San Leandro

#720

DuPont Biosystems

Du Pont Biosystems

QUARTERLY GROUND-WATER SAMPLING REPORT

MAY 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

JUNE 16, 1989

JOB NO. 1088-Q8-47

Du Pont Biosystems

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Du Pont Biosystems

June 16, 1989
Job No. 1088-Q8-47

Conoco Inc.
900 South Cherokee Lane
Lodi, California 95240

ATTENTION: Mr. Michael Hansen

SUBJECT: Quarterly Ground-Water Sampling Report
May 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 Leandro, California (see the Location Map, Figure 1), on May 2, 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 May quarter is presented in Table A. In general, ground-water levels have

risen approximately 0.9 feet since the last quarterly sampling. Ground-water flow for this quarter is directed towards the southwest with a gradient of approximately 0.003 (see the Ground-Water Gradient Map, Figure 2). Generally, chemical analytical results have risen slightly 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 August 1989.

Respectfully submitted,

DU PONT BIOSYSTEMS

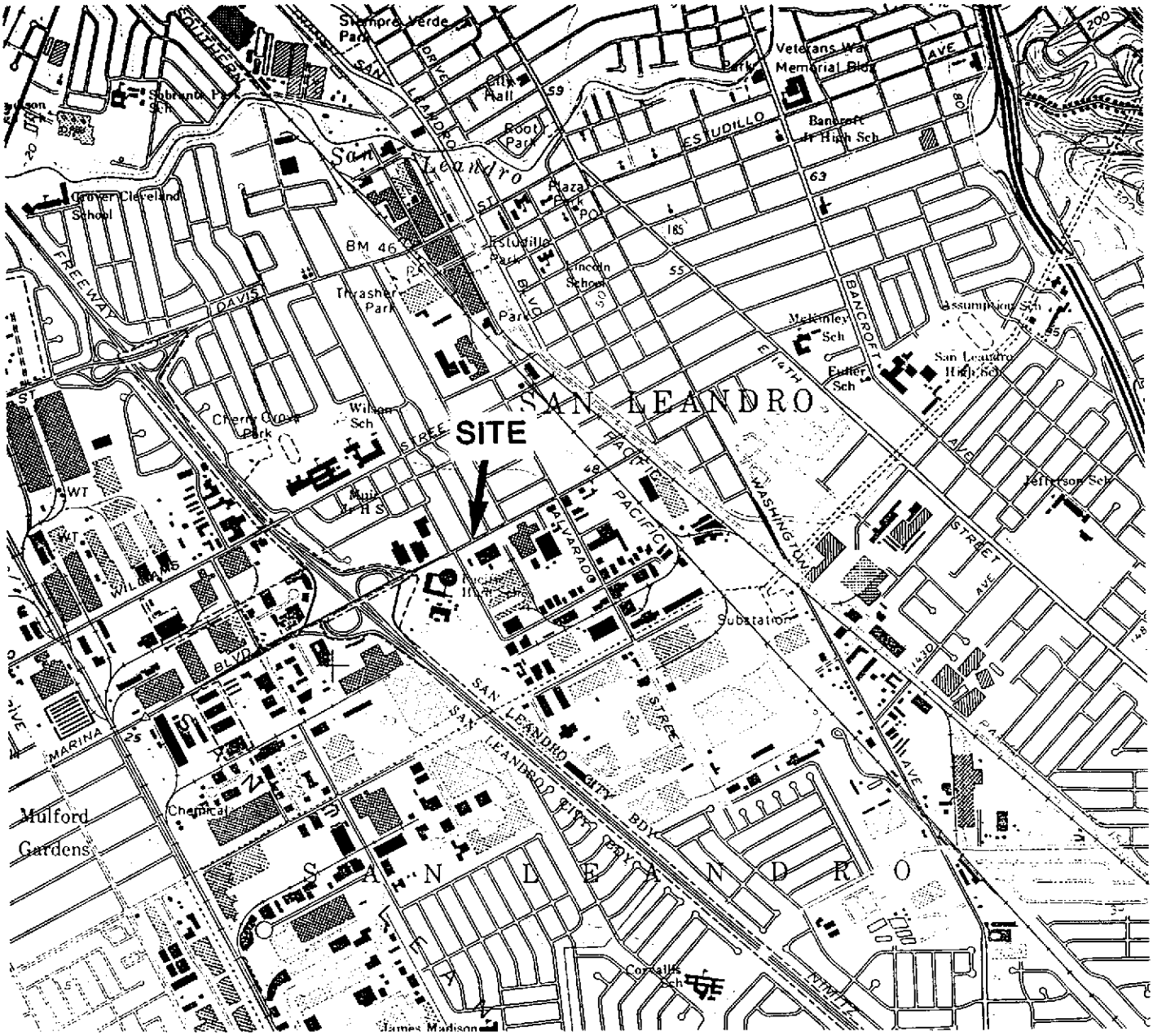
Marjorie Lane

Marjorie Lane
Staff Geologist

George Reid

George Reid
CEG 1068

ML/rw:cb

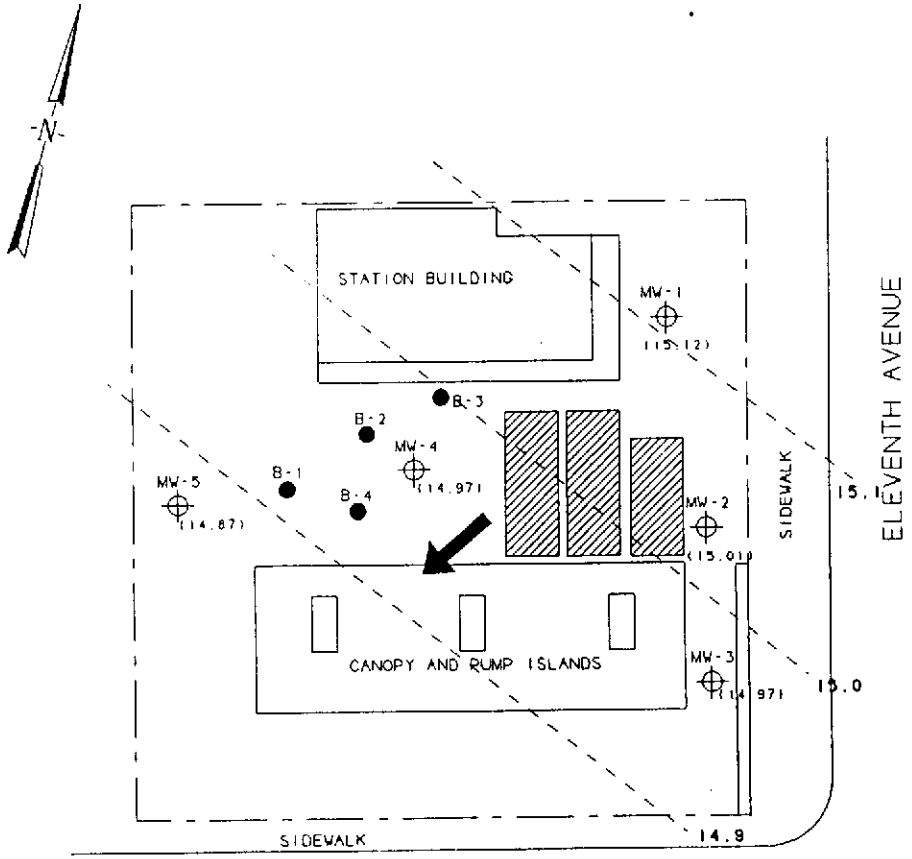


LOCATION MAP

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 (14.87) — Monitoring Wells with ground-water elevations in feet.
- B-4 — Boring
- Underground tank locations
- 15.1 — Potentiometric surface contour
- Approximate ground-water gradient direction.

NOTE: Ground-water elevations for monitoring wells MW-1 through MW-5, were sampled on 5-2-89.

20 0 20 40
scale feet

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.

