

**3R - 205**

**ANNUAL  
MONITORING  
REPORT**

**04/02/2008**



**MWH**

**BUILDING A BETTER WORLD**

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2008 APR 4 PM 1 38

April 2, 2008

Mr. Glenn von Gonten  
New Mexico Oil Conservation Division (NMOCD)  
1220 South St., Francis Drive  
Santa Fe, New Mexico 87505

**RE: El Paso Tennessee Pipeline Company Pit Groundwater Remediation Sites  
2007 Annual Reports**

Dear Mr. Von Gonten:

MWH Americas, Inc., on behalf of El Paso Tennessee Pipeline Company (EPTPC), is submitting the enclosed 2007 Annual Reports for each of EPTPC's 21 remaining San Juan River Basin pit groundwater remediation Sites. The reports present the 2007 sampling and product recovery data and include recommendations for 2008 activities at these Sites.

Copies of the reports for Sites located on Federal or Navajo lands are also being sent under separate cover to the Bureau of Land Management and the Navajo Nation Environmental Protection Agency.

If you have any questions concerning the enclosed reports, please call either Nancy Prince of EPTPC (719-520-4690) or me (303-291-2276).

Sincerely,

Jed Smith  
Project Manager

cc: Brandon Powell – NMOCD, Aztec, NM  
Nancy Prince – EPTPC  
MWH Project File

**2007 ANNUAL GROUNDWATER REPORT  
NON-FEDERAL SITES VOLUME II  
EL PASO TENNESSEE PIPELINE COMPANY**

**TABLE OF CONTENTS**

METER or LINE ID	SITE NAME	TOWNSHIP	RANGE	SECTION	UNIT	
71669	State Gas Com N #1	31N	12W	16	H	3R239
93388	Horton #1E	31N	09W	28	H	3R192
72556	Knight #1	30N	13W	5	A	3R207
03906	GCU Com A #142E	29N	12W	25	G	3R179
70445	Standard Oil Com #1	29N	09W	36	N	3R074
LD087	K-31 Line Drip	25N	06W	16	N	3R205
94967	*Lindrith B #24	24N	03W	9	N	3R214

\* Lindrith B#24 Site has been submitted for closure, and is pending approval from NMOCD.

OGRI 221654  
181398



3R205

**EPTPC GROUNDWATER SITES  
2007 ANNUAL GROUNDWATER REPORT**

**K-31 Line Drip  
Meter Code: LD087**

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**SITE DETAILS**

<b>Legal Description:</b>	<b>Town:</b> 25N	<b>Range:</b> 6W	<b>Sec:</b> 16	<b>Unit:</b> N
<b>NMOCD Haz Ranking:</b> 40	<b>Land Type:</b> State	<b>Operator:</b> Enterprise		

**PREVIOUS ACTIVITIES**

<b>Site Assessment:</b>	7/94	<b>Excavation:</b>	8/94 (90 cy)	<b>Soil Boring:</b>	9/95
<b>Monitor Well:</b>	3/97	<b>Geoprobe:</b>	7/97	<b>Additional MWs:</b>	7/00
<b>Downgradient MWs:</b>	7/00	<b>Replace MW:</b>	NA	<b>Quarterly Initiated:</b>	6/97
<b>ORC Nutrient Injection:</b>	11/02	<b>Re-Excavation:</b>	11/95 (1786 cy)	<b>PSH Removal Initiated:</b>	NA
<b>Annual Initiated:</b>	6/99	<b>Quarterly Resumed:</b>	NA	<b>PSH Removal in 2007?</b>	No

**SUMMARY OF 2007 ACTIVITIES**

**MW-1:** Water level monitoring was performed in June and December 2007.

**MW-2:** Groundwater sampling and water level monitoring were performed during June and December 2007.

**MW-3:** Water level monitoring was performed in June and December 2007.

**MW-4:** Groundwater sampling and water level monitoring were performed during June and December 2007.

**MW-5:** Groundwater sampling and water level monitoring were performed during June and December 2007.

**Site-Wide Activities:** All wells were surveyed in January 2007, in conjunction with the new well installations in late 2006.

**SITE MAP**

Site maps (June and December 2007) are attached as Figures 1 and 2.

**SUMMARY TABLES AND GRAPHS**

- Analytical data are summarized in Table 1 and presented graphically in Figures 3 through 7.

**EPTPC GROUNDWATER SITES  
2007 ANNUAL GROUNDWATER REPORT**

**K-31 Line Drip  
Meter Code: LD087**

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- 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**

No subsurface activities were conducted during 2007.

**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 water level and analytical data collected during 2007.

**CONCLUSIONS**

- Based on water level data collected between 2001 and 2007, the hydraulic gradient at this Site is extremely flat, and the groundwater flow direction appears to be northerly.
- In November 2002, oxygen releasing compound (ORC) slurry was injected into the subsurface near MW-2. The pre-injection benzene concentrations in MW-2 were 230 and 104 µg/L in March and September 2002, respectively. In 2007, benzene concentrations were 502 µg/L in June and 10.2 µg/L in December 2007. These data indicate that long-term attenuation is continuing; however, wide fluctuations appear to be possible with varying water levels in this well.
- The samples collected from new monitoring well MW-4 had benzene concentrations of 99.8 µg/L and 70.1 µg/L, in June and December 2007, respectively. All other BTEX components were below their respective NMWQCC standards.
- All BTEX compounds in the sample collected from new monitoring well MW-5 in June 2007 were below NMWQCC standards. However, in the December sample results, benzene spiked up to 87.0 µg/L.

