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El Paso Tennessee
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San Juan Basin Pit Program
Groundwater Sites Project

Final 2006 Annual Report
Federal Sites (Volume 1)

March 2007

MWH

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Denver, Colorado 80202

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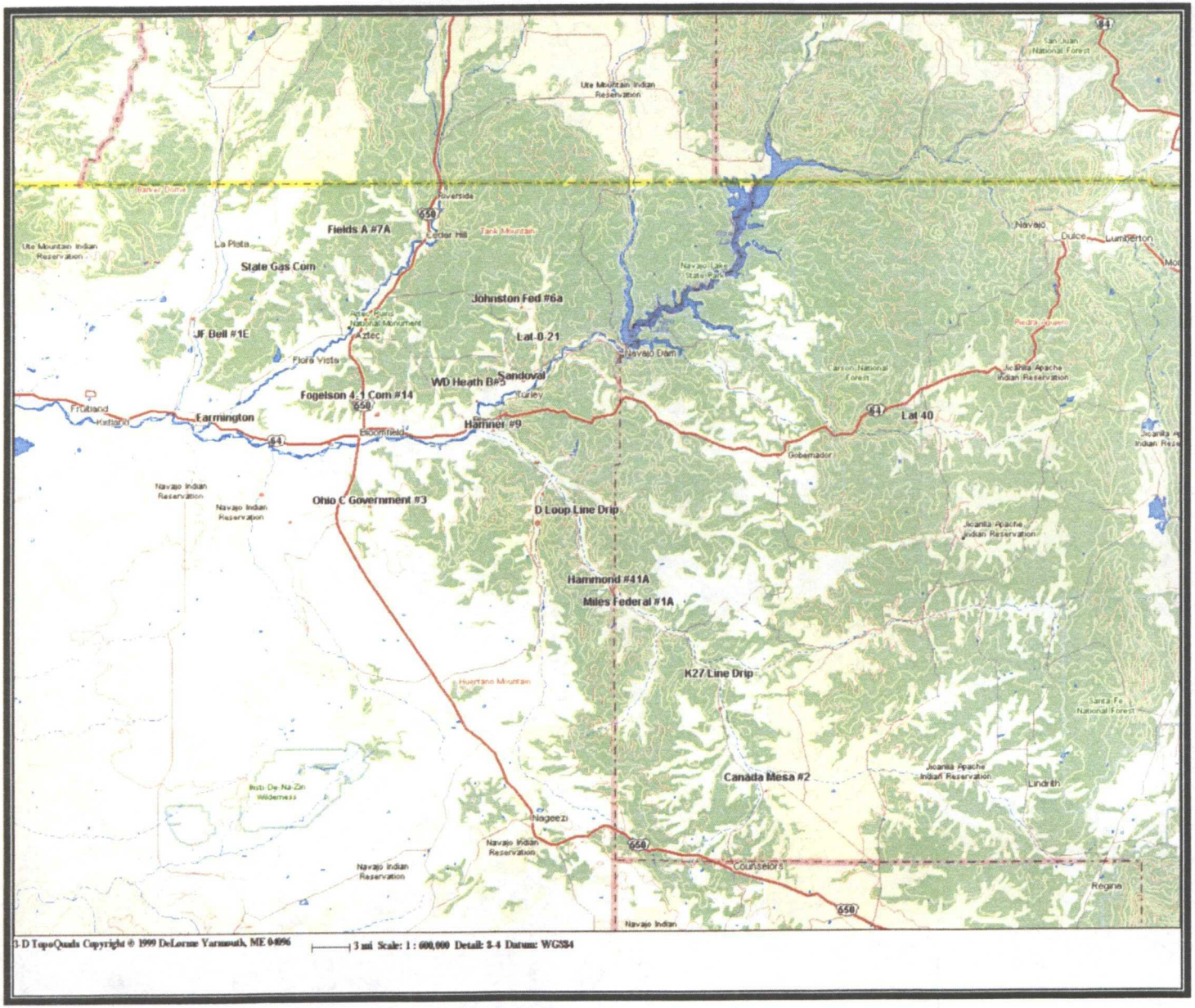
2006 ANNUAL GROUNDWATER REPORT
FEDERAL SITES VOLUME I
EL PASO TENNESSEE PIPELINE COMPANY

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

elpaso MWH

Federal Groundwater Site Map



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

Lat 0-21 Line Drip
Meter Code: LD151

SITE DETAILS

Legal Description:	**Town:**	30N	**Range:**	9W	**Sec:** 12	**Unit:**	O
NMOCD Haz Ranking:	40	**Land Type:**	Federal	**Operator:**	Enterprise		

PREVIOUS ACTIVITIES

Site Assessment:	1/95	**Excavation:**	1/95	**Soil Boring:**	10/95
Monitor Well:	10/95	**Geoprobe:**	11/96	**Additional MWs:**	7/00
Downgradient MWs:	7/00	**Replace MW:**	NA	**Quarterly Initiated:**	11/96
ORC Nutrient Injection:	NA	**Re-Excavation:**	NA	**PSH Removal Initiated:**	NA
Annual Initiated:	5/97	**Quarterly Resumed:**	NA		

SUMMARY OF 2006 ACTIVITIES

MW-1: Groundwater sampling and water level monitoring (January, April, and October) were performed during 2006.

MW-2: Water level monitoring (January, April, and October) was performed during 2006.

MW-3: Groundwater sampling and water level monitoring (January, April, and October) were performed during 2006.

Site-Wide Activities: Geoprobe soil and groundwater investigation activities were performed in January 2006, and an upgradient soil boring was completed in November 2006. A right of way permit and access grant for additional monitoring well installation were acquired in 2006; however, site evaluation resulted in EPTPC conducting the soil boring in lieu of a permanent well installation.

SITE MAP

Site maps (January, April, October, and showing Geoprobe locations and the November 2006 soil boring) are attached as Figures 1, 2, 3 and 4.

