

February 1, 1988

Mr. Greg Zentner  
Regional Water Quality Control Board  
San Francisco Bay Region  
1111 Jackson ST, Room 6040  
Oakland, CA 94607

RE: Econo Station  
44 Lewelling BLVD  
San Lorenzo, CA

Dear Mr. Zentner:

Enclosed is a letter report prepared by Applied GeoSystems presenting the fourth quarter monitoring results.

The most recent analyses generally show slightly lower concentrations of dissolved hydrocarbons from those of the analyses of September, 1987.

Future quarterly monitoring data will be forwarded to you as it is made available.

Sincerely,

*Paul F. Taylor*

Paul F. Taylor  
Coordinator - Environmental Affairs

Lodi Office: 900 S Cherokee LN  
Lodi, CA 95240

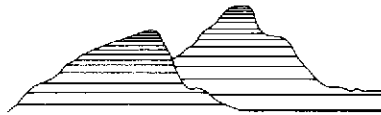
Phone: 209/368-2731

PFT/dg

Enclosure

cc: ~~Larry~~ Seto - Alameda County Health Care Services

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43255 Mission Boulevard, Fremont, CA 94539 (415) 651-1906

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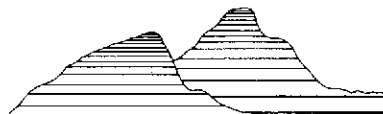
LETTER REPORT  
QUARTERLY QUANTITATIVE  
GROUND-WATER MONITORING

at

Econo Gasoline Station  
44 Lewelling Boulevard  
San Lorenzo, California

AGS Job No. 27044-1

COPY



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January 22, 1988  
0122ptay  
87044-4

Mr. Paul Taylor  
Kayo Oil Company  
900 South Cherokee Lane  
Lodi, California 95240

Subject: Letter Report No. 87044-4 regarding quarterly ground-water monitoring at the Econo Gasoline Station, 44 Lewelling Boulevard, San Lorenzo, California.

Mr. Taylor:

This letter report summarizes the results of ground-water monitoring performed by Applied GeoSystems we recommended in our report 87044-3 dated June 23, 1987, and as required by the San Francisco Bay Region of the Regional Water Quality Control Board (RWQCB). The site is located on the south side of Lewelling Boulevard in San Lorenzo, as shown on the Site Vicinity Map, Plate P-1. At Kayo Oil Company's request, qualitative analysis of ground water at the site was performed monthly from June 1987 to September 1987. Monitoring of the ground water in the wells will continue on a quarterly schedule through June 1988.

A geologist arrived at the above-referenced site on December 10, 1987, to sample wells MW-1, MW-2, and MW-3. The locations of the wells are shown on the Ground-Water Potentiometric Surface Map, Plate P-2. An initial sample was collected from each of the wells to check for visual evidence of hydrocarbon contamination. The samples were collected by gently lowering approximately half of the length of a Teflon bailer past the air/water interface and collecting a sample from the surface of the water in each well. The water in the wells showed no floating product, sheen, or emulsion. Cumulative results of the subjective analyses are presented in Table 1.

Prior to performing the subjective analyses, a static water-level measurement was made using a Solinst water-level indicator. The water-level measurements were used to produce the ground-water potentiometric surface contours shown on Plate P-2. The ground-water surface, at the time of the measurement, sloped downward to the southwest.

After performing the subjective analyses, the wells were purged of approximately four well volumes of water and were allowed to recover to static water level. Samples for laboratory analyses were then collected with a laboratory-cleaned Teflon bailer. A sample from each well was collected from a selected depth below the static water level. The samples were transferred to laboratory-cleaned 40-milliliter glass Volatile Organic Analysis (VOA) vials. Hydrochloric acid was added to the vials to minimize bacterial degradation of the samples.

The samples were sealed with Teflon-lined caps, stored on ice, and delivered to laboratories that are certified by the State of California for the analyses requested. Chain of Custody Records were initiated by the sampler and are enclosed with this report. The samples were analyzed for total volatile hydrocarbons (TVH) and the hydrocarbon constituents benzene, ethylbenzene, toluene, and total xylenes isomers (BETX). The results of these analyses and previous analyses are presented in Table 2. The most recent analytical results are also presented on the laboratory documents enclosed with this report.

The most recent analyses generally show slightly lower concentrations of dissolved hydrocarbons from those of the analyses of September 1987; however, concentrations of all constituents in MW-3 remain above the maximum concentration levels of generally accepted drinking water standards. Cumulative Results of concentrations of dissolved hydrocarbons and hydrocarbon constituents for water collected from monitoring wells MW-1 through MW-3 are presented graphically, to show the trend of each constituent with time, on Plates P-3 through P-6 enclosed with this letter report.

Because relatively high concentrations of dissolved hydrocarbon constituents are present in the ground water at the site, further work should be undertaken to evaluate the extent of the contamination and the usefulness of the ground water in the vicinity of the site. We recommend that additional ground-water monitoring wells should be installed at selected locations



TABLE 1

CUMULATIVE SUBJECTIVE ANALYSES  
Econo Gasoline Station  
44 Lewelling Boulevard  
San Lorenzo, California