**RECOMMENDATIONS**

- Because sampling at MW-1 has indicated BTEX concentrations below detection limits for four consecutive quarters, EPTPC recommends that this well not be sampled until closure samples are collected.

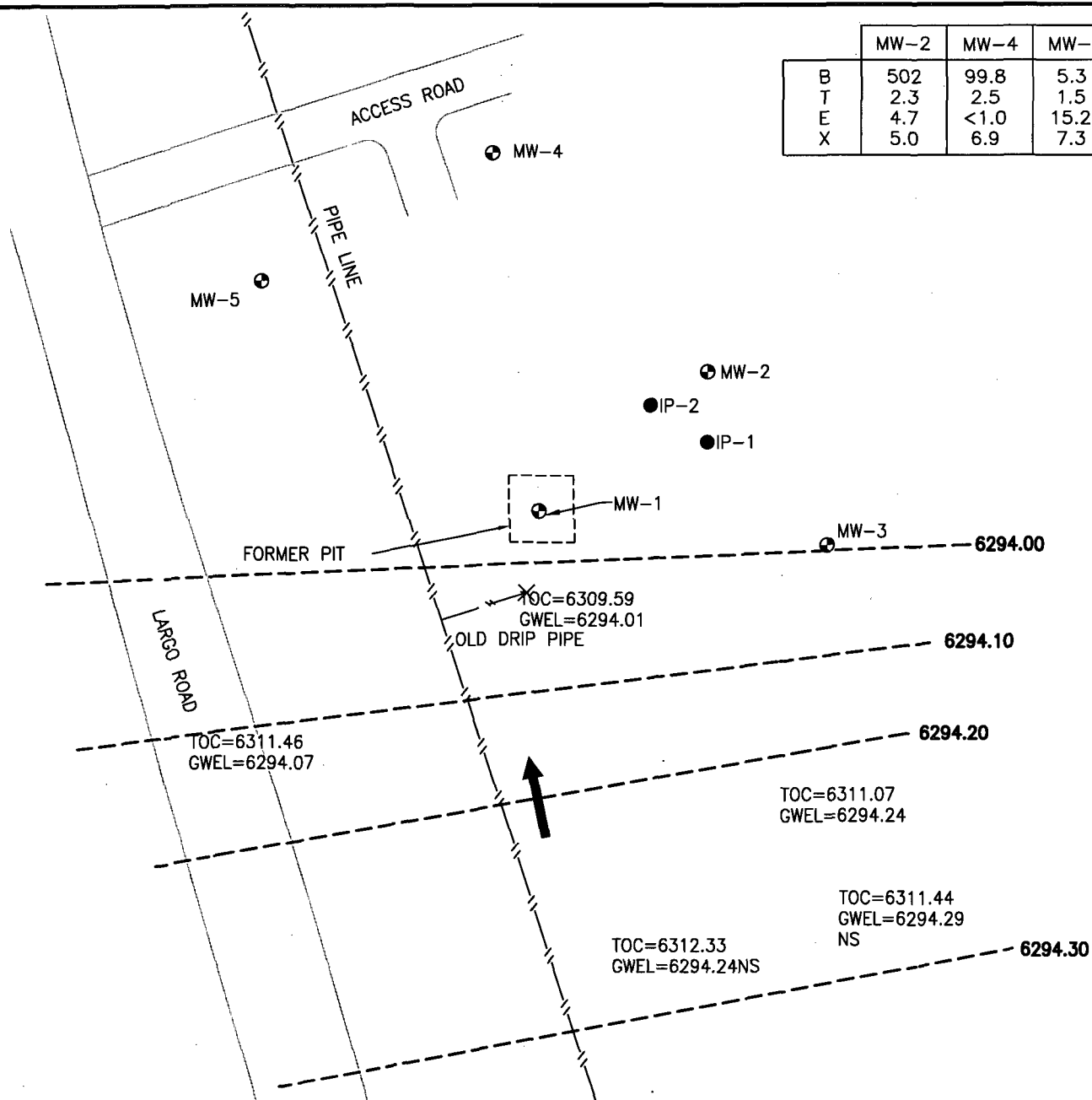
**EPTPC GROUNDWATER SITES  
2007 ANNUAL GROUNDWATER REPORT**

**K-31 Line Drip  
Meter Code: LD087**

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- EPTPC will continue to sample MW-2 on a semi-annual basis until BTEX concentrations approach closure standards. Quarterly sampling will then be initiated.
- Because sampling at MW-3 has indicated BTEX concentrations below detection limits, EPTPC recommends that this well not be sampled until closure samples are collected.
- EPTPC recommends that new monitoring wells MW-4 and MW-5 be sampled in conjunction with MW-2.

