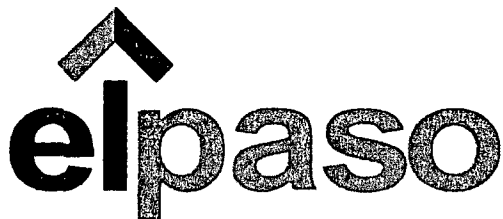


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Oil Conservation Division
Environmental Bureau

El Paso Tennessee
Pipeline Company

San Juan Basin Pit Program
Groundwater Sites Project

Final 2006 Annual Report
Federal Sites (Volume 1)

March 2007



MWH

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2006 ANNUAL GROUNDWATER REPORT
FEDERAL SITES VOLUME I

EL PASO TENNESSEE PIPELINE COMPANY

MAR 06 2007

Oil Conservation Division
Environmental Bureau

TABLE OF CONTENTS

METER or LINE ID	SITE NAME	TOWNSHIP	RANGE	SECTION	UNIT
89961	Fields A#7A	32N	11W	34	E
89232	Johnston Fed #6A	31N	09W	35	F
94715	James F. Bell #1E	30N	13W	10	P
89620	Sandoval GC A #1A	30N	09W	35	C
LD151	Lat 0-21 Line Drip	30N	09W	12	O
73220	Fogelson 4-1 Com. #14	29N	11W	4	P
97213	Hamner #9	29N	09W	20	A
LD174	LAT L 40	28N	04W	13	H
89894	Hammond #41A	27N	08W	25	O
94810	Miles Fed 1A	26N	07W	5	F
LD072	K27 LD072	25N	06W	4	E
87640	Canada Mesa #2	24N	06W	24	I
70194	Johnston Fed #4	31N	09W	33	H



MWH

This topographic map depicts the Laramie National Antiquities Monument and surrounding regions in Wyoming. The Snake River is a prominent feature, flowing from the northwest towards the center. The map shows the confluence of the Snake River with the Laramie River. Key landmarks include the Johnson Fort, the Laramie River, and the Snake River. The map also shows the boundaries of several Indian Reservations, including the Arapaho, Cheyenne, and Crow Reservations. The map includes a scale bar (0 to 3 miles) and a north arrow.

© 1999 Delarue Yarmouth, ME 04096
3 mi Scale: 1 : 600,000 Details 3:4 Datum: WGS84

LIST OF ACRONYMS

B	benzene
btoc	below top of casing
E	ethylbenzene
EPTPC	El Paso Tennessee Pipeline Company
ft	foot/feet
GWEL	groundwater elevation
ID	identification
MW	monitoring well
PSH	phase-separated hydrocarbons
NMWQCC	New Mexico Water Quality Control Commission
T	toluene
TOC	top of casing
NA	not applicable
NE	not established
NM	not measured
NMOCD	New Mexico Oil Conservation Division
NS	not sampled
ORC	oxygen-releasing compound
ppb	parts per billion
µg/L	micrograms per liter
X	total xylenes

**EPTPC GROUNDWATER SITES
2006 ANNUAL GROUNDWATER REPORT**

**Hamner #9
Meter Code: 97213**

SITE DETAILS

Legal Description:	Town:	29N	Range:	9W	Sec:	20	Unit:	A
NMOCD Haz Ranking:	30	Land Type:	Federal	Operator:	BP \ Amoco Production Company			

PREVIOUS ACTIVITIES

Site Assessment:	5/94	Excavation:	5/94	Soil Boring:	8/95
Monitor Well:	8/95	Geoprobe:	8/96	Additional MWs:	9/99
Downgradient MWs:	9/99	Replace MW:	NA	Quarterly Initiated:	11/96
ORC Nutrient Injection:	11/02	Re-Excavation:	NA	PSH Removal Initiated:	NA
Annual Initiated:	8/00	Quarterly Resumed:	NA		

SUMMARY OF 2006 ACTIVITIES

MW-1: Quarterly groundwater sampling and water level monitoring were performed in February, May, August, and November 2006.

MW-2: Quarterly water level monitoring was performed in February, May, August, and November 2006.

MW-3: Quarterly water level monitoring was performed February, May, August, and November 2006.

MW-4: This well was installed in October 2006 and sampled in November 2006.

Site-Wide Activities: Monitoring well MW-4 was installed in October 2006. Right of way permit and access grant applications for groundwater monitoring well installation were submitted in 2006. All wells were surveyed in January 2007.

SITE MAP

Site maps (February, May, August, November, and showing the location of MW-4) are attached in Figures 1, 2, 3, 4 and 5.

**EPTPC GROUNDWATER SITES
2006 ANNUAL GROUNDWATER REPORT**

**Hamner #9
Meter Code: 97213**

SUMMARY TABLES AND GRAPHS

- Analytical data from 2006 are included in Table 1, and historic data are also shown graphically on Figures 6 through 8.
- Laboratory reports are presented in Attachment 1 (included on CD).
- Field documentation is presented in Attachment 2 (included on CD).

GEOLOGIC LOGS AND WELL COMPLETION DIAGRAMS

The soil boring log and well completion diagram for MW-4 are presented in Attachment 3.

DISPOSITION OF GENERATED WASTES

All purge water was taken to the El Paso Natural Gas Rio Vista Compressor Station.

ISOCONCENTRATION MAPS

No isoconcentration maps were prepared for this site; however, the attached site maps present both the groundwater level and analytical data collected during 2006.