GROUND-WATER GRADIENT MAP

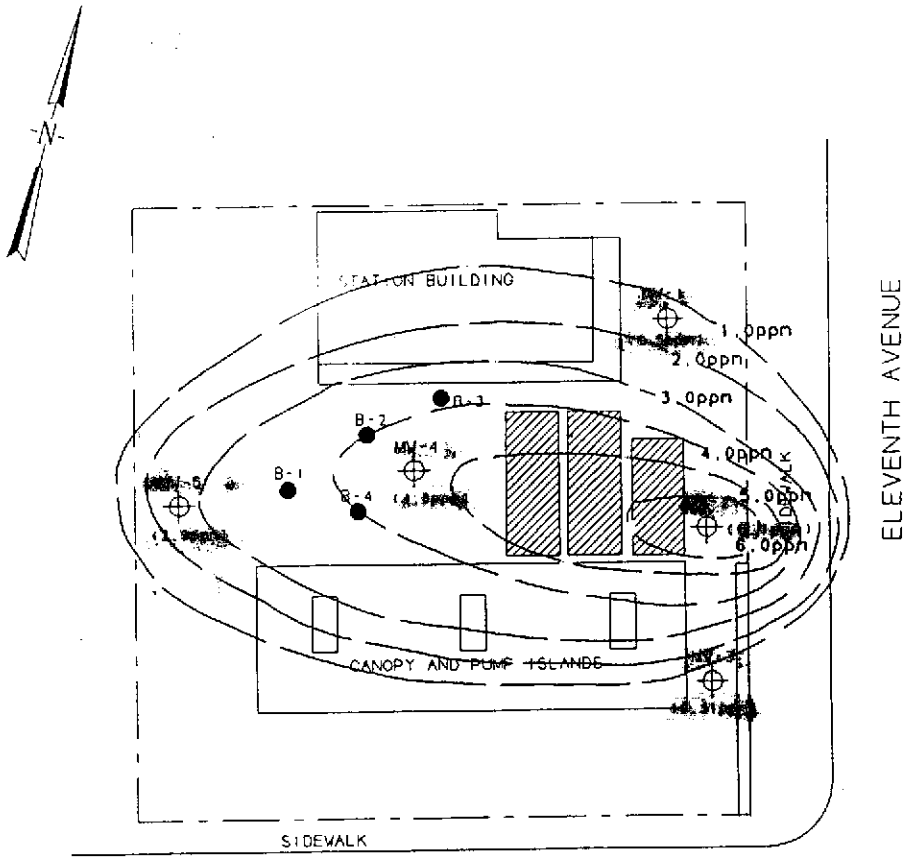
SCALE: As shown	APPROVED	DRAWN BY: ACC
DATE: 2-22-89		REVISED:

Fast Gas Station
1088 Marina Boulevard
San Leandro, California

Du Pont Biosystems

DRAWING NUMBER 1088-Q8-47

Figure 2



EXPLANATION

- Property Limits
- MW-5 (2.9ppm) — Monitoring Wells with concentrations of benzene in parts per million
- B-4 — Boring
- Underground tank locations
- 6.0ppm — Isopleth concentration of benzene in [illegible] million.

NOTE: Isopleth of benzene concentrations for monitoring wells MW-1 through MW-5, were sampled 5-2-89.

20 0 20 40
scale feet

ISOPLETH MAP OF [illegible] CONCENTRATIONS IN GROUND WATER

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

Fast Gas Station
1088 Marina Boulevard
San Leandro, California

Du Pont Biosystems

DRAWING NUMBER 1088-08-47

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

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	May '89
MW-1	29.89	15.12	14.79	14.93	14.22	15.74	13.99	14.99	13.03	15.86	14.77
MW-2	29.57	15.01	14.51	14.63	14.95	15.45	13.74	14.63	12.99	15.66	14.56
MW-3	29.13	14.97	14.13	14.24	14.52	15.09	13.37	14.22	13.01	15.22	14.16
MW-4	29.72	14.97	14.77	14.91	15.19	15.72	14.03	14.89	12.88	15.83	14.75
MW-5	29.55	14.87	14.63	14.79	15.07	15.61	13.84	14.77	12.84	15.72	14.68

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

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	
	14-Feb-89	1700.0	340.0	1700.0	1500.0	12000.0	Odor
	[redacted]	1500.0	510.0	2400.0	2400.0	18000.0	[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
	14-Feb-89	6900.0	1100.0	4300.0	5200.0	48000.0	Film of Free Product
	[redacted]	[redacted]	2100.0	8800.0	16000.0	[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	Odor
	[redacted]	910.0	530.0	310.0	1900.0	13000.0	[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	
	14-Feb-89	8700.0	900.0	2500.0	3800.0	29000.0	Odor & Sheen
	[redacted]	4800.0	1800.0	5600.0	8800.0	69000.0	[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	
	14-Feb-89	4300.0	410.0	810.0	1300.0	13000.0	Odor
	[redacted]	2900.0	690.0	1500.0	3200.0	24000.0	[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 May 2, 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: 5/24/89

LOG NO.: 7326

DATE SAMPLED: 5/2/89

DATE RECEIVED: 5/2/89

CUSTOMER: DuPont Biosystems

REQUESTER: Marjorie Lane

PROJECT: No. 1088-Q8-47, 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	18,000	500	110,000	500	13,000	500
Modified EPA Method 8020:							
Benzene	ug/l	1,500	60	6,100	60	910	60
Toluene	ug/l	2,400	50	8,800	50	310	50
Xylenes	ug/l	2,400	100	16,000	100	1,900	100
Ethyl Benzene	ug/l	510	80	2,100	80	530	80