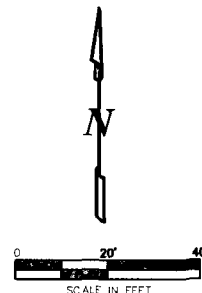
	MW-2	MW-4	MW-5
B	502	99.8	5.3
T	2.3	2.5	1.5
E	4.7	<1.0	15.2
X	5.0	6.9	7.3



## LEGEND

- MW-1 Monitoring Well Location and Number
- NS Not Sampled.
- TOC Top of Casing, Re-Surveyed January, 2007.
- IP-1 ORC Injection point.
- ➔ Direction of Groundwater Flow
- GWEL Groundwater Elevation, (Ft Above Mean Sea Level)

- Road
- //—//— Pipe Line
- 6294.00 — Potentiometric Surface (Inferred where dashed)
- < Not Detected. Value Shown is Detection Limit.
- B Benzene (µg/L)
- T Toluene (µg/L)
- E Ethylbenzene (µg/L)
- X Total Xylenes (µg/L)



0	Issued to Report	06-07	J.Hurley	N.Day	J.Smith
REV. No.	REVISIONS	REV. DATE	DESIGN BY	DRAWN BY	REVIEWED AND SIGNED BY
PROJECT No.: 1005521.0601					
AutoCAD FILE: K-31-LD					
SCALE: As Shown			FIGURE No: 1		



EL PASO TENNESSEE PIPELINE COMPANY  
K-31 LINE DRIP, LD087

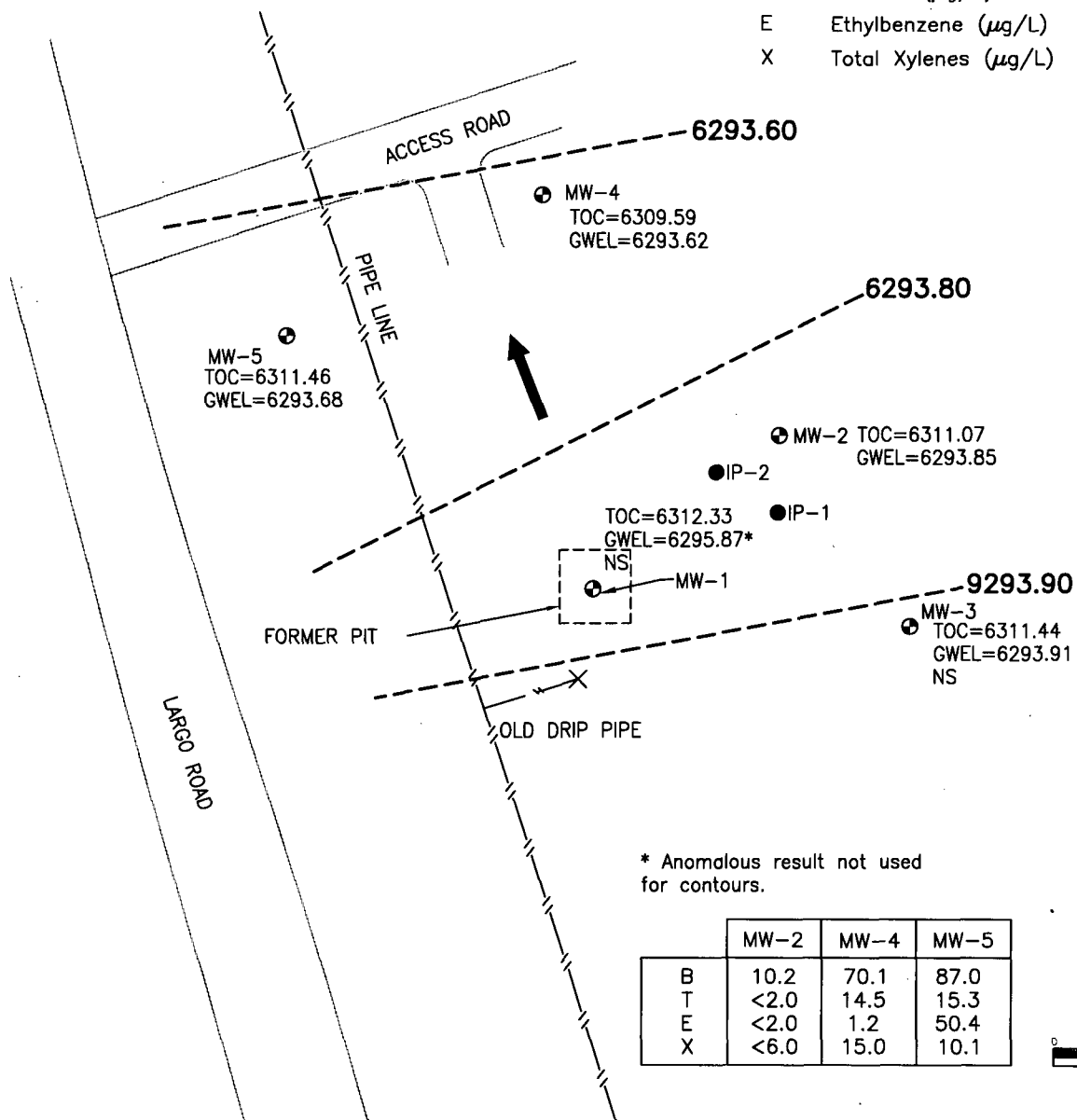
GROUNDWATER POTENTIOMETRIC SURFACE  
CONTOURS AND BTEX CONCENTRATIONS  
JUNE 2007

