San Francisco

FILE COPY

DuPont Biosystems

Du Pont Biosystems

QUARTERLY GROUND-WATER SAMPLING REPORT

FEBRUARY 1989

FAST GAS STATION

1088 MARINA BOULEVARD

SAN LEANDRO, CALIFORNIA

FOR

CONOCO INC.

900 SOUTH CHEROKEE LANE

LODI, CALIFORNIA 95240

PREPARED BY

DU PONT BIOSYSTEMS

7068 KOLL CENTER PARKWAY, SUITE 401

PLEASANTON, CALIFORNIA 94566

APRIL 5, 1989

JOB NO. 1088-Q7-47

Du Pont Biosystems

TABLE OF CONTENTS Job No. 1088-Q7-47

LIST OF ILLUSTRATIONS

LIST OF TABLES

LIST OF APPENDICES

Du Pont Biosystems

April 5, 1989

Job No. 1088-Q7-47

Conoco Inc.
900 South Cherokee Lane
Lodi, California 95240

ATTENTION: Mr. Michael Hansen

SUBJECT: Quarterly Ground-Water Sampling Report
February 1989
Fast Gas Station
1088 Marina Boulevard
San Lorenzo, California

Dear Mr. Hansen:

INTRODUCTION

This report presents the results of the quarterly ground-water sampling which was conducted at the Fast Gas Station, 1088 Marina Boulevard, San Lorenzo, California (see the Site Vicinity Map, Figure 1), on February 14, 1989. The purpose of this sampling program is to monitor and evaluate the extent of hydrocarbon contamination in the ground water at the subject property.

SUMMARY

A summary of data regarding ground-water levels for the February quarter is presented in Table A. In general, ground-water levels have risen an average of 2.6 feet since the last quarterly sampling. Ground-water flow for this quarter is directed towards the southwest with a gradient of approximately 0.0025 (see the Ground-Water Gradient Map, Figure 2). Chemical analytical results

show only minor changes since the last quarter (see Table B and Appendix B). Figure 3 presents interpretive isopleths of benzene concentrations within the ground water for the site. This site is scheduled to be resampled during May 1989.

