Kayo Oil Company
a subsidiary of Conoco Inc.

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

May 16, 1989

5/17/89

ALAMEDA COUNTY
DEPT. OF ENVIRONMENTAL HEALTH
HAZARDOUS MATERIALS

Mr. Steven Ritchie
San Francisco Bay Region
Regional Water Quality Control Board
1111 Jackson Street, Room 6040
Oakland, CA 94602

RE: Econo Station
44 Lewelling Boulevard
San Lorenzo, CA

Dear Mr. Ritchie:

Enclosed is a report prepared by DuPont Biosystems presenting the March 1989 groundwater monitoring results.

If you have any questions, please call our Lodi Office.

Sincerely,

Lodi Office: 900 S. Cherokee Lane
Lodi, CA 95240

Phone: 209/368-2731

Gregory P. Fletcher
Coordinator - Environmental Affairs

GPF/wml

Enclosure

cc: Larry Seto, Alameda County Health Care Services

Du Pont Biosystems

QUARTERLY GROUND-WATER SAMPLING REPORT
MARCH 1989
JET GAS STATION
44 LEWELLING BOULEVARD
SAN LORENZO, 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 27, 1989

JOB NO. 211-Q7-11

Du Pont Biosystems

TABLE OF CONTENTS JOB NO. 211-Q7-11

INTRODUCTION 1

SUMMARY 1

LIST OF ILLUSTRATIONS

FIGURE 1 - LOCATION MAP

FIGURE 2 - GROUND-WATER GRADIENT MAP

FIGURE 3 - ISOPLETH MAP OF BENZENE-PLUME CONCENTRATIONS IN GROUND WATER

LIST OF TABLES

TABLE A - GROUND-WATER POTENTIOMETRIC ELEVATIONS

TABLE B - SUMMARY OF GROUND-WATER ANALYTICAL RESULTS

LIST OF APPENDICES

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

APPENDIX B - GRAPHS SHOWING LABORATORY TEST DATA

Du Pont Biosystems

April 27, 1989
Job No. 211-Q7-11

Conoco Inc.
900 South Cherokee Lane
Lodi, California 95240

ATTENTION: Mr. Michael Hansen

SUBJECT: Quarterly Ground-Water Sampling Report
March 1989
Jet Gas Station
44 Lewelling Boulevard
San Lorenzo, California

Dear Mr. Hansen:

INTRODUCTION

This report presents the results of the quarterly ground-water sampling which was conducted at the Jet Gas Station, 44 Lewelling Boulevard, San Lorenzo, California (see the Location Map, Figure 1), on March 8, 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 March quarter is presented in Table A. In general, ground-water levels have decreased approximately 1.5 feet since the last quarterly sampling. Ground-water flow for this quarter is directed towards the west with a gradient of approximately 0.003 (see the Ground-

7068 Koll Center Parkway, Suite 401 ▪ Pleasanton, California 94566 ▪ 415▪462▪7772 ▪ 800▪468▪2122 ▪ FAX ▪ 415▪462▪7944
500 W. Dutton's Mill Road, Suite 102 ▪ Aston, Pennsylvania 19014 ▪ 215▪497▪5800 ▪ 800▪548▪1964

Water Gradient Map, Figure 2). Chemical analytical results for BTEX and TPHg have increased 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 June 1989.

