, California 94520
(510) 686-9600 • FAX (510) 686-9689

AUG 28 1992

Pacific Environmental Group
2025 Gateway Place, Ste., 440
San Jose, CA 95110
Attention: Dan Landry

Client Project ID: Arco #0608, San Lorenzo / #608-91-5
Sample Matrix: Water
Analysis Method: EPA 5030/8015/8020
First Sample #: 208-0762

Sampled: Aug 18, 1992
Received: Aug 19, 1992
Reported: Aug 26, 1992

TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX DISTINCTION

Analyte	Reporting Limit µg/L	Sample I.D.	Sample I.D.
		208-0762 INFL	308-0763 EFFL
Purgeable Hydrocarbons	50	N.D.	N.D.
Benzene	0.5	N.D.	N.D.
Toluene	0.5	N.D.	N.D.
Ethyl Benzene	0.5	N.D.	N.D.
Total Xylenes	0.5	N.D.	N.D.
Chromatogram Pattern:		--	--

Quality Control Data

Report Limit Multiplication Factor:	1.0	1.0
Date Analyzed:	8/24/92	8/24/92
Instrument Identification:	HP-2	HP-2
Surrogate Recovery, %: (QC Limits = 70-130%)	104	104

Purgeable Hydrocarbons are quantitated against a fresh gasoline standard.
Analytes reported as N.D. were not detected above the stated reporting limit.

SEQUOIA ANALYTICAL

Scott Chiff
For Karen L. Enstrom
Project Manager



SEQUOIA ANALYTICAL

1900 Bates Avenue • Suite LM • Concord, California 94520
(510) 686-9600 • FAX (510) 686-9689

Pacific Environmental Group
2025 Gateway Place, Ste., 440
San Jose, CA 95110
Attention: Dan Landry

Client Project ID: Arco #0608, San Lorenzo / #608-91-5

QC Sample Group: 2080762-763

Reported: Aug 26, 1992

QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl-Benzene	Xylenes
		EPA 8015/8020	EPA 8015/8020	EPA 8015/8020
Method:	8015/8020	8015/8020	8015/8020	8015/8020
Analyst:	A.T.	A.T.	A.T.	A.T.
Reporting Units:	µg/L	µg/L	µg/L	µg/L
Date Analyzed:	Aug 24, 1992	Aug 24, 1992	Aug 24, 1992	Aug 24, 1992
QC Sample #:	Matrix Blank	Matrix Blank	Matrix Blank	Matrix Blank
Sample Conc.:	N.D.	N.D.	N.D.	N.D.
Spike Conc. Added:	20	20	20	60
Conc. Matrix Spike:	19	19	19	61
Matrix Spike % Recovery:	95	95	95	102
Conc. Matrix Spike Dup.:	19	19	20	62
Matrix Spike Duplicate % Recovery:	95	95	100	103
Relative % Difference:	0.0	0.0	5.1	1.6

SEQUOIA ANALYTICAL

Scott Cliff
OR Karen L. Enstrom
Project Manager

% Recovery:	$\frac{\text{Conc. of M.S.} - \text{Conc. of Sample}}{\text{Spike Conc. Added}} \times 100$
Relative % Difference:	$\frac{\text{Conc. of M.S.} - \text{Conc. of M.S.D.}}{(\text{Conc. of M.S.} + \text{Conc. of M.S.D.}) / 2} \times 100$

ARCO Facility no. 0608	City (Facility) San Lorenzo	Project manager (Consultant) Dan Landry	Laboratory name Sequoia
ARCO engineer Chuck Carneal	Telephone no. (ARCO) _____	Telephone no. (Consultant) 825-0855	Contract number _____
Consultant name Pacific Env. Group	Address (Consultant) 620 Contra Costa Blvd. #209 Pleasant Hill 94523		

Sample I.D.	Lab no.	Container no.	Matrix			Preservation		Sampling date	Sampling time	BTEX 602/EPA 8020	BTEX/TPH EPA 1600/8020/8015	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/SM1503E	EPA 801/8010	EPA 824/8240	EPA 825/8270	TCPL Metals <input type="checkbox"/> VOA <input type="checkbox"/> VOA <input type="checkbox"/> Semi <input type="checkbox"/>	CAM Metals EPA 801/8010 TLC <input type="checkbox"/> STLC <input type="checkbox"/>	Lead DTP/DHS <input type="checkbox"/> Lead EPA <input type="checkbox"/> 7420/7421 <input type="checkbox"/>	Method of shipment	
			Soil	Water	Other	Ice	Acid															
TB-1		2		X		X	HCl	8-18-92	—		X											2080 761AB
INFL		3		↓		↓			15:30		↓											762AC
EEFL		3		↓		↓			15:15		↓											763AC
DO NOT ANALYZE TB-1 as per Christine Middleton 8-19-92																						

Special detection Limit/reporting

Special QA/QC

Remarks
Trip blanks are from Sequoia Lab and marked 8-14-92 14120

Lab number

Turnaround time

Priority Rush 1 Business Day

Rush 2 Business Days

Expedited 5 Business Days

Standard 10 Business Days

Condition of sample:		Temperature received:	
Relinquished by sampler [Signature]	Date 8-19-92	Time 15:35	Received by [Signature]
Relinquished by	Date	Time	Received by
Relinquished by	Date	Time	Received by laboratory
			Date
			Time



SEQUOIA ANALYTICAL

1900 Bates Avenue • Suite LM • Concord, California 94520
(510) 686-9600 • FAX (510) 686-9689

Pacific Environmental Group 620 Contra Costa Blvd., #209 Pleasant Hill, CA 94523 Attention: Scott Pisel	Client Project ID: #608-91-5 / Arco #0608 / 330-06.12,	Sampled: Sep 15, 1992
	Sample Matrix: Water	Received: Sep 17, 1992
	Analysis Method: EPA 5030/8015/8020	Reported: Sep 24, 1992
	First Sample #: 209-0680	

TOTAL PURGEABLE PETROLEUM HYDROCARBONS with BTEX DISTINCTION

Analyte	Reporting Limit µg/L	Sample I.D. 209-0680 INFL	Sample I.D. 209-0681 EFFL
Purgeable Hydrocarbons	50	N.D.	N.D.
Benzene	0.5	N.D.	N.D.
Toluene	0.5	N.D.	N.D.
Ethyl Benzene	0.5	N.D.	N.D.
Total Xylenes	0.5	N.D.	N.D.
Chromatogram Pattern:		--	--

Quality Control Data

Report Limit Multiplication Factor:	1.0	1.0
Date Analyzed:	9/21/92	9/21/92
Instrument Identification:	HP-4	HP-4
Surrogate Recovery, %: (QC Limits = 70-130%)	103	101

Purgeable Hydrocarbons are quantitated against a fresh gasoline standard.
Analytes reported as N.D. were not detected above the stated reporting limit.

SEQUOIA ANALYTICAL

Karen L. Enstrom
Project Manager



SEQUOIA ANALYTICAL

1900 Bates Avenue • Suite LM • Concord, California 94520
(510) 686-9600 • FAX (510) 686-9689

Pacific Environmental Group
620 Contra Costa Blvd., #209
Pleasant Hill, CA 94523
Attention: Scott Pisel

Client Project ID: #608-91-5 / Arco #0608 / 330-06.12, San Lorenzo

QC Sample Group: 2090680-681

Reported: Sep 24, 1992

QUALITY CONTROL DATA REPORT

ANALYTE	Benzene	Toluene	Ethyl-Benzene	Xylenes
	Method:	EPA 8015/8020	EPA 8015/8020	EPA 8015/8020
Analyst:	J.F.	J.F.	J.F.	J.F.
Reporting Units:	µg/L	µg/L	µg/L	µg/L
Date Analyzed:	Sep 21, 1992	Sep 21, 1992	Sep 21, 1992	Sep 21, 1992
QC Sample #:	Matrix Blank	Matrix Blank	Matrix Blank	Matrix Blank
Sample Conc.:	N.D.	N.D.	N.D.	N.D.
Spike Conc. Added:	20	20	20	60
Conc. Matrix Spike:	21	20	20	64
Matrix Spike % Recovery:	105	100	100	106
Conc. Matrix Spike Dup.:	20	19	19	62
Matrix Spike Duplicate % Recovery:	100	95	95	103
Relative % Difference:	4.8	5.1	5.1	3.2

SEQUOIA ANALYTICAL

Karen L. Enstrom
Project Manager

% Recovery:	$\frac{\text{Conc. of M.S.} - \text{Conc. of Sample}}{\text{Spike Conc. Added}} \times 100$
Relative % Difference:	$\frac{\text{Conc. of M.S.} - \text{Conc. of M.S.D.}}{(\text{Conc. of M.S.} + \text{Conc. of M.S.D.}) / 2} \times 100$