<u>Date</u>	<u>Well No.</u>	<u>Depth to Water</u>	<u>Floating Product</u>	<u>Sheen</u>	<u>Emulsion</u>
	<b>MW-1:</b>				
6/87		16.27	NONE	SLIGHT	NONE
7/87		16.96	NONE	NONE	NONE
8/87		17.28	NONE	NONE	NONE
9/87		17.62	NONE	NONE	NONE
12/87		17.54	NONE	NONE	NONE
	<b>MW-2:</b>				
6/87		15.62	NONE	STRONG	NONE
7/87		16.23	NONE	NONE	NONE
8/87		16.58	NONE	NONE	NONE
9/87		16.93	NONE	NONE	NONE
12/87		16.71	NONE	NONE	NONE
	<b>MW-3:</b>				
6/87		15.89	NONE	SLIGHT	NONE
7/87		16.48	NONE	NONE	NONE
8/87		16.80	NONE	NONE	NONE
9/87		17.13	NONE	NONE	NONE
12/87		16.90	NONE	NONE	NONE

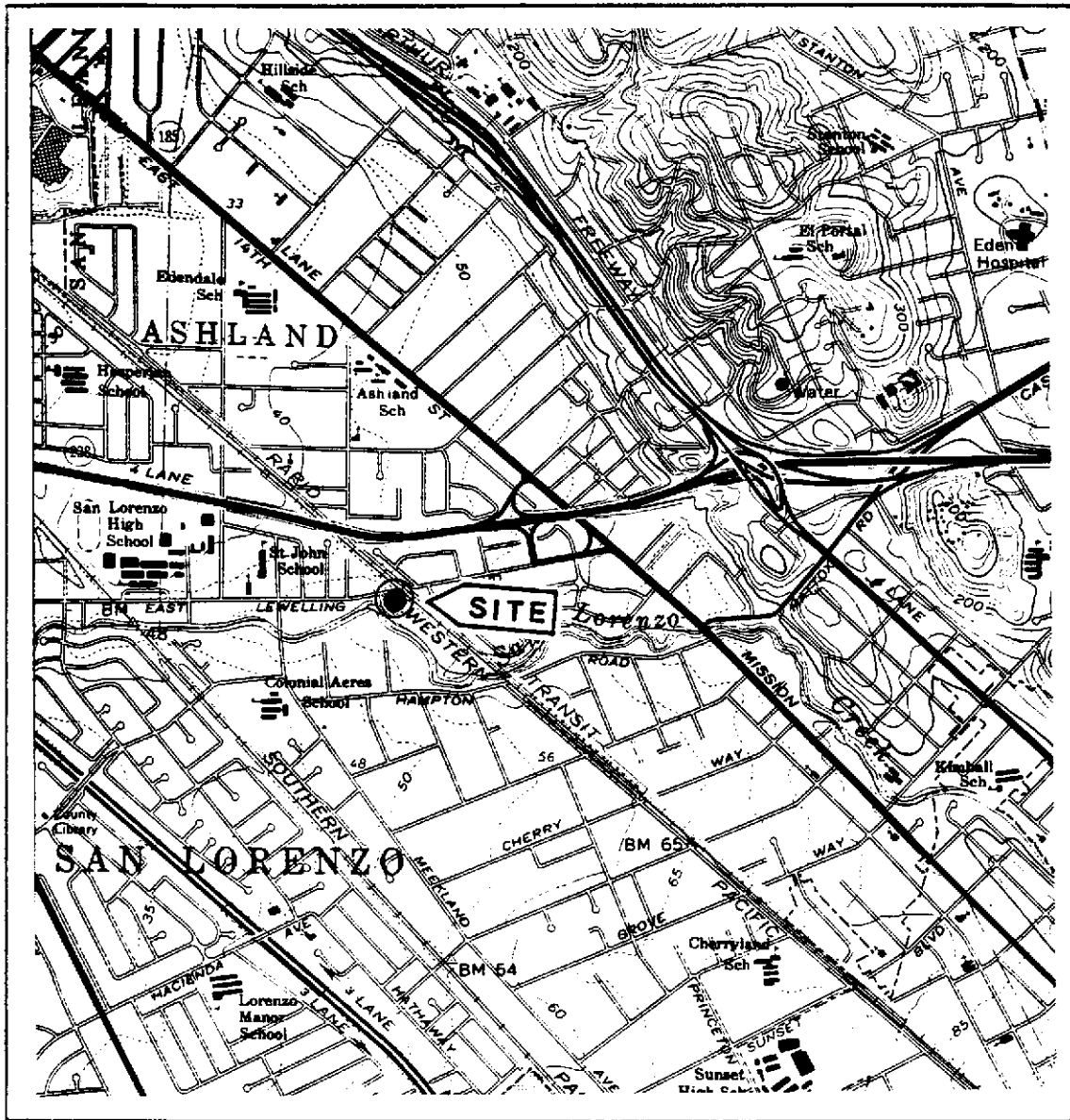
Note: Depth to water measured in feet below top of casing.

TABLE 2

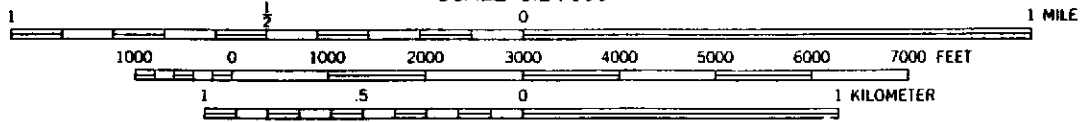
CUMULATIVE ANALYTICAL RESULTS  
 for Ground-Water Samples Collected From  
 Econo Gasoline Station  
 44 Lewelling Boulevard  
 San Lorenzo, California