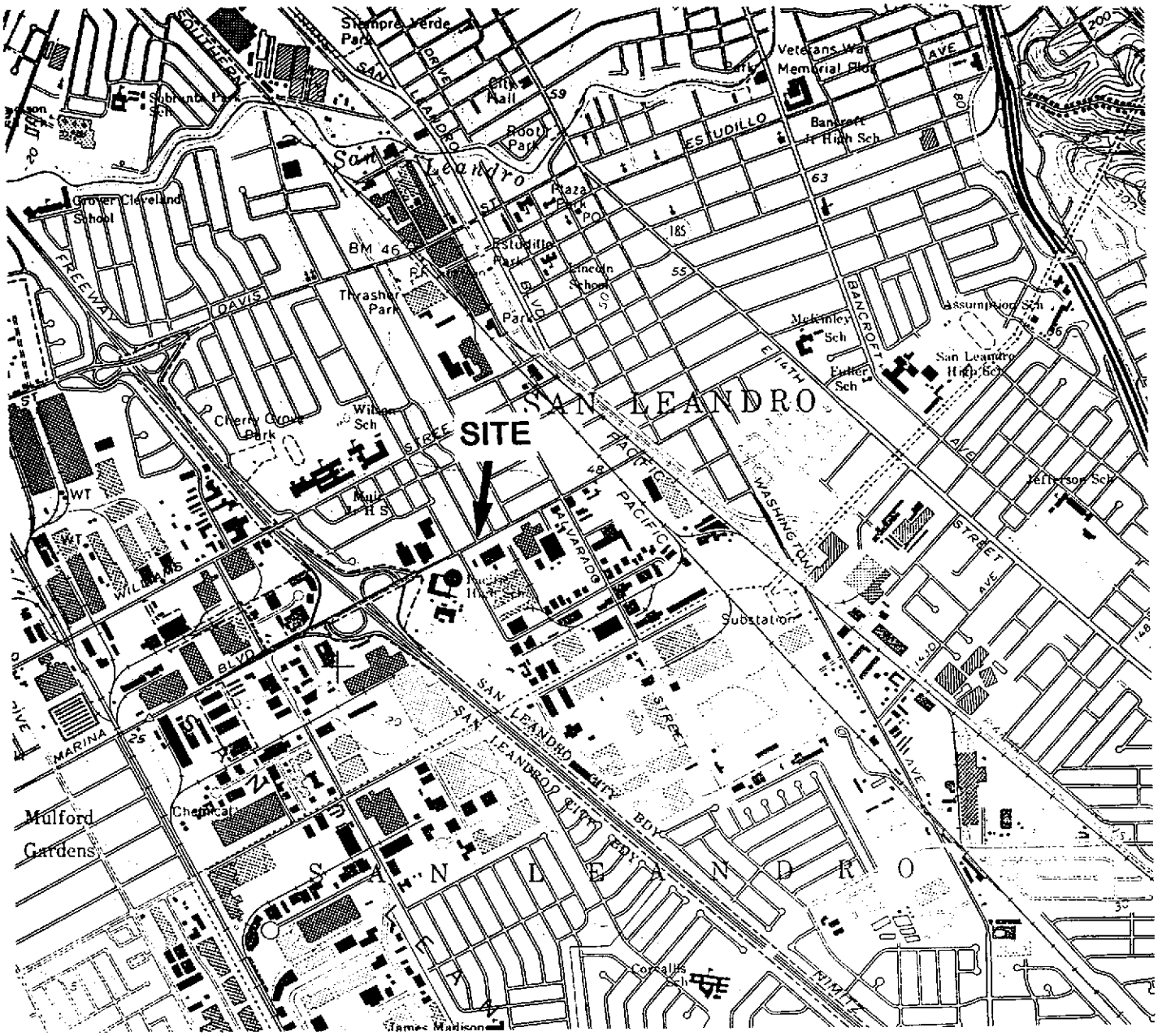
Respectfully submitted,

DU PONT BIOSYSTEMS

Marjorie Lane
Staff Geologist

George Reid
CEG 1068

ML/rr



2000 0 2000 4000

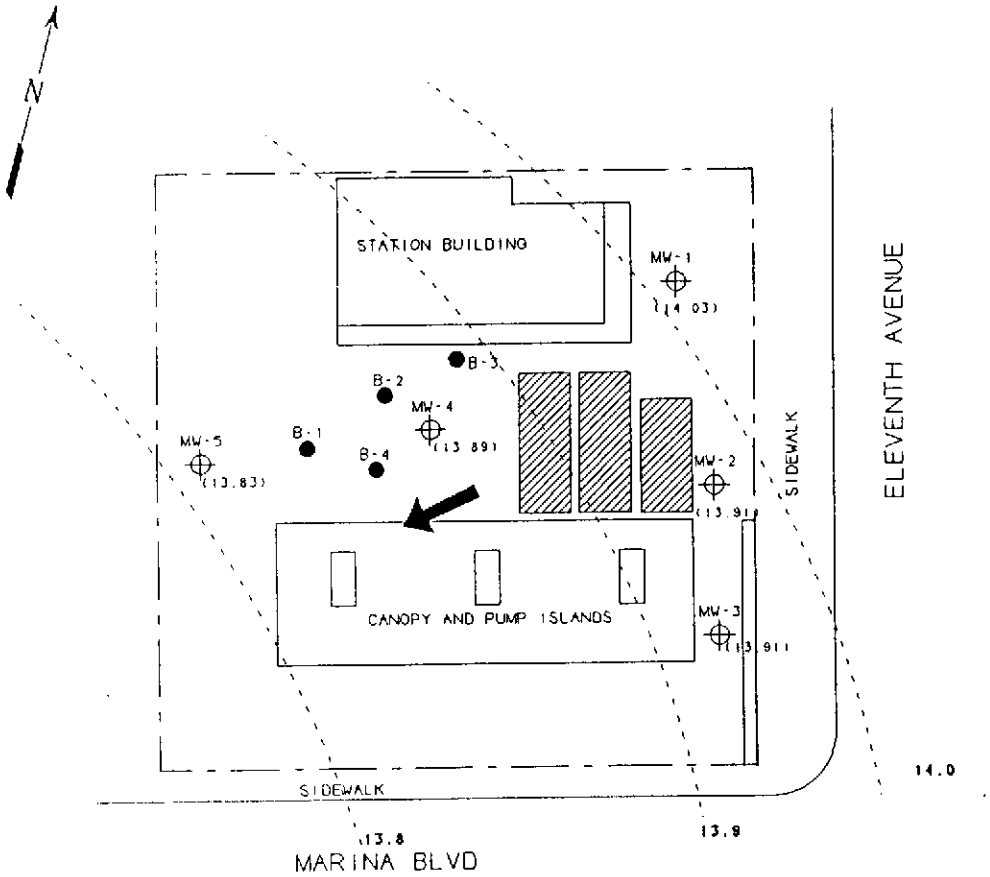
scale feet

LOCATION MAP

Fast Gas Station
1088 Marina Boulevard
San Leandro, California

BASE: A portion of the San Leandro USGS 7.5 minute quadrangle dated 1959 (photorevised 1980), at a scale of 1:24,000.

Figure 1



EXPLANATION

- Property Limits
- MW-5 — Monitoring Wells with ground-water elevations in feet.
- B-4 — Boring
- Underground tank locations
- 14.0 — Potentiometric surface contour
- Approximate ground-water gradient direction.

