Gregory P. Fletcher
Environmental Coordinator
TR 3038
713/293-5683

Marketing
North America

Conoco Inc.
P.O. Box 4784
Houston, TX 77210-4784

May 9, 1990

Mr. Bob Nolan
San Leandro Fire Department
910 East 14th Street
San Leandro, CA 94577

Re: Fast Gas Station
1088 Marina Boulevard
San Leandro, CA

Dear Mr. Nolan:

Enclosed is the report prepared by DuPont Biosystems on the February, 1990 Quarterly Groundwater Sampling and Analysis for the above referenced site.

Please contact me at our Houston office if you have any questions, 713/293-5683.

Sincerely,

Gregory P. Fletcher

G. P. Fletcher
Coordinator - Environmental Affairs

GPF/lmm

enc

cc w/enc: Mr. Rafat Shahid
County of Alameda
Department of Environmental Health
80 Swan Way, Suite 200
Oakland, CA 94621

QUARTERLY GROUND-WATER SAMPLING REPORT
FEBRUARY 1990
FAST GAS STATION
1088 MARINA BOULEVARD
SAN LEANDRO, CALIFORNIA

April 10, 1990

FOR

CONOCO INC.
600 NORTH DAIRY ASHFORD
TR 3038
HOUSTON, TEXAS 77079

PREPARED BY

DU PONT ENVIRONMENTAL SERVICES
7068 KOLL CENTER PARKWAY, SUITE 401
PLEASANTON, CALIFORNIA 94566

APRIL 10, 1990

JOB NO. 1088-Q11-47

Du Pont Environmental Services

TABLE OF CONTENTS JOB NO. 1088-Q11-47

LIST OF ILLUSTRATIONS

LIST OF TABLES

LIST OF APPENDICES

DU PONT

Du Pont Environmental Services

April 10, 1990
Job No. 1088-Q11-47

Conoco Inc.
600 North Dairy Ashford
TR 3038
Houston, Texas 77079

ATTENTION: Mr. Gregory P. Fletcher
Coordinator - Environmental Affairs

SUBJECT: Quarterly Ground-Water Sampling Report
February 1990
Fast Gas Station
1088 Marina Boulevard
San Leandro, California

Dear Mr. Fletcher:

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 February 20, 1990. 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 1990 quarter is presented in Table A. In general, ground-water levels have risen approximately 0.8 foot since the last quarterly sampling. The ground-water gradient for this quarter is directed towards the southwest at a magnitude of approximately 0.005 (see the Ground-Water Gradient Map, Figure 2). Chemical analytical results indicate dissolved hydrocarbons continue to be centered in the area between MW-2 and MW-4 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. The site is scheduled to be resampled during May 1990.

