

PACIFIC ENVIRONMENTAL GROUP, INC.

Date: June 28, 1990
90 JUL -2 AMT: 30
Project No.: 330-06.05

To: Mr. Kyle Christie
ARCO PETROLEUM PRODUCTS
P.O. Box 5811
San Mateo, CA 94402

We have enclosed:

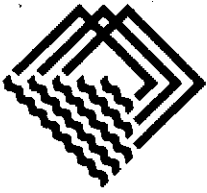
Copies	Description
<u>1ea.</u>	<u>Quarterly sampling report for ARCO Service Station 0608.</u>
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<u> </u>	<u> </u>

For your: XX Use
 Approval
 Information

Comments: Please call with any questions regarding the contents of these reports.

Debra J. Moser

cc: Chris Winsor, ARCO
Pamela Evans, Alameda County Health Agency
Steven Ritchie, RWQCB



PACIFIC
ENVIRONMENTAL
GROUP INC.

June 28, 1990
Project 330-06.05

Mr. Kyle Christie
ARCO Petroleum Products Co.
P.O. Box 5811
San Mateo, California 94402

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

Dear Mr. Christie:

This report presents the results of groundwater sampling performed by Pacific Environmental Group, Inc. (PACIFIC) at the site reference above for the January to March quarter of 1990.

On March 29, 1990 groundwater samples were collected from Wells MW-3 and E-1 (MW-6). The groundwater samples were analyzed for total petroleum hydrocarbons (calculated as gasoline), benzene, toluene, ethylbenzene and xylene compounds (BTEX). Wells MW-1 and MW-5 were found to be dry and Well MW-4 contained a sheen of separate-phase hydrocarbon and therefore was not sampled. The well locations are shown on Figure 1.

FIELD PROCEDURES

The sampling procedure consisted of measuring the water level in each well, and checking for the presence of separate-phase hydrocarbon using a clear Teflon bailer. The well was then purged of a minimum of four casing volumes of water or until dry using a centrifugal pump. During purging, temperature, pH and electrical conductivity were monitored to document that a representative sample was collected. After the water level partially recovered, a sample was collected using a Teflon bailer and was placed into appropriate EPA-approved containers. The sample was labeled, logged onto chain-of-custody documents, and transported on ice to a State-certified laboratory.

The methods of analysis for the water sample are documented in the certified analytical reports. The certified analytical report, chain-of-custody document, and well sampling data sheets are attached at the end of this report.

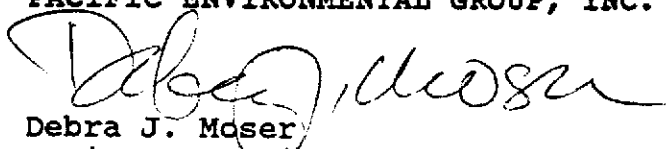
FINDINGS

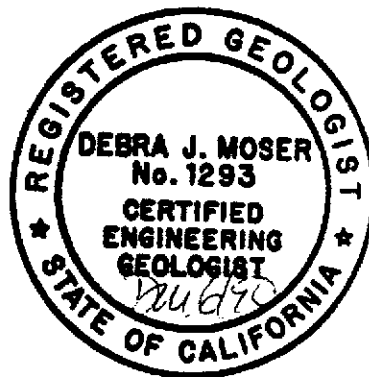
Dissolved gasoline was detected in Wells MW-3 and E-1 at concentrations of 1,100 parts per million (ppm) and 0.13 ppm, respectively. The high concentrations in Well MW-3 may be attributable to insufficient purge volume, as well as insufficient penetration of the water-bearing zone. Wells MW-3, MW-4, and E-1 are all 8-inch, corrugated steel wells of unknown origin and construction. These wells are scheduled for replacement. Current and historical analytical results are summarized on Table 1. A gasoline and benzene concentration map is presented on Figure 1.

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

Sincerely,

PACIFIC ENVIRONMENTAL GROUP, INC.