Lat 0-21 Line Drip
Meter Code: LD151

SUMMARY TABLES AND GRAPHS

- Analytical data for 2006 are included in Table 1, and historic data are presented graphically in Figures 5 through 7.
- Historic free-product recovery data are included as Table 2. Free-product has not been recovered from the site since 2002.
- The laboratory report is presented in Attachment 1 (included on CD).
- Field documentation is presented in Attachment 2 (included on CD).

GEOLOGIC LOGS AND WELL COMPLETION DIAGRAMS

Logs from the geoprobe and hollow stem auger soil borings are presented in Attachment 3.

DISPOSITION OF GENERATED WASTES

All purge water was taken to the El Paso Natural Gas Rio Vista Compressor Station. Recovered free-product is stored in a 55 gallon drum and are periodically picked up by Mesa Oil for recycling. Soil cuttings from drilling and geoprobe activities were collected and subsequently disposed at the Envirotech land farm.

ISOCONCENTRATION MAPS

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

CONCLUSIONS

- Groundwater flow is toward the southeast at this site.
- The BTEX sample from MW-1 exceeded the standard for benzene in January and April 2006 (37.6 µg/L and 81.4 µg/L, respectively), but fell below the standard in October 2006 (9.4 µg/L). All other parameters were below standards in January, April and October. This represents a significant decrease since the high benzene concentration of 5,380 µg/L in 1997.
- BTEX concentrations in MW-3 were either not detected or below standards in 2006, demonstrating an overall decline in concentrations since 2000 when the benzene concentration was 190 µg/L.
- Site-wide decreases in BTEX concentrations provide evidence that natural attenuation is occurring at the site.

- Geoprobe groundwater sampling was conducted at this site in January 2006 to investigate other sources of contamination as well as the extent of current downgradient contamination. The groundwater sample collected from GP-2, which was north of MW-1 and near PZ-1, showed a benzene concentration of 206 µg/L. Samples collected from GP-1, GP-3, and GP-4 were below NMOCD standards.

- The hollow stem soil boring, conducted north (upgradient) of MW-1 in November 2006, indicated contamination near the groundwater, and may suggest the presence of upgradient contamination not associated with the EPTPC former pit. This may be further evaluated by EPTPC in the coming year.

RECOMMENDATIONS

- EPTPC recommends semi-annual (April and October) water level monitoring at MW-1, MW-2 and MW-3.

- Assuming that free-product does not return to MW-1 or MW-3, EPTPC recommends that MW-1 and MW-3 continue to be sampled on a semi-annual basis in 2006. As concentrations approach standards, these wells will be sampled quarterly until BTEX concentrations are below NMWQCC standards for four consecutive quarters, at which time this site will be submitted for closure.

- Because BTEX concentrations at MW-2 have remained below closure criteria, EPTPC recommends that this well not be sampled again until closure.

TABLE 1

SUMMARY OF BTEX COMPOUNDS IN GROUNDWATER SAMPLES
LAT O-21 LINE DRIP (METER #LD151)

