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# SECOR

*International Incorporated*

May 16, 2002

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Ms. Susan Hugo  
Alameda County Health Care Services Agency  
Department of Environmental Health  
1131 Harbor Bay Parkway  
Alameda, California 94502-6577

**Re: Summary of Existing Site Data for the David D. Bohannon Organization Property Located at 575 Paseo Grande, San Lorenzo, California 94580 - SECOR Project No. 05OT.50029.01**

Dear Ms. Hugo:

On behalf of the David D. Bohannon Organization (Bohannon), SECOR International Incorporated (SECOR) has prepared this brief letter to summarize existing site data for the property located at 575 Paseo Grande in San Lorenzo, California (Site). This letter is being submitted prior to a meeting with you to discuss options for site closure, and addresses the following issues:

- Residual concentrations of petroleum hydrocarbons present in soil;
- Historical concentrations of petroleum hydrocarbons present in groundwater;
- Groundwater flow patterns;
- Stability of the hydrocarbon-affected groundwater; and
- Soil gas characteristics.

#### Residual Petroleum Hydrocarbons in Soil

In 1995, SECOR conducted remedial activities at the Site that included removal of the former underground storage tank (UST) system piping and a former grease sump. The UST had been previously removed from the Site. Additional soil characterization by SECOR revealed three areas of potential concern: the grease sump, the former UST pit, and the former system piping and fuel dispenser. With input from the Alameda County Health Care Services Agency (ACHCSA), SECOR developed a remedial plan (work plan and addendum dated September 14 and 29, 1995) to remove soil affected by total petroleum hydrocarbons (TPH). In late 1995, SECOR provided oversight for the excavation of approximately 1,110 cubic yards of hydrocarbon-affected soil and the transport of approximately 560 cubic yards of the material to BFI's Vasco Road disposal facility. The remaining soil was aerated on-Site and subsequently disposed of at an appropriate facility.

During and following excavation activities, SECOR performed confirmation soil sampling. Confirmation soil samples collected from the sidewalls and floor of the excavation in the area of the former UST indicated that up to 510 ppm TPH as motor oil (TPHmo), up to 12 ppm TPH as diesel (TPHd) and up to 1.6 ppm TPH as gasoline (TPHg) remained in soil in this area. The TPHmo concentrations were flagged by the laboratory as not matching the motor oil standard, and as being representative of heavier-range petroleum hydrocarbons. Review of the chromatograms by laboratory personnel suggested that the concentrations reported for TPHmo were likely attributable to asphalt fragments present in the soil samples.

Soil around the former grease sump was excavated to approximately nine feet bgs. Confirmation samples indicated that up to 74 ppm TPHmo, up to 49 ppm TPHd, and up to 7.4 ppm TPHg remained in soil on the sidewalls of the excavation.

Soil in the vicinity of the former product line system and pump island was excavated to approximately seven feet bgs. Confirmation sample results indicate that up to 1,300 ppm TPHg, up to 830 ppm TPH as kerosene (TPHk), and up to 160 ppm TPHd remain in soil along the southern sidewall of the excavation. Excavation in this area was limited by the presence of a natural gas line along the southeastern edge of the property.

#### Hydrocarbon Concentrations in Groundwater

Groundwater monitoring has been conducted at the Site since 1996. Well locations are illustrated on Figure 1. First-encountered groundwater beneath the Site occurs at a depth of approximately 11 to 14 feet below ground surface (bgs). During monitoring well installation activities, SECOR encountered sandy silt materials between the ground surface and approximately five feet bgs, and clay between approximately five and 12 feet bgs. Stabilized groundwater levels in monitoring wells are approximately five feet bgs, suggesting that the clay acts as a confining layer (i.e., groundwater is confined below the clay).

Historical water levels are shown on Table 1, and historical chemical data is shown on Table 2. Wells MW-2 and MW-3 have reported the highest concentrations of TPHg and benzene, toluene, ethylbenzene and xylenes (BTEX), the volatile constituents of gasoline.

Figures 2 through 8 illustrate historic concentrations of TPHg and BTEX in groundwater, and historic groundwater levels measured during groundwater sampling activities. The following summarizes key observations regarding dissolved hydrocarbons in groundwater at the Site:

- Concentrations of TPH-g and BTEX at MW-1 have decreased to non-detect levels;
- Concentrations of TPH-g and BTEX have decreased over time in well MW-2 (adjacent to the former pump island and product piping excavation);
- With the exception of one sampling event (July 1997), concentrations of TPH-g and BTEX at well MW-3 (western edge of the Site) have ranged from approximately 500 to 3,000 µg/L. The reported concentrations of benzene in 2001 are within the historic range of concentrations detected at this well since monitoring began in 1996;
- Concentrations of TPH-g and BTEX in well MW-4 are slightly lower than those reported from well MW-3; and
- Wells MW-5 (cross-gradient from the Site) and MW-6 and MW-7 (down-gradient from the Site) have reported no detectable concentrations since installation in December 2000, with the exception of small amounts of xylenes reported in well MW-7.

#### Groundwater Flow Patterns

Based on depth-to-water measurements made during periodic groundwater monitoring, groundwater flow beneath the Site is generally towards the southwest to northwest, at a gradient of approximately 0.002 foot/foot. The distribution of dissolved-phase petroleum hydrocarbons in groundwater is consistent with the

groundwater flow patterns, with the highest concentrations reported in wells MW-2, MW-3 and MW-4, located down-gradient of the former petroleum storage and handling areas. Groundwater flow patterns measured and calculated during 2001 are illustrated on Figures 9 and 10.

#### Evaluation of Plume Stability

Historical groundwater chemical data for the Site shows that concentrations of petroleum related constituents have decreased to non-detect levels in well MW-1, decreased slightly or remained relatively stable in on-Site wells MW-2 and MW-3, and remained relatively stable in down-gradient well MW-4. Groundwater samples collected from down-gradient wells MW-5, MW-6, and MW-7 have not indicated the presence of TPH or BTEX since installation in December 2000, with the exception of minor xylene detections at MW-7.

Considering the absence of a significant on-Site source of hydrocarbons in soil that could continually affect groundwater, the shallow groundwater gradient, and the tendency for petroleum hydrocarbons to degrade naturally with distance from the former source areas, the plume of hydrocarbon-affected groundwater appears to be stable (i.e., not expanding).

#### Soil Gas Characteristics

A passive soil gas survey was conducted at the Site in July 1999 and reported to the ACHCSA by SECOR in October 1999. The survey consisted of installing 13 sorbent screening modules in discrete locations down-gradient of the Site. The modules, developed by W.L. Gore and Associates Inc., are designed to detect specific volatile compounds in soil vapor that may be emanating from hydrocarbon-affected soil and/or groundwater. The sorbent modules are intended for screening purposes, and the survey was used primarily as a tool to assist in the location of off-Site monitoring wells (MW-5 through -7). Because of access limitations to the west and south of the Site, soil gas sampling locations were limited to public right-of-way along Paseo Largavista, Paseo Grande, and Via Del Sol (see Figure 1).