FIELD REPORT

DEPTH TO WATER/SEPARATE-PHASE HYDROCARBON SURVEY

PROJECT No.: 330-06.12 LOCATION: San Lorenzo DATE: 8-18-92
 CLIENT/STATION NO.: Arco 0608 FIELD TECHNICIAN: SP DAY OF WEEK: Tuesday

PROBE TYPE/ID No.
 Oil/Water IF _____
 H₂O level Indicator # 0
 Other: _____

Dtw Order	Well ID	Time	Surface Seal	Lid Secure	Gasket	Lock	Expanding Cap	Total Depth (feet)	First Depth to Water (feet) TOB/TOC	Second Depth to Water (feet) TOB/TOC	SEPARATE-PHASE HYDROCARBONS (SPH)						LIQUID REMOVED (gallons) SPH / H ₂ O							
											SPH Depth (feet) TOB/TOC	SPH Thickness (feet)	Fresh	Weathered	Gas	Oil		VISCOSITY						
												COLOR												
												Light	Medium	Heavy										
3	MW-5	14:17						well probably dry 14'	13.61	13.61	—													
4	MW-7	14:19							14.79	14.79	—													
2	MW-8	14:15							13.83	13.83	—													
6	MW-9	14:25							12.89	12.89	—													
8	MW-10	14:29							13.03	13.03	—													
7	MW-11	14:27							13.72	13.72	—													
5	MW-13	14:22							16.15	16.15	—													
1	E-1A	14:00							23.73	23.73	—													

Comments: _____

FIELD DATA SHEET

WATER SAMPLE FIELD DATA SHEET

PROJECT No.: 330-06.15 LOCATION: San Lorenzo WELL ID #: MW-5

CLIENT/STATION No.: Arco 0608 FIELD TECHNICIAN: SP

WELL INFORMATION

Depth to Liquid: TOB TOC
 Depth to water: 13.83 TOB TOC
 Total depth: 14 TOB TOC
 Date: 9-15-92 Time (2400): 10:30

CASING

DIAMETER GAL/LINEAR FT.
 2 _____ 0.17
 3 _____ 0.38
 4 _____ 0.66
 4.5 _____ 0.83
 5 _____ 1.02
 6 _____ 1.5
 8 _____ 2.6

SAMPLE TYPE

Groundwater
 Duplicate
 Extraction well
 Trip blank
 Field blank
 Equipment blank
 Other; _____

Probe Type and I.D. #
 Oil/Water interface
 Electronic indicator # 0
 Other; _____

TD _____ - DTW _____ = _____ x Foot _____ = _____ x Casings _____ = Purge _____

DATE PURGED: _____ START: _____ END (2400 hr): _____ PURGED BY: _____
 DATE SAMPLED: _____ START: _____ END (2400 hr): _____ SAMPLED BY: _____

TIME (2400 hr)	VOLUME (gal.)	pH (units)	E.C. (umhos/cm @ 25°C)	TEMPERATURE (°F)	COLOR	TURBIDITY	ODOR
Well Dry							
Pumped dry Yes / No					Cobalt 0-100 Clear Cloudy Yellow Brown	NTU 0-200 Heavy Moderate Light Trace	Strong Moderate Faint None
FIELD MEASUREMENTS AT TIME OF SAMPLE, AFTER RECHARGE:							
DTW: _____ TOB/TOC _____							
PURGING EQUIPMENT/I.D. #				SAMPLING EQUIPMENT/I.D. #			
<input type="checkbox"/> Bailer: _____		<input type="checkbox"/> Airlift: _____		<input type="checkbox"/> Bailer: _____		<input type="checkbox"/> Airlift: _____	
<input type="checkbox"/> Centrifugal: _____		<input type="checkbox"/> Dedicated: _____		<input type="checkbox"/> Dedicated: _____		<input type="checkbox"/> Dedicated: _____	
<input type="checkbox"/> Other: _____		<input type="checkbox"/> Other: _____		<input type="checkbox"/> Other: _____		<input type="checkbox"/> Other: _____	

SAMPLE I.D.	DATE	TIME (2400)	No. of Cont.	SIZE	CONTAINER	PRESERVE	ANALYTICAL PARAMETER
Not Sampled							

WELL INTEGRITY: Good Fair Poor

REMARKS: _____

SIGNATURE: [Signature]



WATER SAMPLE FIELD DATA SHEET

PROJECT No.: 330-06.15 LOCATION: San Lorenzo WELL ID #: MW-7

CLIENT/STATION No.: 0608 Arco FIELD TECHNICIAN: SP

WELL INFORMATION

Depth to Liquid: TOB TOC
 Depth to water: 15.12 TOB TOC
 Total depth: 19 TOB TOC
 Date: 9-15-92 Time (2400): 10:22

Probe Type and I.D. #
 Oil/Water interface
 Electronic indicator # 0
 Other:

CASING

DIAMETER	GAL/LINEAR FT.
<input type="checkbox"/> 2	0.17
<input checked="" type="checkbox"/> 3	0.38
<input type="checkbox"/> 4	0.66
<input type="checkbox"/> 4.5	0.83
<input type="checkbox"/> 5	1.02
<input type="checkbox"/> 6	1.5
<input type="checkbox"/> 8	2.6

SAMPLE TYPE

Groundwater
 Duplicate
 Extraction well
 Trip blank
 Field blank
 Equipment blank
 Other:

TD 19 - DTW 15.12 = 3.88 Gal/Linear Foot 0.38 = 1.47 x Number of Casings 5 = Calculated Purge 7.37

DATE PURGED: 9-16-92 START: 13:59 END (2400 hr): 14:06 PURGED BY: SP
 DATE SAMPLED: 9-16-92 START: 14:10 END (2400 hr): SAMPLED BY: SP

TIME (2400 hr)	VOLUME (gal.)	pH (units)	E.C. (umhos/cm @ 25°C)	TEMPERATURE (°F)	COLOR	TURBIDITY	ODOR
<u>14:02</u>	<u>2.5</u>	<u>6.65</u>	<u>988</u>	<u>68.6</u>	<u>cloudy</u>	<u>light</u>	<u>none</u>
<u>14:04</u>	<u>5</u>	<u>6.85</u>	<u>984</u>	<u>68.5</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>
<u>14:06</u>	<u>7.5</u>	<u>6.87</u>	<u>981</u>	<u>68.5</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>

Pumped dry Yes / No

Cobalt 0-100
 Clear
 Cloudy
 Yellow
 Brown
 NTU 0-200
 Heavy
 Moderate
 Light
 Trace
 Strong
 Moderate
 Faint
 None

FIELD MEASUREMENTS AT TIME OF SAMPLE, AFTER RECHARGE:

DTW: TOB/TOC

PURGING EQUIPMENT/I.D. #

Bailor: 17-3 Airlift:
 Centrifugal: Dedicated:
 Other:

SAMPLING EQUIPMENT/I.D. #

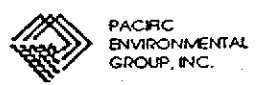
Bailor: 17-3 Dedicated:
 Other:

SAMPLE I.D.	DATE	TIME (2400)	No. of Cont.	SIZE	CONTAINER	PRESERVE	ANALYTICAL PARAMETER
<u>MW-7(18)</u>	<u>9-16-92</u>	<u>14:10</u>	<u>3</u>	<u>40</u>	<u>VCA</u>	<u>HCl</u>	<u>Gas/BTEX</u>

WELL INTEGRITY: Good Fair Poor

REMARKS:

SIGNATURE: *Paul R. [Signature]*



WATER SAMPLE FIELD DATA SHEET

PROJECT No.: 330-06.15 LOCATION: San Lorenzo WELL ID #: MW-8

CLIENT/STATION No.: 0608 Arco FIELD TECHNICIAN: SP

WELL INFORMATION

Depth to Liquid: _____ TOB _____ TOC _____
 Depth to water: 14.17 TOB _____ TOC _____
 Total depth: 21.8 TOB _____ TOC _____
 Date: 9-15-92 Time (2400): 10:25

Probe Type and I.D. #
 Oil/Water interface
 Electronic indicator # 0
 Other: _____

CASING

DIAMETER

2 _____
 3 _____
 4 _____
 4.5 _____
 5 _____
 6 _____
 8 _____

GAL/

LINEAR FT.