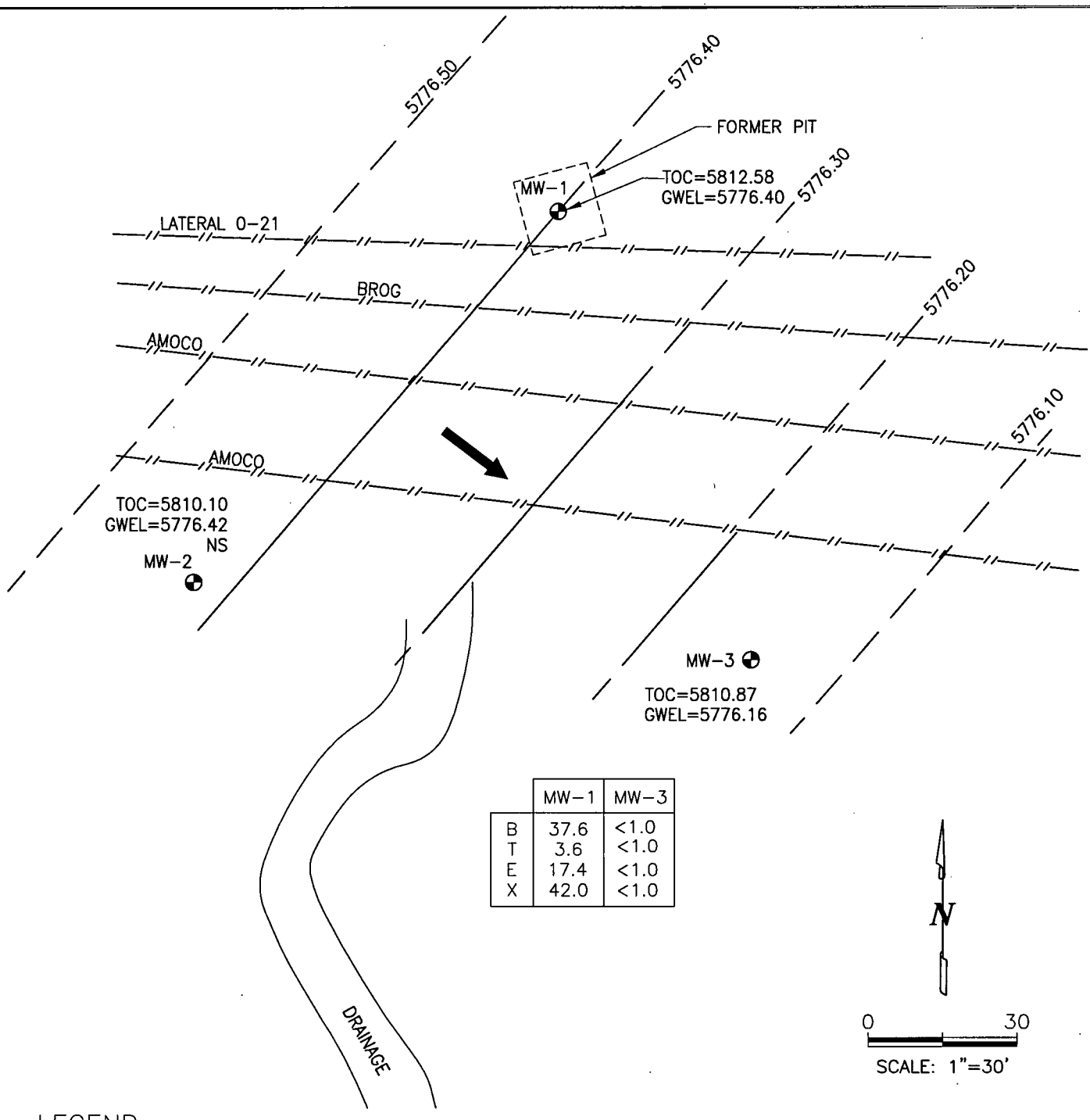
Site Name	Sample Date	Monitoring Well	Benzene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	Total Xylenes (ug/L)	Depth to Water (feet btoc)	TOC Elevation	GW Elevation (ft)
Lat 0-21 Line Drip	11/6/95	MW-1	935	2700	168	1890	34.45	5812.58	5778.13
Lat 0-21 Line Drip	11/12/96	MW-1	741	1620	99	1100	34.75	5812.58	5777.83
Lat 0-21 Line Drip	2/11/97	MW-1	202	313	15.6	230	33.82	5812.58	5778.76
Lat 0-21 Line Drip	5/8/97	MW-1	1050	1220	50.8	764	33.54	5812.58	5779.04
Lat 0-21 Line Drip	8/5/97	MW-1	99.5	179	8.42	160	34.20	5812.58	5778.38
Lat 0-21 Line Drip	11/4/97	MW-1	1370	3040	174	2530	35.42	5812.58	5777.16
Lat 0-21 Line Drip	2/3/98	MW-1	3000	3600	138	2180	35.08	5812.58	5777.50
Lat 0-21 Line Drip	5/7/98	MW-1	5380	7500	247	3500	34.83	5812.58	5777.75
Lat 0-21 Line Drip	5/18/99	MW-1	4860	6810	183	3450	34.64	5812.58	5777.94
Lat 0-21 Line Drip	5/26/00	MW-1	620	900	49	580	34.76	5812.58	5777.82
Lat 0-21 Line Drip	6/18/01	MW-1	1400	2000	37	2500	35.60	5812.58	5776.98
Lat 0-21 Line Drip	6/4/02	MW-1	270	170	12	1900	35.98	5812.58	5776.60
Lat 0-21 Line Drip	6/18/03	MW-1	137	1	1	1730	36.26	5812.58	5776.32
Lat 0-21 Line Drip	6/23/04	MW-1	59.9	11.8	23.8	44.1	36.38	5812.58	5776.20
Lat 0-21 Line Drip	4/18/05	MW-1	66.6	9.3	21.5	56.5	35.93	5812.58	5776.65
Lat 0-21 Line Drip	10/25/05	MW-1	8.9	1.4	5.6	9.1	36.99	5812.58	5775.59
Lat 0-21 Line Drip	1/19/06	MW-1	37.6	3.6	17.4	42	36.18	5812.58	5776.4
Lat 0-21 Line Drip	4/24/06	MW-1	81.4	24.5	21.8	152	35.71	5812.58	5776.87
Lat 0-21 Line Drip	10/24/06	MW-1	9.4	1.7	2.3	8.2	36.81	5812.58	5775.77
Lat 0-21 Line Drip	8/30/00	MW-2	1.3	1	1	9.5	33.62	5810.9	5777.28
Lat 0-21 Line Drip	6/18/01	MW-2	1	1	1	2	33.16	5810.9	5777.74
Lat 0-21 Line Drip	6/4/02	MW-2	1	1	1	1	33.42	5810.9	5777.48
Lat 0-21 Line Drip	6/18/03	MW-2	1	1	1	1	33.80	5810.9	5777.10
Lat 0-21 Line Drip	6/23/04	MW-2	1	1	1	3	33.92	5810.9	5776.98
Lat 0-21 Line Drip	8/30/00	MW-3	190	20	37	460	34.56	5810.12	5775.56
Lat 0-21 Line Drip	6/18/01	MW-3	34	4.7	68	130	34.14	5810.12	5775.98
Lat 0-21 Line Drip	6/4/02	MW-3	5.7	0.52	19	30	34.42	5810.12	5775.70
Lat 0-21 Line Drip	6/18/03	MW-3	1	1	540	6490	34.80	5810.12	5775.32
Lat 0-21 Line Drip	6/23/04	MW-3	3.3	28.9	34	48.4	34.95	5810.12	5775.17
Lat 0-21 Line Drip	4/18/05	MW-3	1	1	5.3	2	34.48	5810.12	5775.64
Lat 0-21 Line Drip	10/25/05	MW-3	1	1	1	1.1	35.52	5810.12	5774.60
Lat 0-21 Line Drip	1/19/06	MW-3	1	1	1	2	34.71	5810.12	5775.41
Lat 0-21 Line Drip	4/24/06	MW-3	1	1	1	2	34.23	5810.12	5775.89
Lat 0-21 Line Drip	10/24/06	MW-3	1	1	1	1.2	35.33	5810.12	5774.79

ND values are shown as 1 for benzene, toluene, and ethylbenzene, and 2 for total xylenes

TABLE 2

SUMMARY OF FREE-PRODUCT REMOVAL
LAT O-21 LINE DRIP (METER #LD151)