The investigation identified the likely presence of TPHg and BTEX constituents in soil gas. Data from the screening modules does not quantify concentrations of detected constituents. The absence of TPHg and BTEX constituents in down-gradient monitoring wells MW-5 through MW-7 suggests that the constituents detected in soil gas at off-Site locations are likely at very low concentrations.

#### Summary

Based on a review of existing Site data, it appears that only residual concentrations of TPH remain in soil at the Site. Historical groundwater data suggest the plume of affected groundwater is stable, and likely degrading due to natural processes.

We look forward to meeting with your agency in the near future to discuss options for obtaining regulatory site closure.

Ms. Susan Hugo  
Alameda County Health Care Services Agency  
May 16, 2002  
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If you have any questions regarding this letter, please contact Mr. Mike Jepsen of Bohannon or the undersigned.

Sincerely,

**SECOR International Inc.**



Chris R. Maxwell, R.G.  
Principal Project Geologist

  
FOR  
Neil Doran  
Staff Geologist

cc w/Att: Mike Jepsen, David D. Bohannon Organization

Attachments:	Table 1	Historical Groundwater Elevation Data
	Table 2	Historical Groundwater Analytical Results
	Figure 1	Site Plan
	Figure 2	TPHg Concentrations – MW-1
	Figure 3	TPHg Concentrations – MW-2
	Figure 4	BTEX Concentrations – MW-2
	Figure 5	TPHg Concentrations – MW-3
	Figure 6	BTEX Concentrations – MW-3
	Figure 7	TPHg Concentrations – MW-4
	Figure 8	BTEX Concentrations – MW-4
	Figure 9	Groundwater Flow Contour Map– February 28, 2001
	Figure 10	Groundwater Flow Contour Map– August 22, 2001

**Table 1**  
**Historical Groundwater Elevation Data**  
**575 Paseo Grande**  
**San Lorenzo, California**

<b>Date</b>	<b>TOC (ft msl)</b>	<b>DTW (ft bTOC)</b>	<b>ELEV (ft msl)</b>
<b>MW-1</b>			
17-May-96	27.11	5.65	-5.65
8-Oct-96		7.47	-7.47
1-Apr-97		6.27	-6.27
12-Jun-97		6.90	-6.90
10-Sep-97		7.48	-7.48
8-Jun-99		6.44	-6.44
13-Sep-99		7.56	-7.56
21-Dec-99		7.41	-7.41
17-Mar-00		5.35	-5.35
5-Dec-00		26.98	6.99
28-Feb-01	5.71		21.02
22-Aug-01	7.39		19.34
<b>MW-2</b>			
17-May-96	26.73	5.56	-5.56
8-Oct-96		7.15	-7.15
1-Apr-97		6.61	-6.61
12-Jun-97		6.76	-6.76
10-Sep-97		7.19	-7.19
8-Jun-99		6.45	-6.45
13-Sep-99		7.46	-7.46
21-Dec-99		7.26	-7.26
17-Mar-00		5.56	-5.56
5-Dec-00		26.73	7.01
28-Feb-01	5.81		20.34
22-Aug-01	7.42		18.73
<b>MW-3</b>			
17-May-96	26.15	4.39	-4.39
8-Oct-96		6.82	-6.82
1-Apr-97		5.53	-5.53
12-Jun-97		6.18	-6.18
10-Sep-97		6.81	-6.81
8-Jun-99		5.74	-5.74
13-Sep-99		6.88	-6.88
21-Dec-99		6.66	-6.66

**Table 1**  
**Historical Groundwater Elevation Data**  
**575 Paseo Grande**  
**San Lorenzo, California**

<b>Date</b>	<b>TOC (ft msl)</b>	<b>DTW (ft bTOC)</b>	<b>ELEV (ft msl)</b>
<b>MW-3 Continued</b>			
17-Mar-00	26.55	4.51	-4.51
5-Dec-00		6.84	19.03
28-Feb-01		5.44	20.43
22-Aug-01		7.29	18.58
<b>MW-4</b>			
5-Dec-00	25.87	6.28	19.49
28-Feb-01		4.99	20.78
22-Aug-01		6.73	19.04
<b>MW-5</b>			
5-Dec-00	25.77	6.25	18.64
28-Feb-01		4.95	19.94
22-Aug-01		6.69	18.20
<b>MW-6</b>			
5-Dec-00	24.89	5.68	19.75
28-Feb-01		4.35	21.08
22-Aug-01		6.15	19.28
<b>MW-7</b>			
5-Dec-00	25.43	6.43	-6.43
28-Feb-01		4.76	-4.76
22-Aug-01		6.95	-6.95

Notes:

TOC = Top of well casing

DTW = Depth to Water

ELEV = Water table elevation above MSL

ft msl = Feet above mean sea level

ft bTOC = Feet below top of casing

**Table 2**  
**Historical Groundwater Analytical Results**  
**575 Paseo Grande**  
**San Lorenzo, California**

	<b>TPHg</b> (µg/L)	<b>Benzene</b> (µg/L)	<b>Toluene</b> (µg/L)	<b>Ethylbenzene</b> (µg/L)	<b>Total Xylenes</b> (µg/L)	<b>MTBE</b> (µg/L)	<b>Chromium</b> (µg/L)	<b>Dissolved Inorganic Lead</b> (µg/L)
<b>MW-1</b>								
17-May-96	1100	ND (<0.5)	8.7	7.4	17	NA	ND (<10)	ND (<50)
8-Oct-96	120	ND (<0.5)	ND (<0.5)	2.7	ND (<0.5)	NA	NA	NA
1-Apr-97	550	ND (<0.5)	ND (<0.5)	7.6	6.6	NA	NA	NA
12-Jun-97	160	ND (<0.5)	ND (<0.5)	2.9	1.7	NA	NA	NA
10-Sep-97	640	2.2 <sup>P</sup>	3.8 <sup>P</sup>	7.4 <sup>P</sup>	16 <sup>P</sup>	NA	NA	NA
8-Jun-99	ND (<50)	ND (<0.5)	ND (<0.5)	ND (<0.5)	ND (<0.5)	ND (<10)	ND (<10)	ND (<20)
21-Dec-99	ND (<50)	ND (<0.5)	ND (<0.5)	ND (<0.5)	1.1	NA	NA	ND (<5.0)
13-Sep-99	ND (<50)	ND (<0.5)	ND (<0.5)	ND (<0.5)	ND (<0.5)	NA	NA	NA
17-Mar-00	ND (<50)	ND (<0.5)	ND (<0.5)	ND (<0.5)	0.79	ND (<5)	NA	ND (<5.0)
5-Dec-00	ND (<50)	ND (<0.5)	ND (<0.5)	ND (<0.5)	ND (<0.5)	NA	NA	NA
28-Feb-01	ND (<50)	ND (<0.5)	ND (<0.5)	ND (<0.5)	ND (<0.5)	NA	NA	NA
22-Aug-01	ND (<50)	ND (<0.5)	ND (<0.5)	ND (<0.5)	ND (<0.5)	ND (<5.0)	NA	ND (<5.0)
<b>MW-2</b>								
17-May-96	23000	900	330	650	1500	NA	ND (<10)	ND (<50)
8-Oct-96	8400	530	ND (<50)	400	360	NA	NA	NA
1-Apr-97	7600	470	64	210	250	NA	NA	NA
12-Jun-97	8200	440	52	190	190	NA	NA	NA
10-Sep-97	8500	390	51 <sup>P</sup>	220	240	NA	NA	NA
8-Jun-99	2100	240	8	33	40	ND (<10)	ND (<10)	33
13-Sep-99	1300	120	ND (<5.0)	ND (<5.0)	15	NA	NA	NA
21-Dec-99	1400	110	5.6	11	17	NA	NA	ND (<5.0)
17-Mar-00	1200	180	19	28	31	ND (<50)	NA	ND (<5.0)
5-Dec-00	800	75	1.8	11	14	NA	NA	NA
28-Feb-01	1200	120	7.1	19	27	NA	NA	NA
22-Aug-01	990	75	3.5	8.9	8.1	ND (<5.0)	NA	ND (<5.0)
<b>MW-3</b>								
17-May-96	6700	140	45	210	180	NA	ND (<10)	ND (<50)
8-Oct-96	1800	2700	240	910	970	NA	NA	NA
1-Apr-97	27000	520	50	520	450	NA	NA	NA
12-Jun-97	29000	2700	160	940	500	NA	NA	NA
10-Sep-97	290000	1800	3200	2800 <sup>P</sup>	6900 <sup>P</sup>	NA	NA	NA
8-Jun-99	1700	320	6.4	15	ND (<0.5)	ND (<10)	ND (<10)	24
13-Sep-99	5400	1000	ND (<20)	ND (<20)	ND (<20)	NA	NA	NA