20 0 20 40
scale feet

GROUND-WATER GRADIENT MAP

SCALE: As shown	APPROVED GR	DRAWN BY: ACC
DATE: 2-22-89		REVISED:

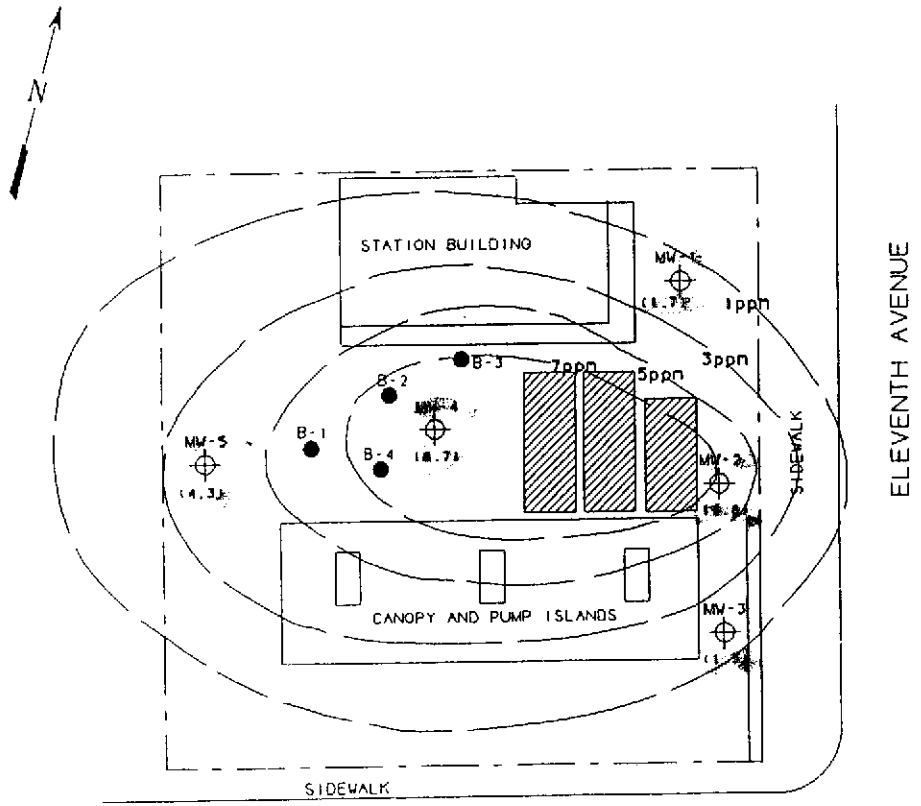
Fast Gas Station
1088 Marina Boulevard
San Leandro, California

Du Pont Biosystems

DRAWING NUMBER 1088-07-47

BASE: Map is modified from a site plan in a Groundwater Technology report entitled "Subsurface Hydrocarbon Investigation" dated May 15, 1987, at a scale of 1 inch=20 feet.

FIGURE 2



EXPLANATION

- Property Limits
- MW-5 (4.3) — Monitoring Wells with concentrations in parts per million.
- B-4 — Boring
- Underground tank locations
- 7ppn — Isopleth concentration of benzene in parts per million.

20 0 20 40
scale feet

ISOPLETH MAP OF [redacted]-PLUME CONCENTRATIONS IN GROUND WATER

SCALE: As shown	APPROVED GK	DRAWN BY: ACC
DATE: 2-22-89		REVISED:

Fast Gas Station
1088 Marina Boulevard
San Leandro, California

Du Pont Biosystems

DRAWING NUMBER 1088-07-47

BASE: Map is modified from a site plan in a Groundwater Technology report entitled "Subsurface Hydrocarbon Investigation" dated May 15, 1987, at a scale of 1 inch=20 feet

FIGURE 3

Du Pont Biosystems

TABLE A

GROUND-WATER POTENTIOMETRIC ELEVATIONS

Fast Gas Station
1088 Marina Boulevard
San Leandro, California

WELL ID	TOP OF CASING ELEVATION	GROUND-WATER ELEVATION Feb '89	DEPTH TO GROUND-WATER Jun '87	Jul '87	Aug '87	Nov '87	Feb '88	May '88	Nov '88	Feb '89
MW-1	29.89	14.03	14.79	14.93	14.22	15.74	13.99	14.99	13.03	15.86
MW-2	29.57	13.91	14.51	14.63	14.95	15.45	13.74	14.63	12.99	15.66
MW-3	29.13	13.91	14.13	14.24	14.52	15.09	13.37	14.22	13.01	15.22
MW-4	29.72	13.89	14.77	14.91	15.19	15.72	14.03	14.89	12.88	15.83
MW-5	29.55	13.83	14.63	14.79	15.07	15.61	13.84	14.77	12.84	15.72

NOTES: 1) All elevations surveyed to an arbitrary datum.
2) Elevations and depths given in feet.