Site Name	Monitoring Well	Removal Date	Depth to Product (feet btoc)	Depth to Water (feet btoc)	Product Thickness (feet)	Volume of Product Removed (gallons)	Cumulative Volume of Product Removed (gallons)
Lat 0-21 Line Drip	MW-1	6/4/02	NA	35.98	0.32	0.25	0.25
Lat 0-21 Line Drip	MW-1	9/10/02	36.852	37.145	0.29	0.00	0.25
Lat 0-21 Line Drip	MW-1	12/30/02	36.08	36.39	0.31	0.00	0.25
Lat 0-21 Line Drip	MW-1	3/27/03	NA	35.96	0.00	0.00	0.25
Lat 0-21 Line Drip	MW-1	6/18/03	NA	36.26	0.00	0.00	0.25
Lat 0-21 Line Drip	MW-1	9/16/03	NA	37.06	0.00	0.00	0.25
Lat 0-21 Line Drip	MW-1	12/17/03	NA	36.72	0.00	0.00	0.25
Lat 0-21 Line Drip	MW-1	3/16/04	NA	36.22	0.00	0.00	0.25
Lat 0-21 Line Drip	MW-1	6/22/04	NA	36.38	0.00	0.00	0.25
Lat 0-21 Line Drip	MW-1	9/21/04	NA	37.43	0.00	0.00	0.25
Lat 0-21 Line Drip	MW-1	12/21/04	NA	36.98	0.00	0.00	0.25
Lat 0-21 Line Drip	MW-1	4/18/05	NA	35.93	0.00	0.00	0.25
Lat 0-21 Line Drip	MW-3	6/4/02	NA	34.42	0.00	0.00	0.000
Lat 0-21 Line Drip	MW-3	9/10/02	35.285	35.92	0.64	0.00	0.000
Lat 0-21 Line Drip	MW-3	12/30/02	34.42	34.97	0.55	0.00	0.000
Lat 0-21 Line Drip	MW-3	6/18/03	NA	34.8	0.00	0.00	0.000
Lat 0-21 Line Drip	MW-3	9/16/03	35.62	35.64	0.02	0.01	0.008
Lat 0-21 Line Drip	MW-3	12/17/03	NA	35.24	0.00	0.00	0.008
Lat 0-21 Line Drip	MW-3	3/16/04	NA	34.75	0.00	0.00	0.008
Lat 0-21 Line Drip	MW-3	6/22/04	NA	34.95	0.00	0.00	0.008
Lat 0-21 Line Drip	MW-3	9/21/04	NA	35.95	0.00	0.00	0.008
Lat 0-21 Line Drip	MW-3	12/21/04	NA	35.51	0.00	0.00	0.008
Lat 0-21 Line Drip	MW-3	4/18/05	NA	34.48	0.00	0.00	0.008