CONCLUSIONS

- The groundwater flow direction at this site is to the west, based on water level data collected in November 2006.
- Analytical results from samples collected at MW-1 indicate that benzene concentrations remained relatively consistent with concentrations of 22.1 µg/L, 21.6 µg/L, 18.9 µg/L and 20.4 µg/L in February, May, August, and November 2006 respectively, down from a high concentration of 559 µg/L in 1996. The benzene concentration appears to be gradually attenuating, as depicted on Figure 6.
- Ethylbenzene, toluene, and total xylenes concentrations at MW-1 were below NMWQCC standards in 2006.
- MW-2 was dry during all three monitoring events in 2006.
- The BTEX results from the groundwater sample collected from MW-4 in November 2006 were either not detected or were detected at estimated concentrations.

**EPTPC GROUNDWATER SITES
2006 ANNUAL GROUNDWATER REPORT**

**Hamner #9
Meter Code: 97213**

RECOMMENDATIONS

- EPTPC will continue to sample MW-1 quarterly. The well will be sampled until BTEX concentrations are below NMWQCC standards for four consecutive quarters, at which time this site will be submitted for closure.
- EPTPC will perform water level monitoring at MW-2 and MW-3, in conjunction with the sampling events at MW-1. Because four consecutive annual sampling events at MW-2 and MW-3 indicated BTEX concentrations below detection limits (1999 – 2002), EPTPC recommends that these wells be sampled at closure only.
- EPTPC will sample MW-4 quarterly until BTEX concentrations have been shown to be below NMWQCC standards for four consecutive quarters.

TABLE 1

**SUMMARY OF BTEX COMPOUNDS IN GROUNDWATER SAMPLES
HAMNER #9 (METER #97213)**

Site Name	Sample Date	Monitoring Well	Benzene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	Total Xylenes (ug/L)	Depth to Water (ft btoc)
Hamner #9	8/25/1995	MW-1	198	1480	146	2250	29.53
Hamner #9	11/8/1996	MW-1	559	499	395	933	30.30
Hamner #9	2/10/1997	MW-1	350	101	233	476	30.07
Hamner #9	5/8/1997	MW-1	266	9.75	230	308	29.99
Hamner #9	8/5/1997	MW-1	272	228	172	370	30.16
Hamner #9	11/4/1997	MW-1	216	72.1	133	260	30.21
Hamner #9	2/3/1998	MW-1	245	276	109	375	32.48
Hamner #9	5/7/1998	MW-1	166	6.02	110	202	32.38
Hamner #9	8/4/1998	MW-1	171	74.4	86.1	209	32.54
Hamner #9	11/3/1998	MW-1	151	58.7	76.4	204	32.62
Hamner #9	2/2/1999	MW-1	153	64.8	89.7	217	32.42
Hamner #9	5/19/1999	MW-1	137	89.4	67.3	141	32.28
Hamner #9	8/4/1999	MW-1	105	32.6	63	113	32.28
Hamner #9	11/9/1999	MW-1	120	39	75	170	32.19
Hamner #9	2/25/2000	MW-1	130	70	78	190	32.05
Hamner #9	5/24/2000	MW-1	110	130	56	200	31.96
Hamner #9	8/1/2000	MW-1	120	39	80	210	32.08
Hamner #9	11/6/2000	MW-1	84	120	56	190	32.19
Hamner #9	2/12/2001	MW-1	95	44	60	150	32.12
Hamner #9	5/30/2001	MW-1	110	36	78	200	32.06
Hamner #9	8/7/2001	MW-1	99	43	58	150	32.28
Hamner #9	12/4/2001	MW-1	150	53	1	110	32.40
Hamner #9	2/25/2002	MW-1	83	1	59	120	32.39
Hamner #9	5/14/2002	MW-1	57	78	46	150	32.37
Hamner #9	11/4/2002	MW-1	72.5	50	47	178.6	32.67
Hamner #9	5/19/2003	MW-1	31.1	24.4	23.9	158	32.45
Hamner #9	11/15/2003	MW-1	65.5	65	44.5	190	32.76
Hamner #9	5/11/2004	MW-1	57.6	44.5	52.1	153	32.61
Hamner #9	11/16/2004	MW-1	38	26.4	34.7	126	32.88
Hamner #9	5/18/2005	MW-1	74	27.9	93.1	340	32.67
Hamner #9	8/23/2005	MW-1	28.6	7	46.3	175	33.05
Hamner #9	11/8/2005	MW-1	26.2	5.5	35.5	137	32.93
Hamner #9	2/23/2006	MW-1	22.1	7.1	28.2	102	32.81