0.17
 0.38
 0.66
 0.83
 1.02
 1.5
 2.6

SAMPLE TYPE

Groundwater
 Duplicate
 Extraction well
 Trip blank
 Field blank
 Equipment blank
 Other: _____

TD 21.8 - DTW 14.17 = 7.63 Gal/Linear Foot 0.38 = 2.89 x Number of Casings 5 = Calculated Purge 14.49

DATE PURGED: 9-16-92 START: 15:08 END (2400 hr): 15:18 PURGED BY: SP

DATE SAMPLED: 9-16-92 START: 15:30 END (2400 hr): _____ SAMPLED BY: SP

TIME (2400 hr)	VOLUME (gal)	pH (units)	E.C. (umhos/cm @ 25°C)	TEMPERATURE (°F)	COLOR	TURBIDITY	ODOR
15:12	5	6.67	1010	68.8	Grey	Light	Strong
15:15	10	6.70	1006	68.6	↓	↓	↓
15:18	14.5	6.74	979	68.6	↓	↓	↓

Pumped dry Yes / No

Cobalt 0-100
 Clear
 Cloudy
 Yellow
 Brown

NTU 0-200
 Heavy
 Moderate
 Light
 Trace

Strong
 Moderate
 Faint
 None

FIELD MEASUREMENTS AT TIME OF SAMPLE, AFTER RECHARGE:

DTW: _____ TOB/TOC _____

PURGING EQUIPMENT/I.D. #

Bailer: _____
 Centrifugal: _____
 Other: _____
 Airlift: _____
 Dedicated: _____

SAMPLING EQUIPMENT/I.D. #

Bailer: 17-2
 Dedicated: _____
 Other: _____

SAMPLE I.D.	DATE	TIME (2400)	No. of Cont.	SIZE	CONTAINER	PRESERVE	ANALYTICAL PARAMETER
<u>MW-8(18)</u>	<u>9-16-92</u>	<u>15:30</u>	<u>3</u>	<u>40</u>	<u>UGA</u>	<u>HCl</u>	<u>Gas/BTEX</u>
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____

WELL INTEGRITY: Good Fair Poor

REMARKS: _____

SIGNATURE: _____

Paul Dink



PACIFIC ENVIRONMENTAL GROUP, INC.

WATER SAMPLE FIELD DATA SHEET

PROJECT No.: 330-06.15 LOCATION: San Lorenzo WELL ID #: MW-9

CLIENT/STATION No.: 0608 Arco FIELD TECHNICIAN: SP

WELL INFORMATION

Depth to Liquid: TOB TOC
 Depth to water: 13.28 TOB TOC
 Total depth: 18.6 TOB TOC
 Date: 9-15-92 Time (2400): 10:36

CASING

DIAMETER	GAL/ LINEAR FT.
<input type="checkbox"/> 2	0.17
<input checked="" type="checkbox"/> 3	0.38
<input type="checkbox"/> 4	0.66
<input type="checkbox"/> 4.5	0.83
<input type="checkbox"/> 5	1.02
<input type="checkbox"/> 6	1.5
<input type="checkbox"/> 8	2.6

SAMPLE TYPE

Groundwater
 Duplicate
 Extraction well
 Trip blank
 Field blank
 Equipment blank
 Other;

Probe Type Oil/Water interface
 and Electronic indicator # 0
 I.D. # Other;

TD 18.6 - DTW 13.28 = 5.32 Gal/Linear Foot 0.38 = 2.02 x Number of 5 Casings = Calculated = Purge 10.10

DATE PURGED: 9-16-92 START: 14:40 END (2400 hr): 14:50 PURGED BY: SP
 DATE SAMPLED: 9-16-92 START: 14:55 END (2400 hr): SAMPLED BY: SP

TIME (2400 hr)	VOLUME (gal.)	pH (units)	E.C. (umhos/cm @ 25°C)	TEMPERATURE (°F)	COLOR	TURBIDITY	ODOR
<u>14:44</u>	<u>3.5</u>	<u>6.74</u>	<u>996</u>	<u>68.3</u>	<u>Cloudy</u>	<u>light</u>	<u>none</u>
<u>14:47</u>	<u>7</u>	<u>6.62</u>	<u>998</u>	<u>68.5</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>
<u>14:50</u>	<u>10</u>	<u>6.59</u>	<u>1000</u>	<u>68.6</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>

Pumped dry Yes No

Cobak 0-100
 Clear
 Cloudy
 Yellow
 Brown
 NTU 0-200
 Heavy
 Moderate
 Light
 Trace
 Strong
 Moderate
 Faint
 None

FIELD MEASUREMENTS AT TIME OF SAMPLE, AFTER RECHARGE:

DTW: TOB/TOC

PURGING EQUIPMENT/I.D. #

Bailer: 17-1 Airlift:
 Centrifugal: Dedicated:
 Other:

SAMPLING EQUIPMENT/I.D. #

Bailer: 17-1
 Dedicated:
 Other:

SAMPLE I.D.	DATE	TIME (2400)	No. of Cont.	SIZE	CONTAINER	PRESERVE	ANALYTICAL PARAMETER
<u>110-9(17)</u>	<u>9-16-92</u>	<u>14:55</u>	<u>3</u>	<u>40</u>	<u>UCA</u>	<u>HCl</u>	<u>Gas/BTEX</u>

WELL INTEGRITY: Good Fair Poor

REMARKS:

SIGNATURE: [Signature]



WATER-SAMPLE FIELD DATA SHEET

PROJECT No.: 330-06.15 LOCATION: San Lorenzo WELL ID #: MW-10
 CLIENT/STATION No.: 0608 Arco FIELD TECHNICIAN: SP

WELL INFORMATION

Depth to Liquid: TOB TOC
 Depth to water: 13.42 TOB TOC
 Total depth: 23 TOB TOC
 Date: 9-15-92 Time (2400): 10:08

Probe Type and I.D. #
 Oil/Water interface
 Electronic indicator # 0
 Other;

CASING DIAMETER

2 _____ 0.17
 3 _____ 0.38
 4 _____ 0.66
 4.5 _____ 0.83
 5 _____ 1.02
 6 _____ 1.5
 8 _____ 2.6

GAL/LINEAR FT.

SAMPLE TYPE

Groundwater
 Duplicate
 Extraction well
 Trip blank
 Field blank
 Equipment blank
 Other;

TD 23 - DTW 13.42 = 9.58 Gal/Linear Foot 0.38 = 3.64 x Number of Casings 5 = Calculated Purge 18.2

DATE PURGED: 9-16-92 START: 10:40 END (2400 hr): 10:52 PURGED BY: SP
 DATE SAMPLED: 9-16-92 START: 11:00 END (2400 hr): _____ SAMPLED BY: SP

TIME (2400 hr)	VOLUME (gal.)	pH (units)	E.C. (umhos/cm @ 25°C)	TEMPERATURE (°F)	COLOR	TURBIDITY	ODOR
10:44	6	6.81	1062	68.2	cloudy	light	strong
10:48	12	6.71	1052	68.0	↓	↓	↓
10:52	18	6.69	1042	68.0	↓	↓	↓

Pumped dry Yes / No

Cobalt 0-100: Clear, Cloudy, Yellow, Brown
 NTU 0-200: Heavy, Moderate, Light, Trace
 Strong, Moderate, Faint, None

FIELD MEASUREMENTS AT TIME OF SAMPLE, AFTER RECHARGE:

DTW: _____ TOB/TOC _____

PURGING EQUIPMENT/I.D. #

Bailer: _____ Airlift: _____
 Centrifugal: _____ Dedicated: _____
 Other: _____

SAMPLING EQUIPMENT/I.D. #

Bailer: 17-7
 Dedicated: _____
 Other: _____

SAMPLE I.D.	DATE	TIME (2400)	No. of Cont.	SIZE	CONTAINER	PRESERVE	ANALYTICAL PARAMETER
<u>MW-10(18)</u>	<u>9-16-92</u>	<u>11:00</u>	<u>3</u>	<u>40</u>	<u>UCA</u>	<u>HCl</u>	<u>Gas/BTEX</u>

WELL INTEGRITY: Good Fair Poor

REMARKS: _____

SIGNATURE: [Signature]

WATER SAMPLE FIELD DATA SHEET

PROJECT No.: 330-06.15 LOCATION: San Lorenzo WELL ID #: MW-11

CLIENT/STATION No.: 0608 Arco FIELD TECHNICIAN: SP

WELL INFORMATION

Depth to Liquid: TOB TOC
 Depth to water: 14.13 TOB TOC
 Total depth: 19.1 TOB TOC
 Date: 9-15-92 Time (2400): 10:17

CASING DIAMETER GAL/LINEAR FT.