DATE: 5/24/89
LOG NO.: 7326
DATE SAMPLED: 5/2/89
DATE RECEIVED: 5/2/89
PAGE: Two

Sample Type: Water

Method and Constituent	Units	MW-4 Concentration	MW-4 Detection Limit	MW-5 Concentration	MW-5 Detection Limit	MW-6 Concentration	MW-6 Detection Limit
DHS Method:							
Total Petroleum Hydrocarbons as Gasoline	ug/l	69,000	2,000	24,000	1,000	< 2	2
Modified EPA Method 8020:							
Benzene	ug/l	4,800	300	2,900	200	< 0.2	0.2
Toluene	ug/l	5,600	300	1,500	200	< 0.2	0.2
Xylenes	ug/l	8,800	500	3,200	300	< 0.4	0.4
Ethyl Benzene	ug/l	1,800	400	690	200	< 0.3	0.3

Dan Farah

Dan Farah, Ph.D.
Supervisory Chemist

DF:mln

DU PONT BIOSYSTEMS

7068 Koll Center Parkway • Suite 401 • Pleasanton, California • (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, California 94545

PROJECT NAME: San Leandro

JOB NUMBER: 1088-Q8-47

SAMPLERS (Signature): Marque Jane

SAMPLE I.D.	DATE	TIME	COMP	GRAB	LOCATION	NO. OF CONTAINERS	collected labeled iced	analysis: BTEX TPHg	2 week turnaround			REMARKS
MW-1	5/2/89				monitoring well 1	2	✓	✓	✓			
MW-2	↓				" 2	2	✓	✓	✓			
MW-3	↓				" 3	2	✓	✓	✓			
MW-4	↓				" 4	2	✓	✓	✓			
MW-5	↓				" 5	2	✓	✓	✓			
MW-6	↓				" 6	2	✓	✓	✓			

RELINQUISHED BY (Signature)	DATE	TIME	RECEIVED BY (Signature)	DATE	TIME
Marque Jane REPRESENTING: DuPont Biosystems	5/2/89	3.50	REPRESENTING:		
REPRESENTING:			REPRESENTING:		
REPRESENTING:			Dannish Dashmalik REPRESENTING:	5/2/89	3:50