Respectfully submitted,

DU PONT BIOSYSTEMS

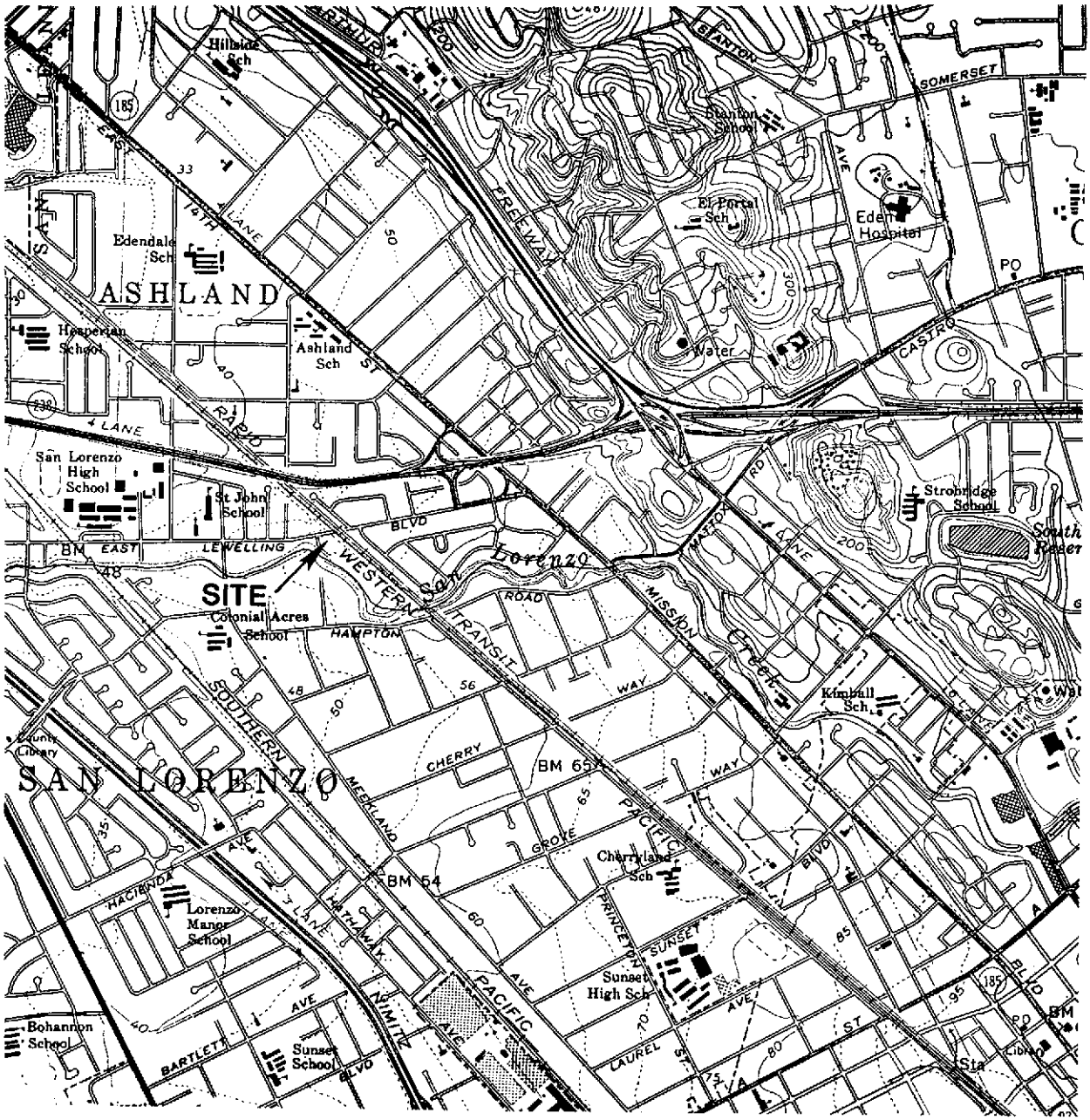
Marjorie Lane

Marjorie Lane
Staff Geologist

George Reid

George Reid
CEG 1068

ML/GR:jv

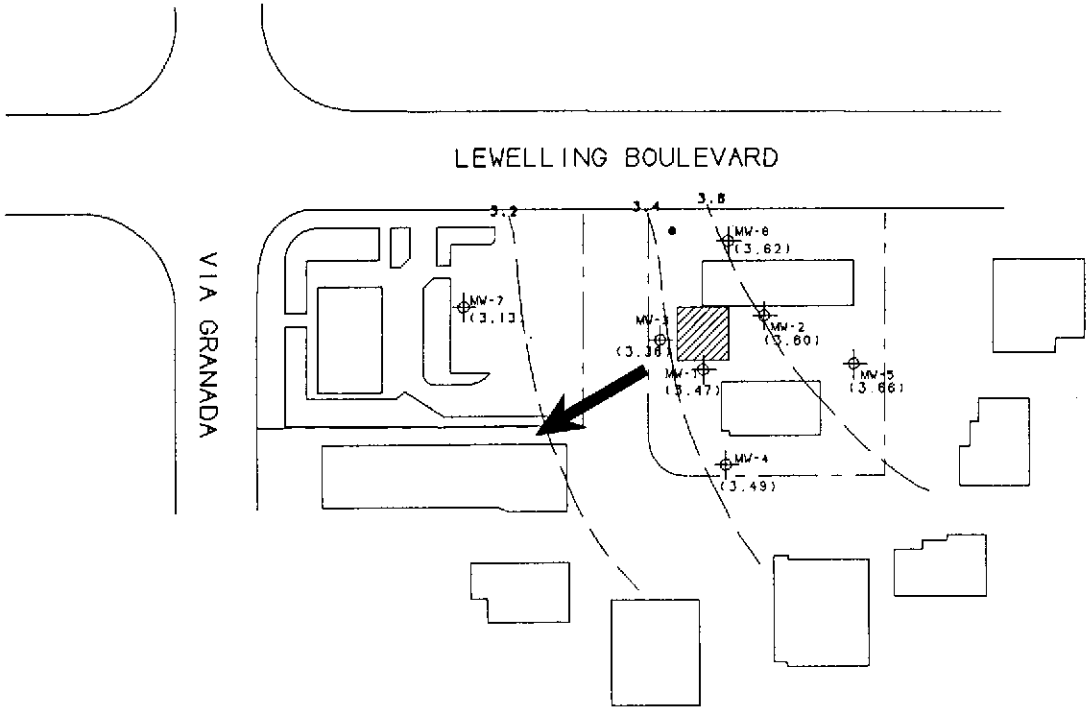


LOCATION MAP

Jet Gas Station
44 Lewelling Boulevard
San Lorenzo, California

BASE: A portion of the U.S.G.S. Hayward 7.5 minute quadrangle, dated 1959, photorevised 1980, scale 1:24,000.

Figure 1



EXPLANATION

- Property Limits
- MW-7 (3.13) — Existing Monitoring Well with ground-water elevations in feet.
- Existing Fuel Tanks
- Temporary Bench Mark designated at 20 feet
- 3.6 — Potentiometric Contour in feet.
- Approximate ground-water gradient direction.

NOTE: Based on water level measurements obtained from monitoring wells MW-1 through MW-7 sampled on 3-8-89.

60 0 60 120
scale feet

N

Base: Modified from Pacific Aerial Surveys, Inc. aerial photo #AV-2772-6-14, at a scale of approximately 1 inch = 50 feet, dated 1-25-86.

GROUND-WATER GRADIENT MAP

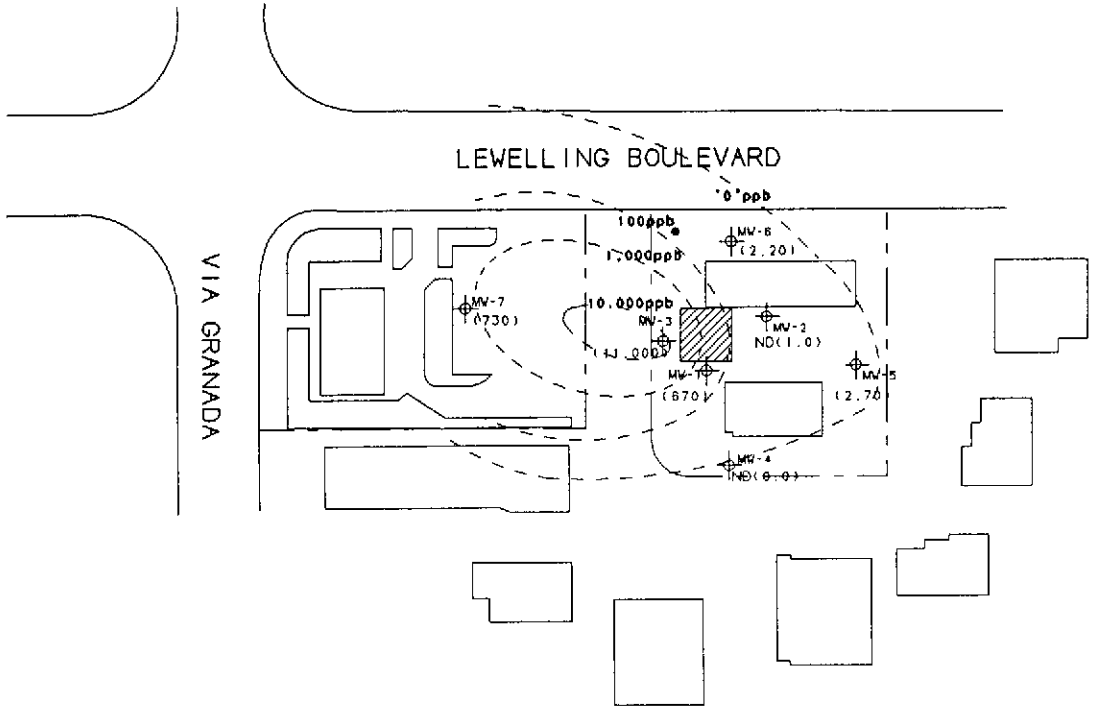
SCALE: As Shown	APPROVED AR	DRAWN BY: DA CADD
DATE: 8/25/88		REVISED: 12-8-88