- 2 _____ 0.17
- 3 _____ 0.38
- 4 _____ 0.66
- 4.5 _____ 0.83
- 5 _____ 1.02
- 6 _____ 1.5
- 8 _____ 2.6

SAMPLE TYPE

- Groundwater
- Duplicate
- Extraction well
- Trip blank
- Field blank
- Equipment blank
- Other;

Probe Type and I.D. #
 Oil/Water interface
 Electronic indicator # 0
 Other;

TD 19.1 - DTW 14.13 = 4.97 Gal/Linear Foot 0.38 = 1.87 x Casings 5 = Calculated Purge 9.38

DATE PURGED: 9-16-92 START: 12:10 END (2400 hr): 12:17 PURGED BY: SP
 DATE SAMPLED: 9-16-92 START: 12:25 END (2400 hr): ✓ SAMPLED BY: SP

TIME (2400 hr)	VOLUME (gal.)	pH (units)	E.C. (umhos/cm @ 25°C)	TEMPERATURE (°F)	COLOR	TURBIDITY	ODOR
<u>12:12</u>	<u>3</u>	<u>6.78</u>	<u>993</u>	<u>66.9</u>	<u>Cloudy</u>	<u>light</u>	<u>none</u>
<u>12:15</u>	<u>6</u>	<u>6.73</u>	<u>989</u>	<u>66.7</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>
<u>12:17</u>	<u>9.5</u>	<u>6.68</u>	<u>985</u>	<u>66.5</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>

Pumped dry Yes/No (No)

Cobalt 0-100
 Clear
 Cloudy
 Yellow
 Brown
 NTU 0-200
 Heavy
 Moderate
 Light
 Trace
 Strong
 Moderate
 Faint
 None

FIELD MEASUREMENTS AT TIME OF SAMPLE, AFTER RECHARGE:

DTW: _____ TOB/TOC _____

PURGING EQUIPMENT/I.D. #

- Bailer: 17-6 Airlift: _____
- Centrifugal: _____ Dedicated: _____
- Other: _____

SAMPLING EQUIPMENT/I.D. #

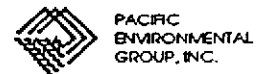
- Bailer: 17-6
- Dedicated: _____
- Other: _____

SAMPLE I.D.	DATE	TIME (2400)	No. of Cont.	SIZE	CONTAINER	PRESERVE	ANALYTICAL PARAMETER
<u>MW-11 (17)</u>	<u>9-16-92</u>	<u>12:25</u>	<u>3</u>	<u>40</u>	<u>UCA</u>	<u>HCl</u>	<u>Gas/BTEX</u>
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____

WELL INTEGRITY: Good Fair Poor

REMARKS: _____

SIGNATURE: [Signature]



WATER SAMPLE FIELD DATA SHEET

PROJECT No.: 330-06.15 LOCATION: San Lorenzo WELL ID #: MW-13

CLIENT/STATION No.: 0608 Arco FIELD TECHNICIAN: SP

WELL INFORMATION

Depth to Liquid: TOB TOC
 Depth to water: 16.51 TOB TOC
 Total depth: 23.4 TOB TOC
 Date: 9-15-92 Time (2400): 10:18

Probe Type and I.D. #
 Oil/Water interface
 Electronic indicator # 0
 Other:

CASING
DIAMETER
 2
 3
 4
 4.5
 5
 6
 8

GAL/
LINEAR FT.
 0.17
 0.38
 0.66
 0.83
 1.02
 1.5
 2.6

SAMPLE TYPE
 Groundwater
 Duplicate
 Extraction well
 Trip blank
 Field blank
 Equipment blank
 Other:

TD 23.4 - DTW 16.51 = 6.89 Gal/Linear x Foot 0.38 = 2.61 x Number of 5 Casings = Calculated = Purge 13.09

DATE PURGED: 9-16-92 START: 14:15 END (2400 hr): 14:26 PURGED BY: SP
 DATE SAMPLED: 9-16-92 START: 14:30 END (2400 hr): SAMPLED BY: SP

TIME (2400 hr)	VOLUME (gal.)	pH (units)	E.C. (umhos/cm @ 2.5°C)	TEMPERATURE (°F)	COLOR	TURBIDITY	ODOR
<u>14:18</u>	<u>4.5</u>	<u>6.93</u>	<u>1004</u>	<u>67.7</u>	<u>Cloudy</u>	<u>light</u>	<u>none</u>
<u>14:22</u>	<u>9</u>	<u>6.75</u>	<u>1005</u>	<u>67.6</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>
<u>14:26</u>	<u>13</u>	<u>6.71</u>	<u>1007</u>	<u>67.5</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>

Pumped dry Yes / (No)

Cobalt 0-100
 Clear
 Cloudy
 Yellow
 Brown
 NTU 0-200
 Heavy
 Moderate
 Light
 Trace
 Strong
 Moderate
 Faint
 None

FIELD MEASUREMENTS AT TIME OF SAMPLE, AFTER RECHARGE:

DTW: TOB/TOC

PURGING EQUIPMENT/I.D. #

Bailer: 17-5 Airlift:
 Centrifugal: Dedicated:
 Other:

SAMPLING EQUIPMENT/I.D. #

Bailer: 17-5
 Dedicated:
 Other:

SAMPLE I.D.	DATE	TIME (2400)	No. of Cont.	SIZE	CONTAINER	PRESERVE	ANALYTICAL PARAMETER
<u>MW13(80)</u>	<u>9-16-92</u>	<u>14:30</u>	<u>3</u>	<u>40</u>	<u>VOA</u>	<u>HCl</u>	<u>Gas/BTEX</u>

WELL INTEGRITY: Good Fair Poor

REMARKS:

SIGNATURE:



WATER SAMPLE FIELD DATA SHEET

PROJECT No.: 330-06.15 LOCATION: San Lorenzo WELL ID #: MW-14

CLIENT/STATION No.: 0608 Arco FIELD TECHNICIAN: SP

WELL INFORMATION

Depth to Liquid: _____ TOB _____ TOC _____
 Depth to water: 12.27 TOB _____ TOC _____
 Total depth: 23.1 TOB _____ TOC _____
 Date: 9-15-92 Time (2400): 10:05

Probe Type and I.D. #
 Oil/Water interface
 Electronic indicator # 0
 Other; _____

CASING DIAMETER

2 _____ 0.17
 3 _____ 0.38
 4 _____ 0.66
 4.5 _____ 0.83
 5 _____ 1.02
 6 _____ 1.5
 8 _____ 2.6

GAL/LINEAR FT.

SAMPLE TYPE
 Groundwater
 Duplicate
 Extraction well
 Trip blank
 Field blank
 Equipment blank
 Other; _____

TD 23.1 - DTW 12.27 = 10.83 Gal/Linear Foot 0.38 = 4.11 x Casings 5 = Purge 20.5

DATE PURGED: 9-16-92 START: 9:10 END (2400 hr): 9:22 PURGED BY: SP
 DATE SAMPLED: 9-16-92 START: 9:30 END (2400 hr): _____ SAMPLED BY: SP

TIME (2400 hr)	VOLUME (gal.)	pH (units)	E.C. (umhos/cm @ 25°C)	TEMPERATURE (°F)	COLOR	TURBIDITY	ODOR
9:14	7	7.06	921	67.9	cloudy	cloudy	slight
9:18	14	7.05	936	67.6	clear	trace	✓
9:22	20.5	7.05	950	67.4	↓	↓	✓

Pumped dry Yes / No

Cobalt 0-100
 Clear
 Cloudy
 Yellow
 Brown
 NTU 0-200
 Heavy
 Moderate
 Light
 Trace
 Strong
 Moderate
 Faint
 None

FIELD MEASUREMENTS AT TIME OF SAMPLE, AFTER RECHARGE:

DTW: _____ TOB/TOC _____

PURGING EQUIPMENT/I.D. #

Bailer: _____
 Centrifugal: _____
 Other: _____
 Airlift: _____
 Dedicated: _____

SAMPLING EQUIPMENT/I.D. #

Bailer: 17-9
 Dedicated: _____
 Other: _____

SAMPLE I.D.	DATE	TIME (2400)	No. of Cont.	SIZE	CONTAINER	PRESERVE	ANALYTICAL PARAMETER
<u>MW-14 (16)</u>	<u>9-16-92</u>	<u>9:30</u>	<u>3</u>	<u>40</u>	<u>UGA</u>	<u>HCl</u>	<u>Gas/BTEX</u>
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____

WELL INTEGRITY: Good Fair Poor

REMARKS: _____

SIGNATURE: [Signature]



PACIFIC ENVIRONMENTAL GROUP, INC.

WATER SAMPLE FIELD DATA SHEET

PROJECT No.: 330-06.15 LOCATION: San Lorenzo WELL ID #: MW-15

CLIENT/STATION No.: 0608 Arco FIELD TECHNICIAN: SP

WELL INFORMATION

Depth to Liquid: ✓ TOB ✓ TOC
 Depth to water: 13.69 TOB ✓ TOC
 Total depth: 23.6 TOB ✓ TOC
 Date: 9-15-92 Time (2400): 9:49

CASING DIAMETER

- 2 _____ 0.17
- 3 _____ 0.38
- 4 _____ 0.66
- 4.5 _____ 0.83
- 5 _____ 1.02
- 6 _____ 1.5
- 8 _____ 2.6

GAL/ LINEAR FT.