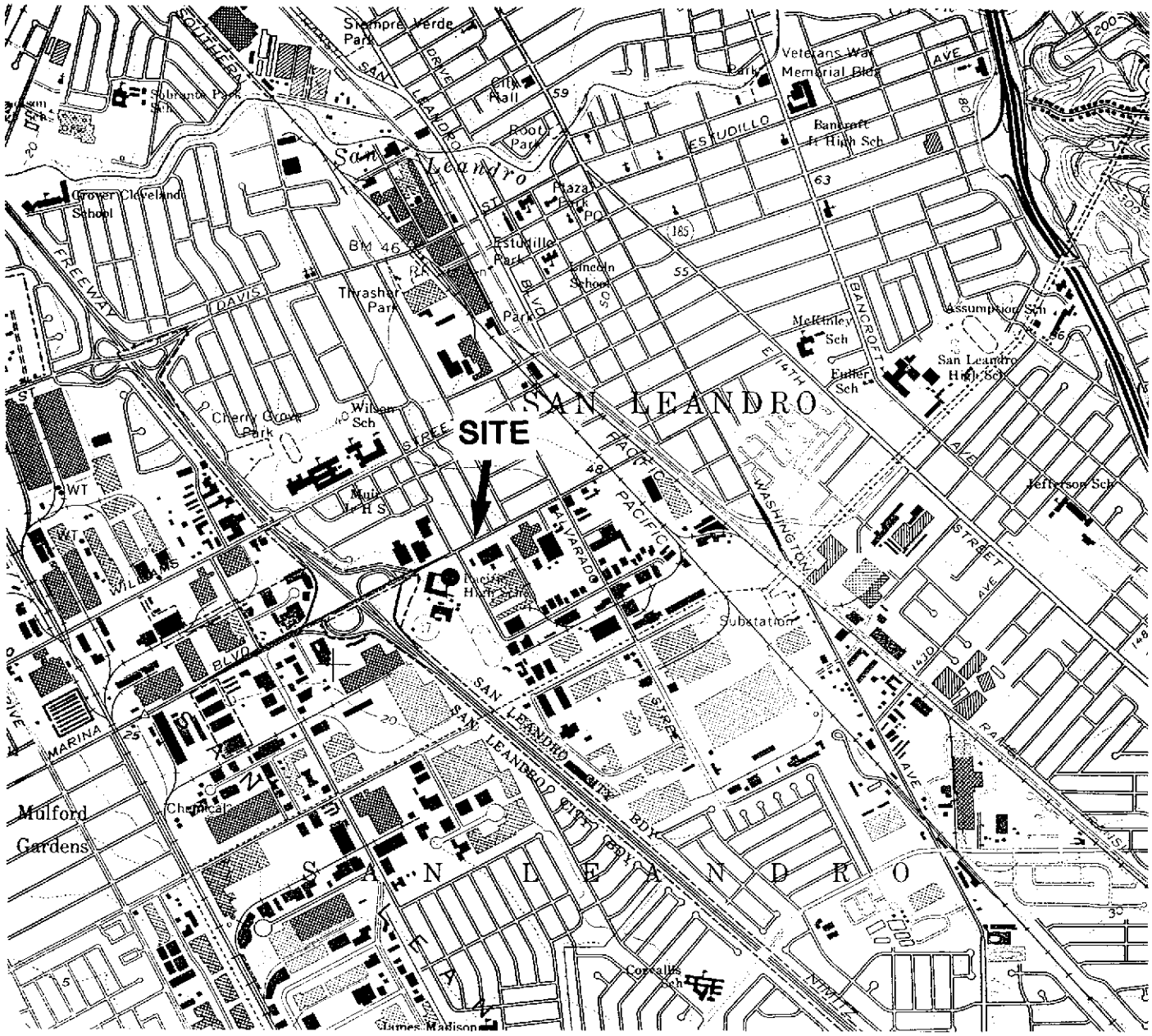
Respectfully submitted,

DU PONT ENVIRONMENTAL SERVICES

Marjorie Lane
Staff Geologist

David J. Blunt
Registered Geologist
RG 4516

ML/DJB:cb

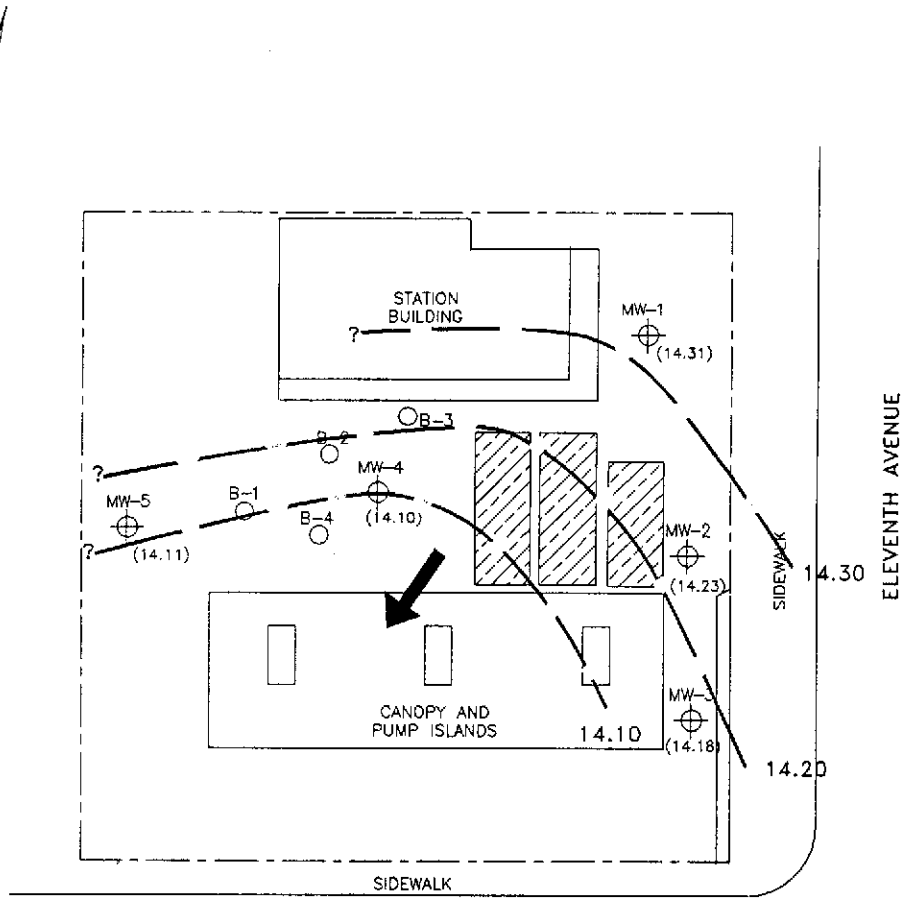


LOCATION MAP

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 (14.11) — Monitoring Well with ground-water elevations in feet
- B-4 — Boring
- Underground Fuel Storage Tanks
- 14.30 — Potentiometric surface contour with ground-water elevations in feet
- Approximate ground-water gradient direction