	MW-1	MW-3
B	37.6	<1.0
T	3.6	<1.0
E	17.4	<1.0
X	42.0	<1.0

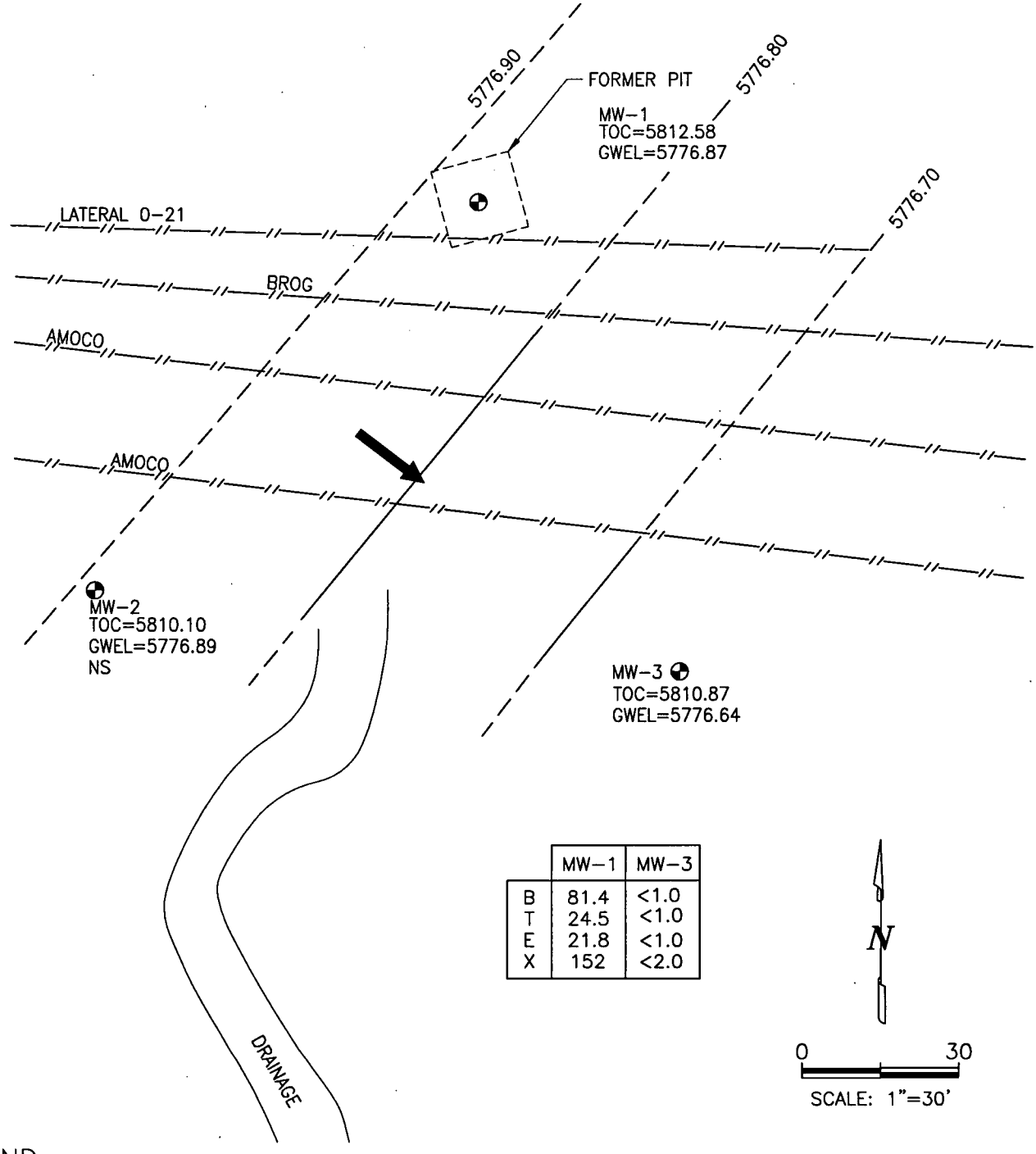
LEGEND

MW-1	Approximate Monitoring Well Location and Number
	Pipeline
	Direction of Groundwater Flow (Estimated)
GWEL	Groundwater Elevation (FT Above Mean Sea Level Unless Noted Otherwise)
TOC	Top of Casing
NS	Not Sampled
5777	Potentiometric Surface (Approximate & Assumed Where Dashed)
B	Benzene (μg/L)
T	Toluene (μg/L)
E	Ethylbenzene (μg/L)
X	Total Xylenes (μg/L)

LATERAL 0-21 LINE DRIP, LD151
JANUARY 2006

GROUNDWATER SITES
EL PASO TENNESSEE PIPELINE COMPANY

FIGURE 1



	MW-1	MW-3
B	81.4	<1.0
T	24.5	<1.0
E	21.8	<1.0
X	152	<2.0

LEGEND

MW-1	Approximate Monitoring Well Location and Number
——//——//——	Pipeline
➡	Direction of Groundwater Flow (Estimated)
GWEL	Groundwater Elevation (FT Above Mean Sea Level Unless Noted Otherwise)
TOC	Top of Casing
5777	Potentiometric Surface (Approximate & Assumed Where Dashed)
NS	Not Sampled
B	Benzene (µg/L)
T	Toluene (µg/L)
E	Ethylbenzene (µg/L)
X	Total Xylenes (µg/L)

LATERAL O-21 LINE DRIP, LD151
APRIL 2006

GROUNDWATER SITES
EL PASO TENNESSEE PIPELINE COMPANY

FIGURE 2

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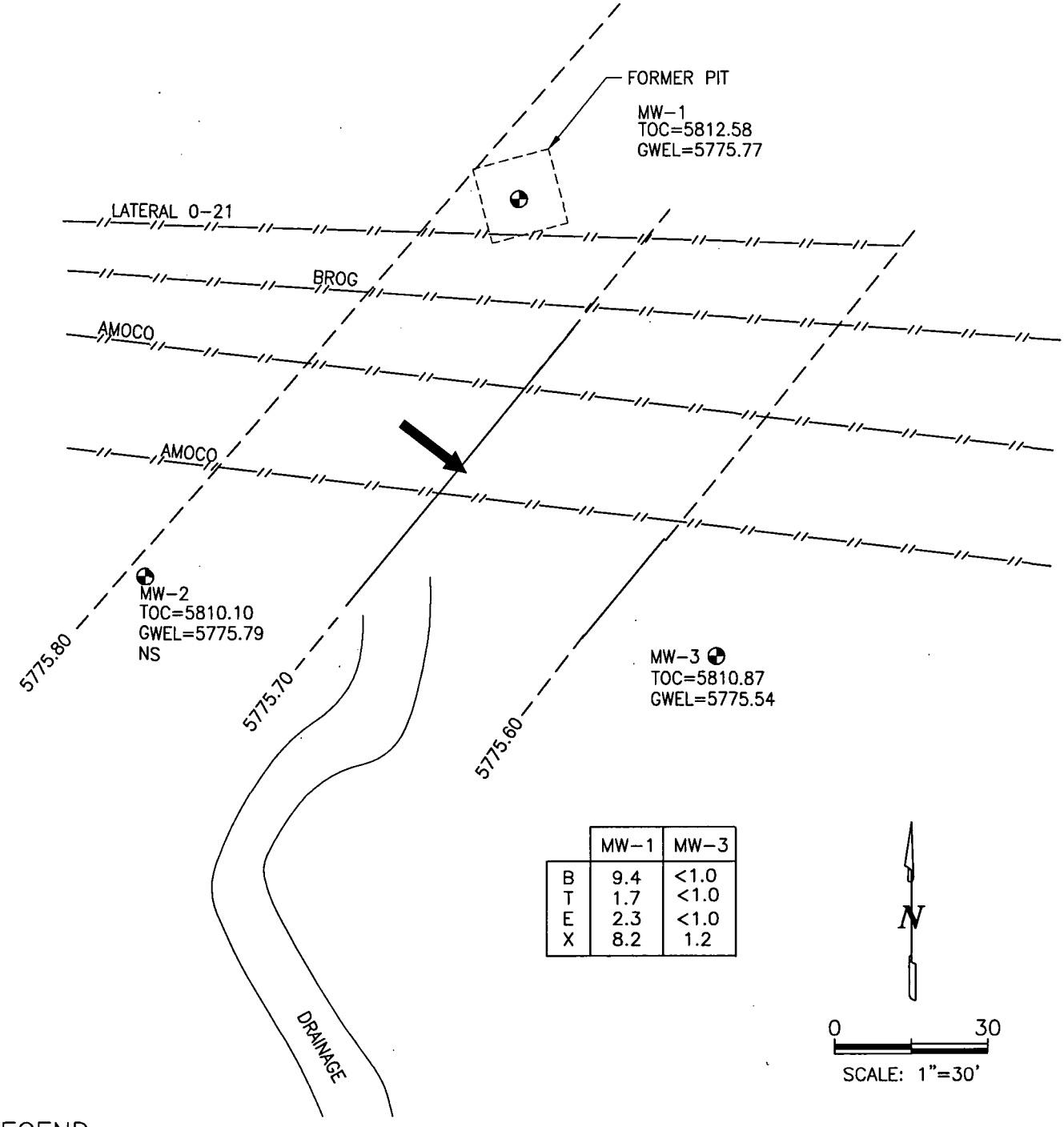