Jet Gas Station
44 Lewelling Boulevard
San Lorenzo, California

Du Pont Biosystems

DRAWING NUMBER 211-Q7-11

Figure 2



EXPLANATION

- Property Limits
- MW-7 (730) — Existing Monitoring Well with benzene concentrations in ppb.
- Existing Fuel Tanks
- Temporary Bench Mark designated at 20 feet
- 10,000ppb — Isopleth showing concentrations of benzene in ppb.
- '0' — Effective Zero Line.

NOTE: This map based on chemical analysis results obtained from monitoring wells MW-1 through MW-7 collected on 3-8-88.

60 0 60 120
scale feet

N

Base: Modified from Pacific Aerial Surveys, Inc. aerial photo #AV-2772-6-14, at a scale of approximately 1 inch = 50 feet, dated 1-25-88.

ISOPLETH MAP OF BENZENE-PLUME CONCENTRATIONS IN GROUND WATER		
SCALE: As Shown	APPROVED GR	DRAWN BY: DA CADD
DATE: 8/25/88		REVISED: 12-6-88
Jet Gas Station 44 Lewelling Boulevard San Lorenzo, California		
Du Pont Biosystems		DRAWING NUMBER 211-Q7-11

Figure 3

Du Pont Biosystems

TABLE A

GROUND-WATER POTENTIOMETRIC ELEVATIONS

JET GAS STATION
44 LEWELLING BLVD
SAN LORENZO, CALIFORNIA

WELL ID	TOP OF CASING ELEVATION	GROUND-WATER ELEVATION Mar 1989	DEPTH TO GROUND-WATER Dec 1987	Mar 1988	Jun 1988	Dec 1988	Mar 1989
MW-1	21.54	3.47	17.54	17.12	18.05	19.48	18.07
MW-2	20.91	3.60	16.71	16.43	17.35	18.79	17.31
MW-3	20.96	3.36	16.90	16.68	17.59	18.96	17.60
MW-4	22.52	3.49	---	---	---	20.47	19.03
MW-5	21.66	3.66	---	---	---	19.48	18.00
MW-6	20.37	3.62	---	---	---	17.99	16.75
MW-7	19.40	3.13	---	---	---	17.61	16.27

NOTES:
1) All elevations surveyed to a temporary bench mark designated 20 feet.
2) Elevations and depths given in feet.
3) Data prior to December 1988 collected by Applied GeoSystems.
4) Monitoring wells MW-4, MW-5, MW-6, and MW-7 installed in December 1988.

Du Pont Biosystems

TABLE B

SUMMARY OF GROUND-WATER ANALYTICAL RESULTS

JET GAS STATION
44 LEWELLING BLVD
SAN LORENZO, CALIFORNIA

WELL ID	DATE SAMPLED	BENZENE (ug/L)	ETHYL BENZENE (ug/L)	TOLUENE (ug/L)	XYLENES (ug/L)	TPHg (ug/L)	COMMENTS
MW-1	*29-MAY-87*	490	930	150	3790	18050	
	14-JUL-87	560	950	120	3270	14750	
	17-AUG-87	630	320	40	1130	12860	
	01-SEP-87	558	562	84	1942	14269	
	10-DEC-87	200	273	138	777	14000	
	10-MAR-88	70	340	40	940	7300	
	14-JUN-88	290	330	ND(10)	790	34000	
	05-DEC-88	100	140	16	310	4000	
	08-MAR-89	670	580	20	1200	9100	*Odor, Sheen*
MW-2	*29-MAY-87*	113	46	14	58	4870	
	14-JUL-87	103	34	25	48	2207	
	17-AUG-87	37.6	8.2	10.9	11.1	756	
	01-SEP-87	75.3	16.4	14.2	27.6	1482.5	
	10-DEC-87	28	38.1	40.6	100.3	1800	
	10-MAR-88	9.2	7.3	3.1	2.6	1200	
	14-JUN-88	ND(0.9)	2.2	ND(1.0)	5.7	500	
	05-DEC-88	ND(0.3)	5.6	1.3	3.6	500	
	08-MAR-89	ND(1.0)	3.5	1.3	3.7	730	
MW-3	*29-MAY-87*	5400	1700	3900	5200	40300	
	14-JUL-87	6880	1580	7080	4770	30320	
	17-AUG-87	5930	1240	4180	3370	25620	
	01-SEP-87	8540	1020	6660	3740	38210	
	10-DEC-87	4240	890	2350	1860	25000	
	10-MAR-88	3210	940	950	950	13400	
	14-JUN-88	5900	450	7600	4600	54000	
	05-DEC-88	4200	1000	2400	3100	19000	*Slight odor*
	08-MAR-89	11000	2300	9400	9900	53000	*Odor, Sheen*
MW-4	*05-DEC-88*	ND(2.0)	2.3	ND(2.0)	6.5	4500	
	08-MAR-89	ND(9.0)	ND(10)	ND(8.0)	ND(10)	3900	*Odor, Sheen*
MW-5	*05-DEC-88*	ND(0.2)	0.23	0.78	0.92	3.9	
	08-MAR-89	2.7	2.7	6.7	15	58	
MW-6	*05-DEC-88*	4.0	0.63	1.3	1.3	190	
	08-MAR-89	2.2	ND(0.5)	ND(0.4)	1.1	23	
MW-7	*05-DEC-88*	140	40	150	370	1500	
	08-MAR-89	730	180	72	370	2400	

NOTES: 1) TPHg = Total Petroleum Hydrocarbons (as gasoline).
2) ND = Not Detected, detection limit shown in parentheses.
3) Odor refers to petroleum hydrocarbon odor.
4) All results are presented in parts per billion.
5) Samples prior to December 1988 taken by Applied GeoSystems.