Debra J. Moser
Senior Geologist
CEG 1293



cc: Chris Winsor, ARCO Petroleum Products Company
Pamela Evans, Alameda County Health Agency-Hazardous
Materials Division
Steve Ritchie, Regional Water Quality Control Board

TABLE 1
 QUARTERLY GROUNDWATER MONITORING RESULTS

ARCO Service Station 0608
 Total Petroleum Hydrocarbons

WELL NO.	SAMPLE DATE	DEPTH TO GROUNDWATER (FT.)	GASOLINE (ppb)	BENZENE (ppb)	TOLUENE (ppb)	ETHYL-BENZENE (ppb)	XYLENES (ppb)	
MW-1	01/88	NA	300**	20	50	10	80	
	06/21/89		----- Well not locatable -----					
	12/12/89	NA	-----Well dry-----					
	03/29/90	NA	-----Well dry-----					
MW-2	01/88	NA	3,300**	804	115	168	166	
	06/88		----- Well destroyed -----					
MW-3	01/88	NA	1,800**	20	20	80	60	
	03/07/89	11.96	150,000	4,600	5,200	5,600	13,000	
	06/21/89	12.85	63,000	2,700	5,800	3,300	12,000	
	12/12/89	13.46	--Insufficient Volume of Water for Sampling--					
	03/29/90	12.67	1,100,000	13,000	60,000	17,000	91,000	
MW-4	01/88	NA	62,000**	2,700	7,900	850	5,200	
	03/07/89	10.76	84,000	2,400	3,400	2,500	7,600	
	06/21/89	11.96	31,000	400	800	200	1,500	
	12/12/89	NA	-----Well dry-----					
	03/29/90	NA	-----Separate-phase Hydrocarbon Sheen-----					

TABLE 1
 (continued)

QUARTERLY GROUNDWATER MONITORING RESULTS

ARCO Service Station 0608
 Total Petroleum Hydrocarbons

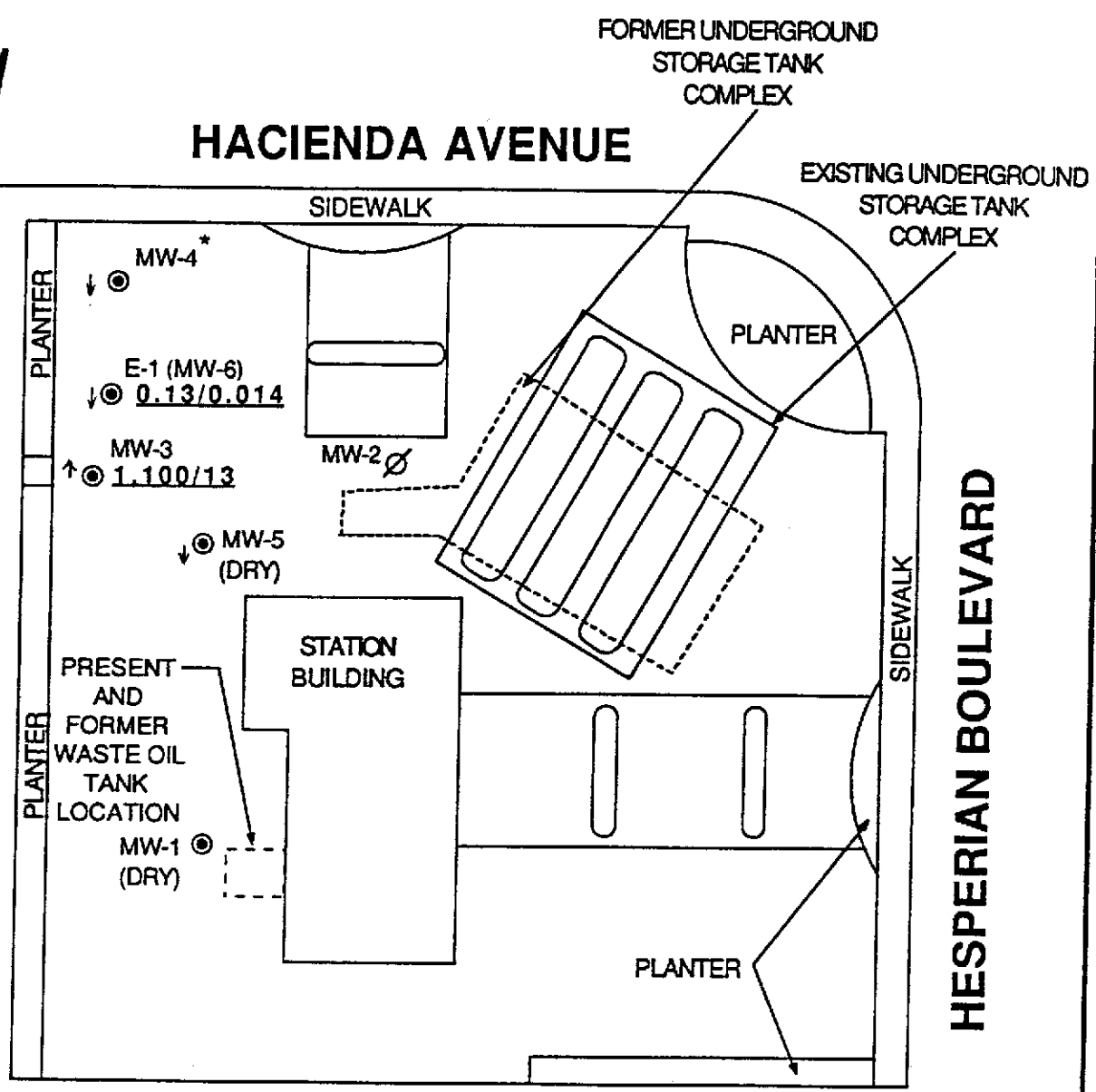
WELL NO.	SAMPLE DATE	DEPTH TO GROUNDWATER (FT.)	GASOLINE (ppb)	BENZENE (ppb)	TOLUENE (ppb)	ETHYL-BENZENE (ppb)	XYLENES (ppb)	
MW-5	01/88	NA	31,000**	4,000	2,700	3,800	5,500	
	03/07/89	12.74	1,300	340	ND	140	50	
	06/21/89	13.26	1,100	200	ND	130	40	
	12/12/89	NA	-----Well dry-----					
	03/29/90	NA	-----Well dry-----					
MW-6	06/21/89	12.48	1,700	170	170	85	290	
	12/12/89	13.16	500	26	7	8	18	
	03/29/90	12.39	130	14	9	4	11	