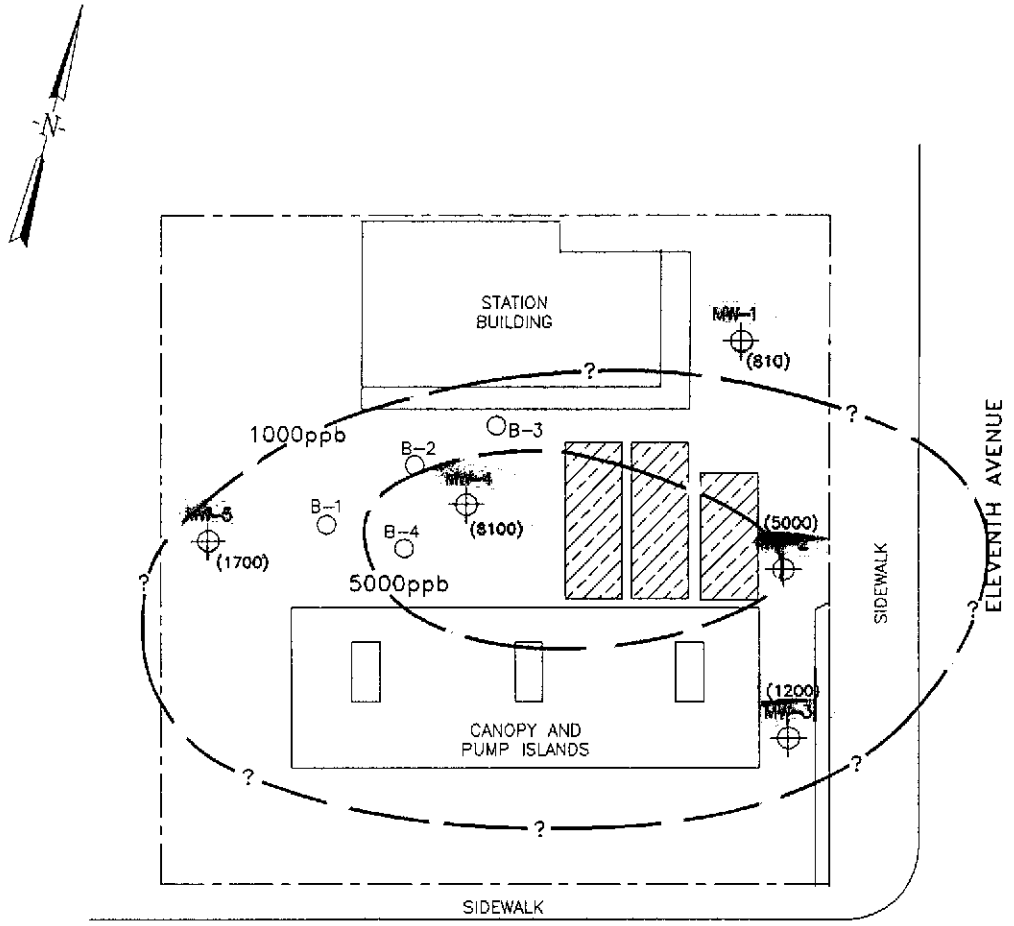
20 0 20 40

Approximate scale in feet

NOTE:
Potentiometric contours are based on water level measurements obtained from Monitoring Wells MW-1 through MW-5 sampled on 2-20-90

REVISIONS		GROUND-WATER GRADIENT MAP			
BY APPR		SCALE: As Shown	DESIGNED BY	DRAWN BY: ACC	DRAWING NO: A-1088Q1147-2
BY APPR		DATE: 3-20-90	CHECKED: MC	APPROVED	JOB NO: 1088-Q11-47
BY APPR		Fast Gas Station 1088 Marina Boulevard San Leandro, California			
BY APPR					
BY APPR		Du Pont Environmental Services			
BY APPR					

Figure 2



EXPLANATION

- Property Limits
- MW-5 (1700) — Monitoring Well with benzene concentration in parts per billion
- B-4 — Boring
- Underground Fuel Storage Tanks
- 5000ppb — Isopleth of **benzene** concentration in parts per billion

20 0 20 40

Approximate scale in feet

NOTE:
Isopleths are based on laboratory test results of ground water obtained from Monitoring Wells MW-1 through MW-5 sampled on 2-20-90.

REVISIONS			ISOPLETH MAP OF BENZENE CONCENTRATIONS IN GROUND WATER			
BY	APPR		SCALE: As Shown	DESIGNED BY:	DRAWN BY: ACC	DRAWING NO: A-1088Q1147-3
BY	APPR		DATE: 3-20-90	CHECKED: ML	APPROVED: JC	JOB NO: 1088-Q11-47
BY	APPR		Fast Gas Station 1088 Marina Boulevard San Leandro, California			
BY	APPR					
BY	APPR		Du Pont Environmental Services			
BY	APPR					

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									ELEVATION CHANGE SINCE Nov '89	DEPTH TO GROUND WATER Feb '90
		Nov '87	Feb '88	May '88	Nov '88	Feb '89	May '89	Aug '89	Nov '89	Feb '90		
MW-1	29.89	14.15	15.90	14.90	16.86	14.03	15.12	13.54	13.43	14.31	0.88 ↑	15.58
MW-2	29.57	14.12	15.83	14.94	16.58	13.91	15.01	13.35	13.38	14.23	0.85 ↑	15.34
MW-3	29.13	14.04	15.76	14.91	16.12	13.91	14.97	13.52	13.38	14.18	0.80 ↑	14.95
MW-4	29.72	14.00	15.69	14.83	16.84	13.89	14.97	13.42	13.43	14.10	0.67 ↑	15.62
MW-5	29.55	13.94	15.71	14.78	16.71	13.83	14.87	13.52	13.22	14.11	0.89 ↑	15.44

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)	TPH_g (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*
	02-May-89	1500.0	510.0	2400.0	2400.0	18000.0	*Odor, Slight Sheen*
	10-Aug-89	1400.0	360.0	1500.0	1600.0	10000.0	*Odor*
	08-Nov-89	920.0	190.0	470.0	360.0	7200.0	*Odor*
	20-Feb-90	810.0	270.0	540.0	800.0	3300.0	
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*
	02-May-89	6100.0	2100.0	8800.0	16000.0	110000.0	*Odor, Sheen*
	10-Aug-89	4200.0	1000.0	2900.0	5800.0	39000.0	*Odor, Sheen*
	08-Nov-89	3700.0	740.0	1500.0	2200.0	45000.0	*Odor, Heavy Sheen*
	20-Feb-90	5000.0	1600.0	8200.0	11000.0	[illegible]	
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*
	02-May-89	910.0	530.0	310.0	1900.0	13000.0	*Odor*
	10-Aug-89	750.0	190.0	10.0	210.0	2700.0	*Odor*
	08-Nov-89	370.0	90.0	ND(20)	58.0	2400.0	*Odor*
	20-Feb-90	1200.0	810.0	77.0	460.0	3700.0	

TABLE B (cont.)