# LEGEND

DOG LEG

Road  
 Pipe Line  
 Potentiometric Surface  
 (Inferred where dashed)

MW-1 Monitoring Well Location and Number  
 NS Not Sampled.  
 TOC Top of Casing,  
 IP-1 ORC Injection point.  
 Direction of Groundwater Flow  
 GWEL Groundwater Elevation, (Ft Above Mean Sea Level)  
 < Not Detected. Value Shown is Detection Limit.  
 B Benzene (µg/L)  
 T Toluene (µg/L)  
 E Ethylbenzene (µg/L)  
 X Total Xylenes (µg/L)



1	Issued for Report	12/07	D.Wade	N.Day	J.Smith
0	Issued to Report	06-07	J.Hurley	N.Day	J.Smith
REV. No.	REVISIONS	REV. DATE	DESIGN BY	DRAWN BY	REVIEWED AND SIGNED BY
PROJECT No.: 1005521.01/01					
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SCALE: As Shown			FIGURE No: 2		

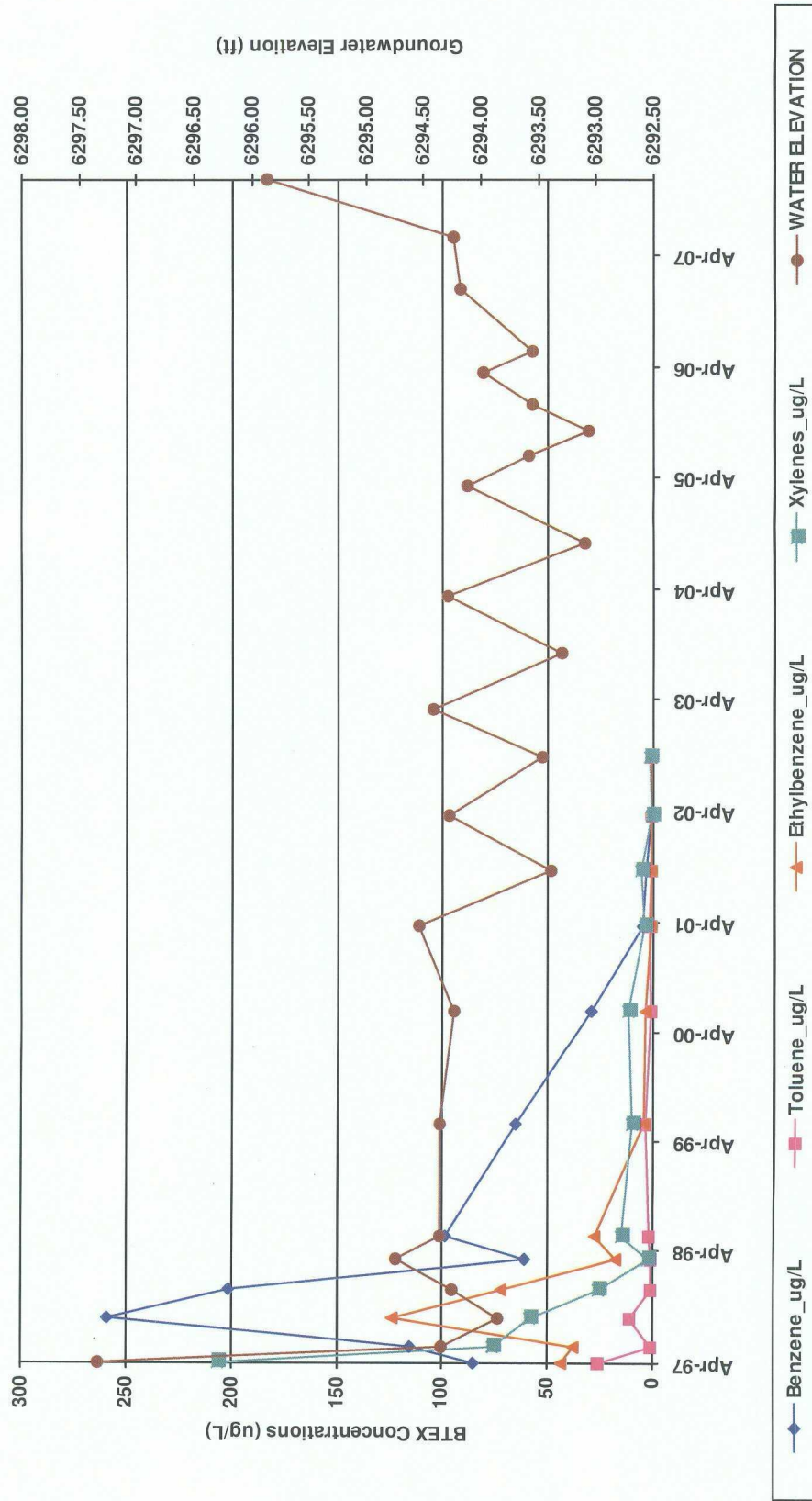


EL PASO TENNESSEE PIPELINE COMPANY  
 K-31 LINE DRIP, LD087

GROUNDWATER POTENTIOMETRIC SURFACE  
 CONTOURS AND BTEX CONCENTRATIONS  
 DECEMBER 2007

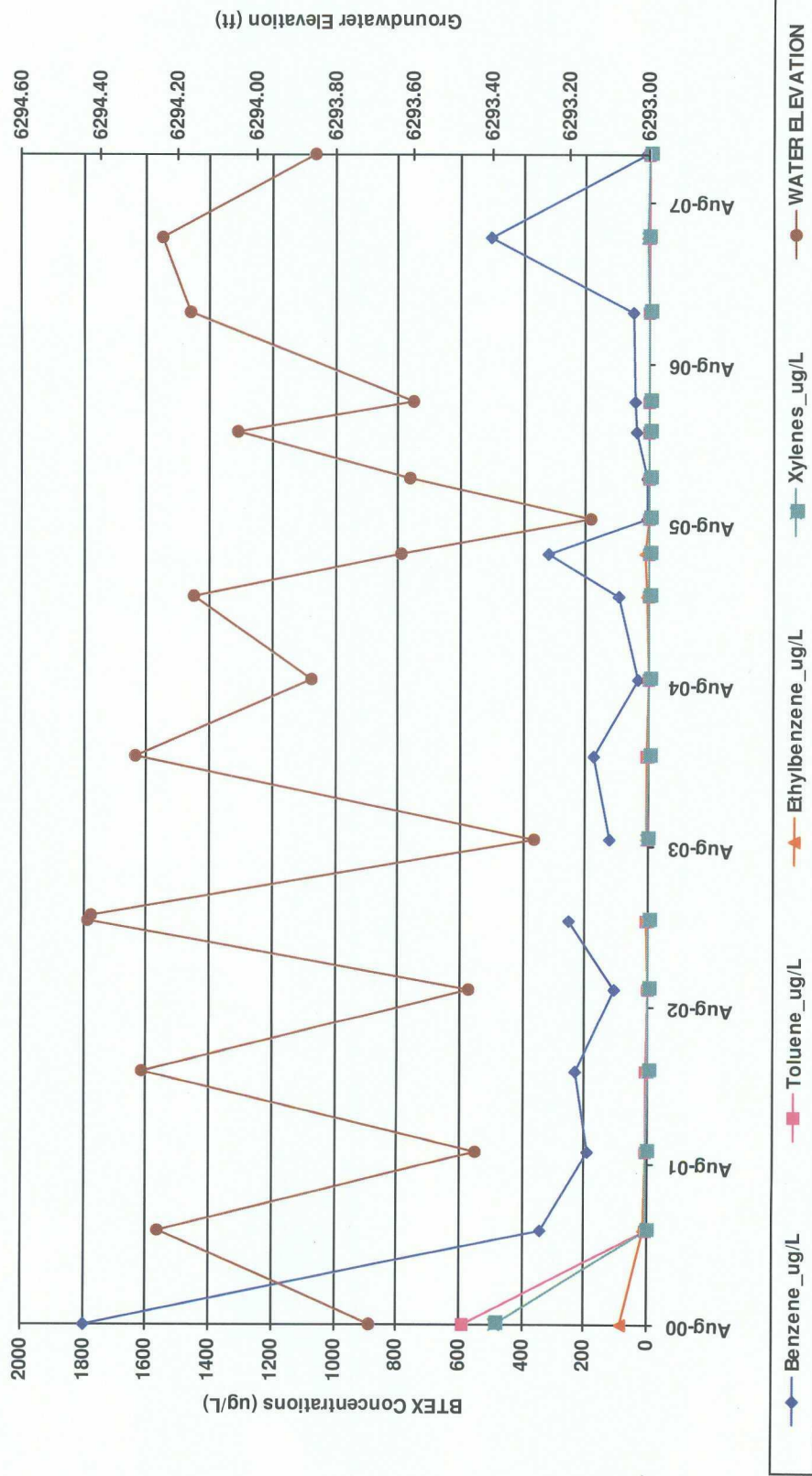


FIGURE 3  
SUMMARY OF BTEX COMPOUNDS IN GROUNDWATER SAMPLES  
K-31 LINE DRIP (METER #LD087)  
MW01



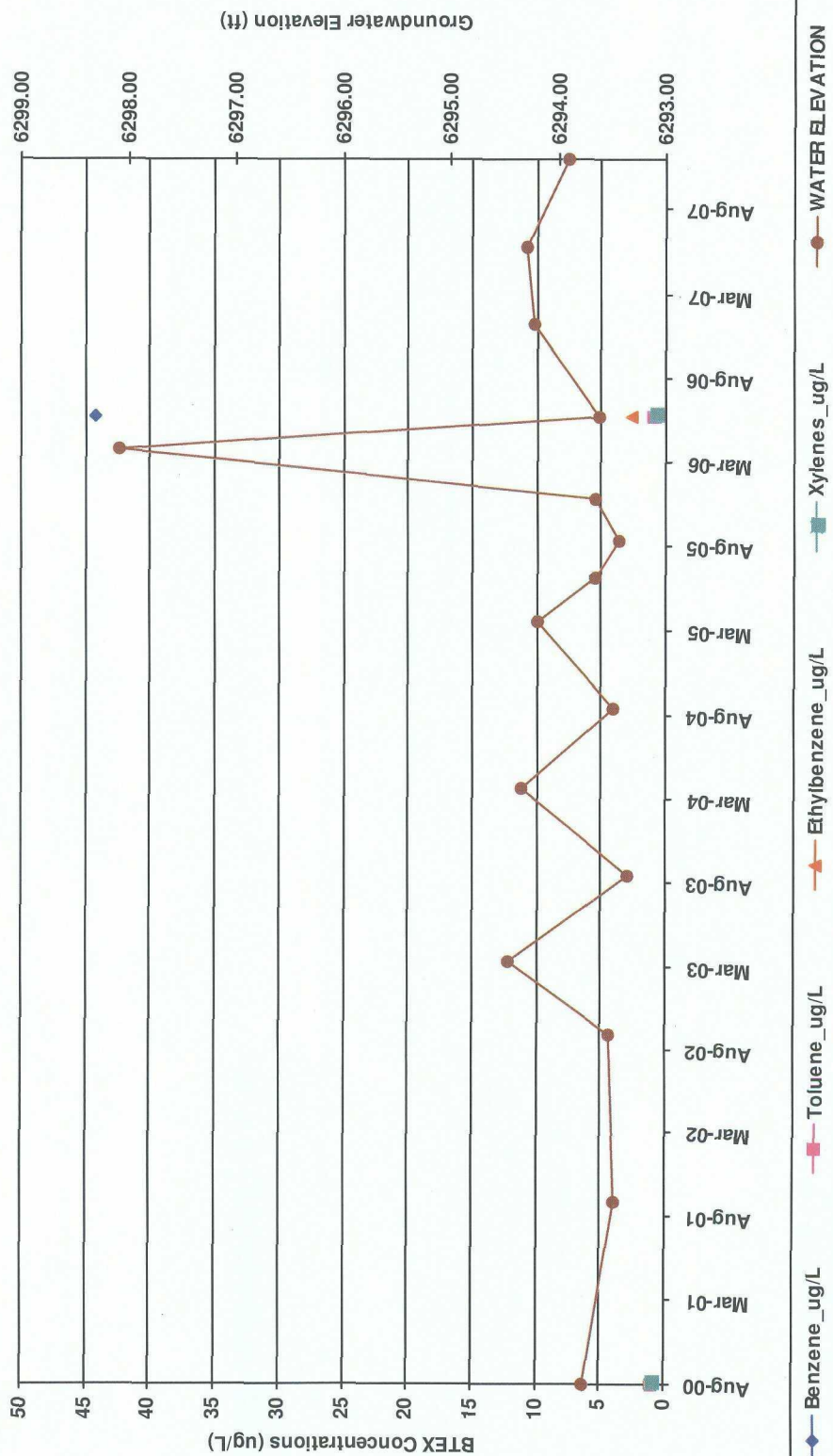
Note: Non Detects are represented by a value of 1.