TABLE 1

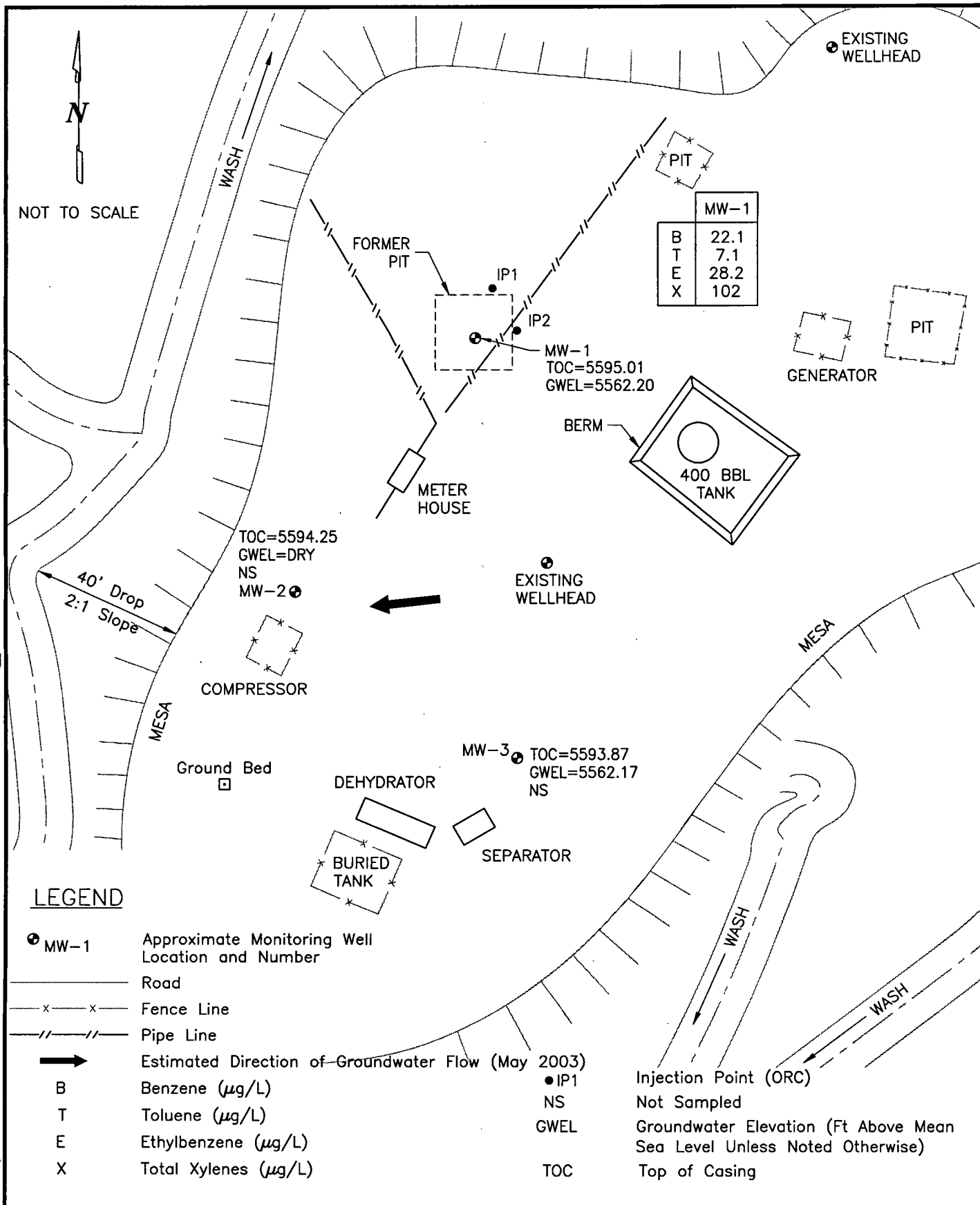
SUMMARY OF BTEX COMPOUNDS IN GROUNDWATER SAMPLES
HAMNER #9 (METER #97213)

Site Name	Sample Date	Monitoring Well	Benzene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	Total Xylenes (ug/L)	Depth to Water (ft btoc)
Hamner #9	5/23/2006	MW-1	21.6	4.2	28.3	76.6	32.83
Hamner #9	8/23/2006	MW-1	18.9	5 B	29.1	76.7	33.06
Hamner #9	11/8/2006	MW-1	20.4	8.2	28.8	71.9	33.09
Hamner #9	11/8/2006	MW-4	1	0.28 J	1	0.36 J	30.32

J = Concentration below laboratory reportin limits. Concentration estimated.