Du Pont Biosystems

TABLE B

SUMMARY OF GROUND-WATER ANALYTICAL RESULTS

Fast Gas Station
1088 Marina Boulevard
San Leandro, California

WELL ID	DATE SAMPLED	BENZENE (ug/L)	ETHYL BENZENE (ug/L)	TOLUENE (ug/L)	XYLENES (ug/L)	TPHg (ug/L)	COMMENTS
MW-1	16-Apr-87	2313.0	664.1	3770.0	3331.0	17276.0	
	23-Jun-87	1887.0	466.7	2141.0	1652.0	26027.0	
	06-Jul-87	778.2	133.2	943.7	422.1	3938.0	
	06-Aug-87	1270.0	288.7	1576.0	873.7	6079.0	
	04-Nov-87	1700.0	720.0	4000.0	2200.0	15000.0	
	02-Feb-88	1500.0	230.0	1700.0	740.0	14000.0	
	02-May-88	3500.0	4900.0	700.0	2700.0	33000.0	
	21-Nov-88	2200.0	2800.0	560.0	2200.0	15000.0	
	[redacted]	1700.0	340.0	1700.0	1500.0	12000.0	[redacted]
MW-2	16-Apr-87	3131.0	1067.0	4239.0	4608.0	17920.0	
	23-Jun-87	2188.0	1047.0	2622.0	4699.0	49354.0	
	06-Jul-87	1575.0	457.0	1729.0	1702.0	8676.0	
	06-Aug-87	2623.0	701.5	3722.0	2882.0	14376.0	
	04-Nov-87	2200.0	900.0	4100.0	3500.0	19000.0	
	02-Feb-88	6200.0	1000.0	6500.0	4000.0	54000.0	
	02-May-88	6800.0	7100.0	1300.0	5400.0	53000.0	
	21-Nov-88	--	--	--	--	--	Free Product
	[redacted]	6900.0	1100.0	4300.0	5200.0	[redacted]	[redacted]
MW-3	16-Apr-87	1371.0	472.3	2438.0	2617.0	9967.0	
	23-Jun-87	646.2	320.9	822.9	1280.0	16824.0	
	06-Jul-87	340.3	116.5	384.2	420.2	3395.0	
	06-Aug-87	441.9	118.2	436.3	417.3	3107.0	
	04-Nov-87	320.0	74.0	280.0	250.0	2600.0	
	02-Feb-88	2200.0	500.0	2300.0	2300.0	44000.0	
	02-May-88	1600.0	840.0	450.0	1700.0	14000.0	
	21-Nov-88	1200.0	560.0	220.0	810.0	8100.0	
	14-Feb-89	1500.0	220.0	220.0	500.0	5500.0	[redacted]
MW-4	16-Apr-87	5896.0	893.9	3797.0	4106.0	19309.0	
	23-Jun-87	4030.0	850.0	1842.0	3254.0	31429.0	
	06-Jul-87	2710.0	308.2	1247.0	1312.0	8117.0	
	06-Aug-87	3992.0	447.9	1589.0	1611.0	10464.0	
	04-Nov-87	9500.0	2800.0	17000.0	11000.0	55000.0	
	02-Feb-88	11000.0	1400.0	7400.0	6200.0	47000.0	
	02-May-88	9200.0	6100.0	1300.0	6400.0	58000.0	
	21-Nov-88	5700.0	3100.0	1600.0	7600.0	48000.0	
	[redacted]	[redacted]	900.0	2500.0	3800.0	29000.0	[redacted]
MW-5	16-Apr-87	2267.0	921.2	3277.0	4536.0	17733.0	
	23-Jun-87	2239.0	516.8	953.9	1587.0	19555.0	
	06-Jul-87	1335.0	313.7	799.2	923.9	5631.0	
	06-Aug-87	1890.0	576.8	881.2	93.4	6450.0	
	04-Nov-87	1300.0	270.0	500.0	640.0	4600.0	
	02-Feb-88	3100.0	550.0	1500.0	1400.0	24000.0	
	02-May-88	4400.0	1200.0	490.0	1500.0	17000.0	
	21-Nov-88	5600.0	870.0	590.0	2200.0	19000.0	
	[redacted]	4300.0	410.0	810.0	1300.0	13000.0	[redacted]

NOTES:
1) TPHg = Total Petroleum Hydrocarbons (as gasoline).
2) Odor refers to petroleum hydrocarbon odor.
3) All results are presented in parts per billion.
4) Samples prior to February 1989 taken by Groundwater Technology, Inc.

APPENDIX A

GROUND-WATER SAMPLING PROCEDURES, LABORATORY TEST RESULTS, AND CHAIN-OF-CUSTODY FORMS

GROUND-WATER MONITORING AND SAMPLING PROCEDURES

Prior to sampling, the depth to water was measured in all monitoring wells using an electronic immersion probe. All measurements were read to the nearest 0.01 foot. If free-product was present, the depth to free-product and the depth to water was measured using an interface probe and an observation sample was collected with a clear teflon bailer for confirmation. No analytical samples were collected from monitoring wells containing more than 0.25 inch of free-product.

The monitoring wells were sampled on February 14, 1989. Prior to purging, each well was sampled with a clear teflon bailer in order to observe the possible presence of floating hydrocarbons. Purging was accomplished using a stainless steel bailer. The bailer was thoroughly cleaned prior to each sampling using a trisodium phosphate solution followed by a 10% methylalcohol solution, and then rinsed with water. The wells were purged prior to sampling until pH and conductivity values stabilized. Generally, this resulted in the removal of approximately 3 to 5 well volumes of ground water from each well during the purging process. The water obtained from purging was placed in labeled 55-gallon drums and stored on-site. The bailer line was replaced after each sampling. Samples recovered from each well were decanted into two 40-ml appropriately labeled, volatile organic analysis (VOA) bottles, one of which is the duplicate quality control sample. A travel blank and a duplicate travel blank were also submitted (numbered as the next monitoring well in sequence) for quality assurance. The sample bottles were immediately placed in an ice chest for delivery to a State of California licensed laboratory. Routine chain-of-custody procedures were employed.