FIGURE 4  
SUMMARY OF BTEX COMPOUNDS IN GROUNDWATER SAMPLES  
K-31 LINE DRIP (METER #LD087)  
MW02



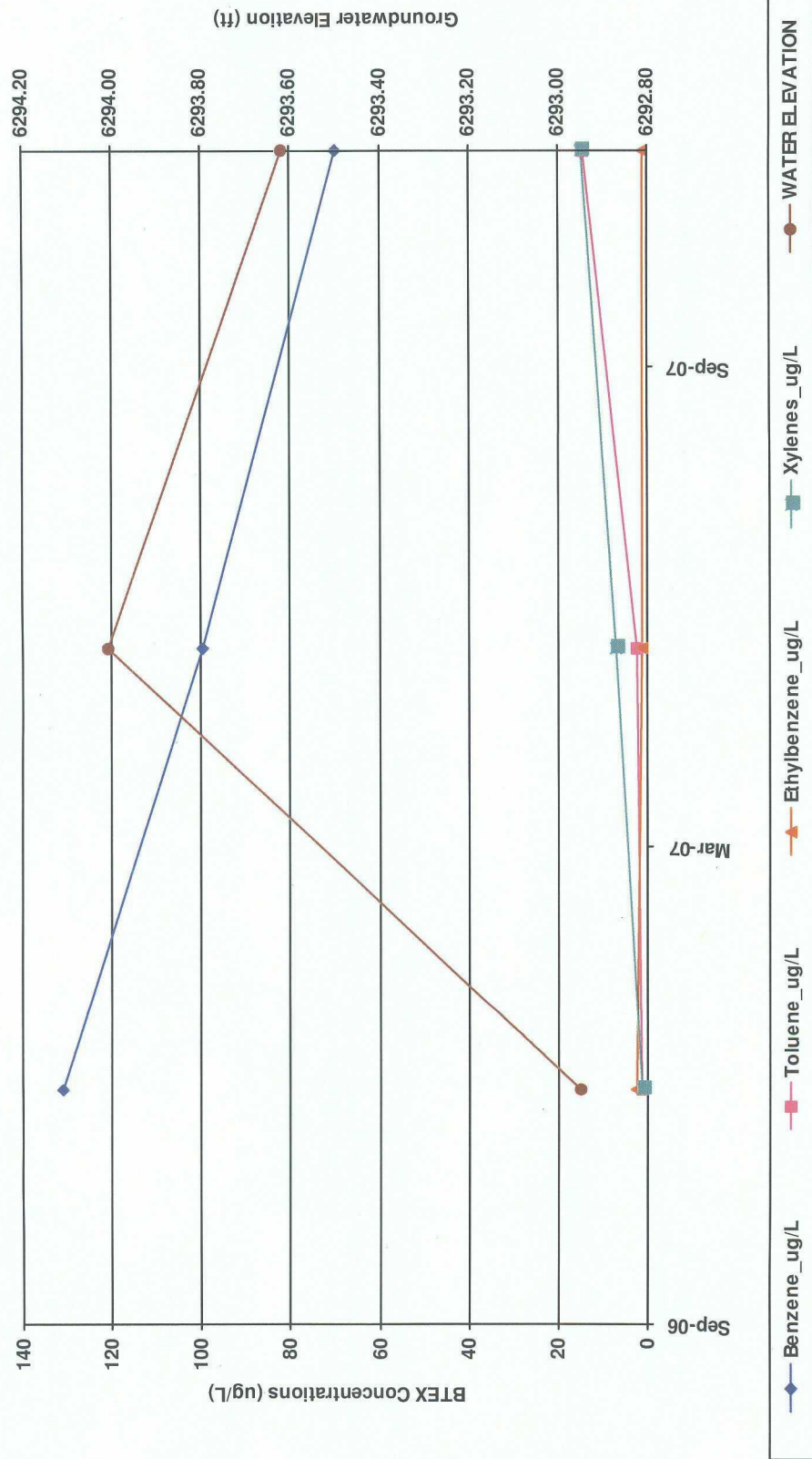
Note: Non Detects are represented by a value of 1.

FIGURE 5  
SUMMARY OF BTEX COMPOUNDS IN GROUNDWATER SAMPLES  