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-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*
	02-May-89	4800.0	1800.0	5600.0	8800.0	69000.0	*Odor, Slight Sheen*
	10-Aug-89	15000.0	1800.0	6600.0	12000.0	67000.0	*Odor, Slight Sheen*
	08-Nov-89	11000.0	1100.0	3200.0	4400.0	71000.0	*Odor, Slight Sheen*
	~~*20-Feb-90*~~	~~8100.0~~	930.0	4500.0	3500.0	19000.0	
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*
	02-May-89	2900.0	690.0	1500.0	3200.0	24000.0	*Odor, Slight Sheen*
	10-Aug-89	6700.0	860.0	2300.0	4700.0	36000.0	*Odor, Slight Sheen*
	08-Nov-89	5300.0	460.0	860.0	600.0	30000.0	*Odor*
	~~*20-Feb-90*~~	1700.0	120.0	220.0	370.0	3400.0	

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 20, 1990. Prior to purging, each well was checked with a clear teflon bailer in order to observe the possible presence of floating hydrocarbons. Purging was accomplished using a stainless steel or teflon bailer. The bailer was thoroughly cleaned prior to each sampling using a trisodium phosphate solution followed by a 10% methylalcohol solution, and then rinsed twice with potable water. The wells were purged prior to sampling until pH, conductivity, and temperature 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 appropriately prepared and labeled 40-ml volatile organic analysis (VOA) bottles. A travel blank (numbered as MW-6) and a duplicate sample from MW-5 were also submitted for quality assurance. The sample bottles were immediately placed in an ice chest and maintained at 4 °C until 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

LOG NO.: 8375
DATE SAMPLED: 2/20/90
DATE RECEIVED: 2/20/90
DATE ANALYZED: 3/9/90 and 3/10/90
DATE REPORTED: 3/13/90

CUSTOMER: DuPont Environmental Remediation Services, Inc.

REQUESTER: Curt Griffiths

PROJECT: No. 1088-Q11-47, 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	3,300	90	60,000	900	3,700	90
Modified EPA Method 8020:							
Benzene	ug/l	810	5	5,000	50	1,200	5
Toluene	ug/l	540	5	8,200	50	77	5
Xylenes	ug/l	800	20	11,000	200	460	20
Ethylbenzene	ug/l	270	8	1,600	80	810	8

LOG NO.: 8375
DATE SAMPLED: 2/20/90
DATE RECEIVED: 2/20/90
DATE ANALYZED: 3/9/90 and 3/10/90
DATE REPORTED: 3/13/90
PAGE: Two

Sample Type: Water

Method and Constituent	Units	MW-4 Concentration	MW-4 Detection Limit	MW-5 Concentration	MW-5 Detection Limit
DHS Method:					
Total Petroleum Hydrocarbons as Gasoline	ug/l	19,000	900	3,400	900
Modified EPA Method 8020:					
Benzene	ug/l	8,100	50	1,700	50
Toluene	ug/l	4,500	50	220	50
Xylenes	ug/l	3,500	200	370	200
Ethylbenzene	ug/l	930	80	120	80

Sample Type: Water

Method and Constituent	Units	Duplicate 1 Concentration	Duplicate 1 Detection Limit	Duplicate 2 Concentration	Duplicate 2 Detection Limit
DHS Method:					
Total Petroleum Hydrocarbons as Gasoline	ug/l	2,900	900	< 5	5
Modified EPA Method 8020:					
Benzene	ug/l	1,300	50	< 0.5	0.5
Toluene	ug/l	190	50	< 0.5	0.5
Xylenes	ug/l	330	200	< 2	2
Ethylbenzene	ug/l	170	80	< 0.5	0.5

Louis W. DuPuis
Quality Assurance/Quality Control Manager

DU PONT ENVIRONMENTAL SERVICES

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 Boulevard, Unit 8

City, State, Zip: Hayward, California 94545

PROJECT NAME: San Leandro

JOB NUMBER: 1088-011-47

REQUESTOR: Curt Griffiths

SAMPLERS (Signature): Curt Griffiths

SAMPLE I.D.	DATE	TIME	COMP	GRAB	LOCATION	NO. OF CON-TAINERS	TPHd, TEX	REMARKS
mw1	2/20			X	mw1	2	X	Normal T.A.T.
mw2	2/20			X	mw2	2	X	
mw3	2/20			X	mw3	2	X	
mw4	2/20			X	mw4	2	X	
mw5	2/20			X	mw5	2	X	
Dup.1	2/20			X	Dup.1	2	X	
Dup.2	2/20			X	Dup.2	2	X	

RELINQUISHED BY (Signature)	DATE	TIME	RECEIVED BY (Signature)	DATE	TIME
Curt Griffiths REPRESENTING: D.E.S.	2/20		TRACE ANALYSIS LABORATORY 3423 INVESTMENT BLVD., UNIT 8 HAYWARD, CA 94545 REPRESENTING: (415) 783-6960	2/20	3:40
RELINQUISHED BY (Signature) REPRESENTING:	DATE	TIME	RECEIVED BY (Signature) REPRESENTING:	DATE	TIME
RELINQUISHED BY (Signature) REPRESENTING:	DATE	TIME	RECEIVED BY (Signature) REPRESENTING:	DATE	TIME