	MW-1	MW-3
B	9.4	<1.0
T	1.7	<1.0
E	2.3	<1.0
X	8.2	1.2

LEGEND

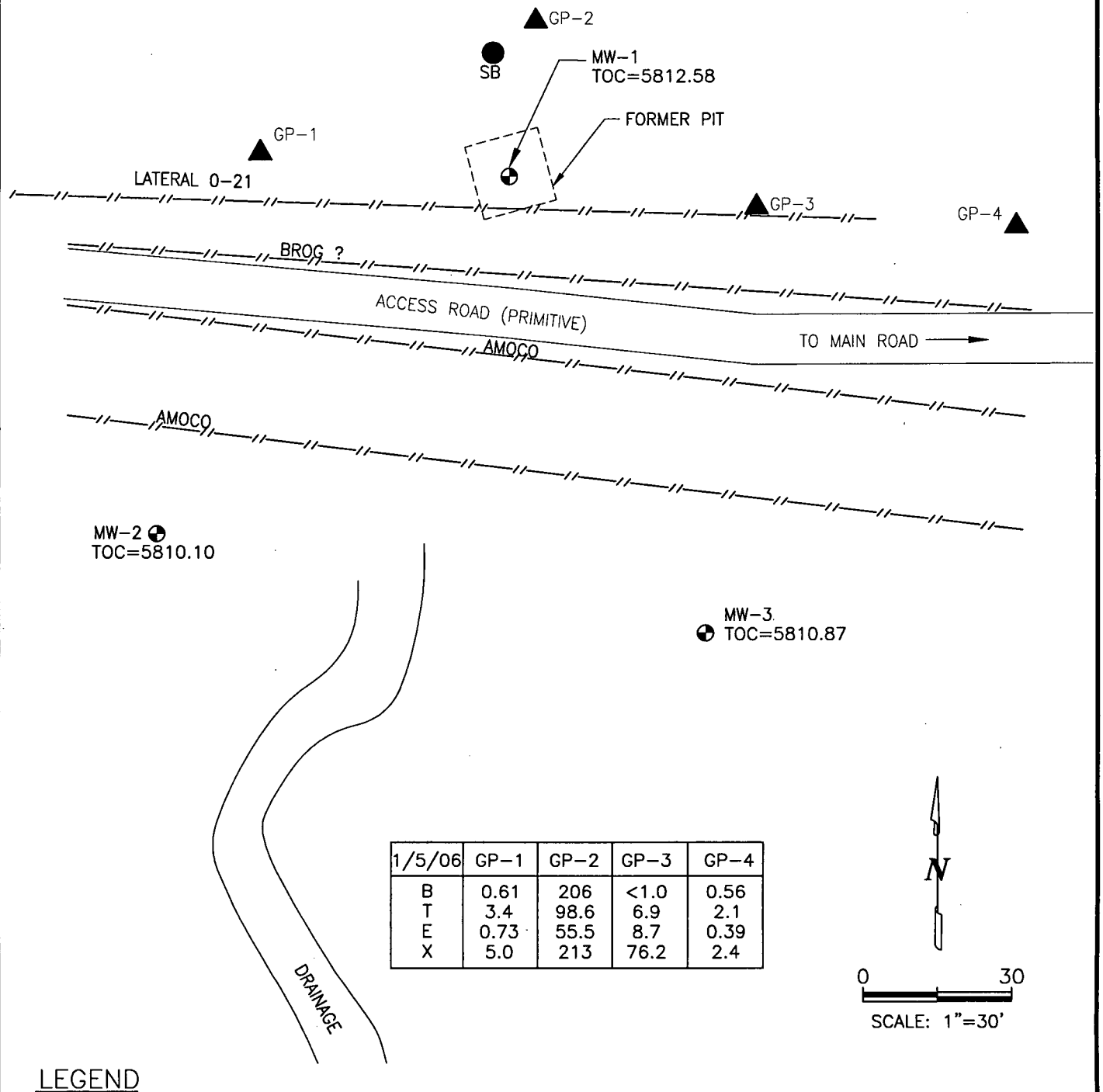
MW-1	Approximate Monitoring Well Location and Number
——//——//——	Pipeline
➡	Direction of Groundwater Flow (Estimated)
GWEL	Groundwater Elevation (FT Above Mean Sea Level Unless Noted Otherwise)
TOC	Top of Casing
5777	Potentiometric Surface (Approximate & Assumed Where Dashed)
NS	Not Sampled
B	Benzene (µg/L)
T	Toluene (µg/L)
E	Ethylbenzene (µg/L)
X	Total Xylenes (µg/L)

LATERAL O-21 LINE DRIP, LD151
OCTOBER 2006

GROUNDWATER SITES
EL PASO TENNESSEE PIPELINE COMPANY

FIGURE 3

latl0211dFig3_01-07.dwg



1/5/06	GP-1	GP-2	GP-3	GP-4
B	0.61	206	<1.0	0.56
T	3.4	98.6	6.9	2.1
E	0.73	55.5	8.7	0.39
X	5.0	213	76.2	2.4

LEGEND

- MW-1 — Monitoring Well Location and Number
- MW-1 — Geoprobe Location
- Pipeline
- Soil Boring
- TOC — Top of Casing

- B — Benzene (µg/L)
- T — Toluene (µg/L)
- E — Ethylbenzene (µg/L)
- X — Total Xylenes (µg/L)