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 March 8, 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 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

DATE: 4/10/89

LOG NO.: 7114

DATE SAMPLED: 3/8/89

DATE RECEIVED: 3/9/89

CUSTOMER: DuPont Biosystems

REQUESTER: Marjorie Lane

PROJECT: No. 211-Q7-11, San Lorenzo

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	9,100	50	730	5	53,000	200
Modified EPA Method 8020:							
Benzene	ug/l	670	10	< 1	1	11,000	50
Toluene	ug/l	20	10	1.3	1	9,400	40
Xylenes	ug/l	1,200	20	3.7	2	9,900	70
Ethyl Benzene	ug/l	580	10	3.5	1	2,300	50

DATE: 4/10/89
LOG NO.: 7114
DATE SAMPLED: 3/8/89
DATE RECEIVED: 3/9/89
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	3,900	40	58	2	23	2
Modified EPA Method 8020:							
Benzene	ug/l	< 9	9	2.7	0.5	2.2	0.5
Toluene	ug/l	< 8	8	6.7	0.4	< 0.4	0.4
Xylenes	ug/l	< 10	10	15	0.7	1.1	0.7
Ethyl Benzene	ug/l	< 10	10	2.7	0.5	< 0.5	0.5

Method and Constituent	Units	MW-7 Concentration	MW-7 Detection Limit	MW-8 Concentration	MW-8 Detection Limit
DHS Method:					
Total Petroleum Hydrocarbons as Gasoline	ug/l	2,400	9	2.2	2
Modified EPA Method 8020:					
Benzene	ug/l	730	2	< 0.5	0.5
Toluene	ug/l	72	2	< 0.4	0.4
Xylenes	ug/l	370	4	< 0.7	0.7
Ethyl Benzene	ug/l	180	3	< 0.5	0.5

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 783-6960

Address 3423 Investment Blvd., Unit 8

City, State, Zip Hayward, CA 94545

PROJECT NAME: San Lorenzo

JOB NUMBER: 211-Q7-11

SAMPLERS (Signature): Marjorie Lane

SAMPLE I.D.	DATE	TIME	COMP	GRAB	LOCATION	NO. OF CONTAINERS	collected, labeled, iced	BTEX & TPHg					REMARKS
MW-1	3/8/89				Monitoring well #1	2	✓	✓					odor, sheen
MW-2					" #2	2	✓	✓					
MW-3					" #3	2	✓	✓					odor, sheen
MW-4					" #4	2	✓	✓					odor, sheen
MW-5					" #5	2	✓	✓					
MW-6					" #6	2	✓	✓					
MW-7					" #7	2	✓	✓					
MW-8	↓				" #8	2	✓	✓					

RELINQUISHED BY (Signature)	DATE	TIME	RECEIVED BY (Signature)	DATE	TIME
Marjorie Lane REPRESENTING:	3/9/89	11:45	Carrie Deller REPRESENTING:	3-9-89	11:45 AM
RELINQUISHED BY (Signature) REPRESENTING:	DATE	TIME	RECEIVED BY (Signature) REPRESENTING:	DATE	TIME
RELINQUISHED BY (Signature) REPRESENTING:	DATE	TIME	RECEIVED BY (Signature) REPRESENTING:	DATE	TIME