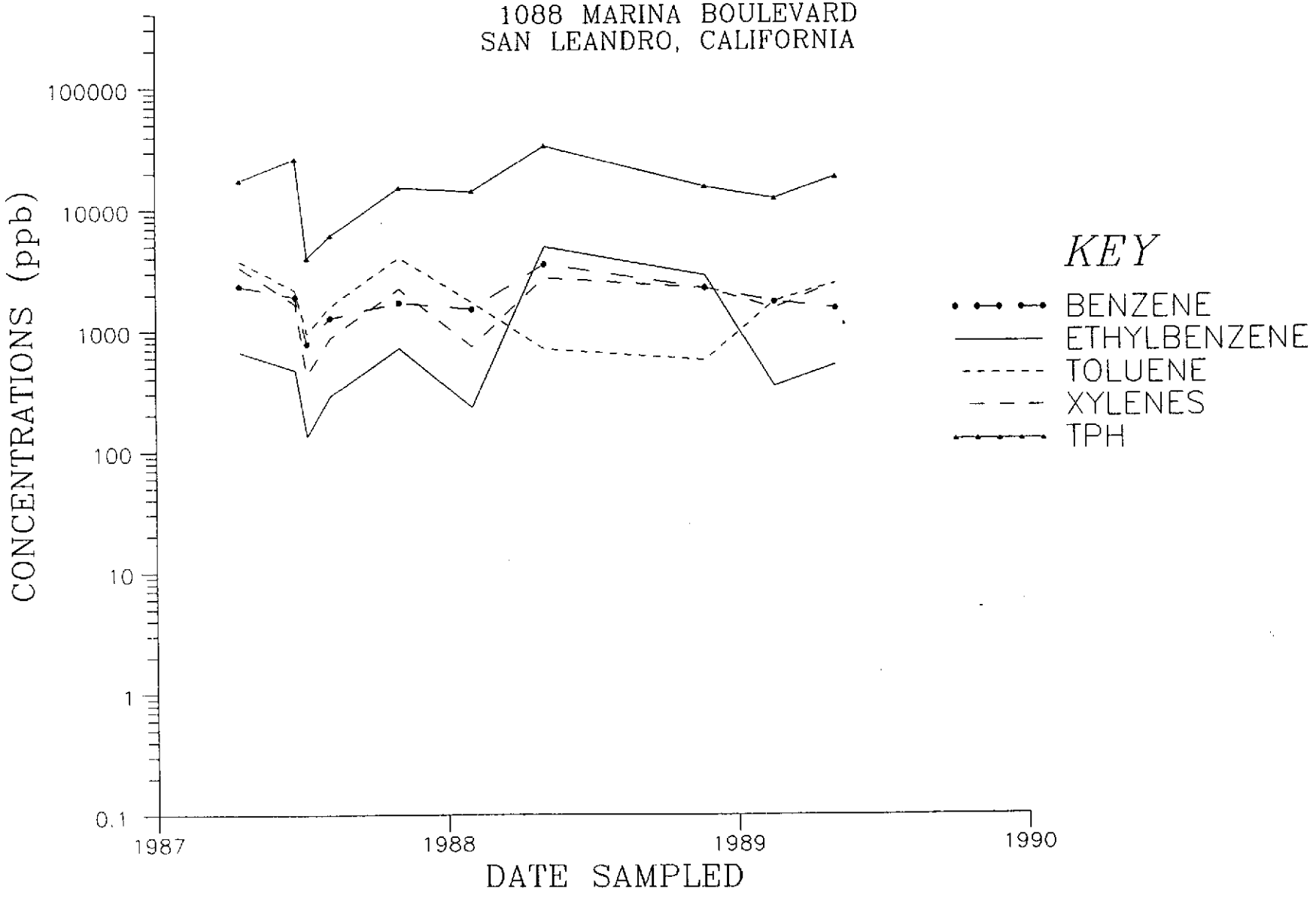
APPENDIX B

GRAPHS SHOWING LABORATORY TEST DATA

GROUND-WATER ANALYSES DATA

WELL MW-1

FAST GAS STATION
1088 MARINA BOULEVARD
SAN LEANDRO, CALIFORNIA

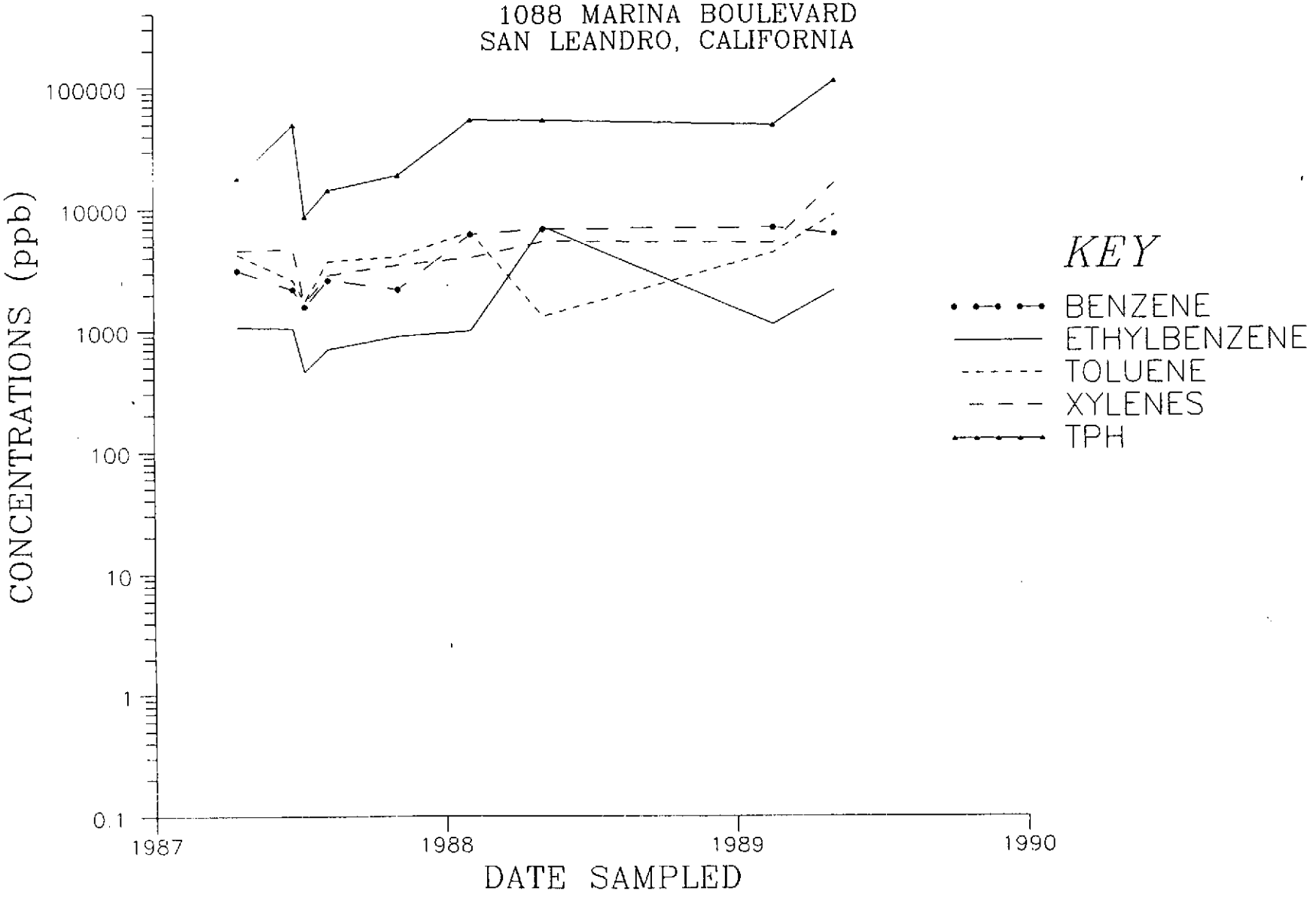