**Table 2**  
**Historical Groundwater Analytical Results**  
**575 Paseo Grande**  
**San Lorenzo, California**

	TPHg (µg/L)	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	MTBE (µg/L)	Chromium (µg/L)	Dissolved Inorganic Lead (µg/L)
<b>MW-3 (continued)</b>								
21-Dec-99	8800	1400	63	17	23	NA	NA	ND (<5.0)
17-Mar-00	1500	190	ND (<5)	7.6	ND (<5)	ND (<50)	NA	ND (<5.0)
5-Dec-00	5400	790	20	7.4	10	NA	NA	NA
28-Feb-01	3600	850	15	25	10	NA	NA	NA
22-Aug-01	8100	1600	28	44	17	ND (<50)	NA	ND (<5.0)
<b>MW-4</b>								
5-Dec-00	3900	320	13	41	31	NA	NA	ND (<5.0)
28-Feb-01	3400	250	14	44	22	NA	NA	ND (<5.0)
22-Aug-01	4800	260	12	27	9	ND (<50)	NA	ND (<5.0)
<b>MW-5</b>								
5-Dec-00	ND (<50)	ND (<0.5)	ND (<0.5)	ND (<0.5)	ND (<0.5)	NA	NA	ND (<5.0)
28-Feb-01	ND (<50)	ND (<0.5)	ND (<0.5)	ND (<0.5)	ND (<0.5)	NA	NA	ND (<5.0)
22-Aug-01	ND (<50)	ND (<0.5)	ND (<0.5)	ND (<0.5)	ND (<0.5)	ND (<5.0)	NA	ND (<5.0)
<b>MW-6</b>								
5-Dec-00	ND (<50)	ND (<0.5)	ND (<0.5)	ND (<0.5)	ND (<0.5)	NA	NA	ND (<5.0)
28-Feb-01	ND (<50)	ND (<0.5)	ND (<0.5)	ND (<0.5)	ND (<0.5)	NA	NA	ND (<5.0)
22-Aug-01	ND (<50)	ND (<0.5)	ND (<0.5)	ND (<0.5)	ND (<0.5)	ND (<5.0)	NA	ND (<5.0)
<b>MW-7</b>								
5-Dec-00	ND (<50)	ND (<0.5)	ND (<0.5)	ND (<0.5)	1.5	NA	NA	ND (<5.0)
28-Feb-01	ND (<50)	ND (<0.5)	ND (<0.5)	ND (<0.5)	6.7	NA	NA	ND (<5.0)
22-Aug-01	ND (<50)	ND (<0.5)	ND (<0.5)	ND (<0.5)	ND (<0.5)	ND (<5.0)	NA	ND (<5.0)

Notes:

TPHg = Total petroleum hydrocarbons quantified as gasoline

µg/L = Micrograms per liter

ND = Below laboratory detection limits (detection limit indicated in parentheses)

<sup>†</sup> The laboratory noted that there was a greater than 25% difference in results between the two GC columns.

NA = Not analyzed





Figure 2  
TPHg Concentrations - MW-1  
Bohannon Property  
575 Paseo Grande, San Lorenzo, California