SAMPLE TYPE

- Groundwater
- Duplicate
- Extraction well
- Trip blank
- Field blank
- Equipment blank
- Other;

Probe Type and I.D. #
 Oil/Water interface
 Electronic indicator # 0
 Other;

TD 23.6 - DTW 13.69 = 9.91 Gal/Linear Foot 0.38 = 3.76 Number of Casings 5 Calculated Purge 18.8

DATE PURGED: 9-16-92 START: 8:36 END (2400 hr): 8:47 PURGED BY: SP
 DATE SAMPLED: 9-16-92 START: 8:55 END (2400 hr): _____ SAMPLED BY: SP

TIME (2400 hr)	VOLUME (gal.)	pH (units)	E.C. (umhos/cm @ 25°C)	TEMPERATURE (°F)	COLOR	TURBIDITY	ODOR
<u>8:40</u>	<u>6.5</u>	<u>6.77</u>	<u>1051</u>	<u>66.1</u>	<u>cloudy</u>	<u>light</u>	<u>strong</u>
<u>8:44</u>	<u>12.5</u>	<u>6.77</u>	<u>1058</u>	<u>65.5</u>	<u>clear</u>	<u>trace</u>	<u>↓</u>
<u>8:47</u>	<u>19</u>	<u>6.76</u>	<u>1060</u>	<u>65.3</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>

Pumped dry Yes / No

Cobalt 0-100: Clear, Cloudy, Yellow, Brown
 NTU 0-200: Heavy, Moderate, Light, Trace
 Strong, Moderate, Faint, None

FIELD MEASUREMENTS AT TIME OF SAMPLE, AFTER RECHARGE:

DTW: _____ TOB/TOC _____

PURGING EQUIPMENT/I.D. #

- Bailer: _____
- Centrifugal: _____
- Other: _____
- Airlift: _____
- Dedicated: _____

SAMPLING EQUIPMENT/I.D. #

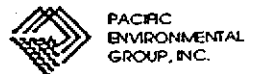
- Bailer: 17-2
- Dedicated: _____
- Other: _____

SAMPLE I.D.	DATE	TIME (2400)	No. of Cont.	SIZE	CONTAINER	PRESERVE	ANALYTICAL PARAMETER
<u>MW-15 (18)</u>	<u>9-16-92</u>	<u>8:55</u>	<u>3</u>	<u>40</u>	<u>UGA</u>	<u>HCl</u>	<u>Gas/BTEX</u>
_____	_____	_____	_____	_____	_____	_____	_____

WELL INTEGRITY: Good Fair Poor

REMARKS: _____

SIGNATURE: [Signature]



WATER SAMPLE FIELD DATA SHEET

PROJECT No.: 330-06.15 LOCATION: San Lorenzo WELL ID #: HW-16

CLIENT/STATION No.: 0608 Arco FIELD TECHNICIAN: SP

WELL INFORMATION

Depth to Liquid: TOB TOC
 Depth to water: 14.07 TOB TOC
 Total depth: 22.6 TOB TOC
 Date: 9-15-92 Time (2400): 9:43

Probe Type and I.D. #
 Oil/Water interface
 Electronic indicator # 0
 Other;

CASING DIAMETER

2 _____ 0.17
 3 _____ 0.38
 4 _____ 0.66
 4.5 _____ 0.83
 5 _____ 1.02
 6 _____ 1.5
 8 _____ 2.6

GAL/LINEAR FT.

SAMPLE TYPE
 Groundwater
 Duplicate
 Extraction well
 Trip blank
 Field blank
 Equipment blank
 Other;

TD 22.6 - DTW 14.07 = 8.53 Gal/Linear Foot 0.38 = 3.24 x Number of Casings 5 = Calculated Purge 16.2

DATE PURGED: 9-16-92 START: 10:05 END (2400 hr): 10:14 PURGED BY: SP
 DATE SAMPLED: 9-16-92 START: 10:20 END (2400 hr): _____ SAMPLED BY: SP

0:05
0:11
0:14

TIME (2400 hr)	VOLUME (gal.)	pH (units)	E.C. (umhos/cm @ 25°C)	TEMPERATURE (°F)	COLOR	TURBIDITY	ODOR
<u>9:08 SP</u>	<u>5.5</u>	<u>6.94</u>	<u>963</u>	<u>66.7</u>	<u>cloudy</u>	<u>light</u>	<u>strong</u>
<u>9:11 SP</u>	<u>11</u>	<u>6.93</u>	<u>962</u>	<u>66.7</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>
<u>9:14 SP</u>	<u>16.5</u>	<u>6.93</u>	<u>961</u>	<u>66.7</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>

Pumped dry Yes / No

Cobek 0-100
Clear
Cloudy
Yellow
Brown
 NTU 0-200
Heavy
Moderate
Light
Trace
 Strong
Moderate
Faint
None

FIELD MEASUREMENTS AT TIME OF SAMPLE, AFTER RECHARGE:

DTW: _____ TOB/TOC _____

PURGING EQUIPMENT/I.D. #

Bailer: _____
 Centrifugal: _____
 Other: _____
 Airlift: _____
 Dedicated: _____

SAMPLING EQUIPMENT/I.D. #

Bailer: 17-3
 Dedicated: _____
 Other: _____

SAMPLE I.D.	DATE	TIME (2400)	No. of Cont.	SIZE	CONTAINER	PRESERVE	ANALYTICAL PARAMETER
<u>HW-16(17)</u>	<u>9-16-92</u>	<u>10:20</u>	<u>3</u>	<u>40</u>	<u>UCA</u>	<u>HCl</u>	<u>Gas/BTEX</u>
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____

WELL INTEGRITY: Good Fair Poor

REMARKS: _____

SIGNATURE: [Signature]



WATER SAMPLE FIELD DATA SHEET

PROJECT No.: 330-06.15 LOCATION: San Lorenzo WELL ID #: MW-17

CLIENT/STATION No.: 0608 Arco FIELD TECHNICIAN: SP

WELL INFORMATION

Depth to Liquid: TOB TOC
 Depth to water: 14.95 TOB TOC
 Total depth: 23.6 TOB TOC
 Date: 9-15-92 Time (2400): 10:00

Probe Type and I.D. #
 Oil/Water interface
 Electronic indicator # 0
 Other:

CASING

DIAMETER **GAL/**
LINEAR FT.
 2 _____ 0.17
 3 _____ 0.38
 4 _____ 0.66
 4.5 _____ 0.83
 5 _____ 1.02
 6 _____ 1.5
 8 _____ 2.6

SAMPLE TYPE

Groundwater
 Duplicate
 Extraction well
 Trip blank
 Field blank
 Equipment blank
 Other:

TD 23.6 - DTW 14.95 = 8.65 Gal/Linear Foot 0.38 = 3.28 x Number of Casings 5 = Calculated Purge 16.4

DATE PURGED: 9-16-92 START: 8:04 END (2400 hr): 8:13 PURGED BY: SP

DATE SAMPLED: 9-16-92 START: 8:20 END (2400 hr): SAMPLED BY: SP

TIME (2400 hr)	VOLUME (gal.)	pH (units)	E.C. (umhos/cm @ 25°C)	TEMPERATURE (°F)	COLOR	TURBIDITY	ODOR
8:07	5.5	6.59	910	65.4	cloudy	light	Med
8:10	11	6.62	931	64.9	clear	trace	↓
8:13	16.5	6.64	936	64.7	↓		↓

Pumped dry Yes / No

Cobek 0-100
 Clear
 Cloudy
 Yellow
 Brown
 NTU 0-200
 Heavy
 Moderate
 Light
 Trace
 Strong
 Moderate
 Faint
 None

FIELD MEASUREMENTS AT TIME OF SAMPLE, AFTER RECHARGE:

DTW: TOB/TOC

PURGING EQUIPMENT/I.D. #

Bailer: Airlift:
 Centrifugal: Dedicated:
 Other:

SAMPLING EQUIPMENT/I.D. #

Bailer: 17-1
 Dedicated:
 Other:

SAMPLE I.D.	DATE	TIME (2400)	No. of Cont.	SIZE	CONTAINER	PRESERVE	ANALYTICAL PARAMETER
MW-17(A)	9-16-92	8:20	3	40	UGA	HCl	Gas/BTEX

WELL INTEGRITY: Good Fair Poor

REMARKS:

SIGNATURE:

Scott Birk



PACIFIC ENVIRONMENTAL GROUP, INC.