NOTE: Laboratory detection limits vary due to analytical procedures used.

GROUND-WATER ANALYSES DATA

WELL MW-2

FAST GAS STATION
1088 MARINA BOULEVARD
SAN LEANDRO, CALIFORNIA

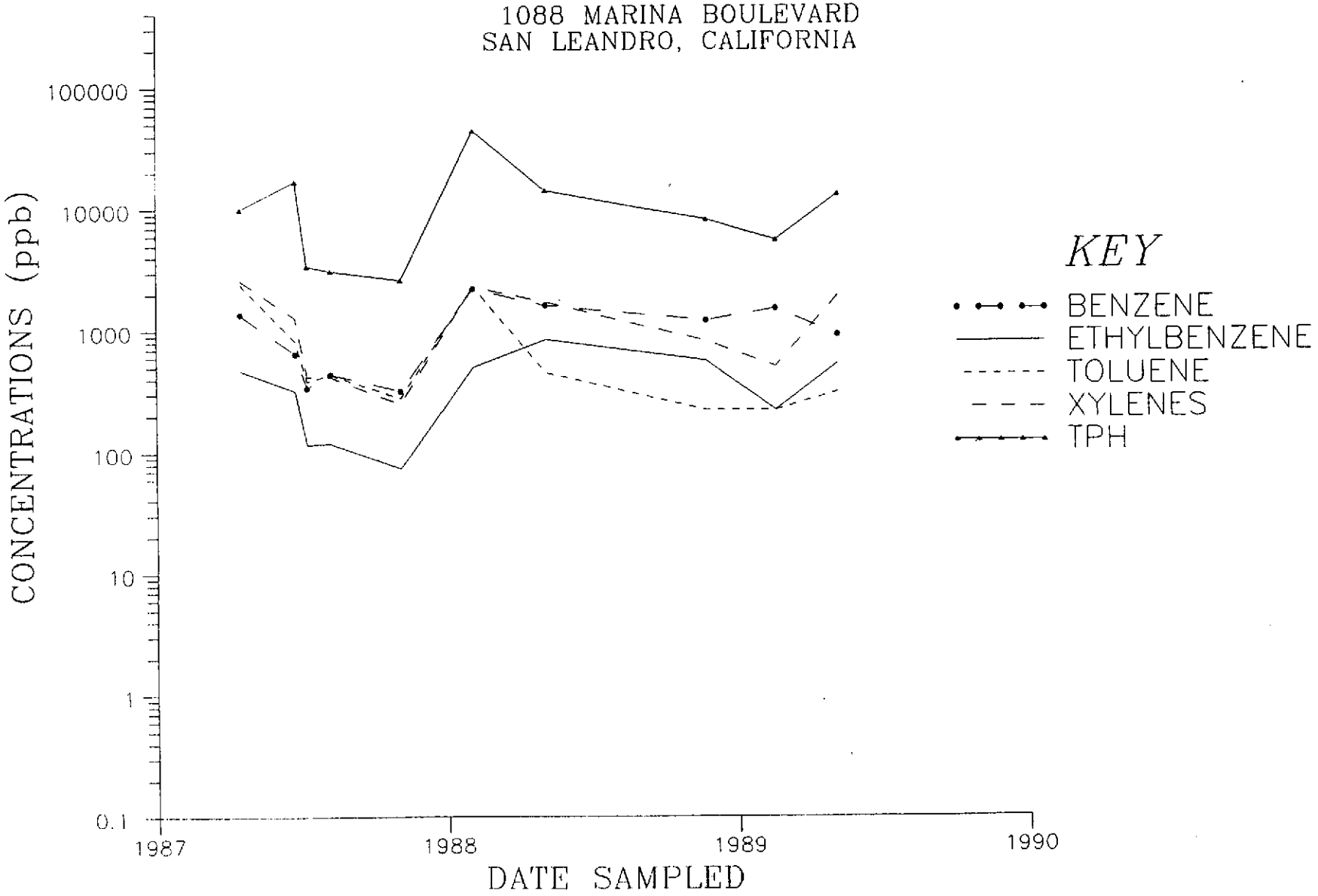


NOTE: Laboratory detection limits vary due to analytical procedures used.