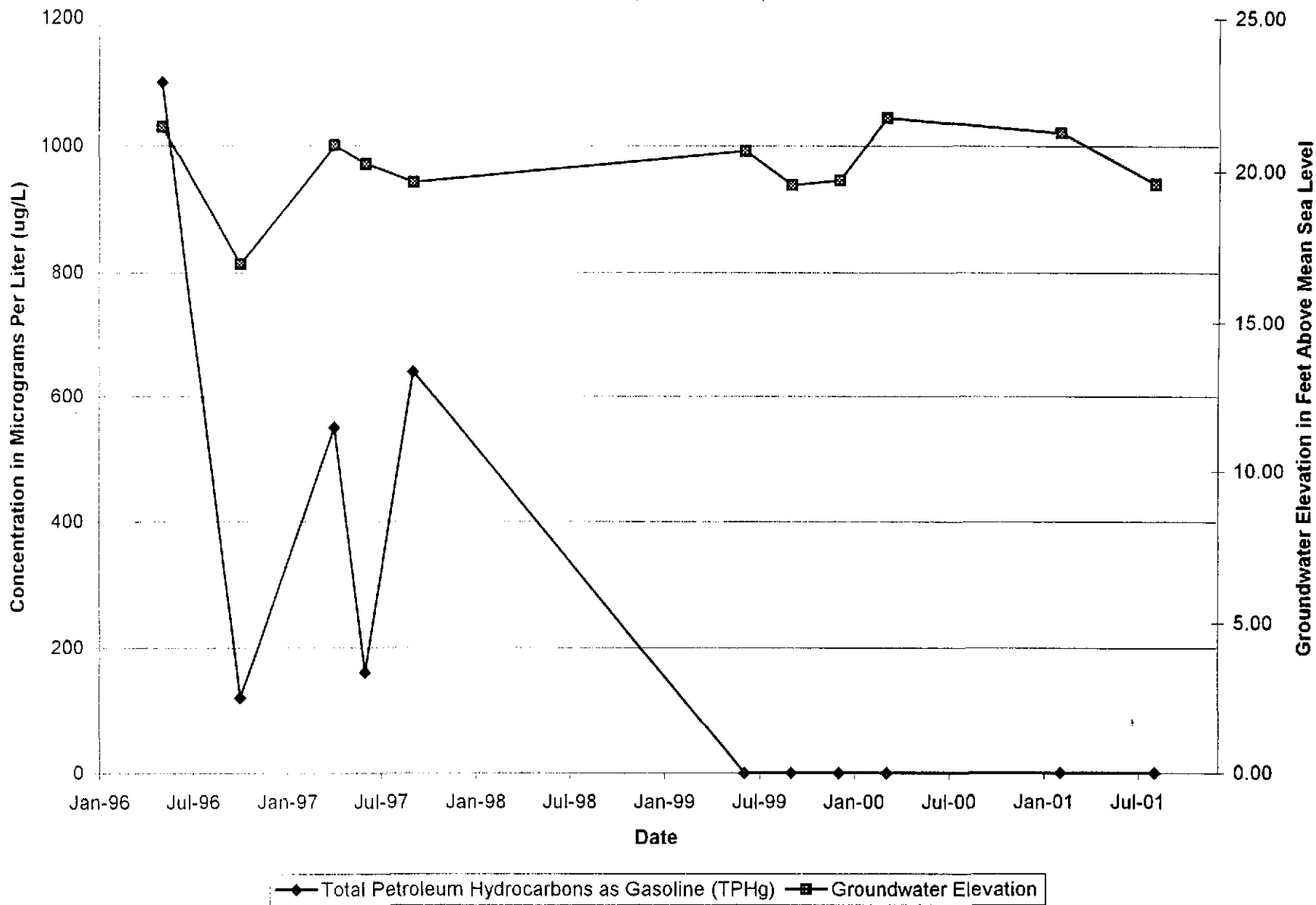


Figure 3  
TPHg Concentrations - MW-2  
Bohannon Property  
575 Paseo Grande, San Lorenzo, California

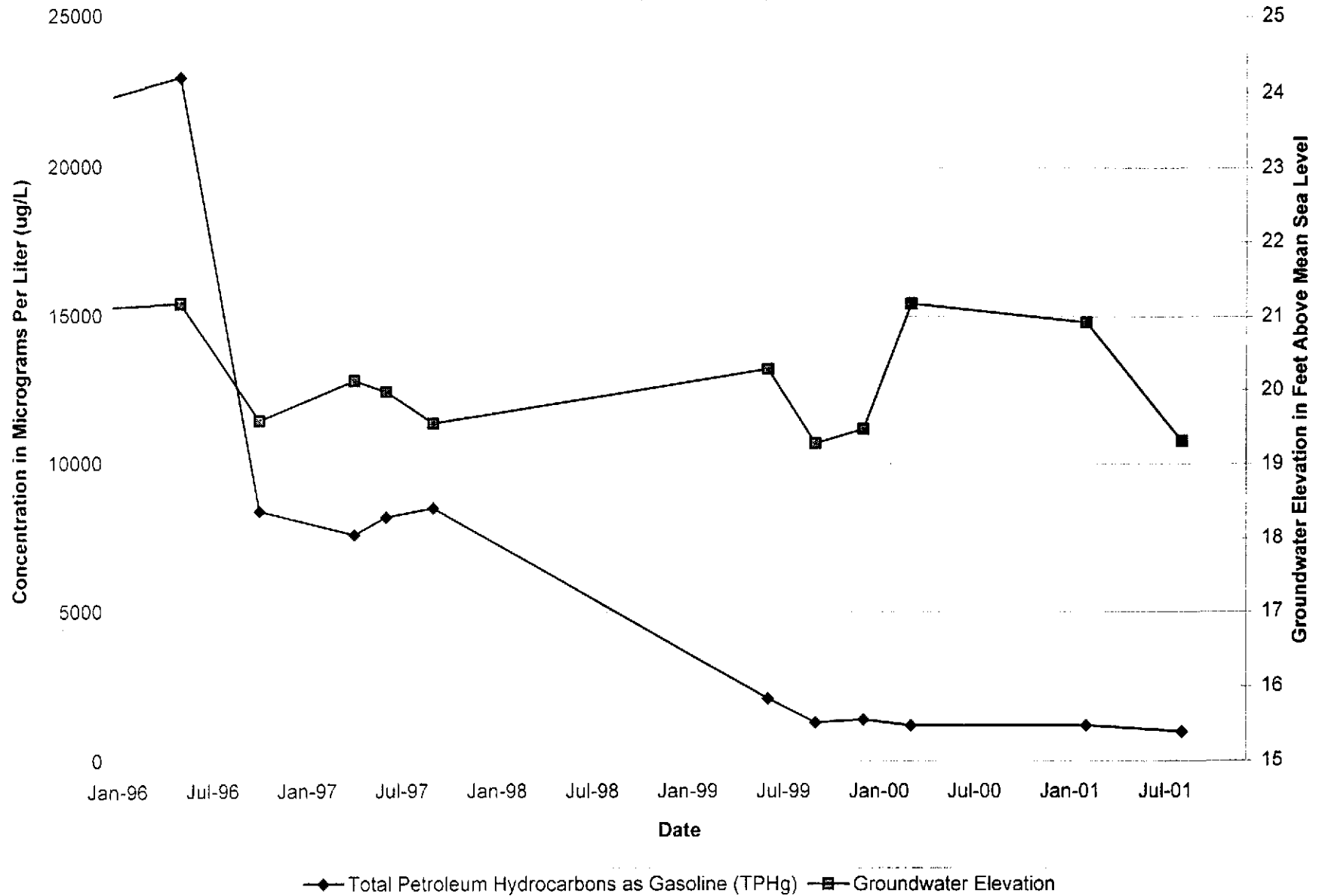


Figure 4  
 BTEX Concentrations - MW-2  
 Bohannon Property  
 575 Paseo Grande, San Lorenzo, California