Notes:

NA = Not available
 ppb = Parts per billion
 ** = Analysis reported as total volatile hydrocarbons.



HACIENDA AVENUE

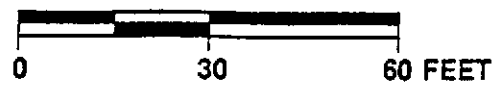


LEGEND

- MW-5 GROUNDWATER MONITORING WELL LOCATION AND DESIGNATION
- MW-2 DESTROYED MONITORING WELL LOCATION AND DESIGNATION
- 0.13/0.014 DISSOLVED GASOLINE/BENZENE CONCENTRATION IN PARTS PER MILLION, 3-29-90
- * SEPARATE-PHASE HYDROCARBON SHEEN
- (DRY) NO GROUNDWATER IN WELL, 3-29-90

APPROXIMATE DIRECTION OF REGIONAL GROUNDWATER FLOW

SCALE



PACIFIC ENVIRONMENTAL GROUP, INC.	ARCO STATION #0608 17601 Hesperian Boulevard San Lorenzo, California	FIGURE: 1 PROJECT: 330-06.05
	GASOLINE AND BENZENE CONCENTRATION MAP	

SUPERIOR ANALYTICAL LABORATORY, INC.

1555 BURKE, UNIT I • SAN FRANCISCO, CA 94124 • PHONE (415) 647-2081

C E R T I F I C A T E O F A N A L Y S I S

LABORATORY NO.: 51365
CLIENT: Pacific Environmental Group
CLIENT JOB NO.: 330-06.05

DATE RECEIVED: 03/29/90
DATE REPORTED: 04/08/90

ANALYSIS FOR TOTAL PETROLEUM HYDROCARBONS
by Modified EPA SW-846 Method 5030 and 8015

LAB #	Sample Identification	Concentration (mg/l) Gasoline Range
1	E-1	0.13
2	MW-3	1100

mg/L - parts per million (ppm)

Minimum Detection Limit for Gasoline in Water: 0.03mg/L

QAQC Summary:

Daily Standard run at 2mg/L: RPD Gasoline = <15 %
MS/MSD Average Recovery = 80%: Duplicate RPD = 3 %

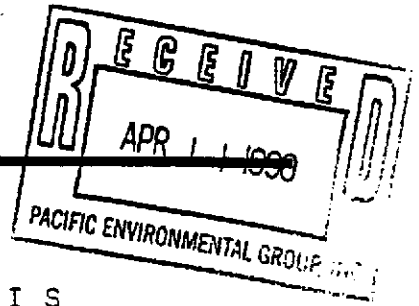
Richard Orna, Ph.D.


Laboratory Director

OUTSTANDING QUALITY AND SERVICE

SUPERIOR ANALYTICAL LABORATORY, INC.