GROUND-WATER ANALYSES DATA

WELL MW-3

FAST GAS STATION
1088 MARINA BOULEVARD
SAN LEANDRO, CALIFORNIA

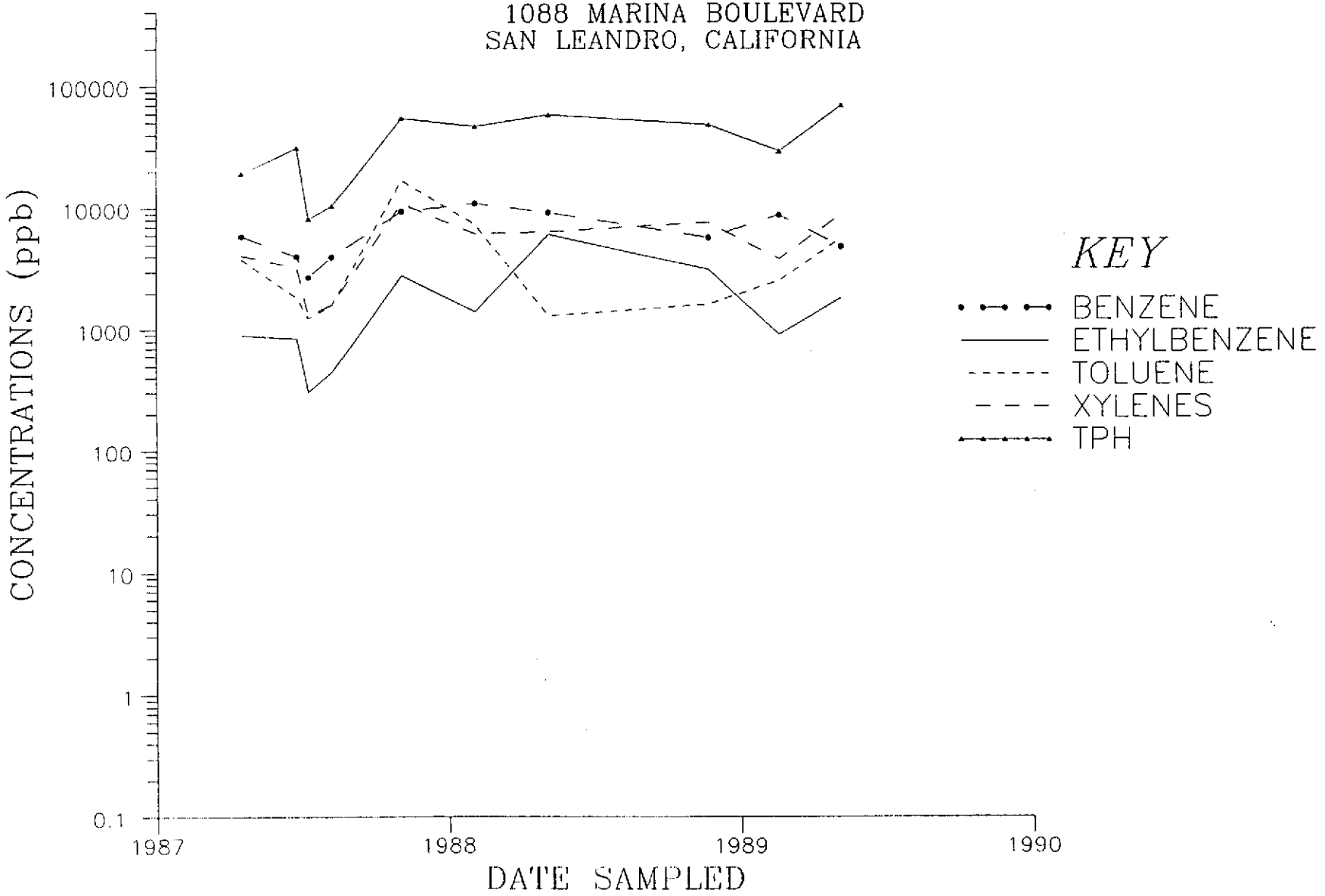


NOTE: Laboratory detection limits vary due to analytical procedures used.