WATER SAMPLE FIELD DATA SHEET

FIELD DATA SHEET

PROJECT No.: 330-06.15 LOCATION: San Lorenzo WELL ID #: MW-18

CLIENT/STATION No.: 0608 Arco FIELD TECHNICIAN: SP

WELL INFORMATION

Depth to Liquid: _____ TOB _____ TOC _____
 Depth to water: 12.90 TOB _____ TOC _____
 Total depth: 21.8 TOB _____ TOC _____
 Date: 9-15-92 Time (2400): 9:38

CASING

DIAMETER GAL/LINEAR FT.
 2 _____ 0.17
 3 _____ 0.38
 4 _____ 0.66
 4.5 _____ 0.83
 5 _____ 1.02
 6 _____ 1.5
 8 _____ 2.6

SAMPLE TYPE

Groundwater
 Duplicate
 Extraction well
 Trip blank
 Field blank
 Equipment blank
 Other; _____

Probe Type and I.D. #
 Oil/Water interface
 Electronic indicator # 0
 Other; _____

TD 21.8 - DTW 12.90 = 8.90 Gal/Linear Foot 0.38 = 3.38 x Casings 5 = Purge 16.91

DATE PURGED: 9-15-92 START: 14:05 END (2400 hr): 14:14 PURGED BY: SP
 DATE SAMPLED: 9-15-92 START: 14:20 END (2400 hr): _____ SAMPLED BY: SP

TIME (2400 hr)	VOLUME (gal.)	pH (units)	E.C. (umhos/cm @ 25°C)	TEMPERATURE (°F)	COLOR	TURBIDITY	ODOR
<u>14:08</u>	<u>6</u>	<u>6.14</u>	<u>983</u>	<u>66.4</u>	<u>cloudy</u>	<u>light</u>	<u>none</u>
<u>14:11</u>	<u>11.5</u>	<u>6.18</u>	<u>992</u>	<u>66.8</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>
<u>14:14</u>	<u>17</u>	<u>6.19</u>	<u>995</u>	<u>66.8</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>

Pumped dry Yes / No

Cobalt 0-100: Clear, Cloudy, Yellow, Brown
 NTU 0-200: Heavy, Moderate, Light, Trace
 Strong, Moderate, Faint, None

FIELD MEASUREMENTS AT TIME OF SAMPLE, AFTER RECHARGE:

DTW: _____ TOB/TOC _____

PURGING EQUIPMENT/I.D. #

Bailer: _____
 Centrifugal: 5
 Other: _____
 Airlift: _____
 Dedicated: _____

SAMPLING EQUIPMENT/I.D. #

Bailer: 17-2
 Dedicated: _____
 Other: _____

SAMPLE I.D.	DATE	TIME (2400)	No. of Cont.	SIZE	CONTAINER	PRESERVE	ANALYTICAL PARAMETER
<u>MW-18(17)</u>	<u>9-15-92</u>	<u>14:20</u>	<u>3</u>	<u>40</u>	<u>UGA</u>	<u>HCL</u>	<u>GAS/BTEX</u>
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____

WELL INTEGRITY: Good Fair Poor

REMARKS: _____

SIGNATURE: _____

SP



PACIFIC ENVIRONMENTAL GROUP, INC.

WATER SAMPLE FIELD DATA SHEET

FIELD DATA SHEET

PROJECT No.: 330-06.15 LOCATION: San Lorenzo WELL ID #: MW-19

CLIENT/STATION No.: 0608 Arco FIELD TECHNICIAN: SP

WELL INFORMATION

Depth to Liquid: TOB TOC
 Depth to water: 12.38 TOB TOC
 Total depth: 21.65 TOB TOC
 Date: 9-15-92 Time (2400): 9:36

CASING

DIAMETER

2 _____ 0.17
 3 _____ 0.38
 4 _____ 0.66
 4.5 _____ 0.83
 5 _____ 1.02
 6 _____ 1.5
 8 _____ 2.6

GAL/

LINEAR FT.

SAMPLE TYPE

Groundwater
 Duplicate
 Extraction well
 Trip blank
 Field blank
 Equipment blank
 Other; _____

Probe Type and I.D. #
 Oil/Water interface
 Electronic indicator # 0
 Other; _____

TD 21.65 - DTW 12.38 = 9.27 Gal/Linear Foot 0.38 = 3.5 x Casings 5 = Purge 17.6

DATE PURGED: 9-15-92 START: 13:39 END (2400 hr): 13:48 PURGED BY: SP

DATE SAMPLED: 9-15-92 START: 13:55 END (2400 hr): _____ SAMPLED BY: SP

TIME (2400 hr)	VOLUME (gal.)	pH (units)	E.C. (umhos/cm @ 25°C)	TEMPERATURE (°F)	COLOR	TURBIDITY	ODOR
<u>13:42</u>	<u>6</u>	<u>6.56</u>	<u>1023</u>	<u>65.8</u>	<u>cloudy</u>	<u>light</u>	<u>none</u>
<u>13:44</u>	<u>12</u>	<u>6.61</u>	<u>1020</u>	<u>65.2</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>
<u>13:48</u>	<u>17.5</u>	<u>6.61</u>	<u>1020</u>	<u>65.0</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>

Pumped dry Yes No

Cobalt 0-100
 Clear
 Cloudy
 Yellow
 Brown

NTU 0-200
 Heavy
 Moderate
 Light
 Trace

Strong
 Moderate
 Faint
 None

FIELD MEASUREMENTS AT TIME OF SAMPLE, AFTER RECHARGE:

DTW: _____ TOB/TOC _____

PURGING EQUIPMENT/I.D. #

Bailer: _____
 Centrifugal: _____
 Other: _____
 Airlift: _____
 Dedicated: _____

SAMPLING EQUIPMENT/I.D. #

Bailer: 17-3
 Dedicated: _____
 Other: _____

SAMPLE I.D.	DATE	TIME (2400)	No. of Cont.	SIZE	CONTAINER	PRESERVE	ANALYTICAL PARAMETER
<u>MW-19 (16)</u>	<u>9-15-92</u>	<u>13:55</u>	<u>3</u>	<u>40</u>	<u>UCA</u>	<u>HCl</u>	<u>Gas/BTEX</u>

WELL INTEGRITY: Good Fair Poor

REMARKS: _____

SIGNATURE: [Signature]



PACIFIC ENVIRONMENTAL GROUP, INC.

WATER SAMPLE FIELD DATA SHEET

PROJECT No.: 330-06.15 LOCATION: San Lorenzo WELL ID #: MW-20

CLIENT/STATION No.: 0608 Arco FIELD TECHNICIAN: SP

WELL INFORMATION

Depth to Liquid: _____ TOB _____ TOC _____
 Depth to water: 12.50 TOB _____ TOC _____
 Total depth: 22 TOB _____ TOC _____
 Date: 9-15-92 Time (2400): 9:37

Probe Type and I.D. #
 Oil/Water interface
 Electronic indicator # 0
 Other: _____

CASING

DIAMETER LINEAR FT.
 2 _____ 0.17
 3 _____ 0.38
 4 _____ 0.66
 4.5 _____ 0.83
 5 _____ 1.02
 6 _____ 1.5
 8 _____ 2.6

SAMPLE TYPE

Groundwater
 Duplicate
 Extraction well
 Trip blank
 Field blank
 Equipment blank
 Other: _____

TD 22 - DTW 12.50 = 9.50 Gal/Linear Foot 0.38 = 3.61 x Number of Casings 5 = Calculated Purge 18

DATE PURGED: 9-15-92 START: 12:40 END (2400 hr): 12:47 PURGED BY: SP
 DATE SAMPLED: 9-15-92 START: 12:55 END (2400 hr): _____ SAMPLED BY: SP

TIME (2400 hr)	VOLUME (gal.)	pH (units)	E.C. (umhos/cm @ 25°C)	TEMPERATURE (°F)	COLOR	TURBIDITY	ODOR
<u>12:42</u>	<u>6</u>	<u>6.70</u>	<u>948</u>	<u>64.9</u>	<u>cloudy</u>	<u>light</u>	<u>none</u>
<u>12:45</u>	<u>12</u>	<u>6.69</u>	<u>956</u>	<u>64.6</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>
<u>12:47</u>	<u>18</u>	<u>6.69</u>	<u>960</u>	<u>64.6</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>

Pumped dry Yes / No

Cobalt 0-100: Clear, Cloudy, Yellow, Brown
 NTU 0-200: Heavy, Moderate, Light, Trace
 Strong, Moderate, Faint, None

FIELD MEASUREMENTS AT TIME OF SAMPLE, AFTER RECHARGE:

DTW: _____ TOB/TOC _____

PURGING EQUIPMENT/I.D. #

Bailer: _____
 Centrifugal: _____
 Other: _____

SAMPLING EQUIPMENT/I.D. #

Bailer: 17-4
 Dedicated: _____
 Other: _____

SAMPLE I.D.	DATE	TIME (2400)	No. of Cont.	SIZE	CONTAINER	PRESERVE	ANALYTICAL PARAMETER
<u>MW-20(16)</u>	<u>9-15-92</u>	<u>12:55</u>	<u>3</u>	<u>40</u>	<u>UGA</u>	<u>HCl</u>	<u>Gas/BTEX</u>

WELL INTEGRITY: Good Fair Poor

REMARKS: _____

SIGNATURE: Scott Lisle



WATER SAMPLE FIELD DATA SHEET

PROJECT No.: 330-06.15 LOCATION: San Lorenzo WELL ID #: MW-21

CLIENT/STATION No.: 0608 Arco FIELD TECHNICIAN: SP

WELL INFORMATION

Depth to Liquid: TOB TOC
 Depth to water: 12.78 TOB TOC
 Total depth: 22 TOB TOC
 Date: 9-15-92 Time (2400): 9:28

CASING
DIAMETER **GAL/**
LINEAR FT.