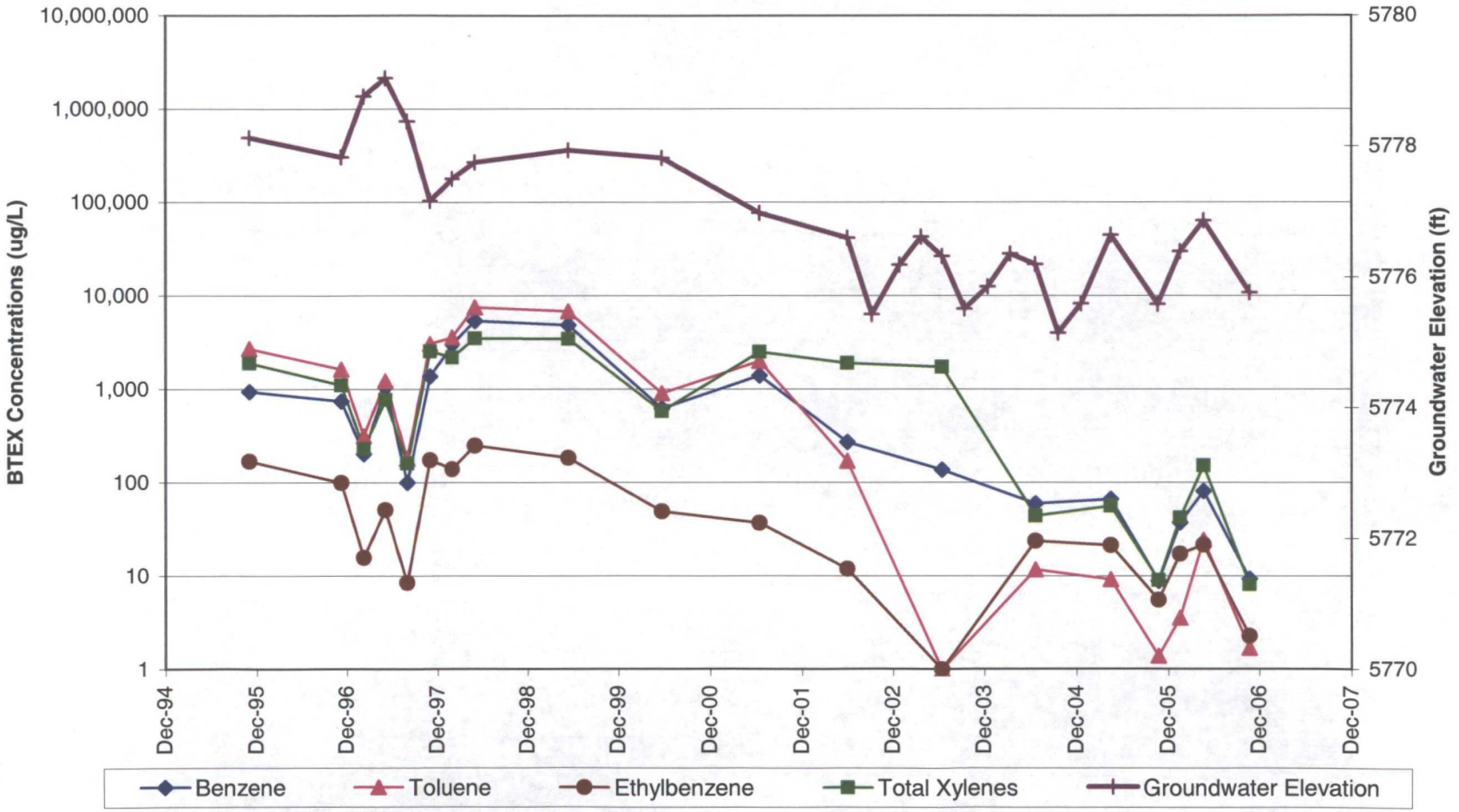
LATERAL 0-21 LINE DRIP, LD151
GEOPROBE AND
SOIL BORING LOCATION