GROUND-WATER ANALYSES DATA

WELL MW-4

FAST GAS STATION
1088 MARINA BOULEVARD
SAN LEANDRO, CALIFORNIA

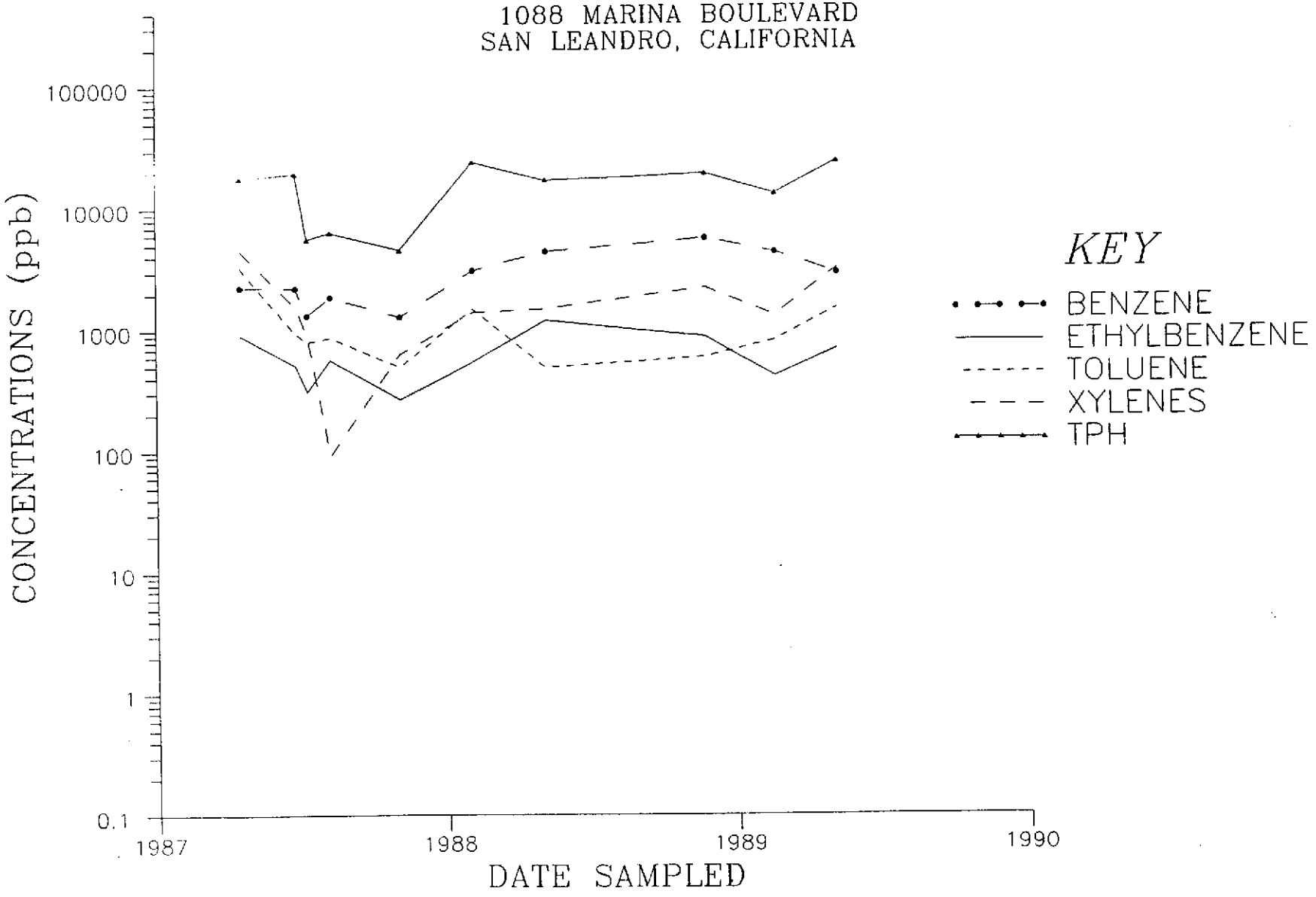


NOTE: Laboratory detection limits vary due to analytical procedures used.

GROUND-WATER ANALYSES DATA

WELL MW-5

FAST GAS STATION
1088 MARINA BOULEVARD
SAN LEANDRO, CALIFORNIA



NOTE: Laboratory detection limits vary due to analytical procedures used.