B = Analyte detected in associated method blank

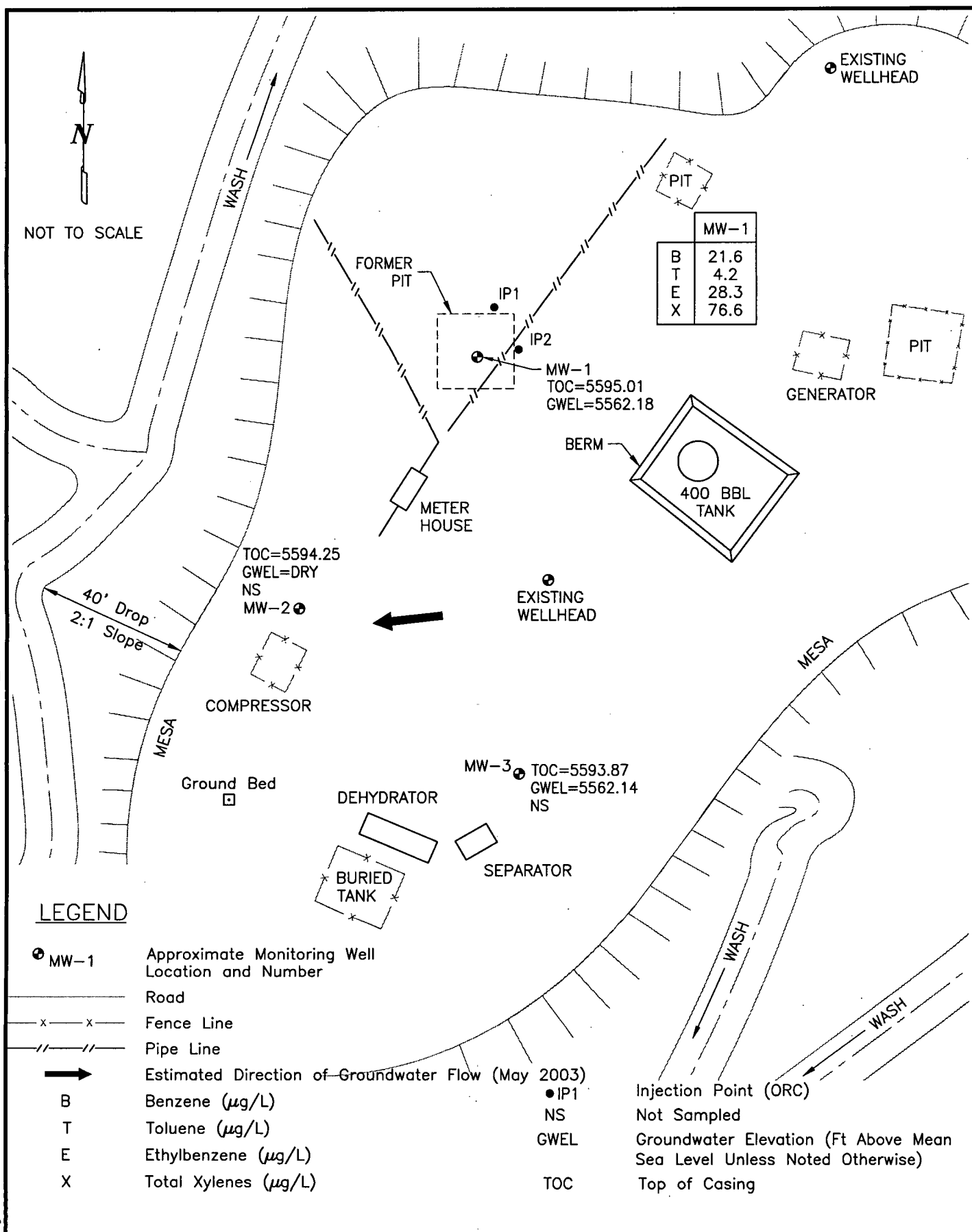
1 = Not detected



HAMNER #9, METER 97213
FEBRUARY 2006

GROUNDWATER SITES
EL PASO TENNESSEE PIPELINE COMPANY

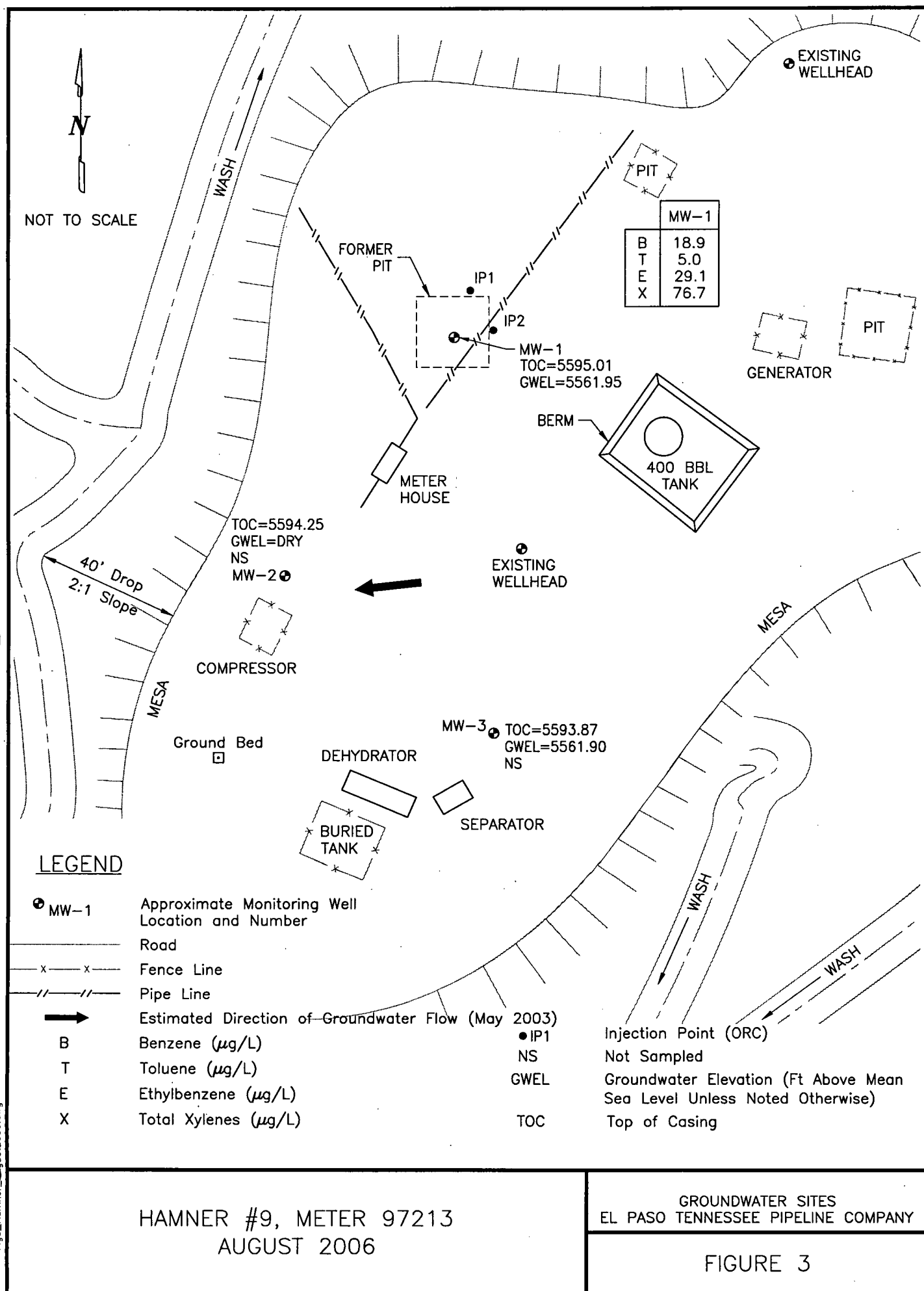