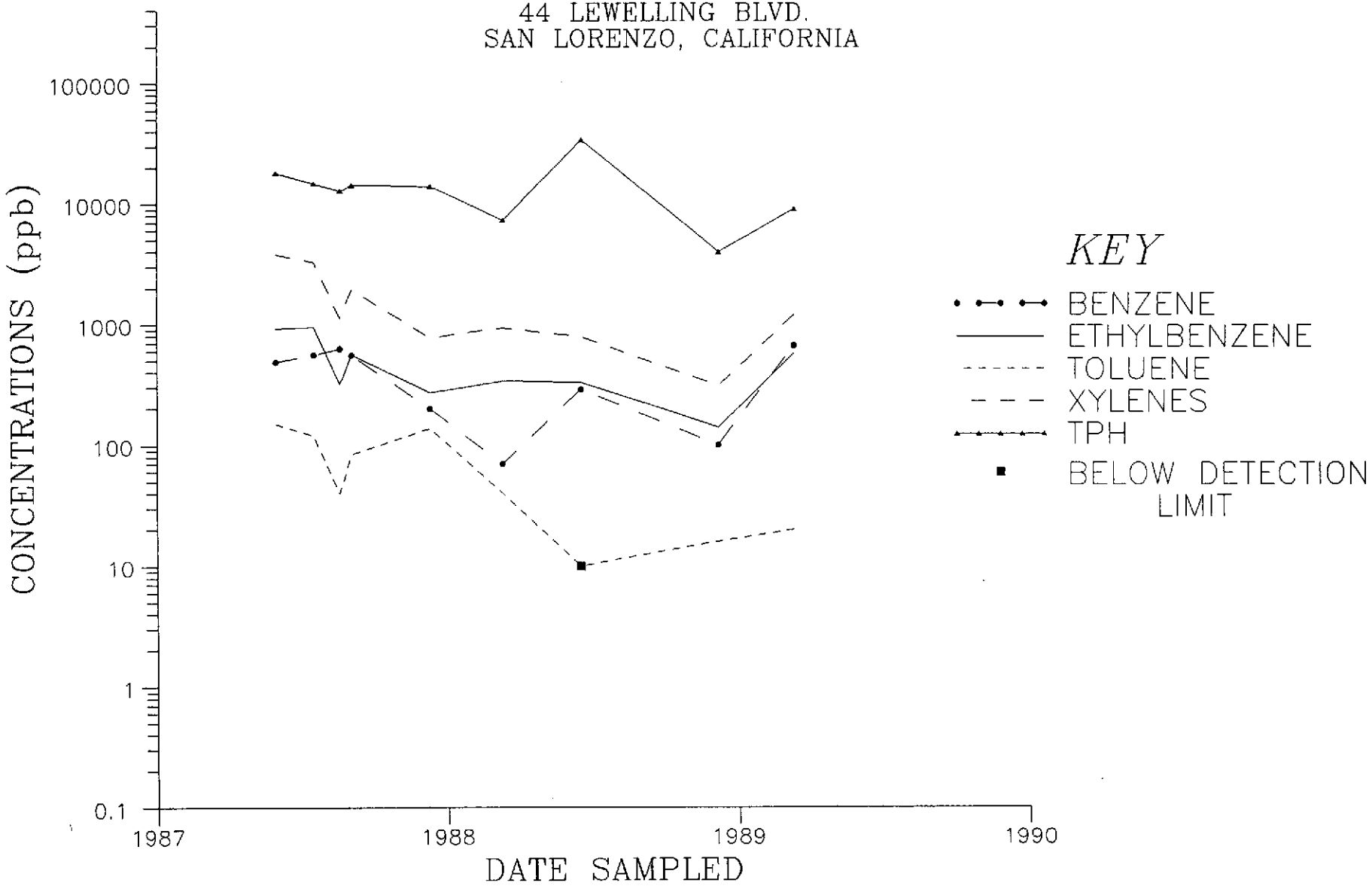
APPENDIX B

GRAPHS SHOWING LABORATORY TEST DATA

GROUND-WATER ANALYSES DATA

WELL MW-1

JET GAS STATION
44 LEWELLING BLVD.
SAN LORENZO, CALIFORNIA

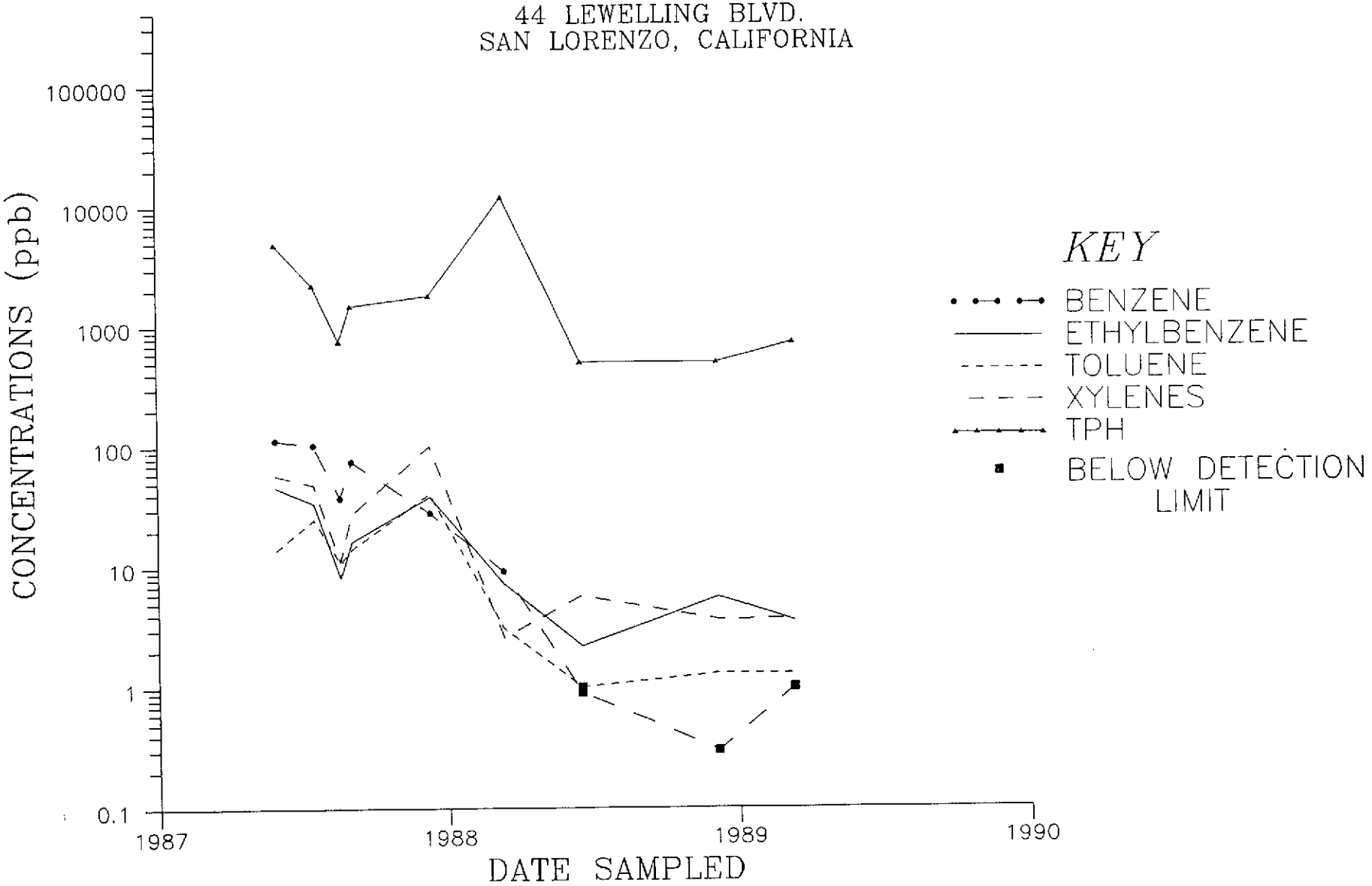


NOTE: Laboratory detection limits may vary due to analytical procedures used.