1555 BURKE, UNIT I • SAN FRANCISCO, CA 94124 • PHONE (415) 647-2081



C E R T I F I C A T E O F A N A L Y S I S

LABORATORY NO.: 51365
CLIENT: Pacific Environmental Group
CLIENT JOB NO.: 330-06.05

DATE RECEIVED: 03/29/90
DATE REPORTED: 04/08/90

ANALYSIS FOR BENZENE, TOLUENE, ETHYL BENZENE & XYLENES
by EPA SW-846 Methods 5030 and 8020

LAB #	Sample Identification	Concentration(ug/l)			
		Benzene	Toluene	Ethyl Benzene	Xylenes
1	E-1	14	9	4	11
2	MW-3	13000	60000	17000	91000

ug/L - parts per billion (ppb)

Minimum Detection Limit in Water:0.3ug/L

QAQC Summary:

Daily Standard run at 20ug/L: RPD = <15%
MS/MSD Average Recovery = 92% : Duplicate RPD = <2%

Richard Srna, Ph.D.

Laboratory Director

SAMPLING/ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD

Project No.: 330-06.05

Requested By: Lainie Demian

P.O. No.: 12683

REQUEST		LABORATORY REQUIREMENTS					CHAIN OF CUSTODY				
SAMPLE TYPE: <i>water</i>		CONTAINERS					SAMPLER'S SIGNATURE <i>Scott P. Scott</i>		CONTRACT LABORATORY		
SAMPLE I.D.	PARAMETERS	SIZE/TYPE	QUANTITY	PRES.	LAB	DUE DATE	SAMPLER	SAMPLE DATE	REC'D BY	COMMENTS	DATE REC'D
<i>E-1</i>	<i>Gas/BTEX</i>	<i>40ml UBA</i>	<i>3</i>	<i>HCl</i>	<i>Sy n</i>	<i>4/12/90</i>	<i>Scott P. Scott</i>	<i>3-29-90</i>			
<i>MW-3</i>	<i>↓</i>	<i>↓</i>	<i>↓</i>		<i>n</i>						

SIGNATURES:

RELEASED BY: *Scott P. Scott* *3-29-90*
1:30

RECEIVED BY: *G.S. Marko*

RELEASED BY: _____

RECEIVED BY: _____

RELEASED BY: _____

RECEIVED BY: _____

RELEASED BY: _____

RECEIVED BY: _____

RELEASED BY: _____

RECEIVED BY: _____

RELEASED BY: _____

RECEIVED BY LAB: *Cheri Helt* *3/29/90*

Well Sampling Field Sheet

Client: ARCO

Sampler: SPIAK

Project No.: 330-06.05

Date: 3/29/90

Location: San Lorenzo

Sample I.D.: E-1

Well Information

TD 21.5'

DTL _____

DTW 12.39 TOB 9112

Calc. Purge 93

Well I.D.: E-1

Diameter: 2" 3" 4" 4.5" 6" 8"

Product: Y(N) NA

Thickness: _____

Actual Purge: 92

Readings:

VOL (gal.)	TIME	pH (std units)	EC(µmhos)	TEMP (°F)	COLOR	ODOR
30 gal	10:00	8.4		62.4	light brown	NO
30 gal	10:05	NA	764	63.4	light brown	NO
60 gal	10:09	7.05	756	62.9	light brown	NO
92 gal	10:16	7.00	736	62.2	Clear	NO

Comments:

Purge Method:

Bailer

N.A.

Positive Displacement

Gas Displacement

Centrifugal

Electric Submersible

Well Wizard

Dedicated

Sample Method:

Bailer

N.A.

Positive Displacement

Peristaltic

Dipper

Electric Submersible

Well Wizard

Dedicated

Probe Type:

Interface Probe

Electronic Probe

Bell Sounder

Well Sampling Field Sheet

Client: ARCO
 Project No.: 330-06.05
 Location: San Lorenzo

Sampler: SPLAK
 Date: 3/29/90
 Sample I.D.: MW-1

Well Information

TD 9'
 DTL _____
 DTW 9' TOB 9:13
 Calc. Purge _____

Well I.D.: MW-1
 Diameter: 2" 3" (4") 4.5" 6"
 Product: Y/N/NA
 Thickness: _____
 Actual Purge: _____

Readings:

VOL (gal.)	TIME	pH (std units)	EC (µmhos)	TEMP (°F)	COLOR	ODOR

Comments: Dry at 9' No sample

Purge Method:

- | | | |
|---------------------------------|--|---|
| <input type="checkbox"/> Bailer | <input type="checkbox"/> Positive Displacement | <input type="checkbox"/> Electric Submersible |
| <input type="checkbox"/> N.A. | <input type="checkbox"/> Gas Displacement | <input type="checkbox"/> Well Wizard |
| | <input type="checkbox"/> Centrifugal | <input type="checkbox"/> Dedicated |

Sample Method:

- | | | |
|---------------------------------|--|---|
| <input type="checkbox"/> Bailer | <input type="checkbox"/> Positive Displacement | <input type="checkbox"/> Electric Submersible |
| <input type="checkbox"/> N.A. | <input type="checkbox"/> Peristaltic | <input type="checkbox"/> Well Wizard |
| | <input type="checkbox"/> Dipper | <input type="checkbox"/> Dedicated |

Probe Type:

- | | | |
|--|---|---------------------------------------|
| <input type="checkbox"/> Interface Probe | <input type="checkbox"/> Electronic Probe | <input type="checkbox"/> Bell Sounder |
|--|---|---------------------------------------|

Well Sampling Field Sheet

Client: ARCO
 Project No.: 330-06.05
 Location: San Lorenzo

Sampler: SP/AK
 Date: 3/29/90
 Sample I.D.: MW-3

Well Information

TD 14'
 DTL _____
 DTW 12.67 TOB 9:13
 Calc. Purge 13.5

Well I.D.: MW-3
 Diameter: 2" 3" 4" 4.5" 6" 8"
 Product: YIN/NA
 Thickness: _____
 Actual Purge: 4

Readings:

VOL (gal.)	TIME	pH (std units)	EC (µmhos)	TEMP (°F)	COLOR	ODOR
<u>4</u>	<u>10:45</u>	<u>6.96</u>	<u>546</u>	<u>63.6</u>	<u>Grey</u>	<u>Strong</u>
_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____

Comments: well dry at 4 gallons.
 well has a definite scum on surface of water.

Purge Method:

- Bailer
- N.A.

- Positive Displacement
- Gas Displacement
- Centrifugal

- Electric Submersible
- Well Wizard
- Dedicated

Sample Method:

- Bailer
- N.A.

- Positive Displacement
- Peristaltic
- Dipper

- Electric Submersible
- Well Wizard
- Dedicated

Probe Type:

- Interface Probe

- Electronic Probe

- Bell Sounder

Well Sampling Field Sheet 51

Client: ARCO
 Project No.: 330-06.05
 Location: San Lorenzo

Sampler: SP/AR
 Date: 3/29/90
 Sample I.D.: MW-4

Well Information

TD 12.5'
 DTL _____
 DTW 11.72' 10:05 9:10
 Calc. Purge 8

Well I.D.: MW-4
 Diameter: 2" 3" 4" 4.5" 6" 8"
 Product: YENI NA
 Thickness: 0.01
 Actual Purge: _____

Readings:

<u>VOL (gal.)</u>	<u>TIME</u>	<u>pH (std units)</u>	<u>EC (µmhos)</u>	<u>TEMP (°F)</u>	<u>COLOR</u>	<u>ODOR</u>
_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____

Comments: Not sampled well
Definite scum on top of water would not
go away

Purge Method:

- Bailer
- N.A.

- Positive Displacement
- Gas Displacement
- Centrifugal

- Electric Submersible
- Well Wizard
- Dedicated

Sample Method:

- Bailer
- N.A.

- Positive Displacement
- Peristaltic
- Dipper

- Electric Submersible
- Well Wizard
- Dedicated

Probe Type:

- Interface Probe

- Electronic Probe

- Bell Sounder

Well Sampling Field Sheet

Client: ARCO

Project No.: 330-06.5

Location: San Lorenzo

Sampler: SPIAK

Date: 3/29/90

Sample I.D.: MW-5

Well Information

TD 13.5'

DTL _____

DTW 13.30' TOR 9:05

Calc. Purge _____

Well I.D.: MW-5

Diameter: 2" 3" 4" 4.5" 6"

Product: Y/N/NA

Thickness: _____

Actual Purge: _____

Readings:

VOL (gal.)	TIME	pH (std units)	EC (µmhos)	TEMP (°F)	COLOR	ODOR
_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____

Comments:

NO Sample.

Purge Method:

Bailer

N.A.

Positive Displacement

Gas Displacement

Centrifugal

Electric Submersible

Well Wizard

Dedicated

Sample Method:

Bailer

N.A.

Positive Displacement

Peristaltic

Dipper

Electric Submersible

Well Wizard

Dedicated

Probe Type:

Interface Probe

Electronic Probe

Bell Sounder