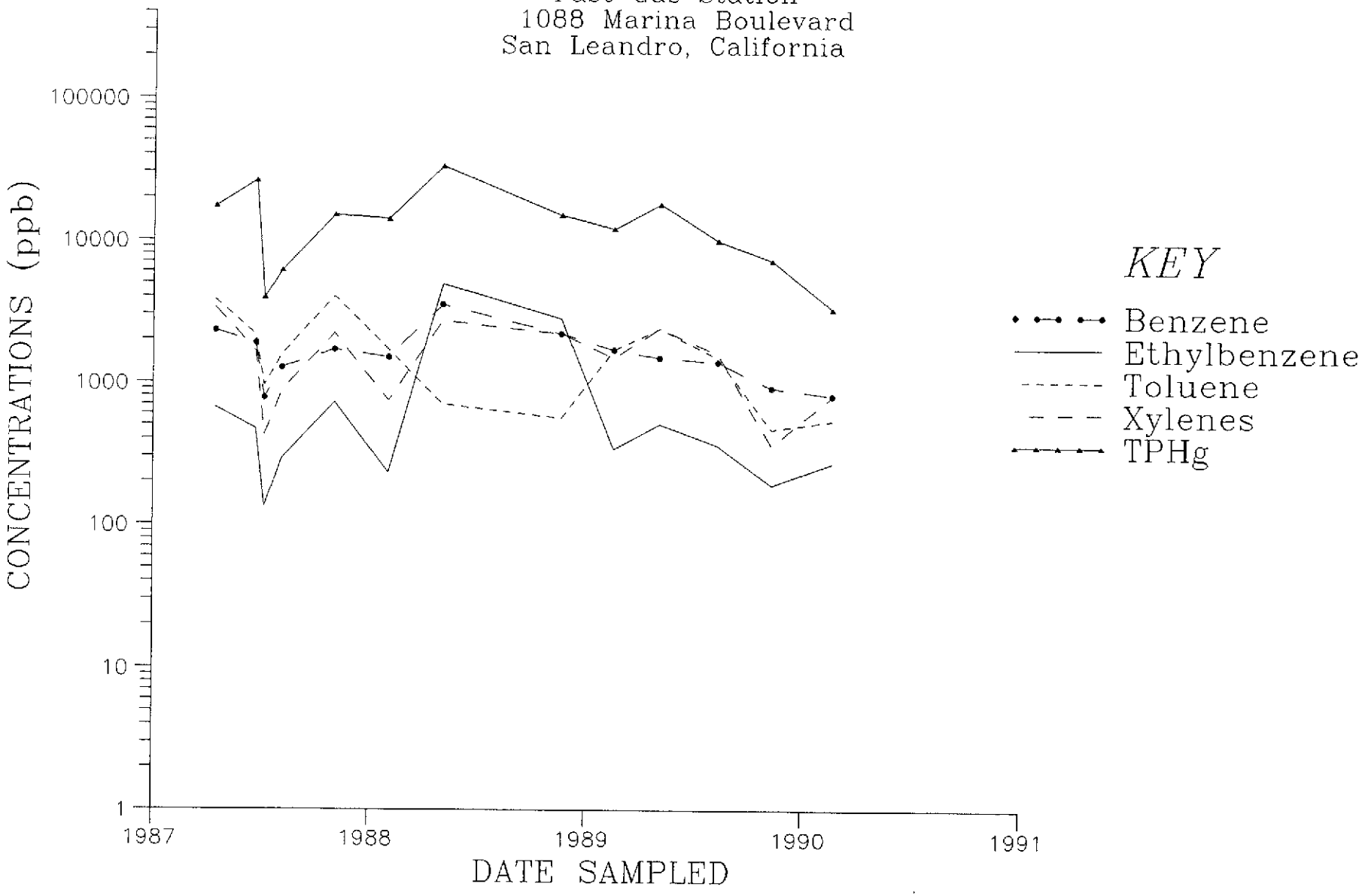
APPENDIX B

GRAPHS ILLUSTRATING LABORATORY TEST DATA

GROUND-WATER ANALYSES DATA

MONITORING WELL MW-1

Fast Gas Station
1088 Marina Boulevard
San Leandro, California

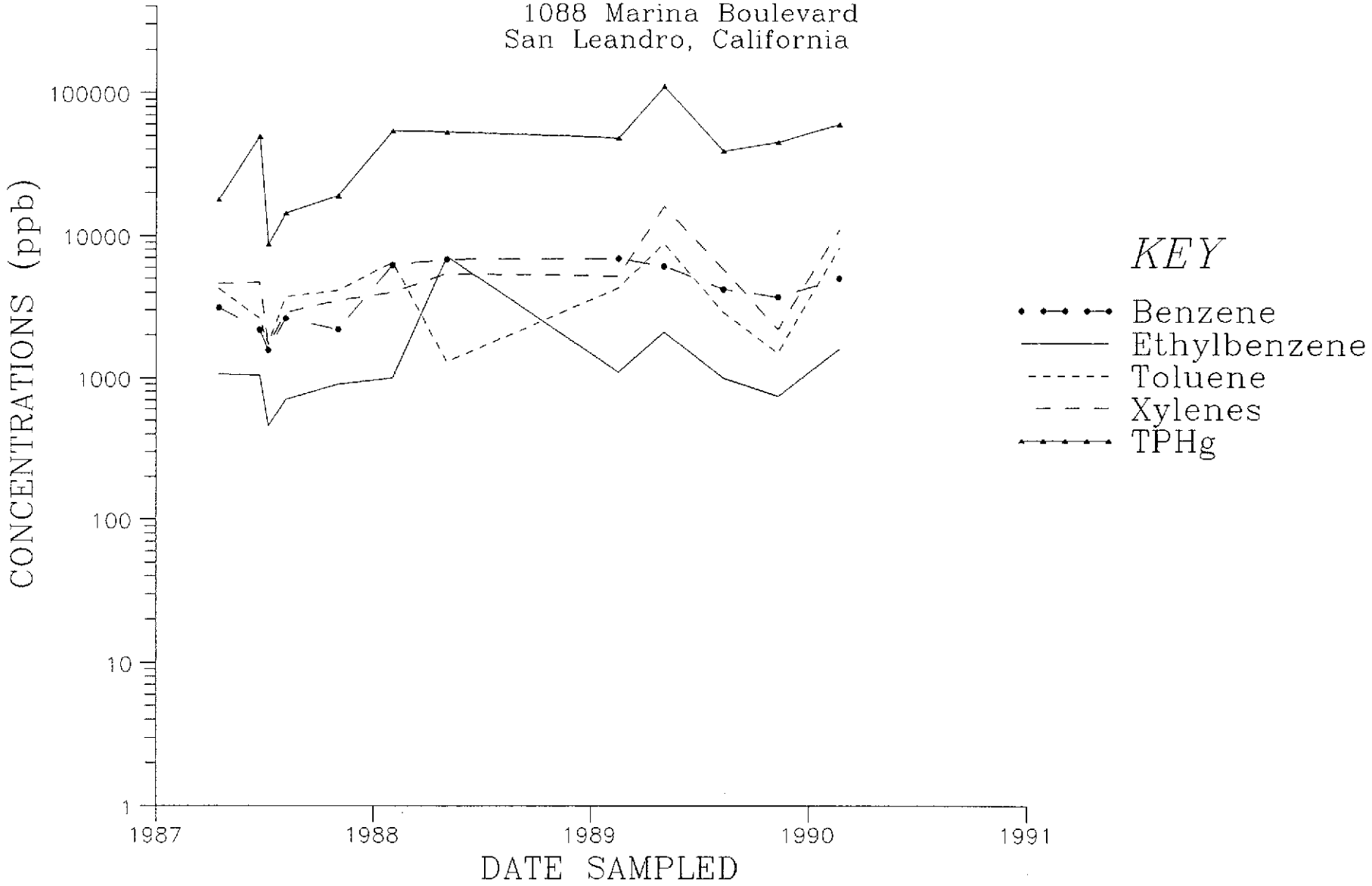