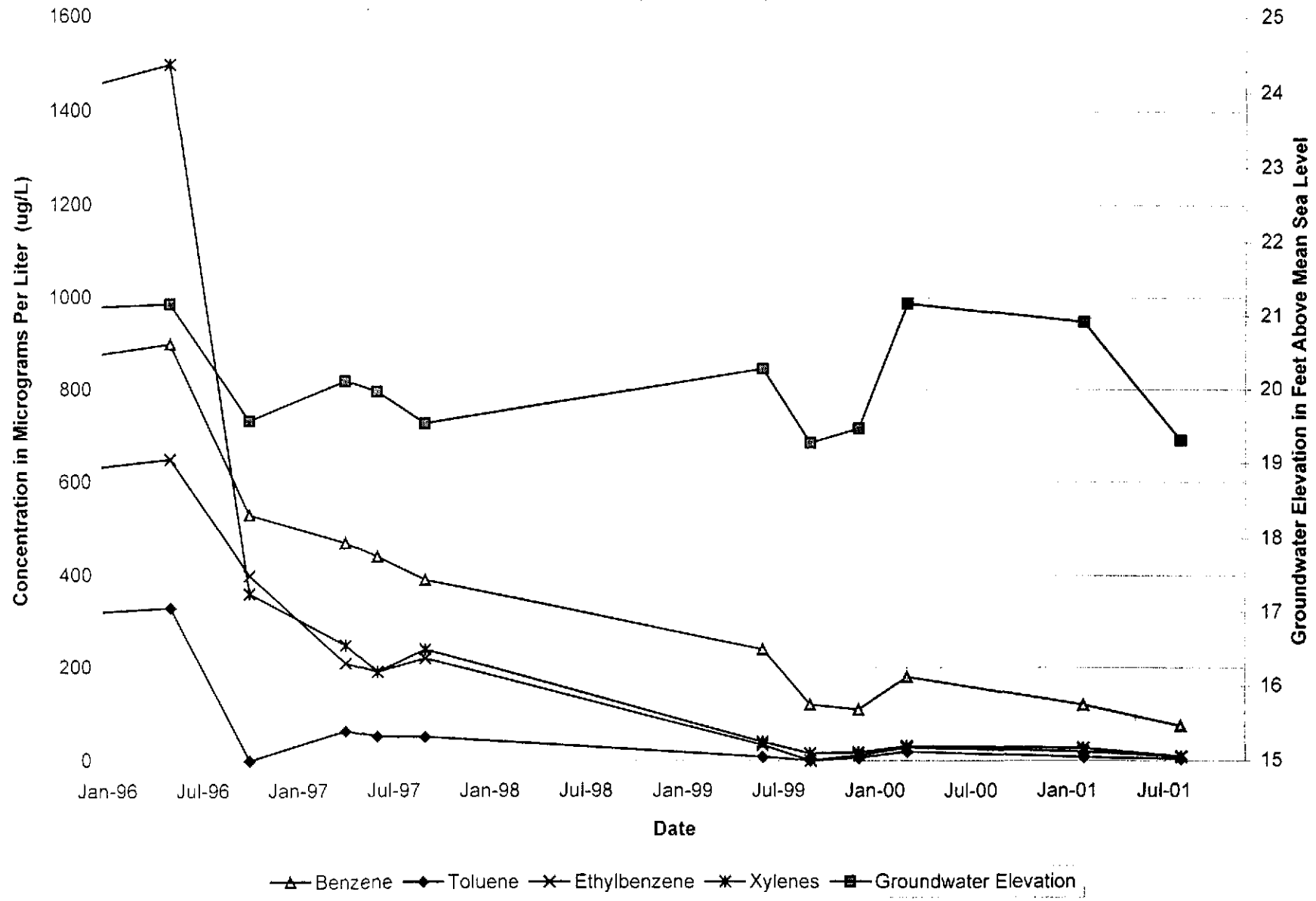


Figure 5  
 TPHg Concentrations - MW-3  
 Bohannon Property  
 575 Paseo Grande, San Lorenzo, California

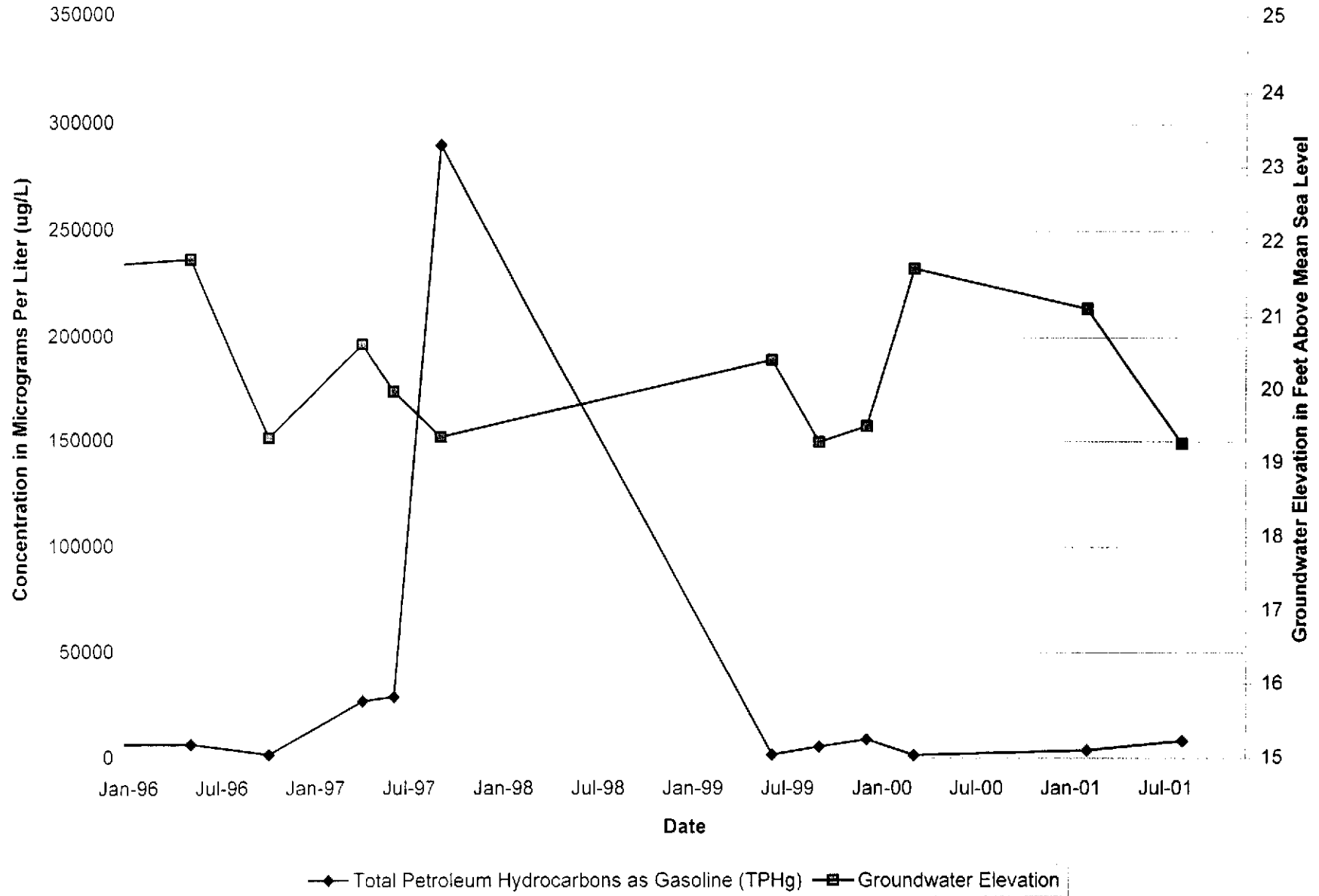


Figure 6  
 BTEX Concentrations - MW-3  
 Bohannon Property  
 575 Paseo Grande, San Lorenzo, California