Date	Sample I.D.	TVH	B	E	T	X	Det. Limit
<b>MW-1:</b>							
6/87	W-25-MW1	18.05	0.49	0.93	0.15	3.79	0.01
7/87	W-20-MW1	14.75	0.56	0.95	0.12	3.27	0.05
8/87	W-26-MW1	12.86	0.63	0.32	0.04	1.13	0.01
9/87	W-18-MW1	14.269	0.558	0.562	0.084	1.942	0.005
12/87	W-20-MW1	14.00*	0.200	0.273	0.138	0.777	0.005
<b>MW-2:</b>							
6/87	W-25-MW2	4.870	0.113	0.046	0.014	0.058	0.002
7/87	W-20-MW2	2.207	0.103	0.034	0.025	0.048	0.001
8/87	W-26-MW2	0.7560	0.0376	0.0082	0.0109	0.0111	0.0005
9/87	W-18-MW2	1.4825	0.0753	0.0164	0.0142	0.0276	0.0005
12/87	W-20-MW2	1.80*	0.0280	0.0381	0.0406	0.1003	0.0005
<b>MW-3:</b>							
6/87	W-25-MW3	40.3	5.4	1.7	3.9	5.2	0.1
7/87	W-20-MW3	30.32	6.88	1.58	7.08	4.77	0.05
8/87	W-26-MW3	25.62	5.93	1.24	4.18	3.37	0.05
9/87	W-18-MW3	38.21	8.54	1.02	6.66	3.74	0.05
12/87	W-20-MW3	25.00	4.24	0.89	2.53	1.86	0.05

Note: All results in parts per million (ppm)  
 I.D.: Sample Identifier  
 Det. Limit: Detection Limit  
 TVH: Total volatile hydrocarbons  
 BETX: Benzene, ethylbenzene, toluene, and total xylene isomers



SCALE 1:24 000



CONTOUR INTERVAL 20 FEET

Source: U.S.G.S. 7.5' quad.,  
Hayward, California



Applied GeoSystems  
43255 Mission Blvd., Suite B Fremont, CA 94539 (415) 651-1906

PROJECT NO. 87044-4

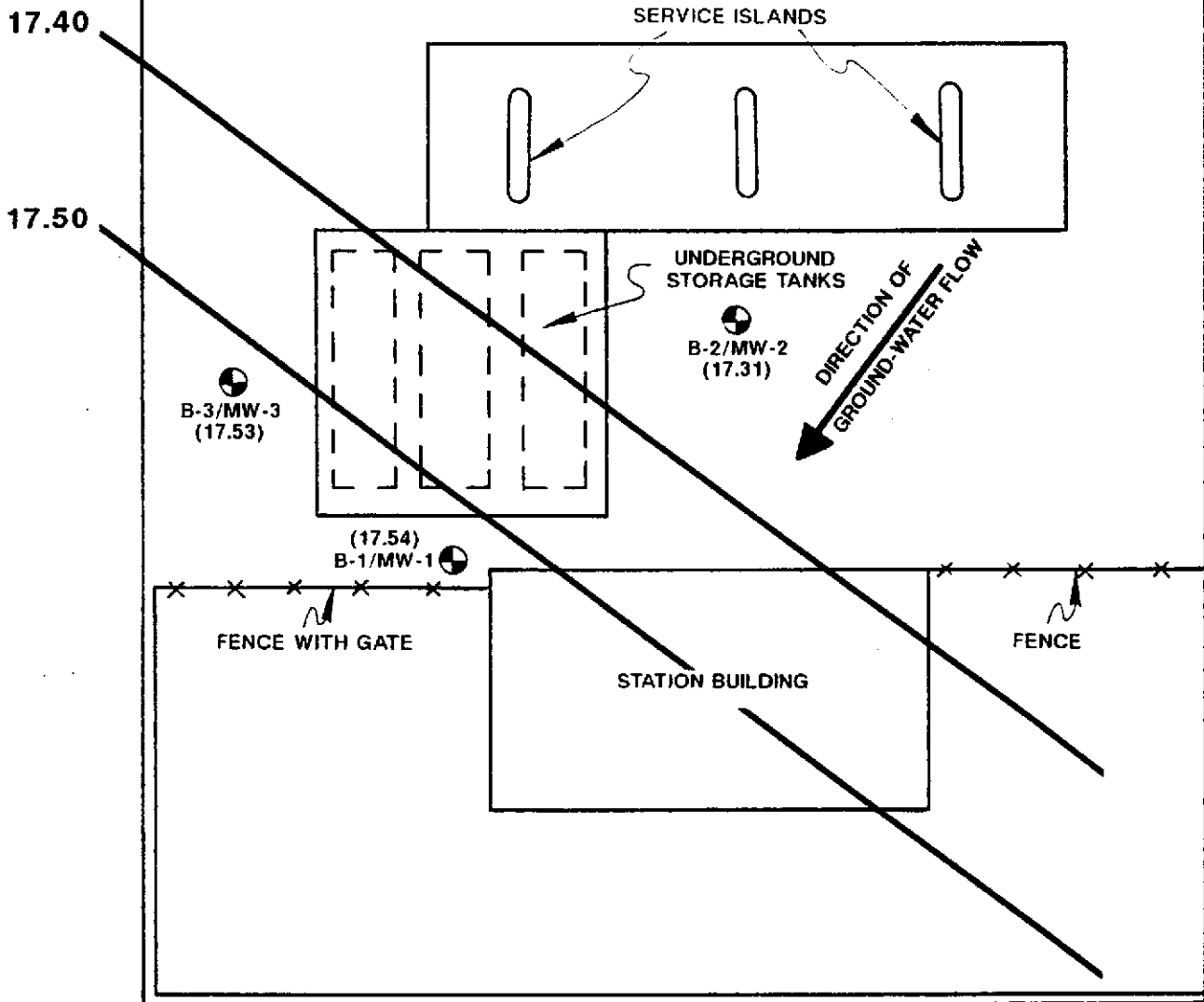
**SITE VICINITY MAP**  
**Econo Gasoline Station**  
**San Lorenzo, California**