NOTE: Laboratory detection limits may vary due to analytical procedures used.

GROUND-WATER ANALYSES DATA

MONITORING WELL MW-2

Fast Gas Station
1088 Marina Boulevard
San Leandro, California

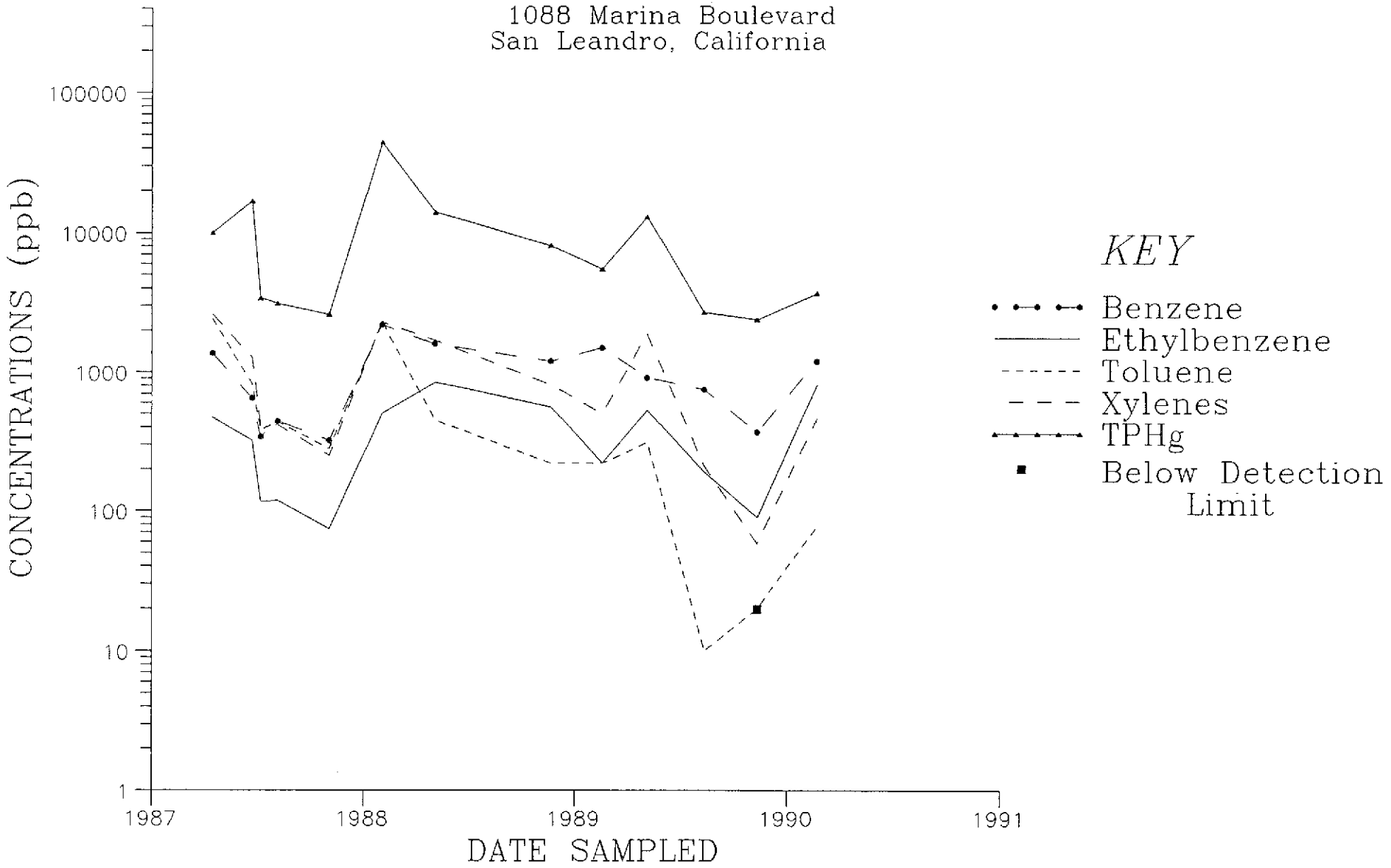


NOTE: Laboratory detection limits may vary due to analytical procedures used.