K-31 LINE DRIP (METER #LD087)  
MW03



Note: Non Detects are represented by a value of 1.

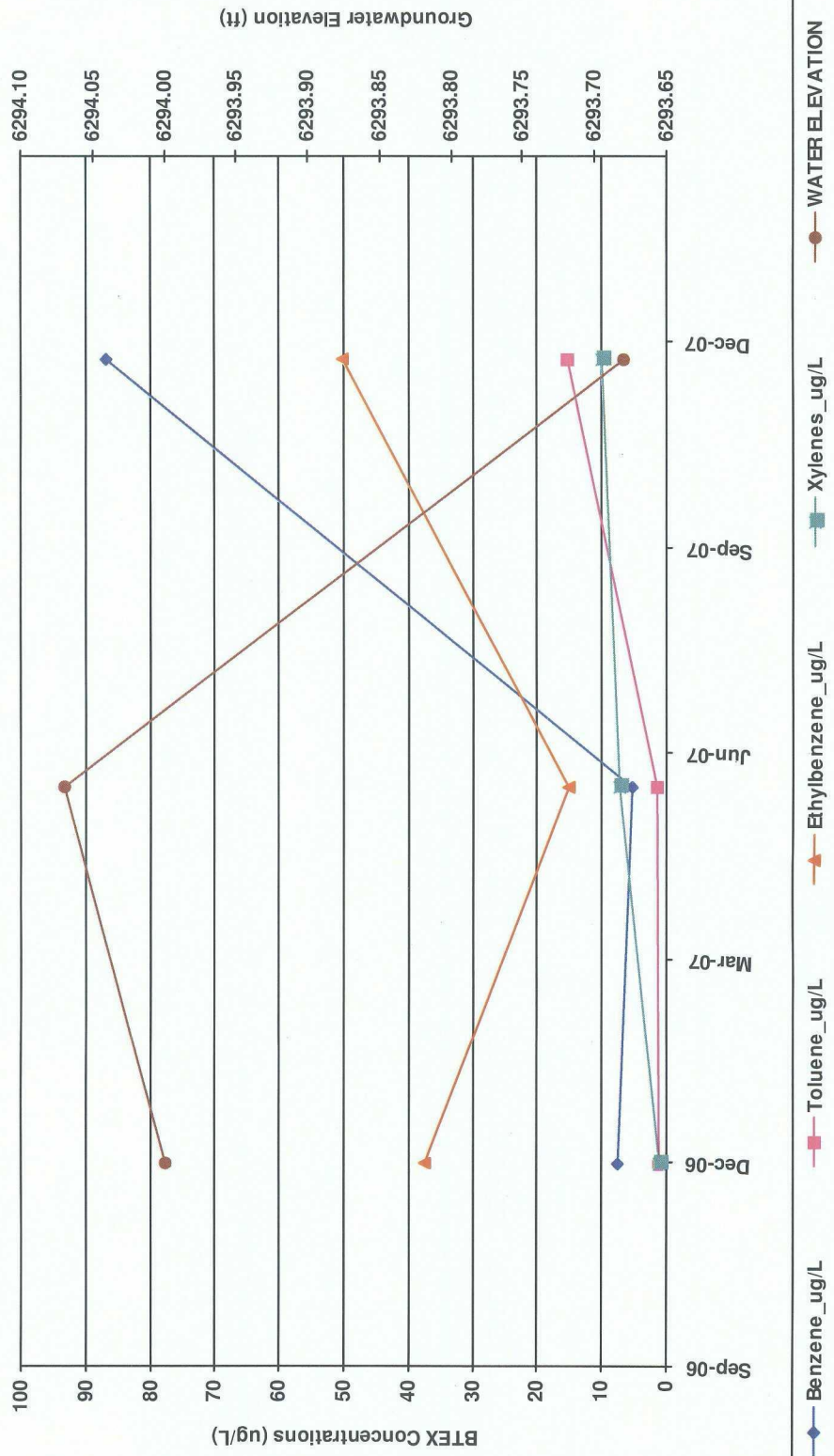
FIGURE 6  
SUMMARY OF BTEX COMPOUNDS IN GROUNDWATER SAMPLES  
K-31 LINE DRIP (METER #LD087)  
MW04