PLATE

**P - 1**

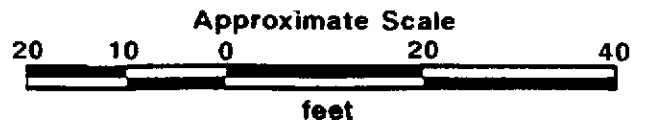


LEWELLING BOULEVARD



⊕ = Monitoring well location

17.50  
/ = Potentiometric surface depth measured in feet (below arbitrary datum)



Source: Measured by tape and compass

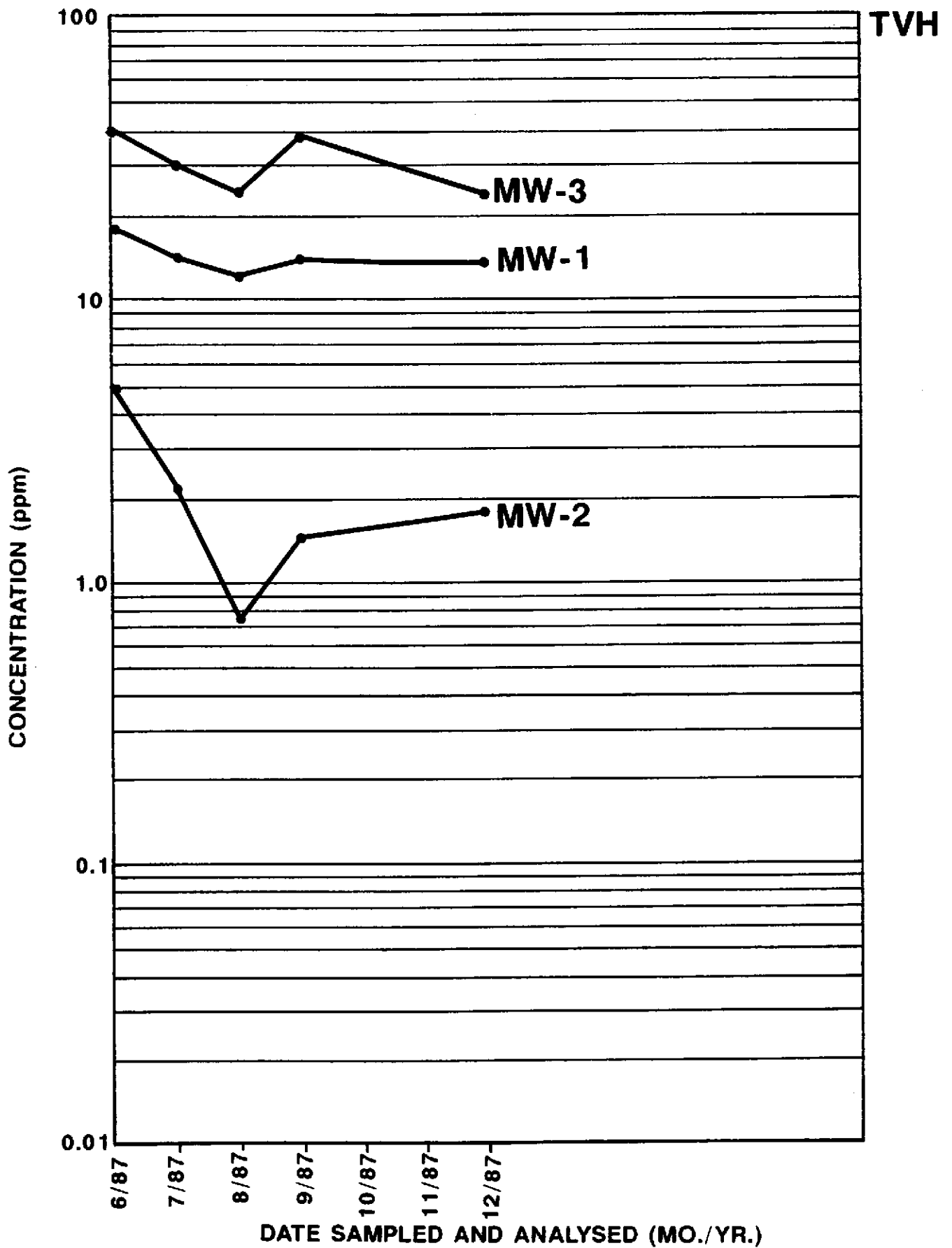


GROUND-WATER POTENTIOMETRIC  
SURFACE MAP  
December 1987

PLATE  
P - 2