GROUND-WATER ANALYSES DATA

MONITORING WELL MW-3

Fast Gas Station
1088 Marina Boulevard
San Leandro, California

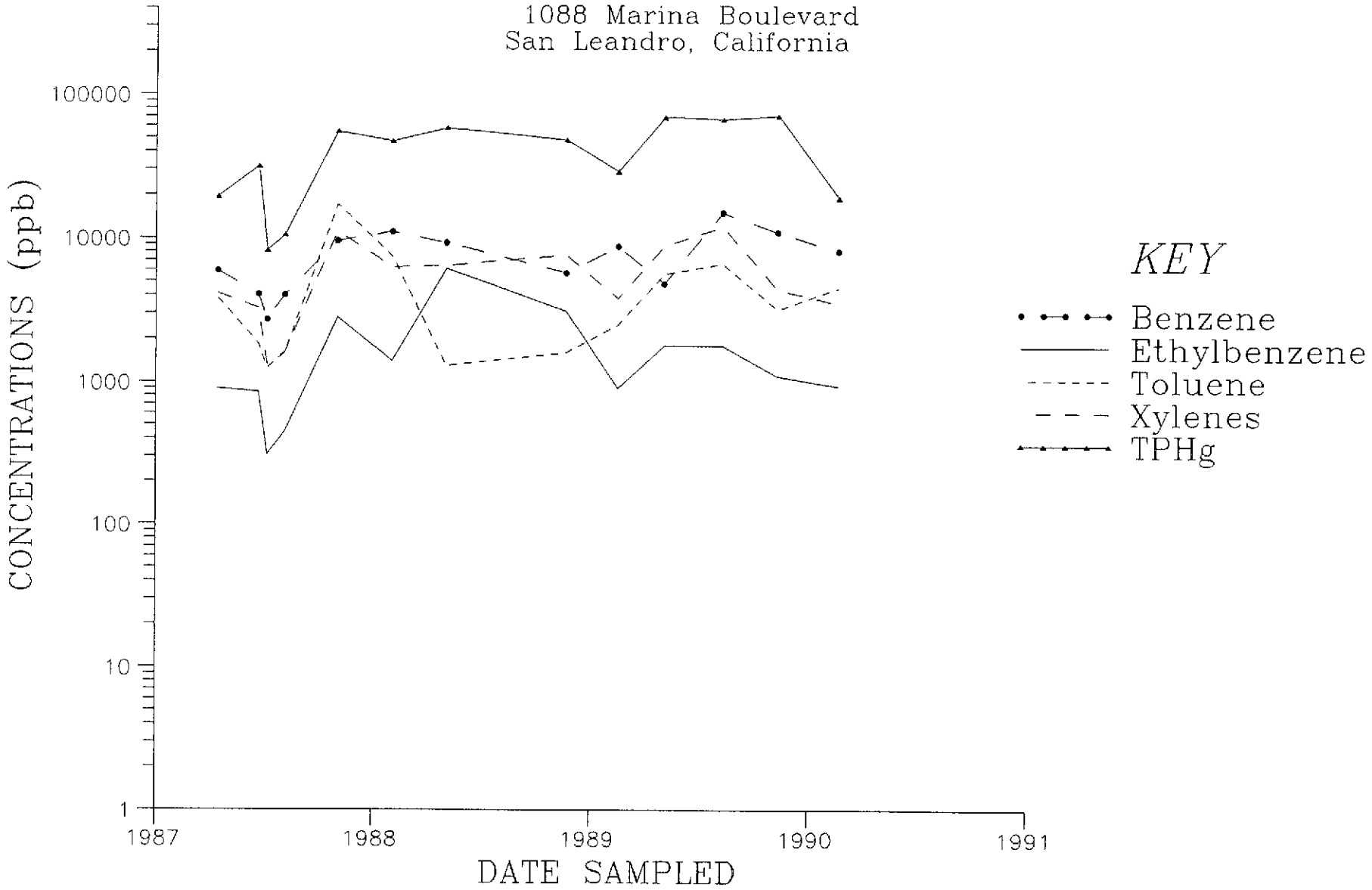


NOTE: Laboratory detection limits may vary due to analytical procedures used.