FIGURE 1



HAMNER #9, METER 97213
MAY 2006

GROUNDWATER SITES
EL PASO TENNESSEE PIPELINE COMPANY

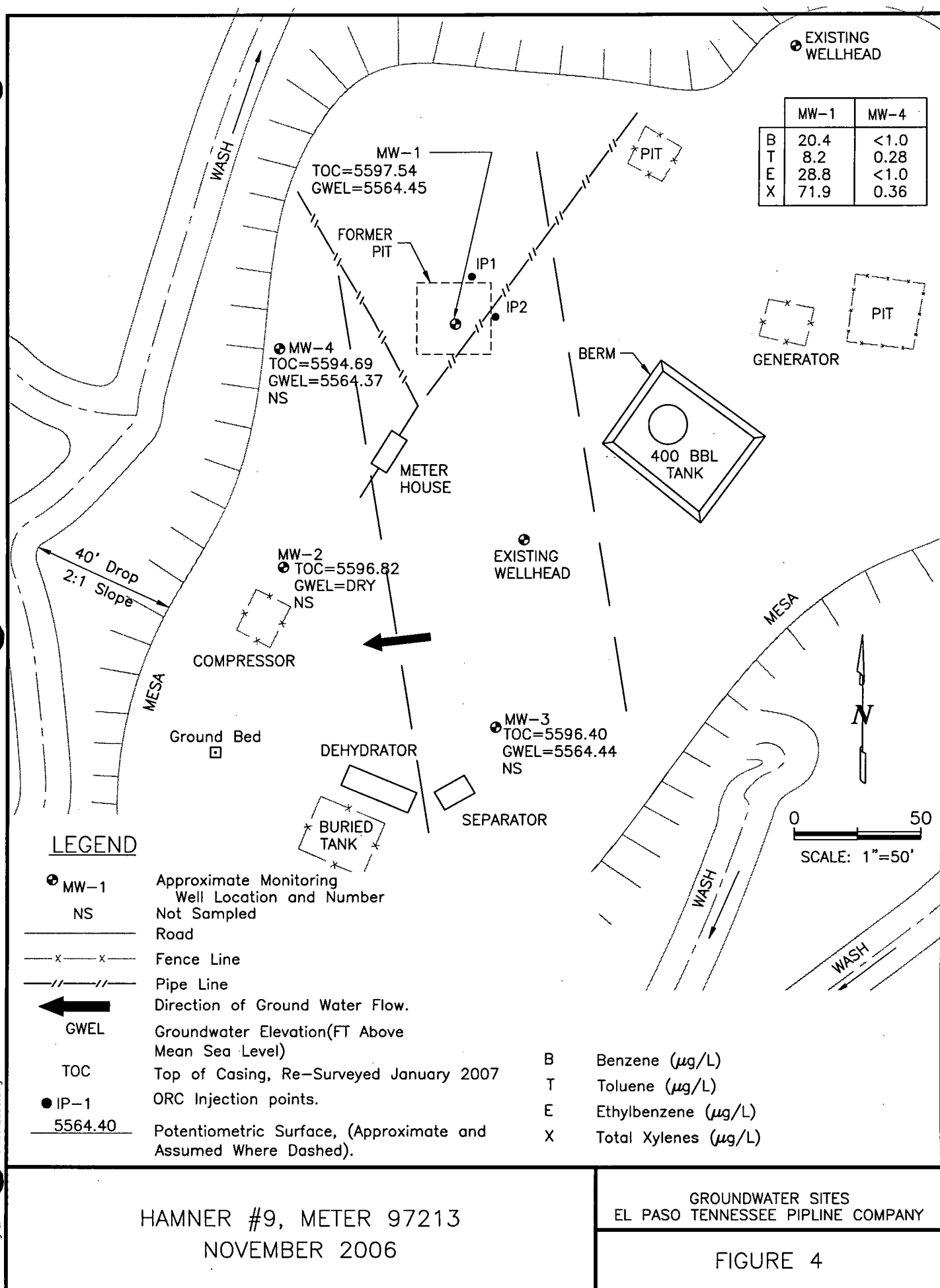
FIGURE 2

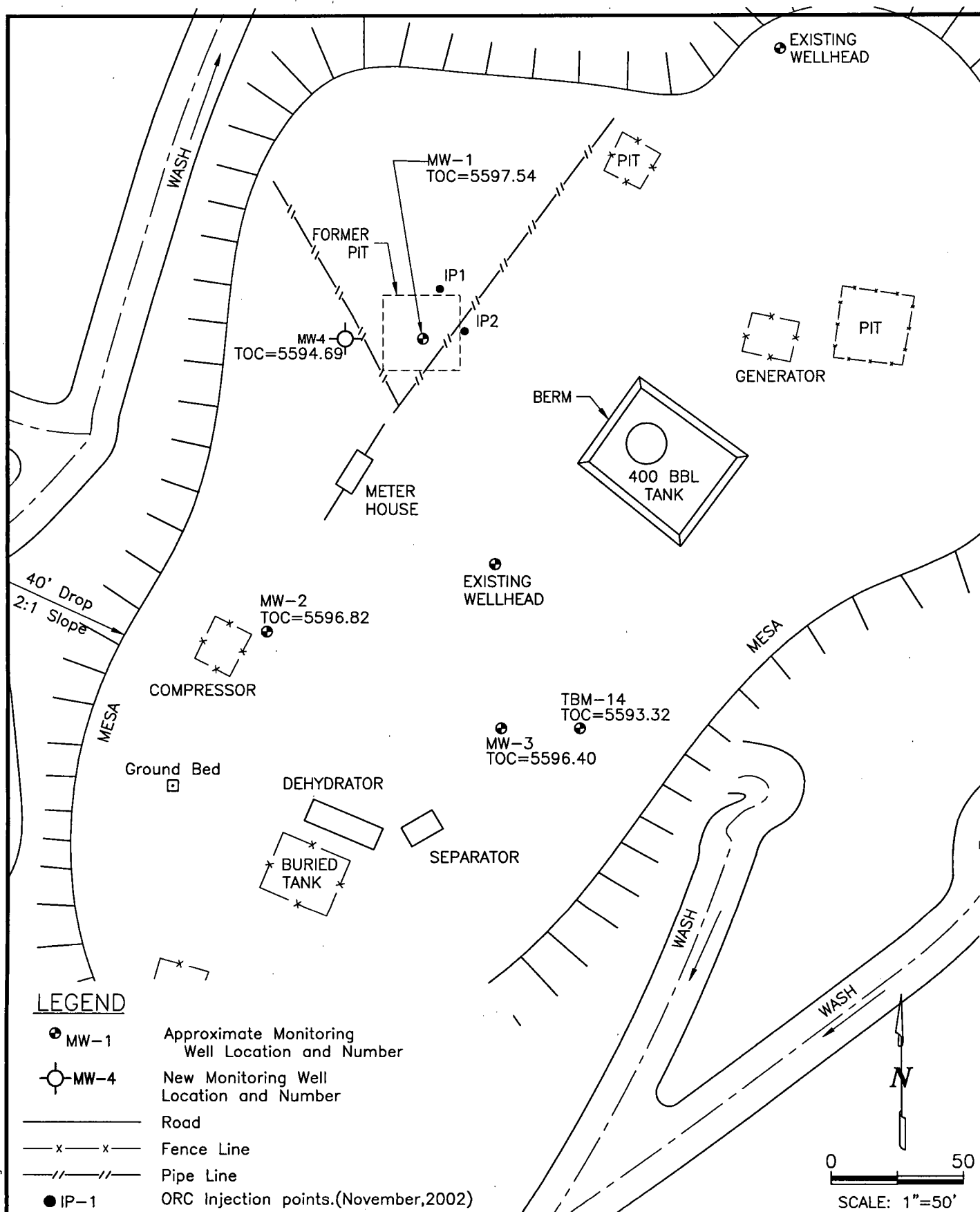


HAMNER #9, METER 97213
AUGUST 2006