Econo Gasoline Station  
San Lorenzo, California

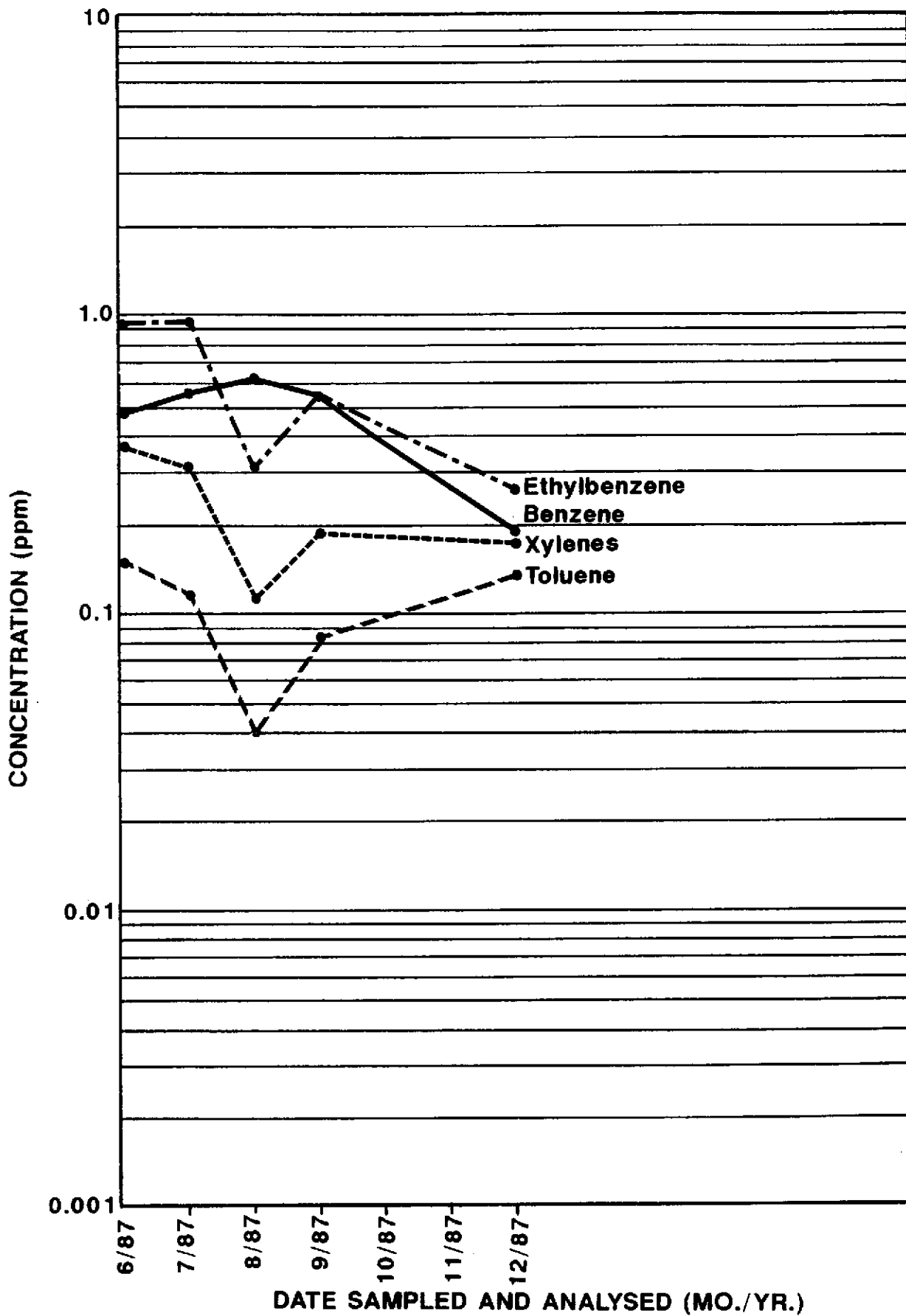
PROJECT NO. 87044-4



**CUMULATIVE TVH  
CONCENTRATION GRAPH  
Econo Gasoline Station  
San Lorenzo, California**

**PLATE  
P - 3**

**PROJECT NO. 87044-4**



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43775 Mission Blvd., Suite B, Fremont, CA 94539-4151-1906