GROUND-WATER ANALYSES DATA

WELL MW-2

JET GAS STATION
44 LEWELLING BLVD.
SAN LORENZO, CALIFORNIA

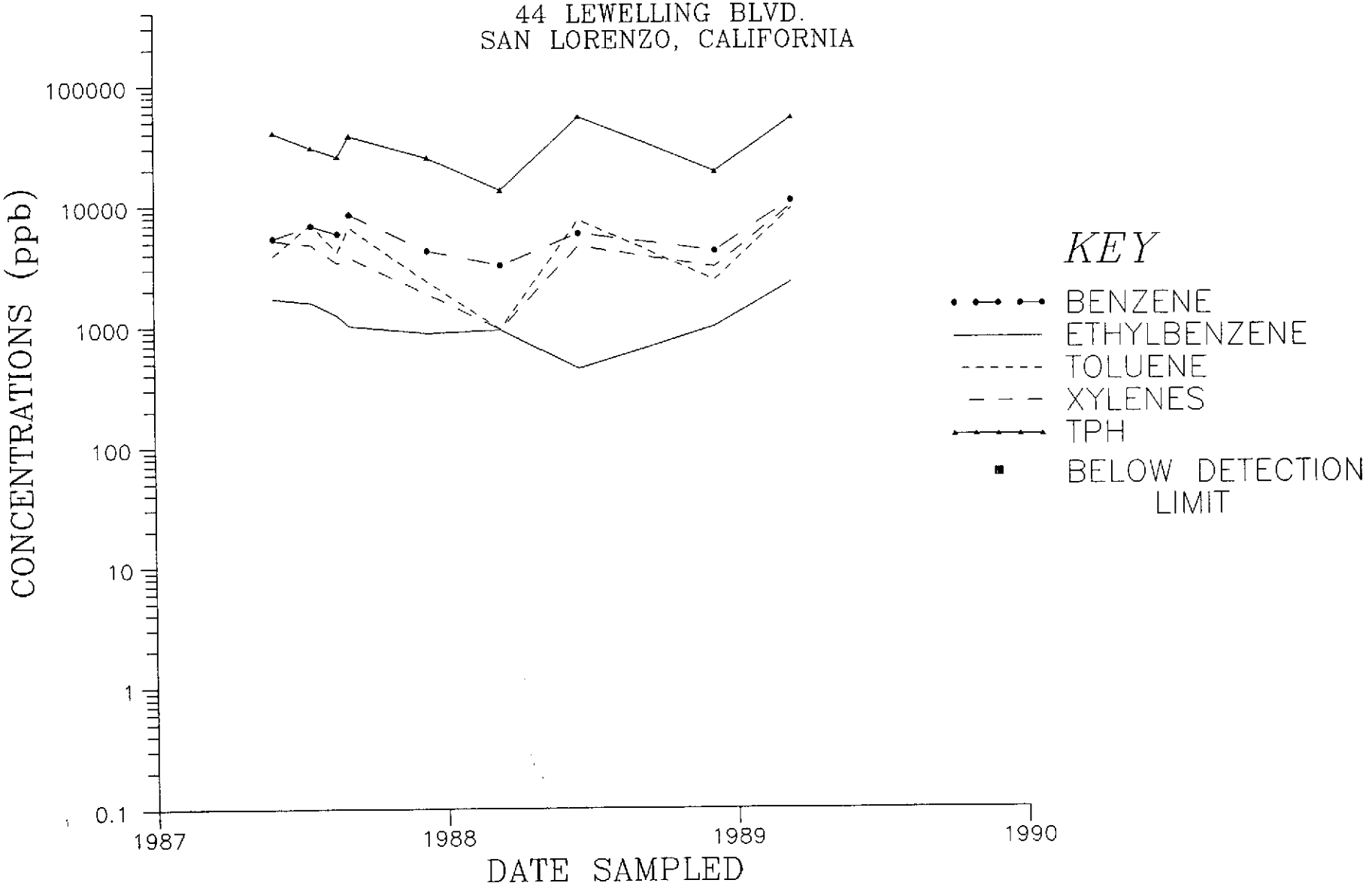


NOTE: Laboratory detection limits may vary due to analytical procedures used.

GROUND-WATER ANALYSES DATA

WELL MW-3

JET GAS STATION
44 LEWELLING BLVD.
SAN LORENZO, CALIFORNIA

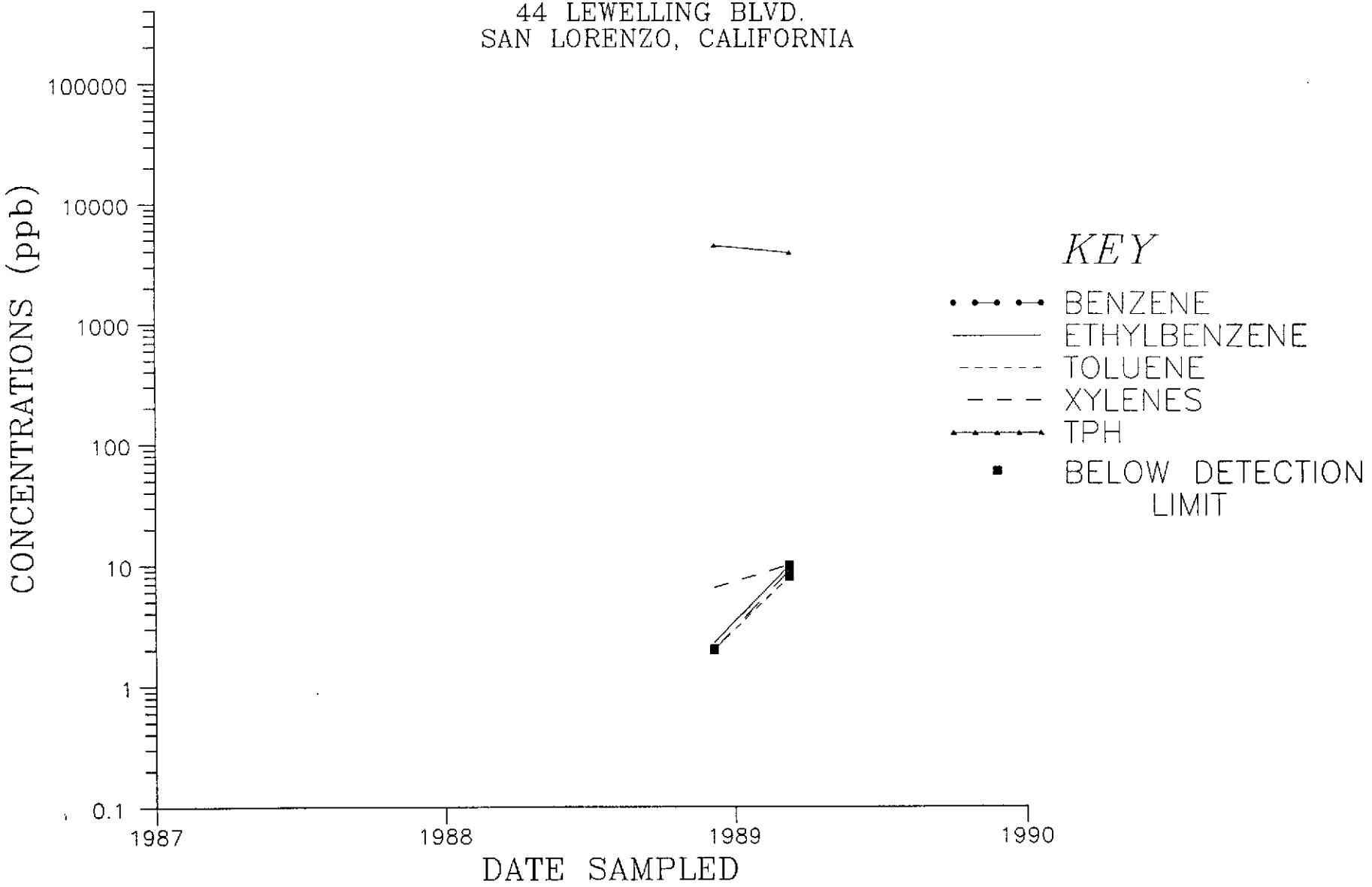


NOTE: Laboratory detection limits may vary due to analytical procedures used.

