



PACIFIC  
ENVIRONMENTAL  
GROUP, INC.

Date April 9, 1990

Project No. 330-06.05

To: Cathryn Chesick  
ALAMEDA COUNTY HAZARDOUS MATERIALS  
80 Swan Way  
Oakland, CA 94621

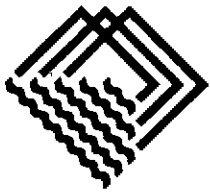
We have enclosed

Copies	Description
<u>1</u>	<u>October to December 1989 quarterly sampling report for</u> <u>Arco Service Station No. 0608.</u>
<u> </u>	<u> </u>
<u> </u>	<u> </u>
<u> </u>	<u> </u>

For your  Use  
 Approval  
 Information

Comments If you have any questions regarding this report,  
please call.

Tina Berry



PACIFIC  
ENVIRONMENTAL  
GROUP, INC.

March 30, 1990  
Project No. 330-06.05

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

RE: ARCO Service Station No. 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 above-referenced site for the October to December quarter of 1989.

On December 12, 1989 a groundwater sample was collected from Well E-1. Well E-1 is an eight-inch well that was discovered at the site in March 1989. The groundwater sample was analyzed for total petroleum hydrocarbons (calculated as gasoline), benzene, toluene, ethylbenzene and xylene compounds (BTEX). Wells MW-1, MW-4 and MW-5 were found to be dry and Well MW-3 did not produce a sufficient volume of water to be 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 free-phase hydrocarbon using a clear Teflon bailer. The well was then purged of a minimum of four casing volumes of water 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 the laboratory.

March 30, 1990  
Project No. 330-06.05  
Page 2

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 Well E-1 at a concentration of 500 parts per billion (ppb). Current and historical analytical results are summarized on Table 1. A gasoline and benzene concentration map is presented on Figure 1.

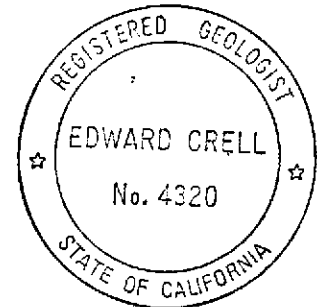
If there are any questions regarding the contents of this report, please do not hesitate to call.

Sincerely,

**PACIFIC ENVIRONMENTAL GROUP, INC.**



Ward Crell  
Senior Geologist  
RG 4320



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

TABLE 1  
 QUARTERLY GROUNDWATER MONITORING RESULTS

ARCO Service Station No. 0608  
 Low-Boiling 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-----					
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--					
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-----					

TABLE 1  
 (continued)