GROUND-WATER ANALYSES DATA

MONITORING WELL MW-4

Fast Gas Station
1088 Marina Boulevard
San Leandro, California

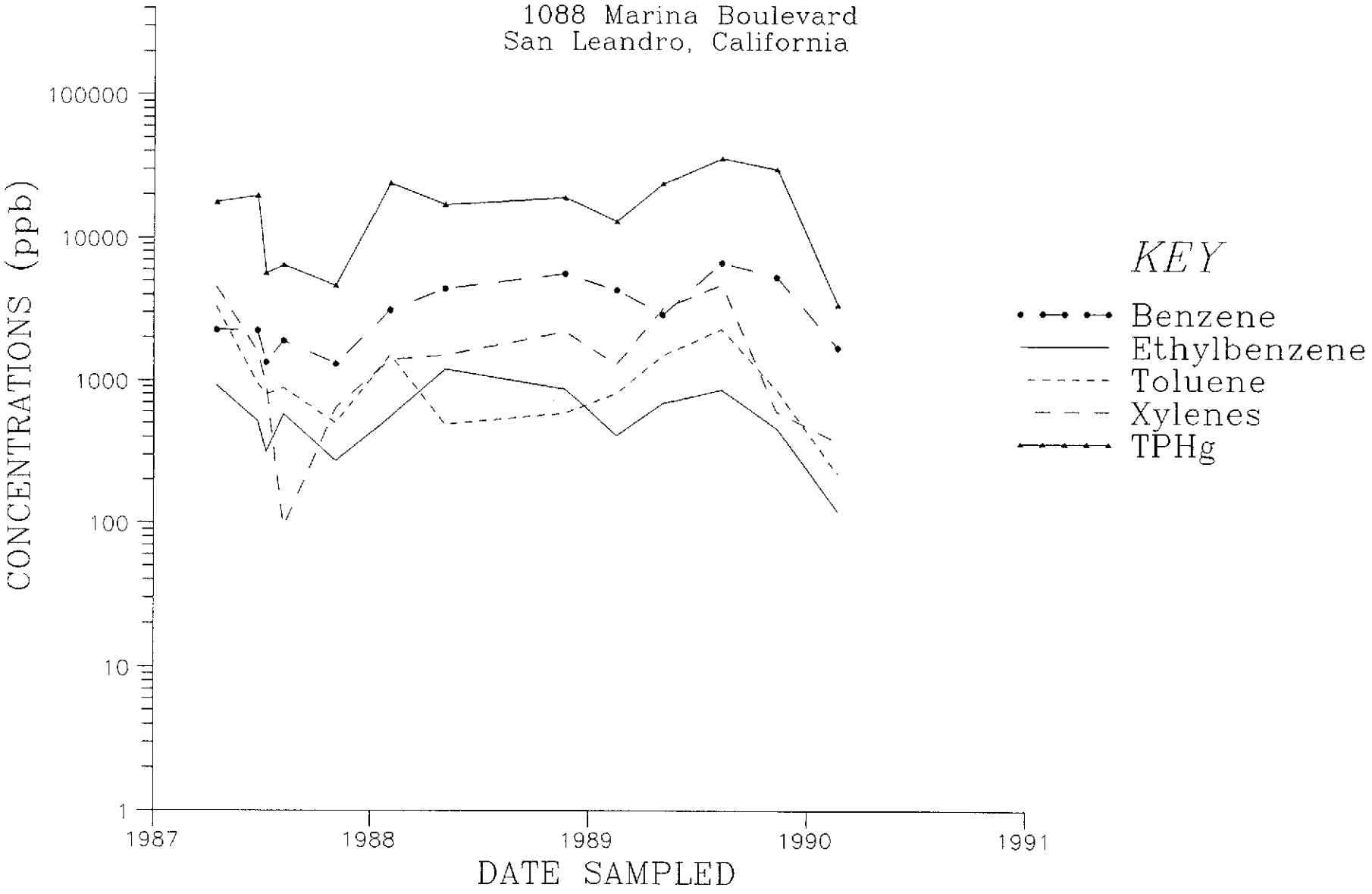


NOTE: Laboratory detection limits may vary due to analytical procedures used.

GROUND-WATER ANALYSES DATA

MONITORING WELL MW-5

Fast Gas Station
1088 Marina Boulevard
San Leandro, California



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

Du Pont Environmental Services

GROUND-WATER MONITORING WELL FIELD SAMPLING DATA SHEET

SITE: San Leandro JOB # 088-01-47 DATE: 2-20-90

WELL # MW-1
CASING DIAMETER 2"
DEPTH TO WATER 15.58'
TOTAL DEPTH 30'
WELL VOLUME 2.4 gal

GALLONS PURGED	pH	Conductivity	Temp. (°C)
1	6.8	—	19
2	6.7		19
3	6.7		19
4	6.6		19

Time Sampled: _____

WELL # MW-2
CASING DIAMETER 2"
DEPTH TO WATER 15.34'
TOTAL DEPTH 30'
WELL VOLUME 2.4 gal

GALLONS PURGED	pH	Conductivity	Temp. (°C)
1	6.9	—	19
2	6.8	—	19
3	6.8	—	19
4	6.8	—	19

Time Sampled: _____

WELL # MW-3
CASING DIAMETER 2"
DEPTH TO WATER 14.95'
TOTAL DEPTH 30'
WELL VOLUME 2.5 gal

GALLONS PURGED	pH	Conductivity	Temp. (°C)
1	6.6	—	19
2	6.7	—	19
3	6.6	—	19
4	6.6	—	19

Time Sampled: _____

WELL # MW-4
CASING DIAMETER 2"
DEPTH TO WATER 15.62'
TOTAL DEPTH 30'
WELL VOLUME 2.4 gal

GALLONS PURGED	pH	Conductivity	Temp. (°C)
1	6.6	1850	19
2	6.5	1890	19
3	6.6	1880	19
4	6.6	1850	19

Time Sampled: _____

Sampled by: C. Griffiths

Du Pont Environmental Services

GROUND-WATER MONITORING WELL FIELD SAMPLING DATA SHEET

SITE: San Leandro JOB # 1088-Ø11-47 DATE: 2-20-90

WELL # MW-5
CASING DIAMETER 2"
DEPTH TO WATER 15.44'
TOTAL DEPTH 30'
WELL VOLUME 2.4 gal

GALLONS PURGED	pH	Conductivity	Temp. (°C)
1	6.5	1840	19
2	6.5	1930	19
3	6.5	1910	19
4	6.5	1910	19

Time Sampled: ________

WELL # ________
CASING DIAMETER ________
DEPTH TO WATER ________
TOTAL DEPTH ________
WELL VOLUME ________

GALLONS PURGED	pH	Conductivity	Temp. (°C)

Time Sampled: ________

WELL # ________
CASING DIAMETER ________
DEPTH TO WATER ________
TOTAL DEPTH ________
WELL VOLUME ________

GALLONS PURGED	pH	Conductivity	Temp. (°C)

Time Sampled: ________

WELL # ________
CASING DIAMETER ________
DEPTH TO WATER ________
TOTAL DEPTH ________
WELL VOLUME ________

GALLONS PURGED	pH	Conductivity	Temp. (°C)

Time Sampled: ________

Sampled by: C. Griffiths