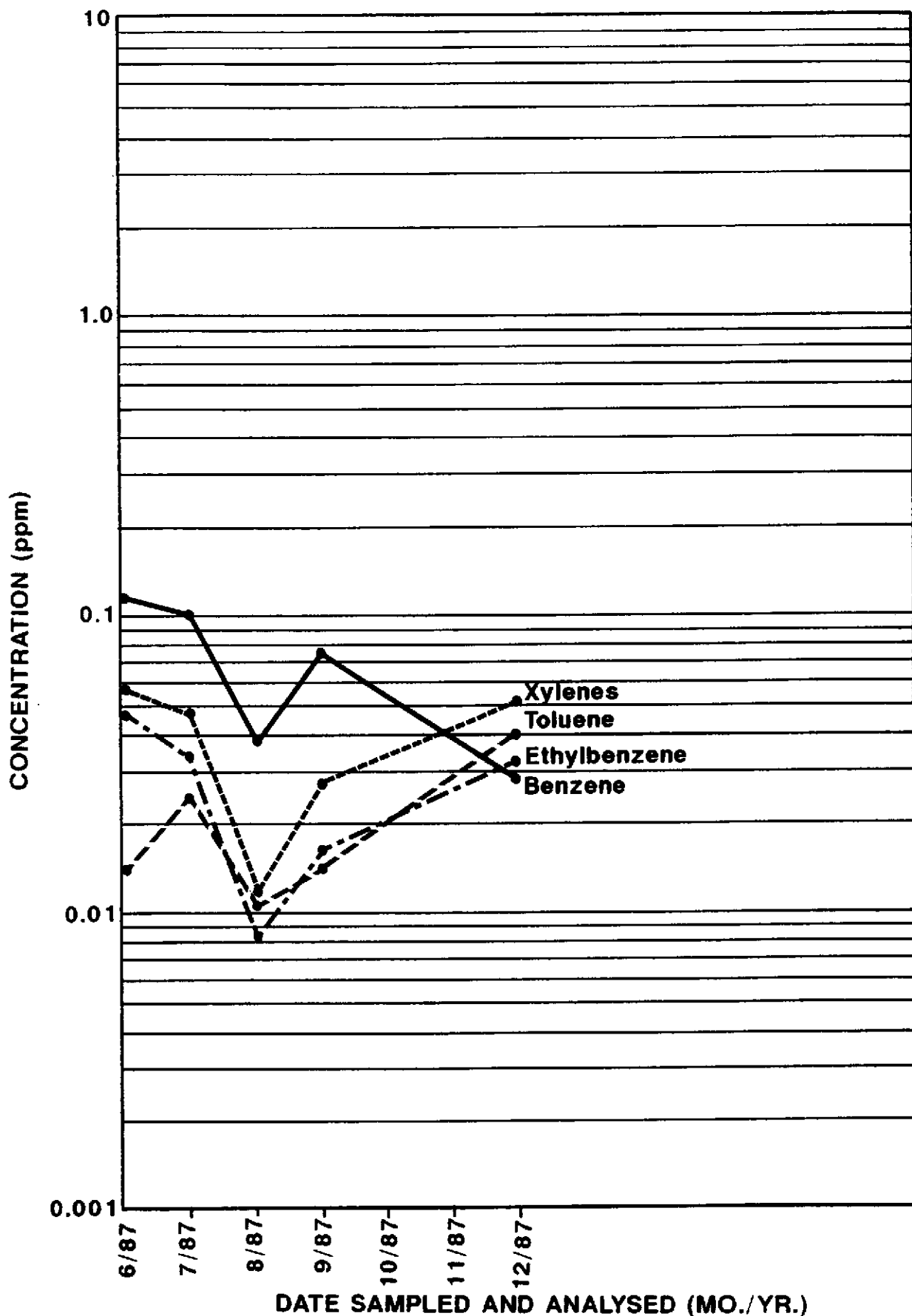
PROJECT NO. 87044-4

**CUMULATIVE BETX  
CONCENTRATION GRAPH  
Well MW-1**

**Econo Gasoline Station  
San Lorenzo, California**

PLATE

**P - 4**



DATE SAMPLED AND ANALYSED (MO./YR.)

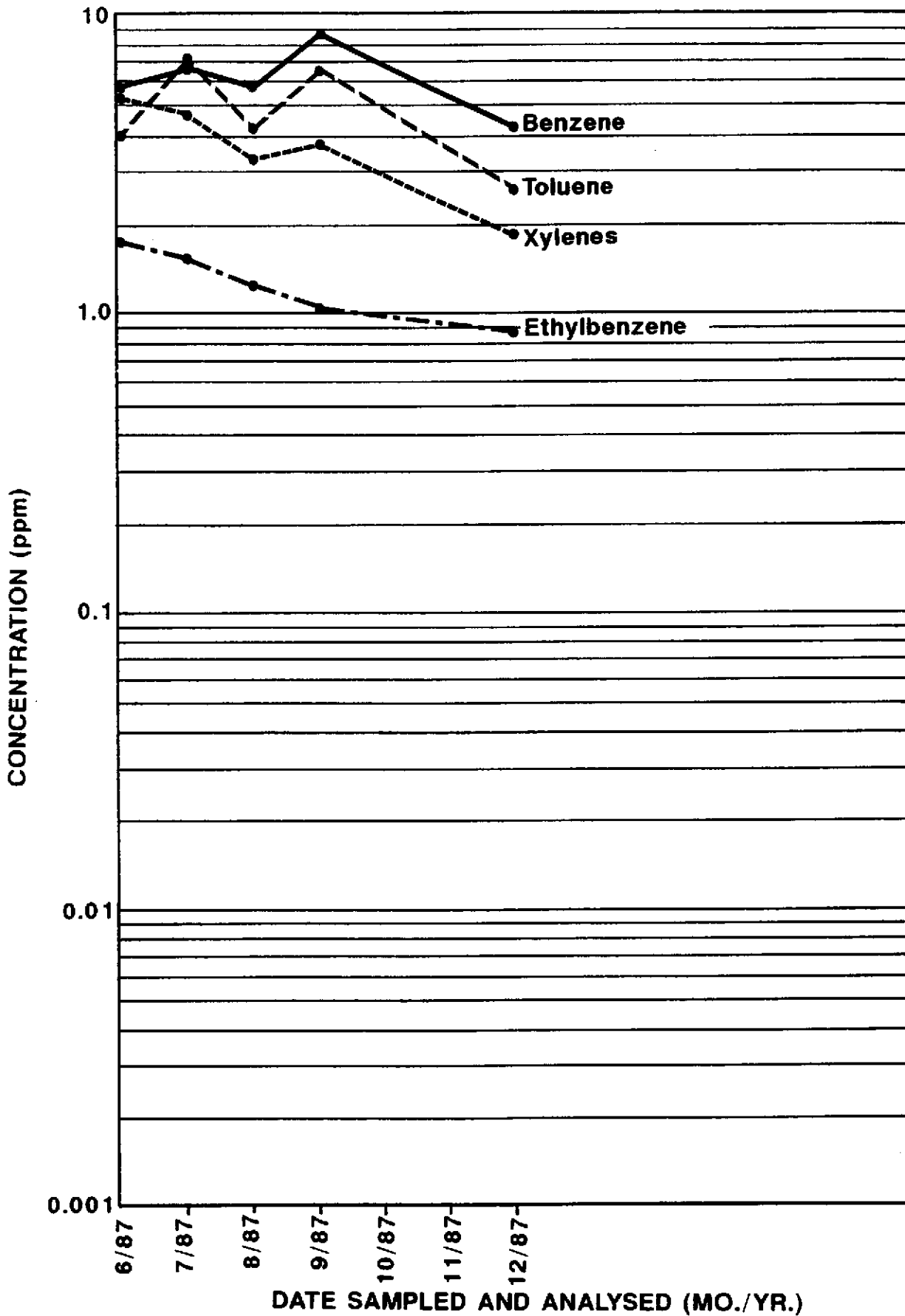


Applied GeoSystems  
 21175 Mission Blvd. Suite B, Fremont, CA 94539-4415 (510) 996-1900