Trace Analysis Laboratory, Inc.
3423 Investment Boulevard, #8 • Hayward, California 94545 *(415) 783-6960*

TAL

DATE: 3/13/89

LOG NO.: 7026

DATE SAMPLED: 2/14/89

DATE RECEIVED: 2/15/89

CUSTOMER: DuPont Biosystems

REQUESTER: Marjorie Lane

PROJECT: No. 1088-Q7-47, San Leandro

Sample Type: Water

Method and Constituent	Units	MW-1 Concentration	MW-1 Detection Limit	MW-2 Concentration	MW-2 Detection Limit	MW-3 Concentration	MW-3 Detection Limit
DHS Method:							
Total Petroleum Hydrocarbons as Gasoline	ug/l	12,000	200	48,000	400	5,500	200
Modified EPA Method 8020:							
Benzene	ug/l	1,700	30	6,900	80	1,500	30
Toluene	ug/l	1,700	30	4,300	70	220	30
Xylenes	ug/l	1,500	50	5,200	100	500	50
Ethyl Benzene	ug/l	340	40	1,100	90	220	40

DATE: 3/13/89
LOG NO.: 7026
DATE SAMPLED: 2/14/89
DATE RECEIVED: 2/15/89
PAGE: Two

Sample Type: Water

Method and Constituent	Units	MW-4 Concentration	MW-4 Detection Limit	MW-5 Concentration	MW-5 Detection Limit	Duplicate-1 Concentration	Duplicate-1 Detection Limit
DHS Method:							
Total Petroleum Hydrocarbons as Gasoline	ug/l	29,000	800	13,000	200	< 2	2
Modified EPA Method 8020:							
Benzene	ug/l	8,700	200	4,300	30	< 0.3	0.3
Toluene	ug/l	2,500	100	810	30	< 0.3	0.3
Xylenes	ug/l	3,800	300	1,300	50	< 0.5	0.5
Ethyl Benzene	ug/l	900	200	410	40	< 0.4	0.4

Dan Farah

Dan Farah, Ph.D.
Supervisory Chemist

DF:mln

Alpha Environmental Services, Inc.

310 Main Street, Suite F • Pleasanton, California 94566 • (415) 462-7772

CHAIN OF CUSTODY/WORK ORDER

Testing Laboratory Trace Analysis Laboratory Phone 415-783-6960

Address 3423 Investment Blvd, Unit 8

City, State, Zip Hayward, CA 94545

PROJECT NAME: San Leandro

JOB NUMBER: 1088-07-47

SAMPLERS (Signature): Marjorie Lane

SAMPLE I.D.	DATE 1989	TIME	COMP	GRAB	LOCATION	NO. OF CONTAINERS	Collect sample, label and iced	BTEX & TPH	REMARKS
MW-1	2/14				Monitoring well 1	2	✓	✓	
MW-2	↓				2	2	✓	✓	
MW-3					3	2	✓	✓	
MW-4					4	2	✓	✓	
MW-5					5	2	✓	✓	
DUP 1					Duplicate 1	2	✓	✓	

RELINQUISHED BY (Signature)	DATE	TIME	RECEIVED BY (Signature)	DATE	TIME
Marjorie Lane REPRESENTING:			Corrine Keller REPRESENTING:	2-15-89	4:05 P.M.
RELINQUISHED BY (Signature) REPRESENTING:	DATE	TIME	RECEIVED BY (Signature) REPRESENTING:	DATE	TIME
RELINQUISHED BY (Signature) REPRESENTING:	DATE	TIME	RECEIVED BY (Signature) REPRESENTING:	DATE	TIME