<input type="checkbox"/>	<u>2</u>	<u> </u>	<u>0.17</u>
<input checked="" type="checkbox"/>	<u>3</u>	<u> </u>	<u>0.38</u>
<input type="checkbox"/>	<u>4</u>	<u> </u>	<u>0.66</u>
<input type="checkbox"/>	<u>4.5</u>	<u> </u>	<u>0.83</u>
<input type="checkbox"/>	<u>5</u>	<u> </u>	<u>1.02</u>
<input type="checkbox"/>	<u>6</u>	<u> </u>	<u>1.5</u>
<input type="checkbox"/>	<u>8</u>	<u> </u>	<u>2.6</u>

SAMPLE TYPE

- Groundwater
- Duplicate
- Extraction well
- Trip blank
- Field blank
- Equipment blank
- Other:

Probe Type and I.D. #

- Oil/Water interface
- Electronic indicator # 0
- Other:

TD 22 - DTW 12.78 = 9.22 Gal/Linear Foot 0.38 = 3.50 x Number of 5 Casings = Calculated Purge 17.5

DATE PURGED: 9-15-92 START: 12:20 END (2400 hr): 12:28 PURGED BY: SP
 DATE SAMPLED: 9-15-92 START: 12:35 END (2400 hr): SAMPLED BY: SP

TIME (2400 hr)	VOLUME (gal.)	pH (units)	E.C. (umhos/cm @ 25°C)	TEMPERATURE (°F)	COLOR	TURBIDITY	ODOR
<u>12:22</u>	<u>6</u>	<u>6.60</u>	<u>967</u>	<u>65.2</u>	<u>Cloudy</u>	<u>light</u>	<u>None</u>
<u>12:25</u>	<u>12</u>	<u>6.59</u>	<u>980</u>	<u>64.8</u>	<u>Clear</u>	<u>trace</u>	<u>↓</u>
<u>12:28</u>	<u>17.5</u>	<u>6.59</u>	<u>983</u>	<u>64.9</u>	<u>↓</u>	<u>↓</u>	<u>↓</u>

Pumped dry Yes / No

Cobalt 0-100	NTU 0-200	Strong
Clear	Heavy	Moderate
Cloudy	Moderate	Faint
Yellow	Light	None
Brown	Trace	

FIELD MEASUREMENTS AT TIME OF SAMPLE, AFTER RECHARGE:

DTW: TOB/TOC

PURGING EQUIPMENT/I.D. #

- Bailer:
- Centrifugal:
- Other:
- Airlift:
- Dedicated:

SAMPLING EQUIPMENT/I.D. #

- Bailer: 17-5
- Dedicated:
- Other:

SAMPLE I.D.	DATE	TIME (2400)	No. of Cont.	SIZE	CONTAINER	PRESERVE	ANALYTICAL PARAMETER
<u>MW-21(16)</u>	<u>9-15-92</u>	<u>12:35</u>	<u>3</u>	<u>40</u>	<u>VOA</u>	<u>HCl</u>	<u>Gas/BTEX</u>

WELL INTEGRITY: Good Fair Poor

REMARKS:

SIGNATURE: *[Signature]*



WATER SAMPLE FIELD DATA SHEET

PROJECT No.: 330-06.15 LOCATION: San Lorenzo WELL ID #: MW-22

CLIENT/STATION No.: 0608 Arco FIELD TECHNICIAN: SP

WELL INFORMATION

Depth to Liquid: TOB TOB TOC
 Depth to water: 13.27 TOB TOC
 Total depth: 21.75 TOB TOC
 Date: 9-15-92 Time (2400): 9:24

CASING

DIAMETER **GAL/LINEAR FT.**

2 _____ 0.17
 3 _____ 0.38
 4 _____ 0.66
 4.5 _____ 0.83
 5 _____ 1.02
 6 _____ 1.5
 8 _____ 2.6

SAMPLE TYPE

Groundwater
 Duplicate
 Extraction well
 Trip blank
 Field blank
 Equipment blank
 Other;

Probe Type and I.D. #
 Oil/Water interface
 Electronic indicator # 0
 Other;

TD 21.75 - DTW ^{13.27} ~~13.25~~ = 8.48 Gal/Linear Foot 0.38 = 3.22 x Number of Casings 5 = Calculated Purge 16.11

DATE PURGED: 9-15-92 START: 12:00 END (2400 hr): 12:07 PURGED BY: SP

DATE SAMPLED: 9-15-92 START: 12:15 END (2400 hr): _____ SAMPLED BY: SP

TIME (2400 hr)	VOLUME (gal.)	pH (units)	E.C. (umhos/cm @ 25°C)	TEMPERATURE (°F)	COLOR	TURBIDITY	ODOR
12:03	5.5	6.58	986	63.1	Cloudy	light	none
12:05	11	6.61	1000	64.2	clear	trace	↓
12:07	16.5	6.61	1001	64.3	↓	↓	↓

Pumped dry Yes / No

FIELD MEASUREMENTS AT TIME OF SAMPLE, AFTER RECHARGE:

DTW: _____ TOB/TOC _____

PURGING EQUIPMENT/I.D. #

Bailer: _____
 Centrifugal: _____
 Other: _____

SAMPLING EQUIPMENT/I.D. #

Bailer: 17-6
 Dedicated: _____
 Other: _____

SAMPLE I.D.	DATE	TIME (2400)	No. of Cont.	SIZE	CONTAINER	PRESERVE	ANALYTICAL PARAMETER
<u>MW-22(16)</u>	<u>9-15-92</u>	<u>12:15</u>	<u>3</u>	<u>40</u>	<u>UGA</u>	<u>HCl</u>	<u>Gas/BTEX</u>
_____	_____	_____	_____	_____	_____	_____	_____

WELL INTEGRITY: Good Fair Poor

REMARKS: _____

SIGNATURE: [Signature]



WATER SAMPLE FIELD DATA SHEET

PROJECT No.: 330-06.15 LOCATION: San Lorenzo WELL ID #: MW-23

CLIENT/STATION No.: 0608 Arco FIELD TECHNICIAN: SP

WELL INFORMATION

Depth to Liquid: _____ TOB _____ TOC _____
 Depth to water: 14.40 TOB _____ TOC _____
 Total depth: 22 TOB _____ TOC _____
 Date: 9-15-92 Time (2400): 9:21

Probe Type and I.D. #
 Oil/Water interface
 Electronic indicator # 0
 Other: _____

CASING GAL/

DIAMETER LINEAR FT.
 2 _____ 0.17
 3 _____ 0.38
 4 _____ 0.66
 4.5 _____ 0.83
 5 _____ 1.02
 6 _____ 1.5
 8 _____ 2.6

SAMPLE TYPE
 Groundwater
 Duplicate
 Extraction well
 Trip blank
 Field blank
 Equipment blank
 Other: _____

TD 22 - DTW 14.40 = 5.60 Gal/Linear Foot 0.38 = 2.128 x Number of Casings 5 = Calculated Purge 10.64

DATE PURGED: 9-15-92 START: 11:38 END (2400 hr): 11:46 PURGED BY: SP
 DATE SAMPLED: 9-15-92 START: 11:50 END (2400 hr): 11:50 SAMPLED BY: SP

TIME (2400 hr)	VOLUME (gal.)	pH (units)	E.C. (umhos/cm @ 25°C)	TEMPERATURE (°F)	COLOR	TURBIDITY	ODOR
<u>11:40</u>	<u>3.5</u>	<u>6.87</u>	<u>1024</u>	<u>64.0</u>	<u>cloudy</u>	<u>light</u>	<u>None</u>
<u>11:43</u>	<u>7</u>	<u>6.87</u>	<u>1029</u>	<u>64.3</u>	↓	↓	↓
<u>11:46</u>	<u>10.5</u>	<u>6.87</u>	<u>1030</u>	<u>64.4</u>	↓	↓	↓

Pumped dry Yes / No
 FIELD MEASUREMENTS AT TIME OF SAMPLE, AFTER RECHARGE:
 DTW: _____ TOB/TOC _____

PURGING EQUIPMENT/I.D. #
 Bailer: 17-7 Airlift: _____
 Centrifugal: _____ Dedicated: _____
 Other: _____

SAMPLING EQUIPMENT/I.D. #
 Bailer: 17-7
 Dedicated: _____
 Other: _____

SAMPLE I.D.	DATE	TIME (2400)	No. of Cont.	SIZE	CONTAINER	PRESERVE	ANALYTICAL PARAMETER
<u>MW-23(17)</u>	<u>9-15-92</u>	<u>11:50</u>	<u>3</u>	<u>40</u>	<u>UGA</u>	<u>HCl</u>	<u>Gas/BTEX</u>
_____	_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____	_____

WELL INTEGRITY: Good Fair Poor

REMARKS: _____

SIGNATURE: [Signature]