**CUMULATIVE BETX  
 CONCENTRATION GRAPH**  
 Well MW- 2  
 Econo Gasoline Station  
 San Lorenzo, California

PLATE  
**P - 5**

PROJECT NO. 87044-4



PROJECT NO. 87044-4

**CUMULATIVE BTEX  
CONCENTRATION GRAPH**  
Well MW-3  
Econo Gasoline Station  
San Lorenzo, California

PLATE  
**P - 6**



**ANAMETRIX, INC.**

LABORATORY SERVICES

ENVIRONMENTAL • ANALYTICAL CHEMISTRY  
2754 AIELLO DRIVE • SAN JOSE, CA 95111 • (408) 629-1132

December 17, 1987  
Work Order Number 8712080  
Date Received 12/11/87  
Project No. 37044-4

Glen Dembroff  
Applied GeoSystems  
43255 Mission Blvd., Suite B  
Fremont, CA 94539

Three water samples were received for analysis of total volatile hydrocarbons as gasoline by gas chromatography, using the following EPA method(s):

ANAMETRIX I.D.	SAMPLE I.D.	METHOD(S)
3712080-01	87044-4 W20MW1	8015
-02	" W20MW2	"
-03	" W20MW3	"

RESULTS

See enclosed data sheets, Forms 3-1 thru 3-3.

If there is any more that we can do, please give us a call. Thank you for using ANAMETRIX, INC.

Sincerely,



Sarah Schoen, Ph.D.  
GC Supervisor

SRS/da

ANALYSIS DATA SHEET - PETROLEUM HYDROCARBON COMPOUNDS  
ANAMETRIX, INC. (408) 629-1132

Sample I.D. : 87044-4 W20MW1  
Matrix : WATER  
Date sampled : 12-10-87  
Date anl. TVH : 12-12-87  
Date ext. TEH : NA  
Date anl. TEH : NA

Anamatrix I.D. : 8712080-01  
Analyst : *de*  
Supervisor : *Shs*  
Date released : 12-17-87  
Date ext. TOG : NA  
Date anl. TOG : NA

CAS #	Compound Name	Det. Limit (ug/L)	Amt. Found (ug/L)	Q
71-43-2	Benzene	1		NR
108-88-3	Toluene	1		NR
100-41-4	Ethylbenzene	1		NR
	Total Xylenes	1		NR
	TVH as Gasoline	50	14000	+
	TEH as Diesel	50		NR
	Total Oil & Grease	10000		NR

For reporting purposes, the following qualifiers (Q) are used:  
 - : A value greater than or equal to the method detection limit.  
 U : The compound was analyzed for but was not detected.  
 NR: Not requested.

TVH - Total Volatile Hydrocarbons is determined by modified EPA 8015 with either headspace or purge and trap.  
 TEH - Total Extractable Hydrocarbons is determined by modified EPA 8015 with direct injection.  
 TOG - Total Oil & Grease is determined by Standard Method 503E.  
 BTEX- Benzene, Toluene, Ethylbenzene, and Total Xylenes are determined by modified EPA 8020.

All testing procedures follow CRWQCB Region 2 guidelines.



ANALYSIS DATA SHEET - PETROLEUM HYDROCARBON COMPOUNDS  
ANAMETRIX, INC. (408) 629-1132

Sample I.D. : 87044-4 W20MW2	Anamatrix I.D. : 8712080-02
Matrix : WATER	Analyst : <i>JA</i>
Date sampled : 12-10-87	Supervisor : <i>FW</i>
Date anl. TVH : 12-12-87	Date released : 12-17-87
Date ext. TEH : NA	Date ext. TOG : NA
Date anl. TEH : NA	Date anl. TOG : NA

CAS #	Compound Name	Det. Limit (ug/L)	Amt. Found (ug/L)	Q
71-43-2	Benzene	1		NR
108-88-3	Toluene	1		NR
100-41-4	Ethylbenzene	1		NR
	Total Xylenes	1		NR
	TVH as Gasoline	50	1800	+
	TEH as Diesel	50		NR
	Total Oil & Grease	10000		NR

For reporting purposes, the following qualifiers (Q) are used:  
 + : A value greater than or equal to the method detection limit.  
 U : The compound was analyzed for but was not detected.  
 NR: Not requested.

TVH - Total Volatile Hydrocarbons is determined by modified EPA 8015 with either headspace or purge and trap.  
 TEH - Total Extractable Hydrocarbons is determined by modified EPA 8015 with direct injection.  
 TOG - Total Oil & Grease is determined by Standard Method 503E.  
 BTEX- Benzene, Toluene, Ethylbenzene, and Total Xylenes are determined by modified EPA 8020.

All testing procedures follow CRWQCB Region 2 guidelines.

ANALYSIS DATA SHEET - PETROLEUM HYDROCARBON COMPOUNDS  
ANAMETRIX, INC. (408) 629-1122

Sample I.D. :	87044-4 W20MW3	Anamatrix I.D. :	8712080-03
Matrix :	WATER	Analyst :	<i>JK</i>
Date sampled :	12-10-87	Supervisor :	<i>SJS</i>
Date anl. TVH :	12-12-87	Date released :	12-17-87
Date ext. TEH :	NA	Date ext. TOG :	NA
Date anl. TEH :	NA	Date anl. TOG :	NA

CAS #	Compound Name	Det. Limit (ug/L)	Amt. Found (ug/L)	Q
71-43-2	Benzene	1		NR
108-88-3	Toluene	1		NR
100-41-4	Ethylbenzene	1		NR
	Total Xylenes	1		NR
	TVH as Gasoline	50	25000	+
	TEH as Diesel	50		NR
	Total Oil & Grease	10000		NR

For reporting purposes, the following qualifiers (Q) are used:  
 + : A value greater than or equal to the method detection limit.  
 U : The compound was analyzed for but was not detected.  
 NR: Not requested.