GROUNDWATER SITES
EL PASO TENNESSEE PIPELINE COMPANY

FIGURE 3



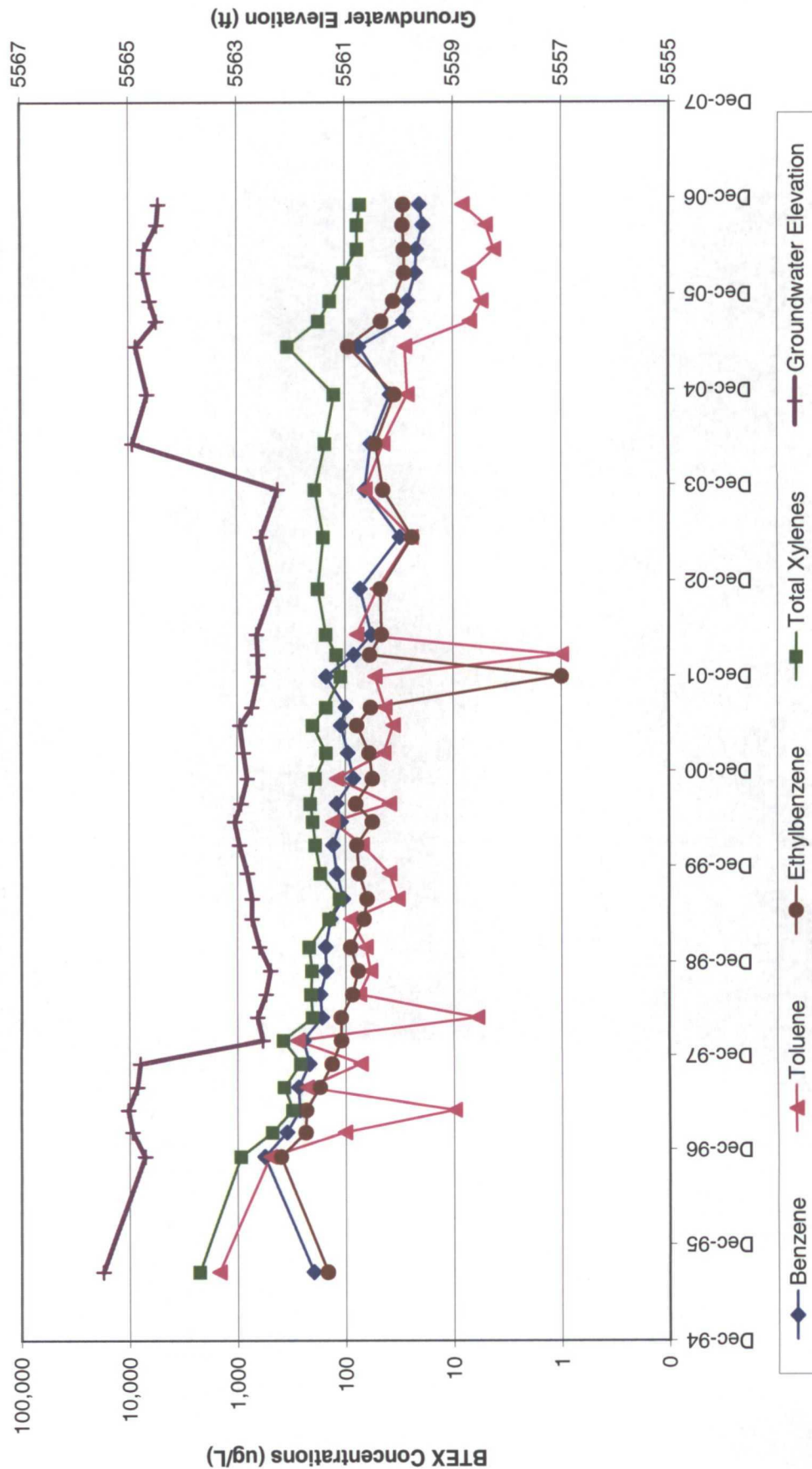


HAMNER #9, METER 97213
NEW MONITORING WELL LOCATION

GROUNDWATER SITES
EL PASO TENNESSEE PIPELINE COMPANY

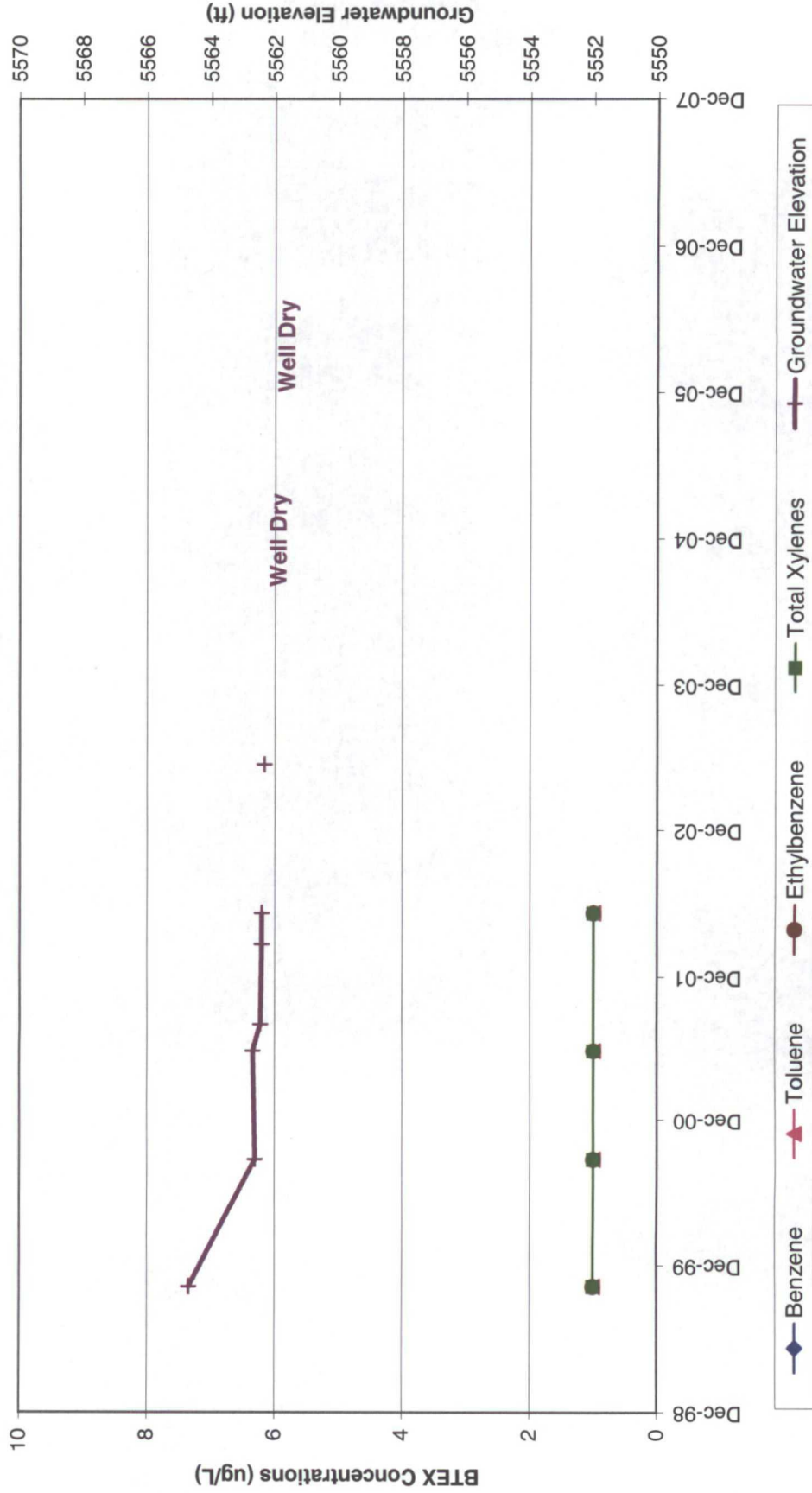