GROUND-WATER ANALYSES DATA

WELL MW-4

JET GAS STATION
44 LEWELLING BLVD.
SAN LORENZO, CALIFORNIA

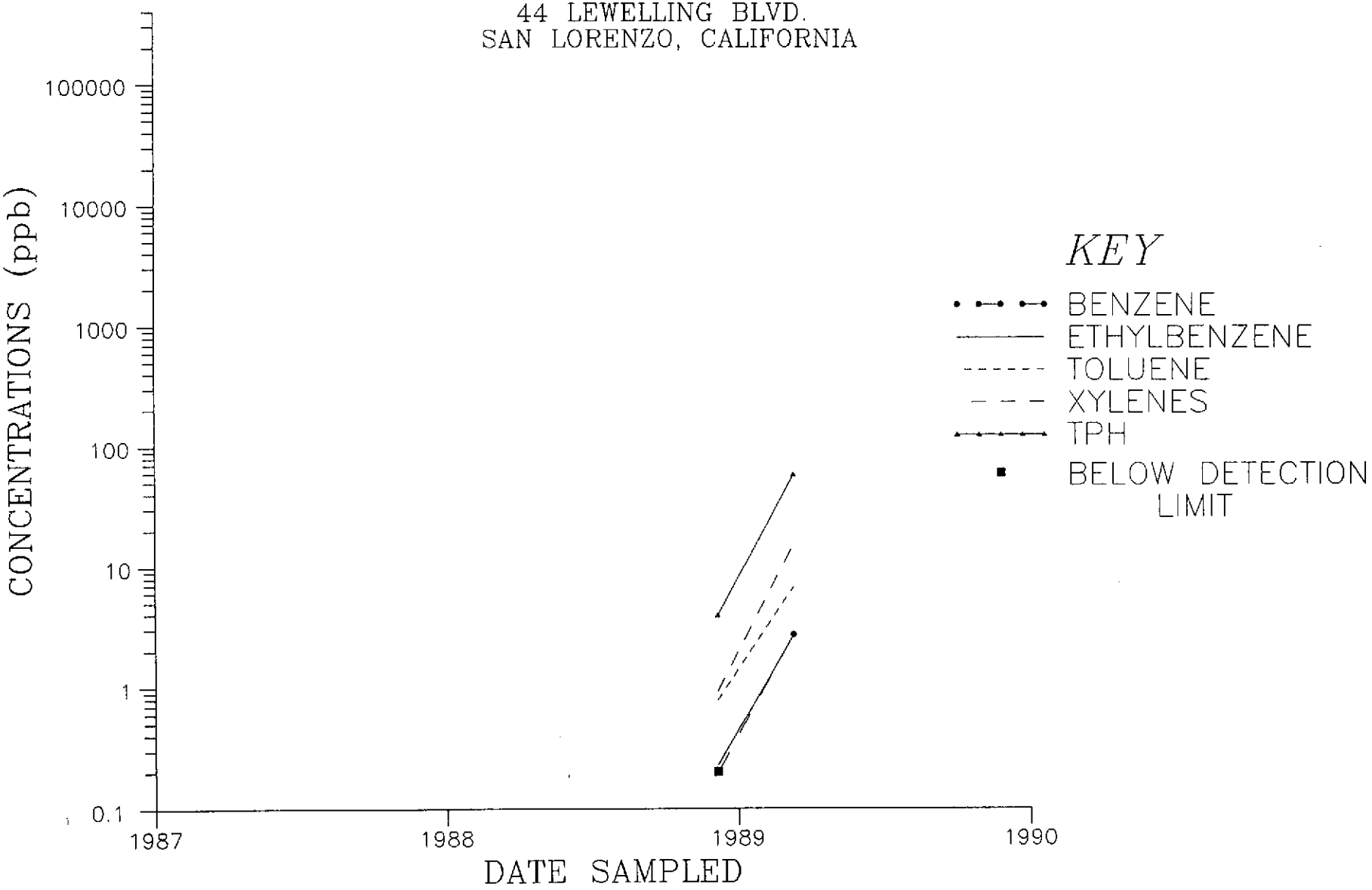


NOTE: Laboratory detection limits may vary due to analytical procedures used.