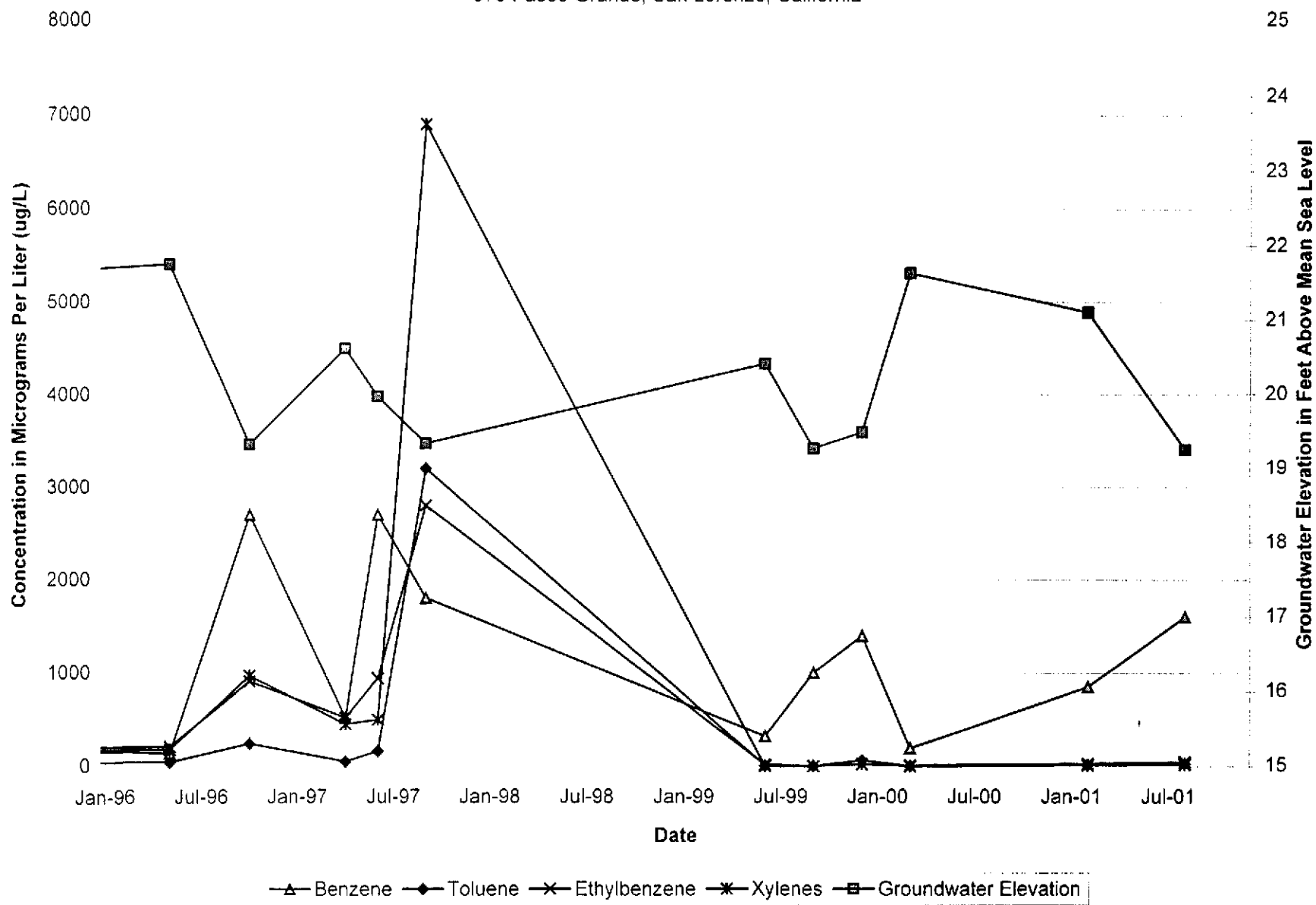


Figure 7  
TPHg Concentrations - MW-4  
Bohannon Property  
575 Paseo Grande, San Lorenzo, California