Note: Non Detects are represented by a value of 1.



FIGURE 7  
SUMMARY OF BTEX COMPOUNDS IN GROUNDWATER SAMPLES  
K-31 LINE DRIP (METER #LD087)  
MW05



Note: Non Detects are represented by a value of 1.

**TABLE 1**  
**SUMMARY OF BTEX COMPOUNDS IN GROUNDWATER SAMPLES**  
**K-31 LINE DRIP (METER #LD087)**

Monitoring Well	Sample Date	Benzene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	Total Xylenes (ug/L)	Depth to Water (ft BTOC)
MW01	4/16/1997	84.9	25.7	43.6	206	15.00
	6/6/1997	115	1	37.8	76.1	17.99
	9/11/1997	259	10.8	124	58.4	18.48
	12/9/1997	201	1	71.5	25.8	18.09
	3/19/1998	61.2	1	17.8	2.35	17.59
	6/2/1998	98.3	1.48	27.2	14.7	17.98
	6/14/1999	65	3.7	4.2	10	17.98
	6/27/2000	29	1	3.5	12	18.10
	4/3/2001	5	1.4	1.1	4.1	17.79
	10/1/2001	3.3	1.1	0.8	5.6	18.94
	4/1/2002	1	1	1	1	18.05
	10/8/2002	0.6	1	1	1.3	18.86
MW02	8/31/2000	1800	590	86	490	17.36
	4/3/2001	340	4	8.7	3.3	16.82
	10/1/2001	190	3	4.5	3.7	17.63
	4/1/2002	230	3.4	1	1	16.78
	10/8/2002	104	1.6	2.3	1.6	17.61
	3/13/2003	254	5.6	3.5	1.4	16.64
	9/15/2003	125	2.6	5.2	3	17.78
	3/22/2004	176	3.7	7.7	1.4	16.76
	9/14/2004	32.2	1.4	2.4	1.3	17.21
	3/22/2005	93.7	0.56	4.2	2	16.91
	6/24/2005	322	1.9	11	2.5	17.44
	9/14/2005	7.6	0.79	0.78	1.4	17.92
	12/14/2005	6.3	0.48	0.68	0.89	17.46
	3/28/2006	40.8	0.68	2.7	1.4	17.02
	6/7/2006	44.3	1	2.7	0.86	17.47
	12/26/2006	50.8	1	2.4	0.37	16.90
	6/12/2007	502	2.3	4.7	5	16.83
	12/18/2007	10.2	1	1	1	17.22
MW03	8/31/2000	1	1	1	1	17.69
	6/7/2006	44.3	1	2.7	0.86	17.82
MW04	12/26/2006	131	1	2.4	1	16.64
	6/12/2007	99.8	2.5	1	6.9	15.58

Note: Non Detects are represented by a value of 1.

**TABLE 1****SUMMARY OF BTEX COMPOUNDS IN GROUNDWATER SAMPLES  
K-31 LINE DRIP (METER #LD087)**

Monitoring Well	Sample Date	Benzene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	Total Xylenes (ug/L)	Depth to Water (ft BTOC)
MW04	12/18/2007	70.1	14.5	1.2	15	15.97
MW05	12/26/2006	7.5	1	37.3	1	17.46
	6/12/2007	5.3	1.5	15.2	7.3	17.39
	12/18/2007	87	15.3	50.4	10.1	17.78

Note: Non Detects are represented by a value of 1.