QUARTERLY GROUNDWATER MONITORING RESULTS

ARCO Service Station No. 0608  
 Low-Boiling Hydrocarbons

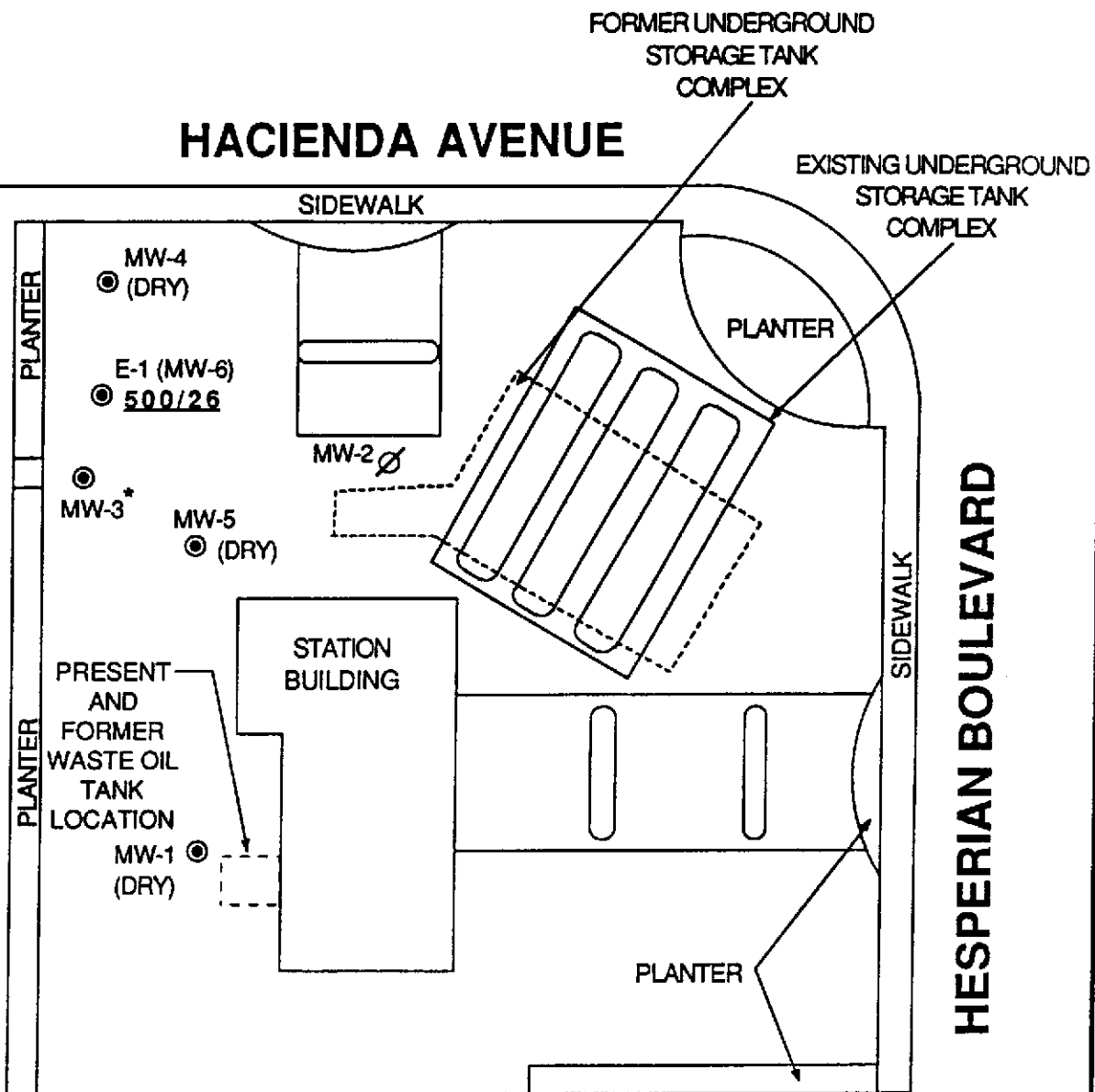
WELL NO.	SAMPLE DATE	DEPTH TO GROUNDWATER (FT.)*	GASOLINE (ppb)	BENZENE (ppb)	TOLUENE (ppb)	ETHYL-BENZENE (ppb)	XYLENES (ppb)
MW-5	01/88	NA	31,000**	4,000	2,700	3,800	5,500
	03/07/89	12.74	1,300	340	ND	140	50
	06/21/89	13.26	1,100	200	ND	130	40
	12/12/89	NA	-----Well dry-----				
E-1***	06/21/89	12.48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

Notes:

- NA = Not available
  - ppb = parts per billion
  - \* = Well elevations not surveyed.
  - \*\* = Analysis reported as total volatile hydrocarbons
  - \*\*\* = Well I.D. No. is equivalent to Well I.D. No. MW-6 on certified analytical reports.
- See certified analytical results for detection limits



# HACIENDA AVENUE



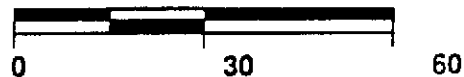
### LEGEND

- MW-3 GROUNDWATER MONITORING WELL LOCATION AND DESIGNATION
- MW-2 DESTROYED MONITORING WELL LOCATION AND DESIGNATION
- 500/26 DISSOLVED GASOLINE/BENZENE CONCENTRATION IN PARTS PER BILLION, 12-12-89
- \* INSUFFICIENT WATER FOR SAMPLING
- (DRY) NO GROUNDWATER IN WELL, 12-12-89

APPROXIMATE DIRECTION OF REGIONAL GROUNDWATER FLOW



### SCALE



PACIFIC ENVIRONMENTAL GROUP, INC.