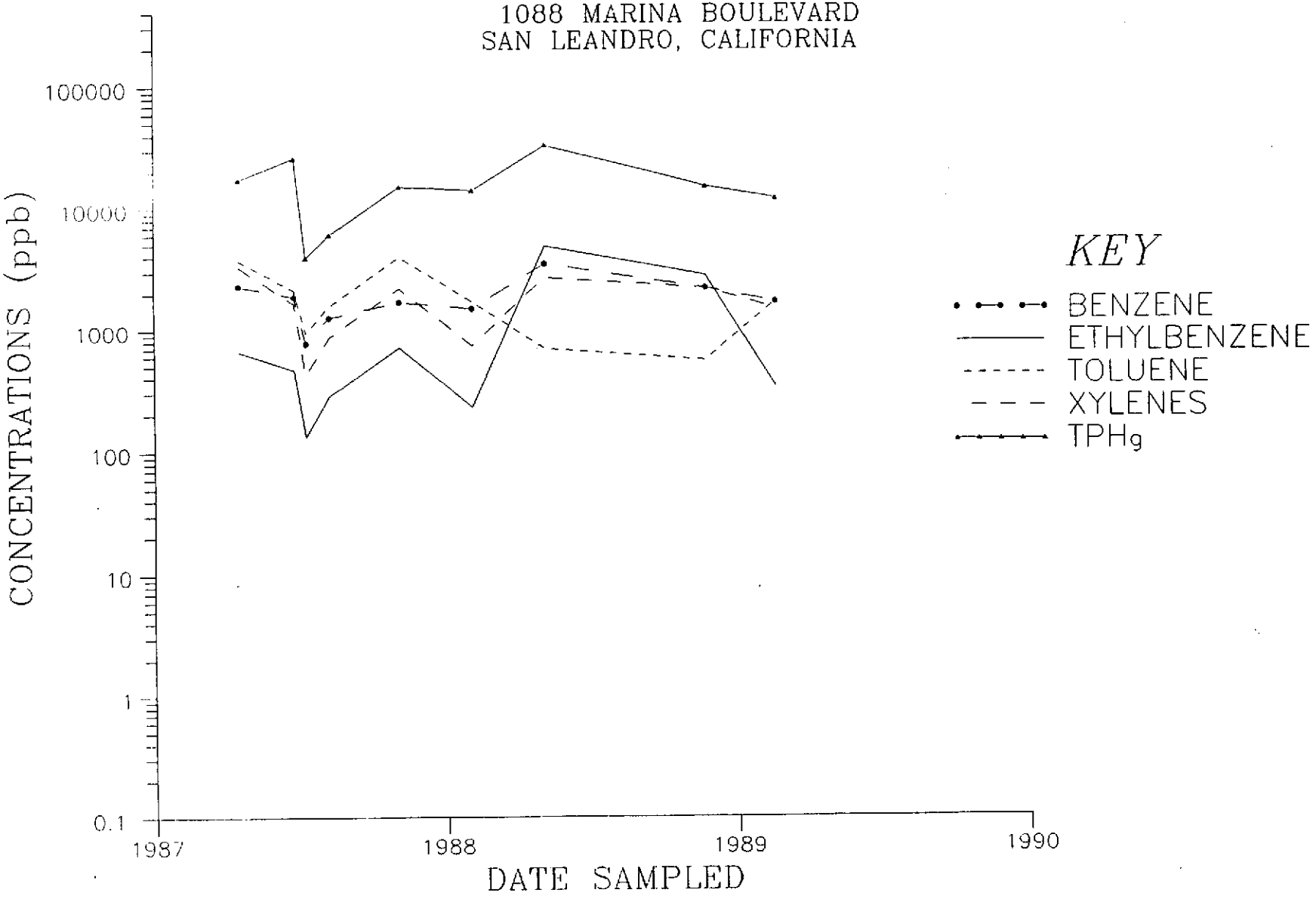
APPENDIX B

GRAPHS SHOWING LABORATORY TEST DATA

GROUND-WATER ANALYSES DATA

WELL MW-1

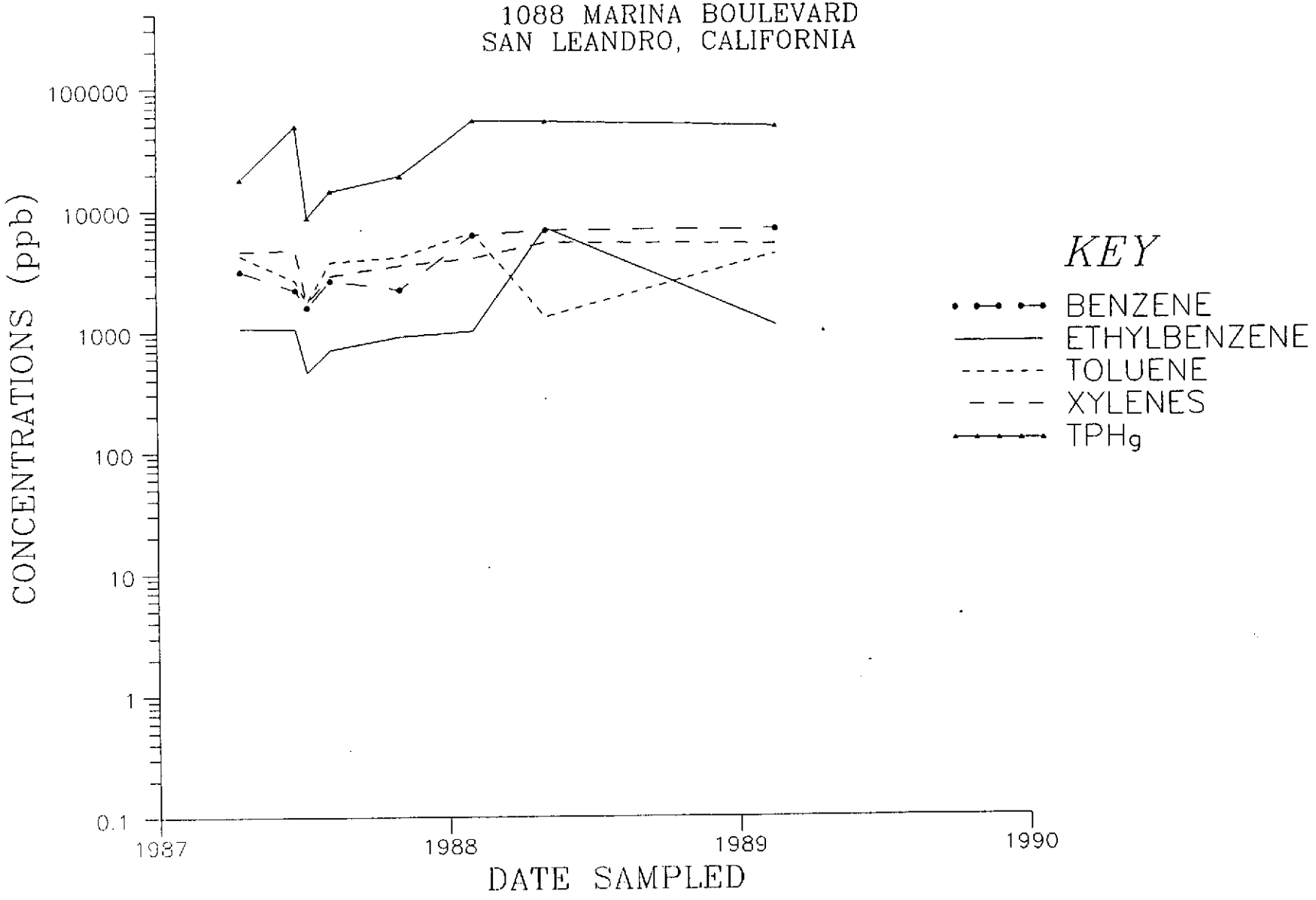
FAST GAS STATION
1088 MARINA BOULEVARD
SAN LEANDRO, CALIFORNIA