TVH - Total Volatile Hydrocarbons is determined by modified EPA 8015 with either headspace or purge and trap.  
 TEH - Total Extractable Hydrocarbons is determined by modified EPA 8015 with direct injection.  
 TOG - Total Oil & Grease is determined by Standard Method 503E.  
 BTEX- Benzene, Toluene, Ethylbenzene, and Total Xylenes are determined by modified EPA 8020.

All testing procedures follow CRWQCB Region 2 guidelines.





**Applied GeoSystems**

43255 Mission Blvd. Suite B Fremont, CA 94539 (415) 651-1906

## RECORD OF ANALYSIS

Date 12-21-87

Applied GeoSystems  
43255 Mission Blvd.  
Fremont, CA. 94539

Attention: Glenn R. Dembroff

Date Received: 12-10-87  
Date Analyzed: 12-15-87

Laboratory# 8712W024

### Procedure:

The water sample referenced on the attached Chain-of-Custody was analyzed for the presence and concentration of Benzene, Ethyl-Benzene, Toluene, and Xylenes (BETX) by EPA method 602. The sample was concentrated on a Tekmar LSC-2 and ALS automatic sampler prior to injection into a 5890 Hewlett Packard gas chromatograph fitted with a Photo-Ionization detector (PID) and a Flame Ionization detector (FID). The limit of detection for this sample is 0.005 milligrams/liter (parts per million = ppm).

The results are presented in the table below:

<u>SAMPLE</u>	<u>SITE</u>	<u>BENZENE</u>	<u>ETHYL BENZENE</u>	<u>TOLUENE</u>	<u>TOTAL XYLENES</u>
W-20-MW1	87044-4	0.200	0.273	0.138	0.777

Results in milligrams/liter (parts per million = ppm)

Tia Tran, Chemist

Applied GeoSystems is a State of California, Department of Health Services Certified Hazardous Waste Testing Laboratory (No. 153).



**Applied GeoSystems**

43255 Mission Blvd. Suite B Fremont, CA 94539 (415) 651-1906

## RECORD OF ANALYSIS

Date 12-21-87

Applied GeoSystems  
43255 Mission Blvd.  
Fremont, CA. 94539

Attention: Glenn R. Dembroff

Date Received: 12-10-87  
Date Analyzed: 12-15-87

Laboratory# 8712W025

**Procedure:**

The water sample referenced on the attached Chain-of-Custody was analyzed for the presence and concentration of Benzene, Ethyl-Benzene, Toluene, and Xylenes (BETX) by EPA method 602. The sample was concentrated on a Tekmar LSC-2 and ALS automatic sampler prior to injection into a 5890 Hewlett Packard gas chromatograph fitted with a Photo-Ionization detector (PID) and a Flame Ionization detector (FID). The limit of detection for this sample is 0.0005 milligrams/liter (parts per million = ppm).

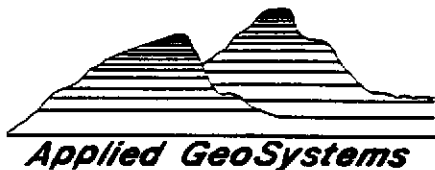
The results are presented in the table below:

<u>SAMPLE</u>	<u>SITE</u>	<u>BENZENE</u>	<u>ETHYL BENZENE</u>	<u>TOLUENE</u>	<u>TOTAL XYLENES</u>
W-20-MW2	87044-4	0.0280	0.0381	0.0406	0.1003

Results in milligrams/liter (parts per million = ppm)

Tia Tran, Chemist

Applied GeoSystems is a State of California, Department of Health Services Certified Hazardous Waste Testing Laboratory (No. 153).



**Applied GeoSystems**

43255 Mission Blvd. Suite B Fremont, CA 94539 (415) 651-1906

## RECORD OF ANALYSIS

Date 12-21-87

Applied GeoSystems  
43255 Mission Blvd.  
Fremont, CA. 94539

Attention: Glenn R. Dembroff

Date Received: 12-10-87  
Date Analyzed: 12-15-87

Laboratory# 8712W026

### Procedure:

The water sample referenced on the attached Chain-of-Custody was analyzed for the presence and concentration of Benzene, Ethyl-Benzene, Toluene, and Xylenes (BETX) by EPA method 602. The sample was concentrated on a Tekmar LSC-2 and ALS automatic sampler prior to injection into a 5890 Hewlett Packard gas chromatograph fitted with a Photo-Ionization detector (PID) and a Flame Ionization detector (FID). The limit of detection for this sample is 0.05 milligrams/liter (parts per million = ppm).

The results are presented in the table below:

<u>SAMPLE</u>	<u>SITE</u>	<u>BENZENE</u>	<u>ETHYL BENZENE</u>	<u>TOLUENE</u>	<u>TOTAL XYLENES</u>
W-20-MW3	87044-4	4.24	0.89	2.53	1.86

Results in milligrams/liter (parts per million = ppm)

Tia Tran, Chemist

Applied GeoSystems is a State of California, Department of Health Services Certified Hazardous Waste Testing Laboratory (No. 153).