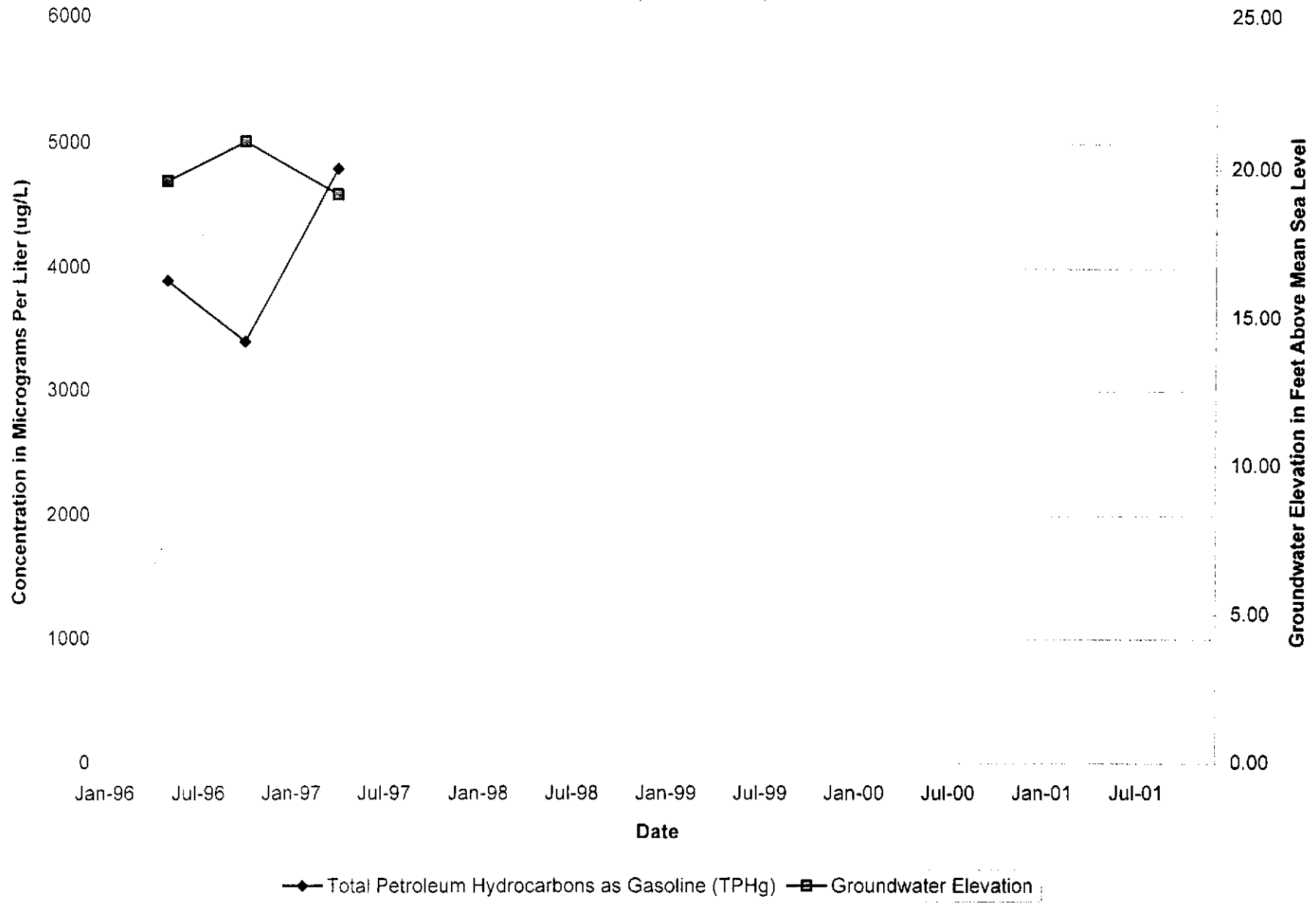
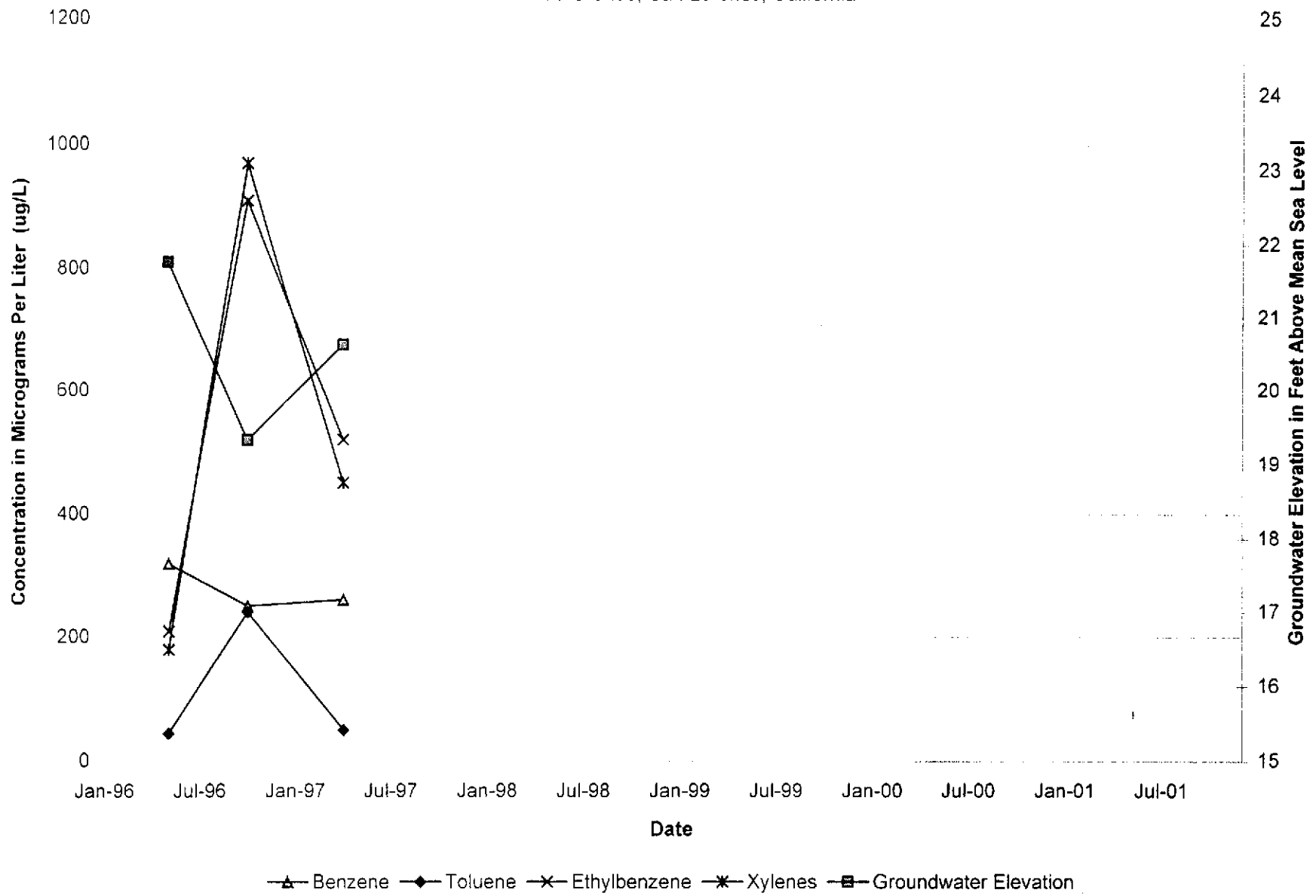
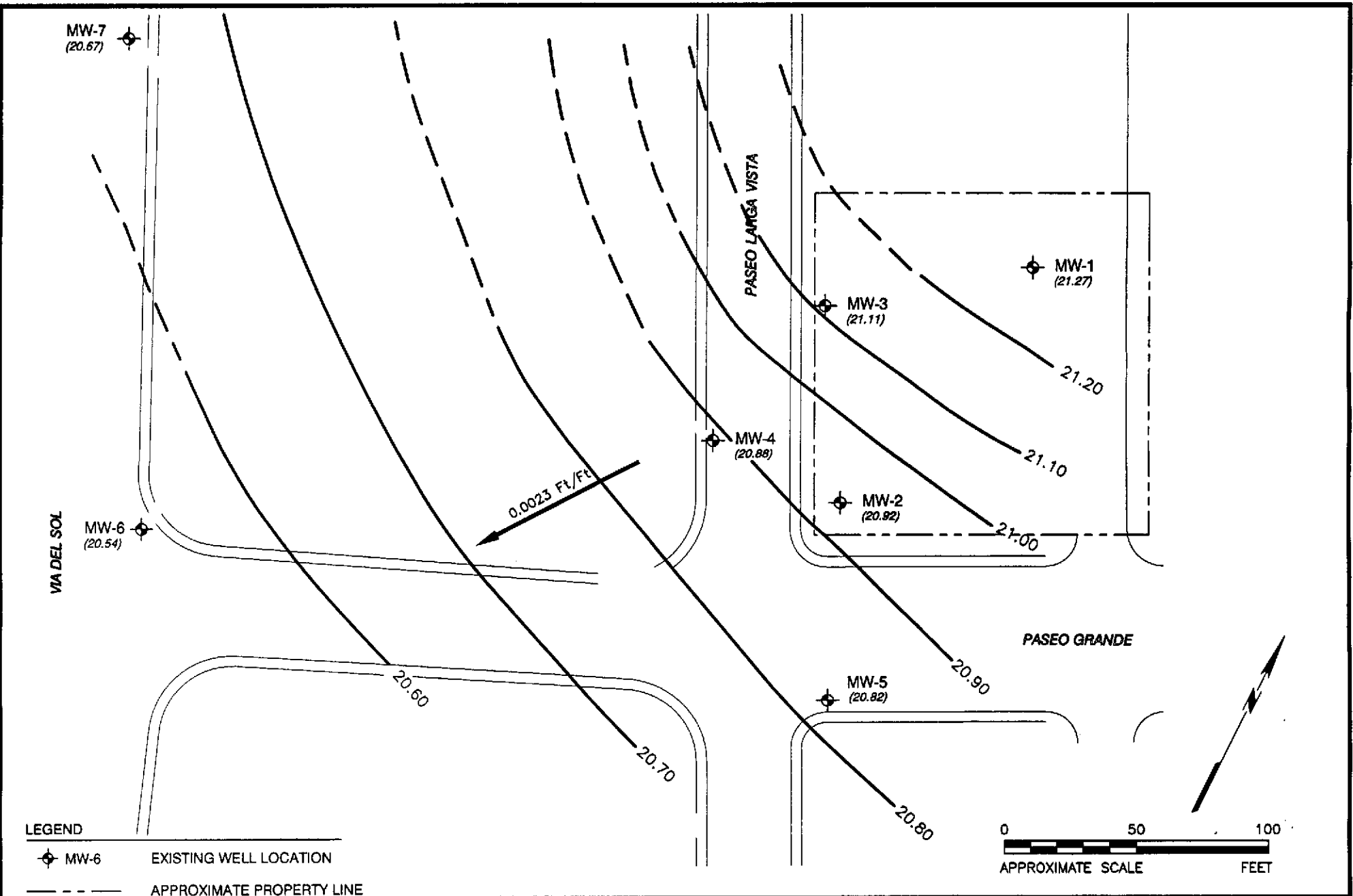