ARCO STATION #0608  
17601 Hesperian Boulevard  
San Lorenzo, California

GASOLINE AND BENZENE CONCENTRATION MAP

FIGURE:  
1  
PROJECT:  
330-06.05

**SUPERIOR ANALYTICAL LABORATORY, INC.**

1385 FAIRFAX ST., STE. D. • 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.: 51473  
CLIENT: Pacific Environmental Group  
CLIENT JOB NO.: 330-06.05

DATE RECEIVED: 12/13/89  
DATE REPORTED: 12/20/89

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

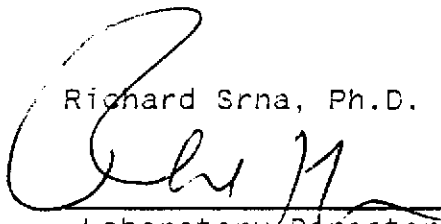
LAB #	Sample Identification	Concentration (mg/l) Gasoline Range
1	MW-6	0.5

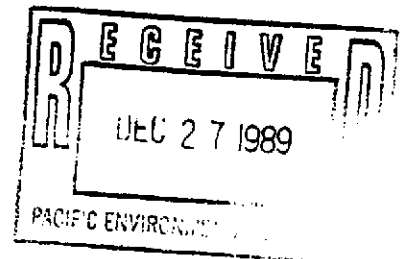
mg/L - parts per million (ppm)

Minimum Detection Limit for Gasoline in Water: 0.1mg/L

QAQC Summary:

Daily Standard run at 2mg/L: RPD Gasoline = <15%  
MS/MSD Average Recovery = 94%: Duplicate RPD = 8%

Richard Srna, Ph.D.  
  
Laboratory Director



OUTSTANDING QUALITY AND SERVICE

**SUPERIOR ANALYTICAL LABORATORY, INC.**

1385 FAIRFAX ST., STE. D. • 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.: 51473  
CLIENT: Pacific Environmental Group  
CLIENT JOB NO.: 330-06.05

DATE RECEIVED: 12/13/89  
DATE REPORTED: 12/20/89

ANALYSIS FOR BENZENE, TOLUENE, ETHYL BENZENE & XYLENES  
by EPA SW-846 Methods 5030 and 3020

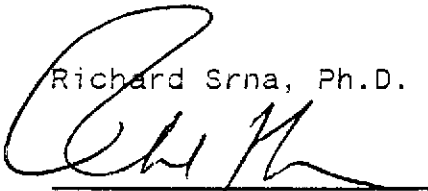
LAB #	Sample Identification	Concentration(ug/l)			
		Benzene	Toluene	Ethyl Benzene	Xylenes
1	MW-6	26	7	8	18

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 = 93% : Duplicate RPD = <8%

Richard Srna, Ph.D.  
  
Laboratory Director



# SAMPLING/ANALYSIS REQUEST AND CHAIN OF CUSTODY RECORD SA# 51473

Project No.: 330-06.05

Requested By: DR

P.O. No.: 12142

REQUEST		LABORATORY REQUIREMENTS					CHAIN OF CUSTODY				
SAMPLE TYPE: <u>Water</u>		CONTAINERS					SAMPLER'S SIGNATURE		CONTRACT LABORATORY		
SAMPLE I.D.	PARAMETERS						SIZE/TYPE	QUANTITY	PRES.	LAB	DUE DATE
<u>MW-6</u>	<u>gas/BTEX</u>	<u>40ml VOA</u>	<u>3</u>	<u>HCl</u>	<u>SUP</u>	<u>12-17</u>	<u>SP</u>	<u>12-12-89</u>			

**SIGNATURES:**

RELEASED BY: \_\_\_\_\_

RELEASED BY: \_\_\_\_\_

RELEASED BY: \_\_\_\_\_

RECEIVED BY: \_\_\_\_\_

RECEIVED BY: \_\_\_\_\_

RECEIVED BY: \_\_\_\_\_

RELEASED BY: \_\_\_\_\_

RELEASED BY: Darion Rezon for 12-12-89  
5000 PISLE

RELEASED BY: Darion Rezon 12-12-89

RECEIVED BY: \_\_\_\_\_

RECEIVED BY: [Signature]  
KENNEDY 12-13-89 1228  
EXPRESS IT COURIERS

RECEIVED BY LAB: [Signature] 12/13/89

Well Sampling Field Sheet

Client: Arco

Sampler: S. Pizle

Project No.: 330-06.05

Date: 12-12-99

Location: Hesperian #121 only

Sample I.D.: MW-81

Well Information

TD 21.5

Well I.D.: E-1 (MW-81)

DTL 13.16 / 12:44

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

DTW 13.16 TOP

Product: Y(N) NA

Calc. Purge 45

Thickness: \_\_\_\_\_

Actual Purge: 85

Readings:

VOL (gal.)	TIME	pH (std units)	EC (µmhos)	TEMP (°F)	COLOR	ODOR
<u>20</u>	<u>13:21</u>	<u>7</u>	<u>7470</u>	<u>62.1</u>	<u>clear</u>	<u>slight <sup>not</sup> gas</u>
<u>60</u>	<u>13:29</u>	<u>7</u>	<u>7190</u>	<u>61.8</u>	<u>same</u>	<u>same</u>
<u>85</u>	<u>13:35</u>	<u>7</u>	<u>7470</u>	<u>66.2</u>	<u>same</u>	<u>same</u>

Comments: pH taken with pH sticks

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

Sampler: SUP 314

Project No.: 33206.05

Date: 12-12-89

Location: Hesperian to Hacienda

Sample I.D.: HW-3

#### Well Information

TD 141

DTL 13.46 TOB

DTW 13.46

Calc. Purge 5.5

Well I.D.: HW-3

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

Product: VIN/NA

Thickness: \_\_\_\_\_

Actual Purge: 2

#### Readings:

VOL (gal.)	TIME	pH (std units)	EC (µmhos)	TEMP (°F)	COLOR	ODOR
<u>2</u>	<u>13:49</u>	<u>7</u>	<u>8100</u>	<u>59.6</u>	<u>Grey</u>	<u>na</u>
_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____
_____	_____	_____	_____	_____	_____	_____

Comments: Well dry after 2 gallons removed  
pH taken with pH stick  
Well recovery was .1 feet after 2 hours - No sample taken on 12-12-89  
No sample taken 12-13-89 recovery was only .1 feet still

#### 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

Sampler: S. Kiple

Project No.: 330-06.05

Date: 12-12-89

Location: Hesperian Hacienda

Sample I.D.: MW-1

Well Information

Well I.D.: MW-1

TD \_\_\_\_\_

Diameter: 2" 3" 4 4.5" 6"

DTL well dry

Product: Y/N/NA

DTW \_\_\_\_\_

Thickness: \_\_\_\_\_

Calc. Purge \_\_\_\_\_

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:

Purge Method:

Bailer

Positive Displacement

Electric Submersible

N.A.

Gas Displacement

Well Wizard

Centrifugal

Dedicated

Sample Method:

Bailer

Positive Displacement

Electric Submersible

N.A.

Peristaltic

Well Wizard

Probe Type:

Interface Probe

Dipper

Dedicated

Electronic Probe

Bell Sounder

Well Sampling Field Sheet

Client: Arc O

Sampler: S. Pizke

Project No.: 330-06.05

Date: 12-12-89

Location: Hesperian to Hacienda

Sample I.D.: S.P. MW-4

Well Information

Well I.D.: MW-4

TD 12.5'

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

DTL Dry

Product: Y / N / NA

DTW \_\_\_\_\_

Thickness: \_\_\_\_\_

Calc. Purge \_\_\_\_\_

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:

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: Hesperian Hacienda

Sampler: S. Piz 4  
Date: 12-12-89  
Sample I.D.: MW-5

Well Information

TD 14'  
DTL dry  
DTW \_\_\_\_\_  
Calc. Purge \_\_\_\_\_

Well I.D.: MW-5  
Diameter: 2" 3" 4" 4.5" 6"  
Product: Y/N/NA  
Thickness: \_\_\_\_\_  
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:

Purge Method:

- Bailer
- N.A.

- Positive Displacement
- Gas Displacement
- Centrifugal

- Electric Submersible
- Well Wizard
- Dedicated

Sample Method:

- Bailer
- N.A.

- Positive Displacement
- Peristaltic
- Dipper

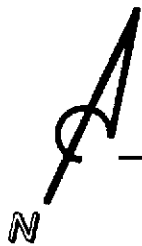
- Electric Submersible
- Well Wizard
- Dedicated

Probe Type:

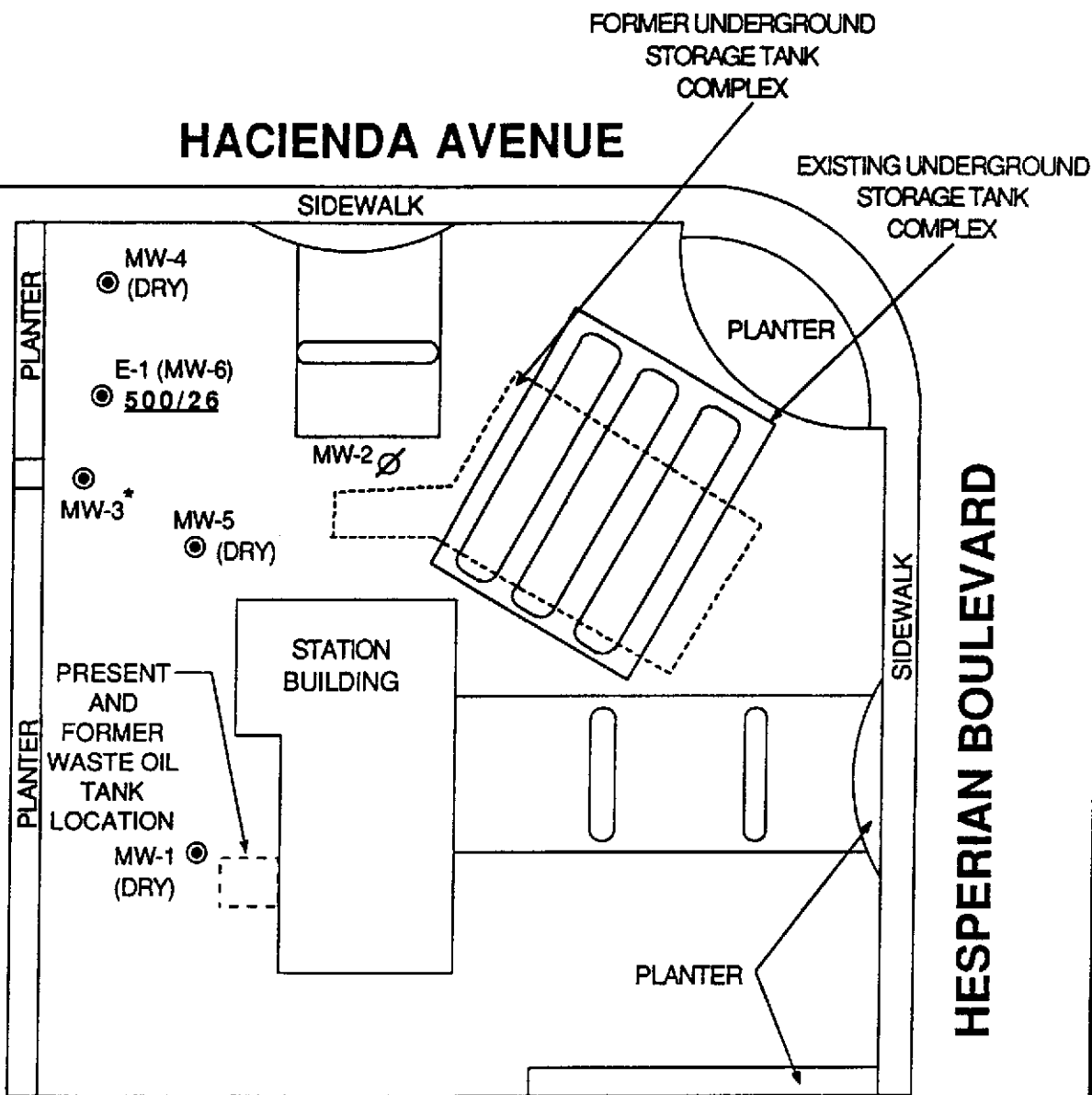
- Interface Probe

- Electronic Probe

- Bell Sounder



# HACIENDA AVENUE



**HESPERIAN BOULEVARD**

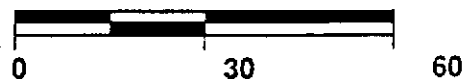
**LEGEND**

- MW-3 ● GROUNDWATER MONITORING WELL LOCATION AND DESIGNATION
- MW-2 ∅ DESTROYED MONITORING WELL LOCATION AND DESIGNATION
- 500/26 DISSOLVED GASOLINE/BENZENE CONCENTRATION IN PARTS PER BILLION, 12-12-89
- \* INSUFFICIENT WATER FOR SAMPLING
- (DRY) NO GROUNDWATER IN WELL, 12-12-89

APPROXIMATE DIRECTION OF REGIONAL GROUNDWATER FLOW



**SCALE**



PACIFIC ENVIRONMENTAL GROUP, INC.

**ARCO STATION #0608**  
17601 Hesperian Boulevard  
San Lorenzo, California

**GASOLINE AND BENZENE CONCENTRATION MAP**

FIGURE: 1  
PROJECT: 330-06.05