GROUNDWATER SITES
EL PASO TENNESSEE PIPELINE COMPANY

FIGURE 4

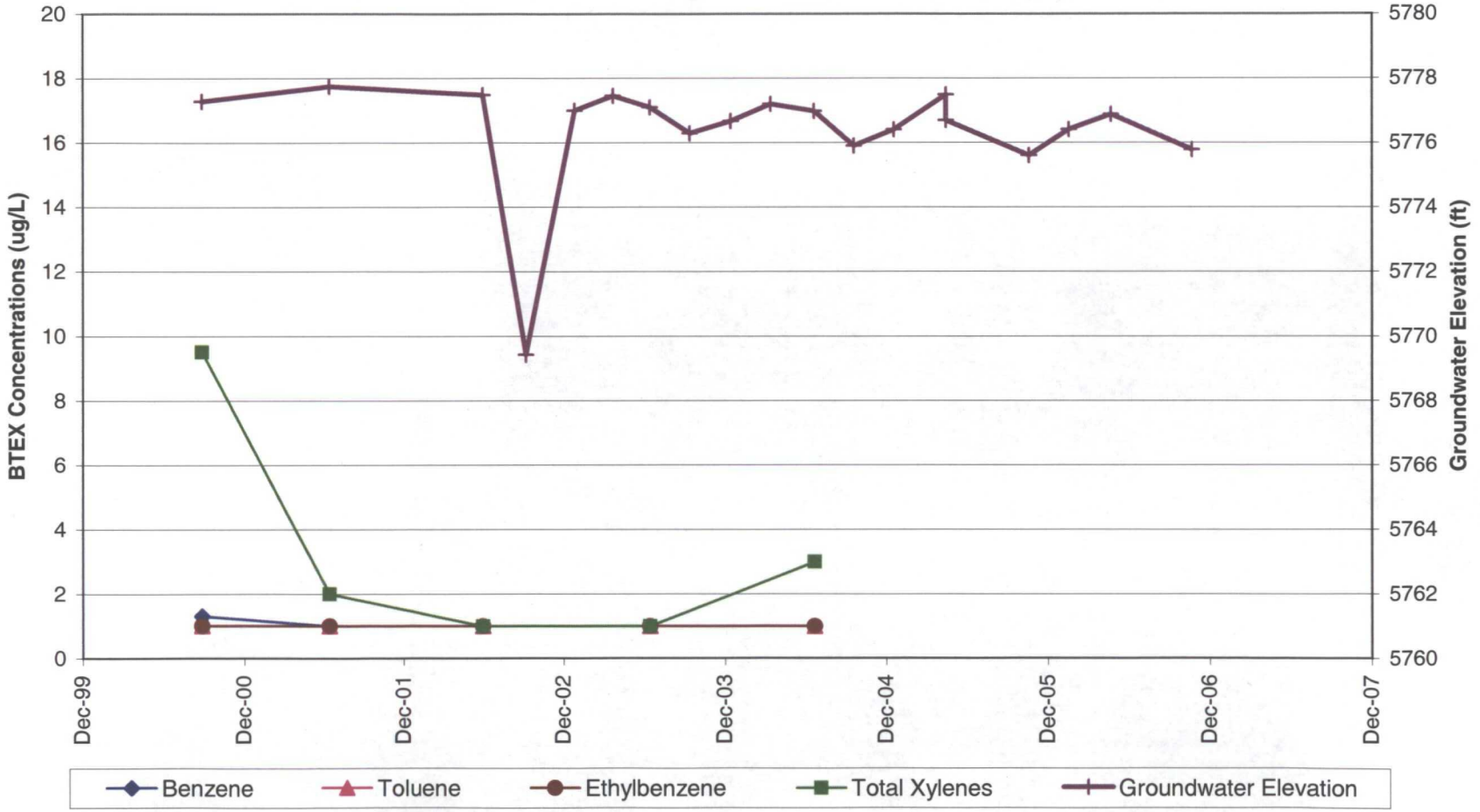
lat021Fig4_01_07.dwg

FIGURE 5
HISTORIC BTEX CONCENTRATIONS AND GROUNDWATER ELEVATIONS
LAT O-21 LINE DRIP
MW-1



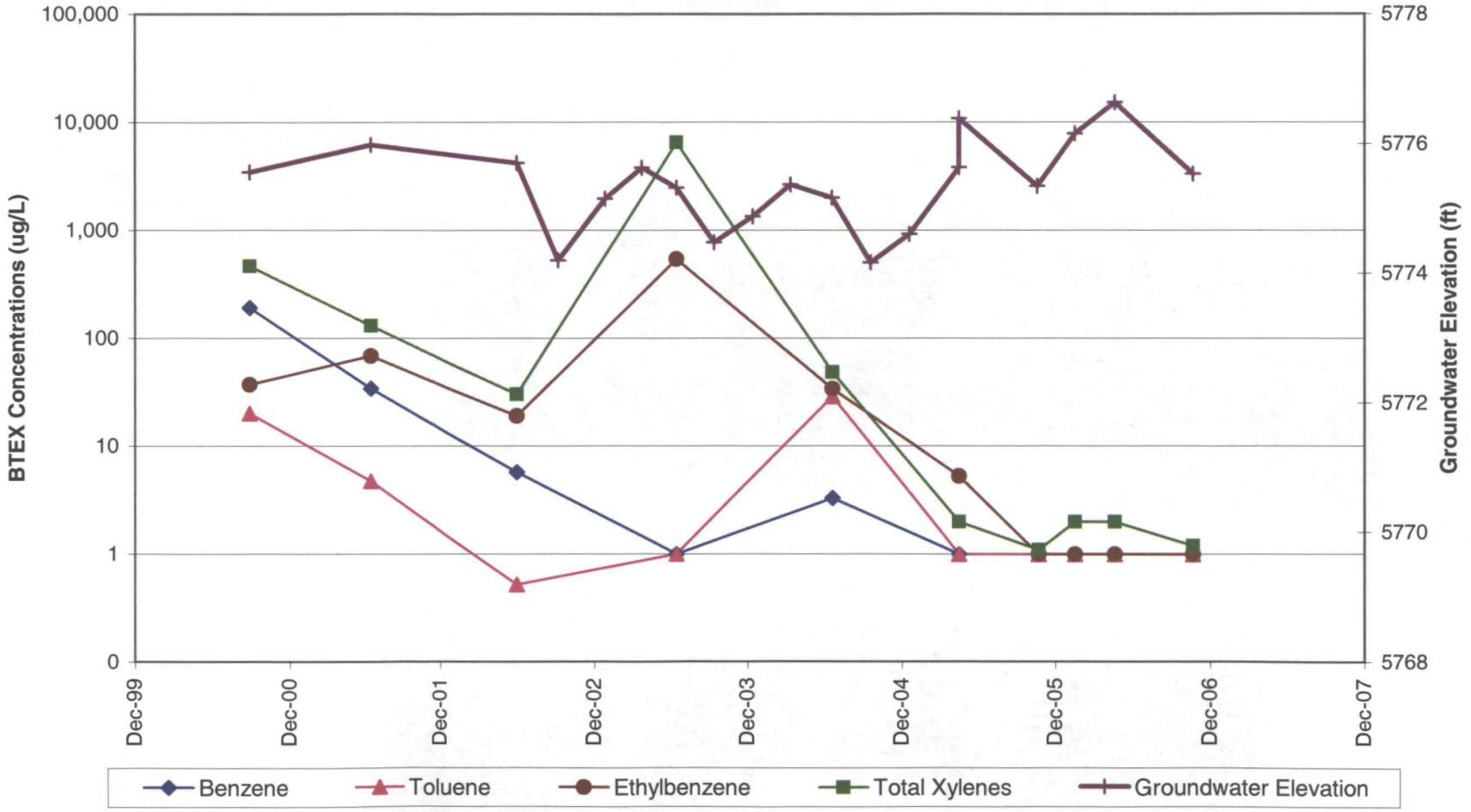
Note: A value of 1 indicates the analyte was not detected.

FIGURE 6
HISTORIC BTEX CONCENTRATIONS AND GROUNDWATER ELEVATIONS
LAT O-21 LINE DRIP
MW-2



Note: A value of 1 indicates the analyte was not detected.

FIGURE 7
HISTORIC BTEX CONCENTRATIONS AND GROUNDWATER ELEVATIONS
LAT O-21 LINE DRIP
MW-3



Note: A value of 1 indicates the analyte was not detected.