ARCO Facility no. 1108	City (Facility) San Lorenzo	Project manager (Consultant) Kelly Brown	Laboratory name Sequoia
ARCO engineer Chuck Carney	Telephone no. (ARCO)	Telephone no. (Consultant) 825-1855	Contract number
Consultant name Pacific Env. Group	Address (Consultant) 626 Central Costa Blvd #200 Pleasant Hill		
		Fax no. (Consultant) 825-0882	

Sample I.D.	Lab no.	Container no.	Matrix			Preservation		Sampling date	Sampling time	BTEX 602/EPA 8020	BTEX/TPH EPA 1602/8020/8015	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 801/8010	EPA 824/8240	EPA 825/8270	TCMP Metals <input type="checkbox"/> VOA <input type="checkbox"/>	Semi Metals <input type="checkbox"/> VOA <input type="checkbox"/>	CAMP Metals EPA 6010/7000 TTL <input type="checkbox"/> STL <input type="checkbox"/>	Lead Org./DHS Lead EPA 7420/7421 <input type="checkbox"/>	Method of shipment	
			Soil	Water	Other	Ice	Acid																
TS-1		2		X		X	HCl	9-15-92			X												
MW-7		3						9-11-92	14:10														
MW-8								9-11-92	15:30														
MW-9								9-16-92	14:55														
MW-10								9-16-92	11:00														
MW-11								9-16-92	12:55														
MW-13								9-16-92	14:30														
MW-14								9-16-92	7:30														
MW-15								9-16-92	8:55														
MW-16								9-16-92	10:20														
MW-17								9-16-92	8:20														
MW-18								9-15-92	14:20														
MW-19								9-15-92	13:55														
MW-20								9-15-92	12:55														
MW-21								9-15-92	12:35														
MW-22								9-15-92	12:15														

Special detection Limit/reporting

Special QA/QC
Temp blank from Sequoia
8-14-92

Remarks
Concord Lab

Lab number

Turnaround time

Priority Rush 1 Business Day

Rush 2 Business Days

Expedited 5 Business Days

Standard 10 Business Days

Condition of sample:		Temperature received:	
Relinquished by sampler <i>[Signature]</i>	Date 9-17-92	Time 9:30	Received by
Relinquished by	Date	Time	Received by
Relinquished by	Date	Time	Received by laboratory
	Date	Time	Date
			Time

Groundwater Extraction System
Palo Alto ARCO 0608
17601 Hesperian Boulevard
San Lorenzo, California
330-06.12

Name: Scott Pisle Date/Time: 8-18-92

Meter Readings

- | | |
|---|---------------------------|
| 1. Meter reading at effluent totalizer (in gallons)
Gallons per minute (gpm) | 014/0018
<u>3 gpm.</u> |
| 2. Hourmeter reading for E-1A | <u>03218</u> |
| 3. Pressure reading at bag filter influent (psi) | <u>9 psi</u> |
| 4. Pressure reading at bag filter effluent (psi) <i>Carbon 1 Influent</i> | <u>5.5 psi</u> |
| 5. Pressure reading at carbon midpoint 1 (psi) | <u>5 psi</u> |
| 6. Pressure reading at carbon midpoint 2 (psi) | <u>1 psi</u> |
| 7. Pressure reading at carbon effluent (psi) | <u>0 psi</u> |
| 8. Electric meter reading | <u>056025</u> |

Other Measurements

9. Sewer level (Overflowing?) No
10. Sample groundwater at ports INFL, MID-1, and EFFL.
(Use 40 ml. VOA bottles and analyze for gas/BTEX at INFL, MID-1, and EFFL.
Sample the EFFL and analyze for COD, TSS, and pH.)

<u>PORT</u>	<u>TEMP</u>	<u>pH</u>
INFL	<u>71.3</u>	<u>6.78</u>
MID-1	<u>71.1</u>	<u>6.77</u>
EFFL	<u>71.8</u>	<u>6.80</u>

11. Check all fittings and piping for leaks. (Initials) No leaks
12. Check control panel for discrepancies. (Initials) OK
13. Take DTW/DTL from all on-site wells. (Initials) SP

Comments Need to buy a broom for site enclosure.

8-14-92 4:20 for TB Concord Sec.

Distribute a copy of this form to the project supervisor and file original in project file 330-06.12.

FIELD REPORT

DEPTH TO WATER/SEPARATE-PHASE HYDROCARBON SURVEY

PROJECT No.: 330-06.12 LOCATION: San Lorenzo DATE: 8-18-92

CLIENT/STATION NO.: Arco 0608 FIELD TECHNICIAN: SP DAY OF WEEK: Tuesday

PROBE TYPE/ID No. _____
 Oil/Water IF _____
 H₂O level Indicator # 0
 Other: _____

Dwg Order	Well ID	Time	Surface Seal	Lid Secure	Gasket	Lock	Expanding Cap	Total Depth (feet)	First Depth to Water (feet) TOB/TOC	Second Depth to Water (feet) TOB/TOC	SEPARATE-PHASE HYDROCARBONS (SPH)											
											SPH Depth (feet) TOB/TOC	SPH Thickness (feet)	Fresh	Weathered	Gas	Oil	VISCOSITY			LIQUID REMOVED (gallons) SPH / H ₂ O		
																	Light	Medium	Heavy			
3	MW-5	14:17						well probably dry 14'	13.61	13.61	—											
4	MW-7	14:19							14.79	14.79	—											
2	MW-8	14:15							13.83	13.83	—											
6	MW-9	14:25							12.89	12.89	—											
8	MW-10	14:29							13.03	13.03	—											
7	MW-11	14:27							13.72	13.72	—											
5	MW-13	14:22							16.15	16.15	—											
1	E-1A	14:00							23.73	23.73	—											

Comments: _____

Groundwater Extraction System
Palo Alto ARCO 0608
17601 Hesperian Boulevard
San Lorenzo, California
330-06.12

Name: Scott Pistle Date/Time: 9-15-92 8:00 am.

Meter Readings

- | | |
|---|--------------------|
| 1. Meter reading at effluent totalizer (in gallons)
Gallons per minute (gpm) | 01535640
3 gpm. |
| 2. Hourmeter reading for E-1A | 062982 |
| 3. Pressure reading at bag filter influent (psi) <i>get meter 1 #</i> | 8 psi |
| 4. Pressure reading at bag filter effluent (psi) | 7 psi |
| 5. Pressure reading at carbon midpoint 1 (psi) | 5 psi |
| 6. Pressure reading at carbon midpoint 2 (psi) | 2 psi |
| 7. Pressure reading at carbon effluent (psi) | 0 psi |
| 8. Electric meter reading | 03688 |

Other Measurements

9. Sewer level (Overflowing?) NO
10. Sample groundwater at ports INFL, MID-1, and EFFL. SP
(Use 40 ml. VOA bottles and analyze for gas/BTEX at INFL, MID-1, and EFFL.
Sample the EFFL and analyze for COD, TSS, and pH.)

PORT	TEMP	pH
INFL	68.5	6.89
MID-1	68.5	6.72
EFFL	69.5	6.87

11. Check all fittings and piping for leaks. (Initials) SP
12. Check control panel for discrepancies. (Initials) SP
13. Take DTW/DTL from all on-site wells. (Initials) Done with SP
Sampling Quarterly

Comments Called John M. before leaving site 9-16-92.

Distribute a copy of this form to the project supervisor and file original in project file 330-06.12.

Groundwater Extraction System
 San Lorenzo ARCO 0608
 17601 Hesperian Boulevard
 San Lorenzo, California
 330-06.12

Name: Mark Ashton Date/Time: 7/14/92

Meter Readings

1. Meter reading at effluent totalizer (in gallons)
Gallons per minute (gpm)
2. Hourmeter reading for E-1A
3. Pressure reading at bag filter influent (psi)
4. Pressure reading at bag filter effluent (psi)
5. Pressure reading at carbon midpoint 1 (psi)
6. Pressure reading at carbon midpoint 2 (psi)
7. Pressure reading at carbon effluent (psi)
8. Electric meter reading

129120.1

5001.4

8.5 on manual

2908

System not running →

Other Measurements

9. Sewer level (Overflowing?) NO
10. Sample groundwater at ports INFL, MID-1, and EFFL.
(Use 40 ml. VOA bottles and analyze for gas/BTEX at INFL, MID-1, and EFFL.
Sample the EFFL and analyze for Arsenic, COD, TSS, and pH.)

PORT	TEMP	pH
INFL	<u>72.5</u>	<u>7.17</u>
MID-1		Not Sampled
EFFL	<u>72.4</u>	<u>7.02</u>

11. Check all fittings and piping for leaks. (Initials) N/A
12. Check control panel for discrepancies. (Initials) N/A
13. Take DTW/DTL from all on-site wells. (Initials) N/A

Comments 11, 12, 13 (control) on, 0 on when in Hand
7 amps at submersible, 110 volts to both poles
of the relay
System not running when in auto mode
checked pressure switch, checked current
switch
10psi at well head

Distribute a copy of this form to the project supervisor and file original in project file 330-06.12.