GROUND-WATER ANALYSES DATA

WELL MW-5

JET GAS STATION
44 LEWELLING BLVD.
SAN LORENZO, CALIFORNIA

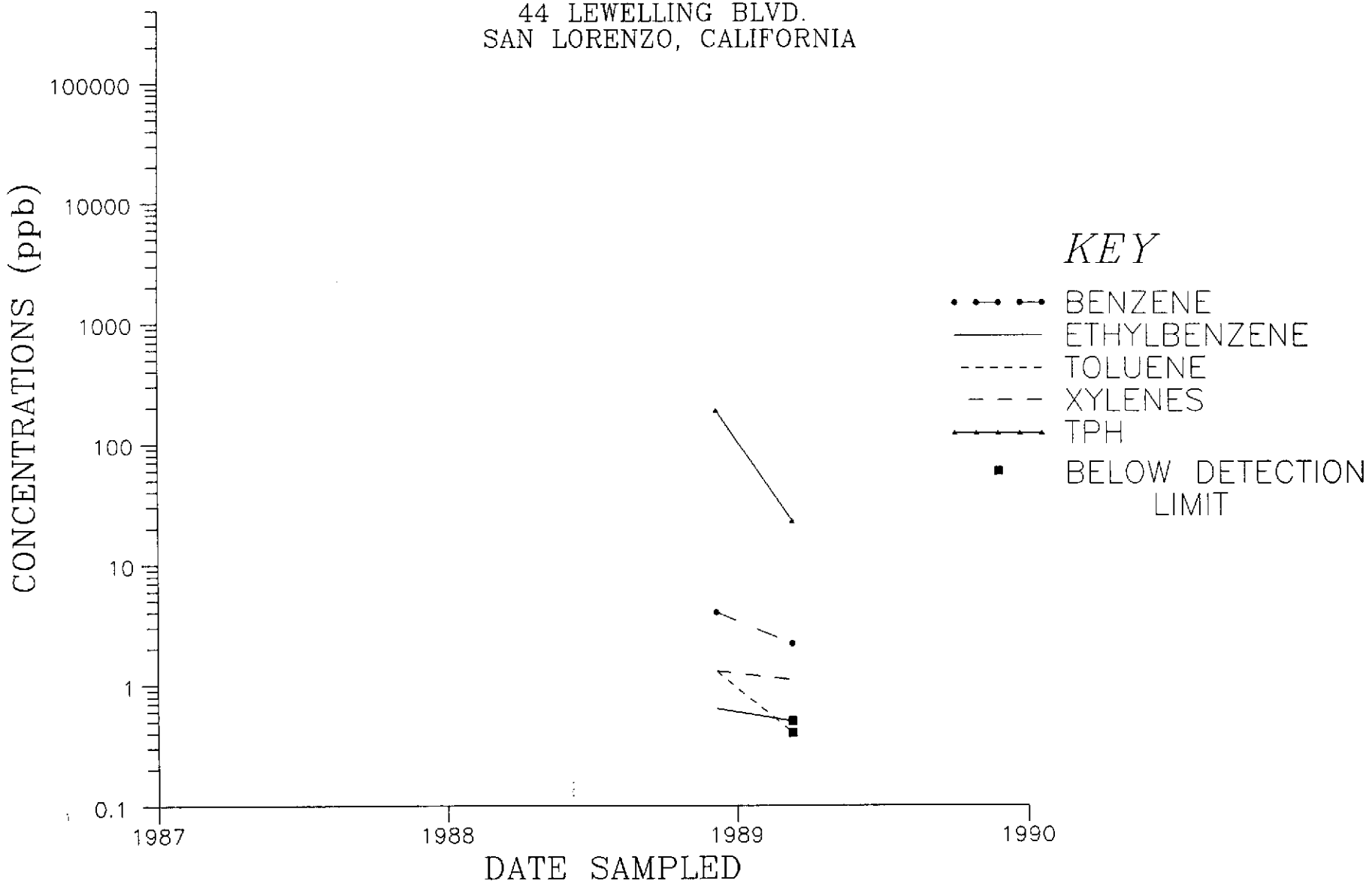


NOTE: Laboratory detection limits may vary due to analytical procedures used.

GROUND-WATER ANALYSES DATA

WELL MW-6

JET GAS STATION
44 LEWELLING BLVD.
SAN LORENZO, CALIFORNIA

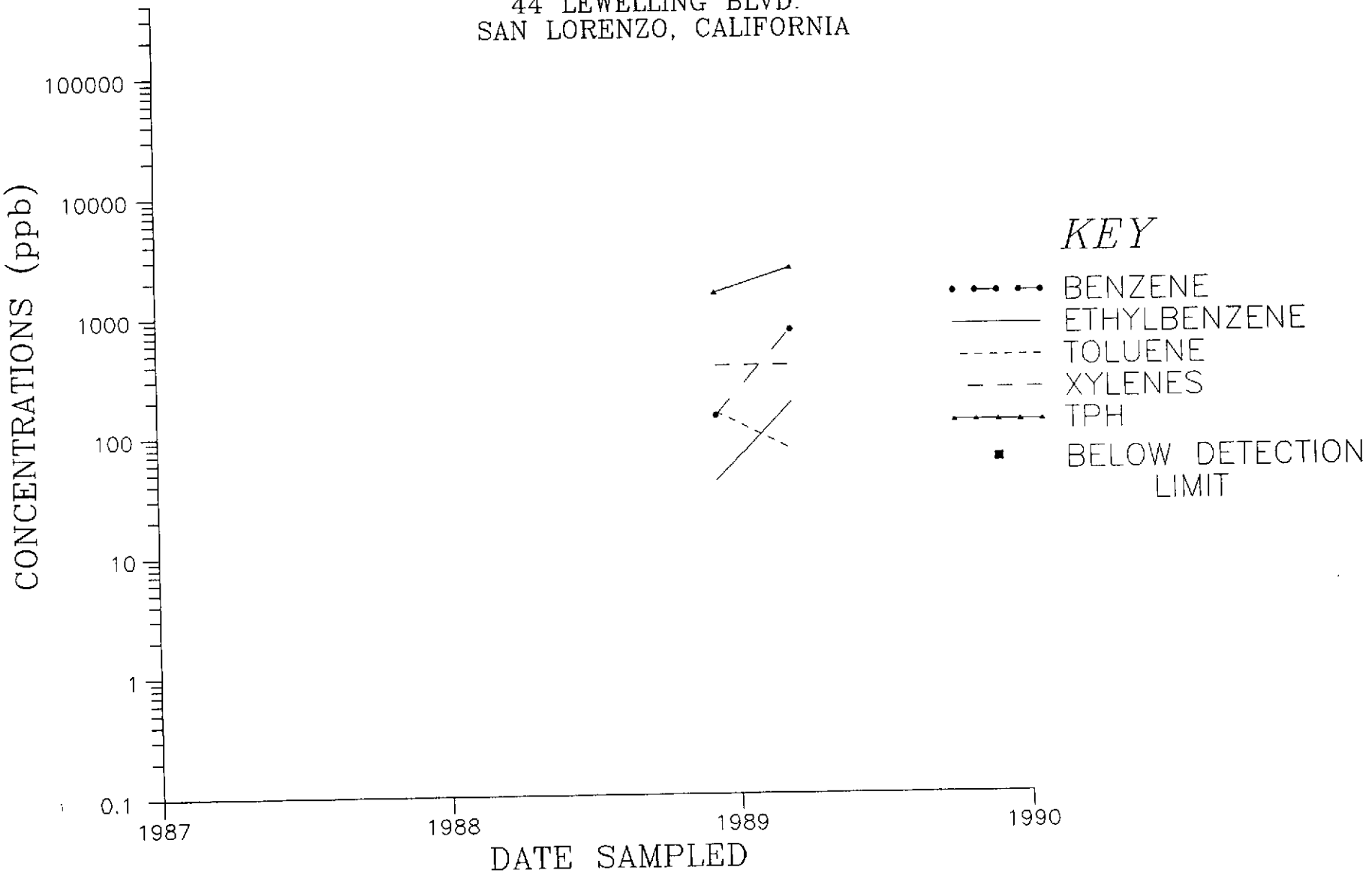


NOTE: Laboratory detection limits may vary due to analytical procedures used.

GROUND-WATER ANALYSES DATA

WELL MW-7

JET GAS STATION
44 LEWELLING BLVD.
SAN LORENZO, CALIFORNIA



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