Figure 8  
 BTEX Concentrations - MW-4  
 Bohannon Property  
 575 Paseo Grande, San Lorenzo, California





E:\WORK\BOHANNAN\FIGURES-1\_10.dwg

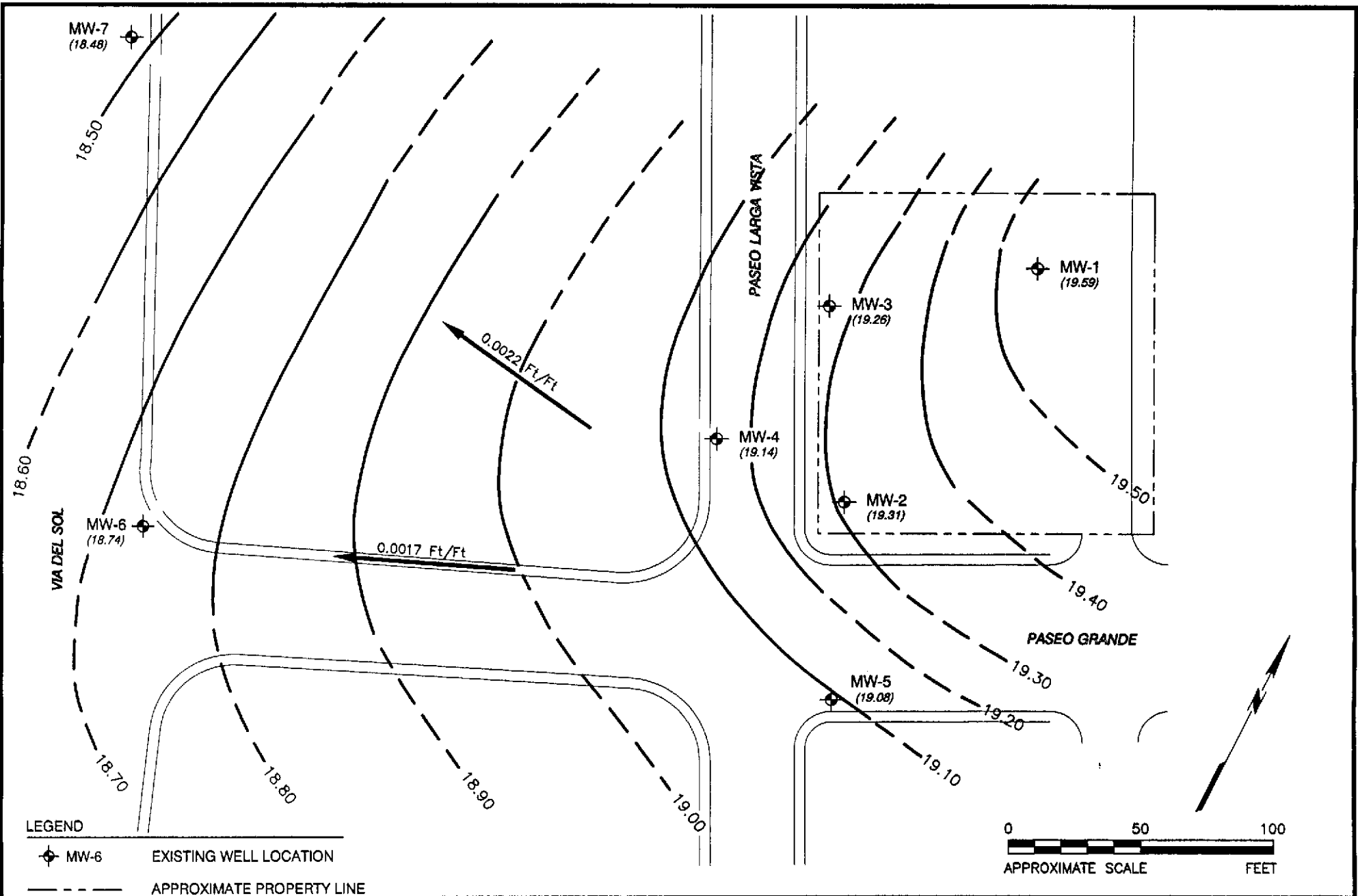


LEGEND	
	MW-6 EXISTING WELL LOCATION
	APPROXIMATE PROPERTY LINE
	0.0023 Ft/Ft HYDRAULIC GRADIENT
	20.60 GROUNDWATER SURFACE ELEVATION CONTOUR
	(20.54) GROUNDWATER ELEVATION (FEET ABOVE MSL)

<h1>SECOR</h1> <p><i>International Incorporated</i></p>	DRAWN	RRR
	APPR	ND
	DATE	10 MAY 2002
	JOB NO.	050T.50029.01.0001

**FIGURE 9**  
 BOHANNAN DEVELOPMENT COMPANY  
 676 PASEO GRANDE  
 SAN LORENZO, CALIFORNIA  
**GROUNDWATER FLOW CONTOUR MAP**  
 FEBRUARY 28, 2001

20020510.09144163 E:\CONCORD\BOH\BOHANNAN-FIGURES-1\_10.dwg



LEGEND	
	MW-6 EXISTING WELL LOCATION
	APPROXIMATE PROPERTY LINE
	0.0017 Ft/Ft HYDRAULIC GRADIENT
	18.50 GROUNDWATER SURFACE ELEVATION CONTOUR
	(18.74) GROUNDWATER ELEVATION (FEET ABOVE MSL)

**SECOR**  
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Incorporated

DRAWN	RRR
APPR	ND
DATE	10 MAY 2002
JOB NO.	050T.50029.01.0001

**FIGURE 10**  
BOHANNON DEVELOPMENT COMPANY  
575 PASEO GRANDE  
SAN LORENZO, CALIFORNIA  
**GROUNDWATER FLOW CONTOUR MAP**  
AUGUST 22, 2001