FIGURE 5

FIGURE 6
HISTORIC BTEX CONCENTRATIONS AND GROUNDWATER ELEVATIONS
HAMNER #9
MW-1



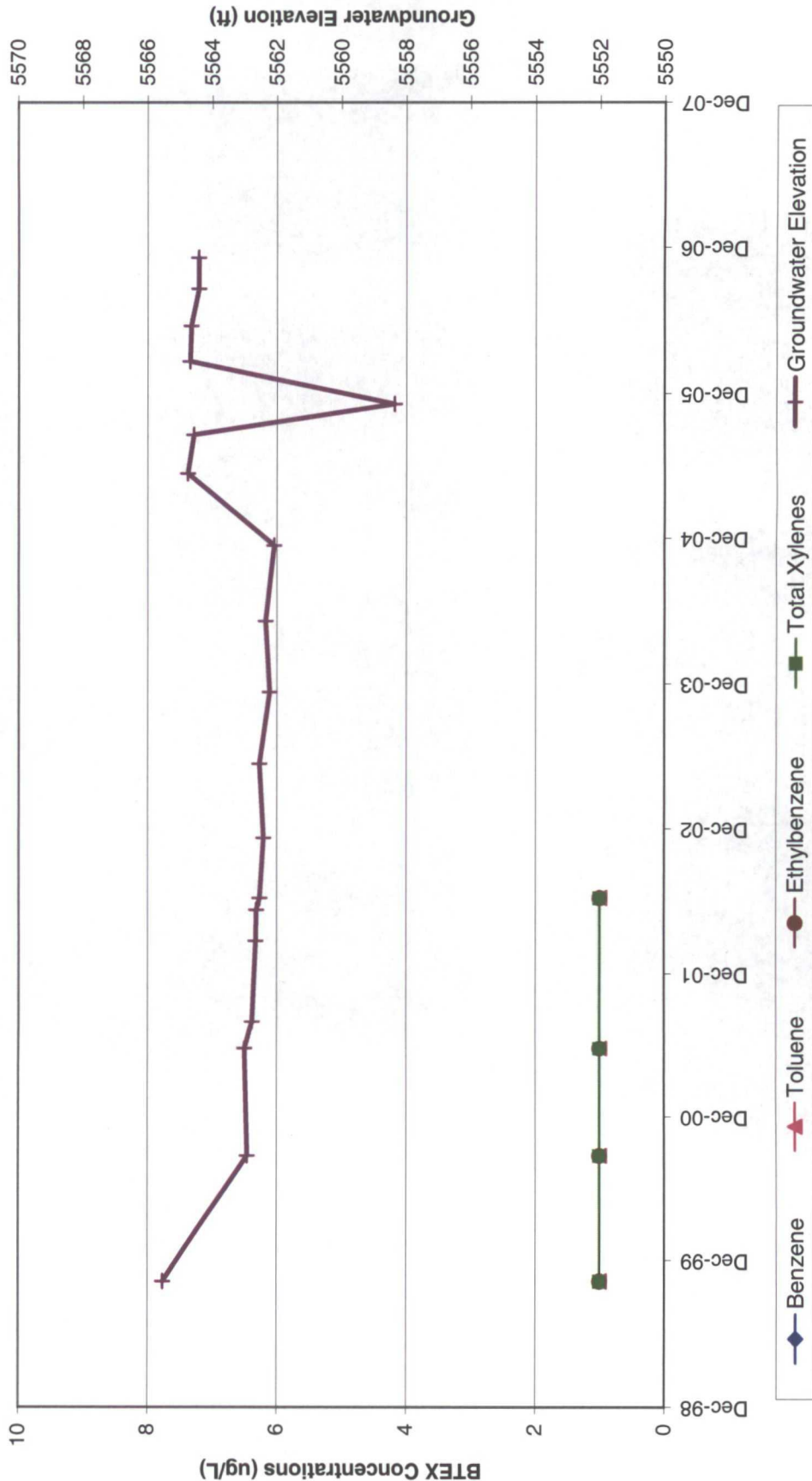
Note: A value of 1 indicates parameter not detected.

FIGURE 7
HISTORIC BTEX CONCENTRATIONS AND GROUNDWATER ELEVATIONS
HAMNER #9
MW-2



Note: A value of 1 indicates parameter not detected.

FIGURE 8
HISTORIC BTX CONCENTRATIONS AND GROUNDWATER ELEVATIONS
HAMNER #9
MW-3



Note: A value of 1 indicates parameter not detected.