GROUND-WATER ANALYSES DATA

WELL MW-2

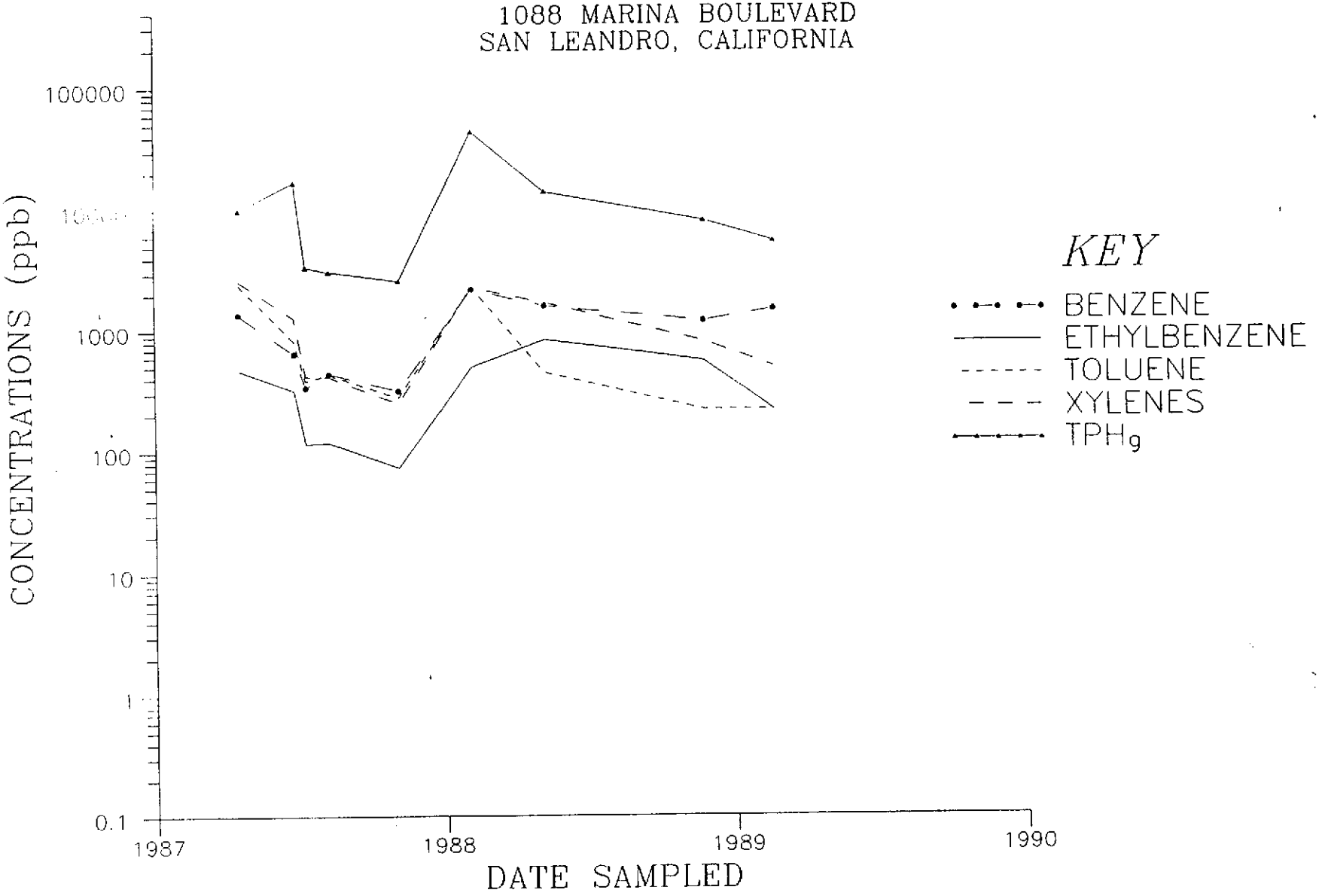
FAST GAS STATION
1088 MARINA BOULEVARD
SAN LEANDRO, CALIFORNIA



GROUND-WATER ANALYSES DATA

WELL MW-3

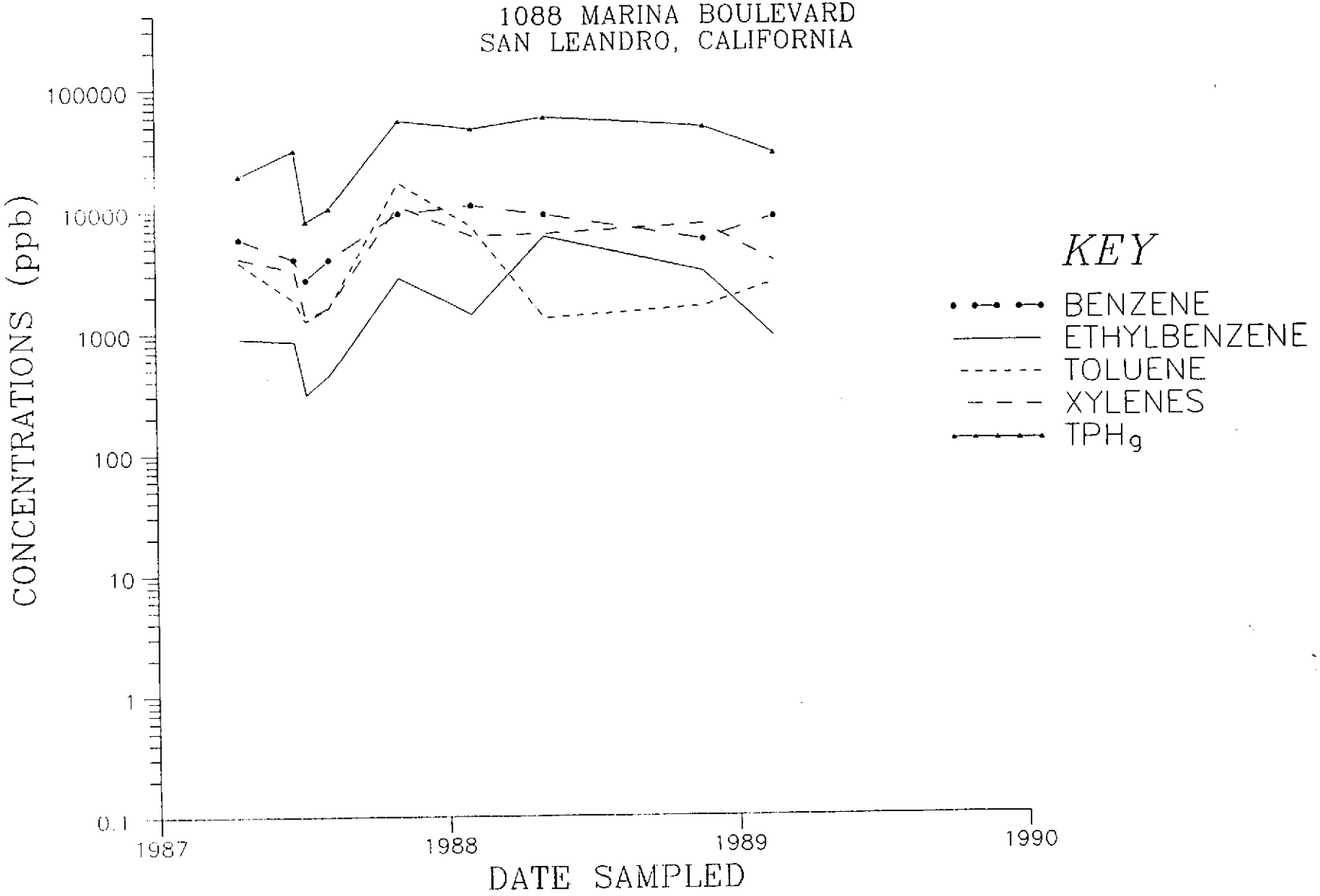
FAST GAS STATION
1088 MARINA BOULEVARD
SAN LEANDRO, CALIFORNIA



GROUND-WATER ANALYSES DATA

WELL MW-4

FAST GAS STATION
1088 MARINA BOULEVARD
SAN LEANDRO, CALIFORNIA



GROUND-WATER ANALYSES DATA

WELL MW-5

FAST GAS STATION
1088 MARINA BOULEVARD
SAN LEANDRO, CALIFORNIA