

**3R - 192**

**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
93388	Horton #1E	31N	09W	28	H
72556	Knight #1	30N	13W	5	A
03906	GCU Com A #142E	29N	12W	25	G
70445	Standard Oil Com #1	29N	09W	36	N
LD087	K-31 Line Drip	25N	06W	16	N
94967	*Lindrith B #24	24N	03W	9	N

3R239

3R192

3R207

3R179

3R074

3R205

3R214

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

OGRID 227654  
181398



**MWH**

**EPTPC GROUNDWATER SITES  
2007 ANNUAL GROUNDWATER REPORT**

**3R192**

**Horton #1E  
Meter Code: 93388**

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**SITE DETAILS**

<b>Legal Description:</b>	<b>Town:</b> 31N	<b>Range:</b> 9W	<b>Sec:</b> 28	<b>Unit:</b> H
<b>NMOCD Haz Ranking:</b>	40	<b>Land Type:</b> Fee	<b>Operator:</b> BP / Amoco Production Company	

**PREVIOUS ACTIVITIES**

<b>Site Assessment:</b>	8/94	<b>Excavation:</b>	9/94 (50 cy)	<b>Soil Boring:</b>	8/95
<b>Monitor Well:</b>	8/95	<b>Geoprobe:</b>	NA	<b>Additional MWs:</b>	10/99
<b>Downgradient MWs:</b>	10/99	<b>Replace MW:</b>	NA	<b>Quarterly Initiated:</b>	12/96
<b>ORC Nutrient Injection:</b>	NA	<b>Re-Excavation:</b>	NA	<b>PSH Removal Initiated:</b>	NA
<b>Annual Initiated:</b>	10/99	<b>Quarterly Resumed:</b>	NA	<b>PSH Removal in 2007?:</b>	No

**SUMMARY OF 2007 ACTIVITIES**

**MW-1:** Quarterly groundwater sampling, dissolved oxygen measurements, and water level measurements were performed in 2007.

**MW-2:** Quarterly water level measurements were performed in 2007. This well was sampled in March 2007 in anticipation that this would be the fourth clean quarter for MW-1.

**MW-3:** Quarterly water level measurements were performed in 2007. This well was sampled in March 2007 in anticipation that this would be the fourth clean quarter for MW-1.

**Site-Wide Activities:** No other activities were performed at this Site during 2007.

**SITE MAPS**

Site maps are attached as Figures 1 through 4.

**SUMMARY TABLES AND GRAPHS**

- Analytical data are summarized in Table 1 and presented graphically in Figures 5 through 7.
- Laboratory reports are presented in Attachment 1 (included on CD).

**EPTPC GROUNDWATER SITES  
2007 ANNUAL GROUNDWATER REPORT**

**Horton #1E  
Meter Code: 93388**

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- Field documentation is presented in Attachment 2 (included on CD).

**GEOLOGIC LOGS AND WELL COMPLETION DIAGRAMS**

No subsurface activities were performed at this Site 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 the water level and analytical data collected during 2007.

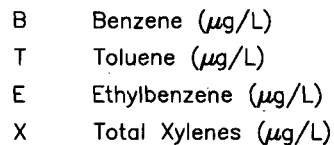
**CONCLUSIONS**

- The groundwater flow direction at this Site trends toward the southeast.
- Dissolved oxygen concentrations in MW-1 varied between 3.16 mg/L and 4.94 mg/L between March and December.
- Benzene concentrations in MW-1 continued to stabilize around the NMWQCC benzene standard of 10 ppb, with results ranging between 2.5 to 14.2 µg/L.
- ORC socks were removed from MW-1 during the March 2005 Site visit for performance evaluation. ORC use has not been reinitiated, as attenuation of benzene concentrations continues and the oxygen levels in the groundwater are steady.

**RECOMMENDATIONS**

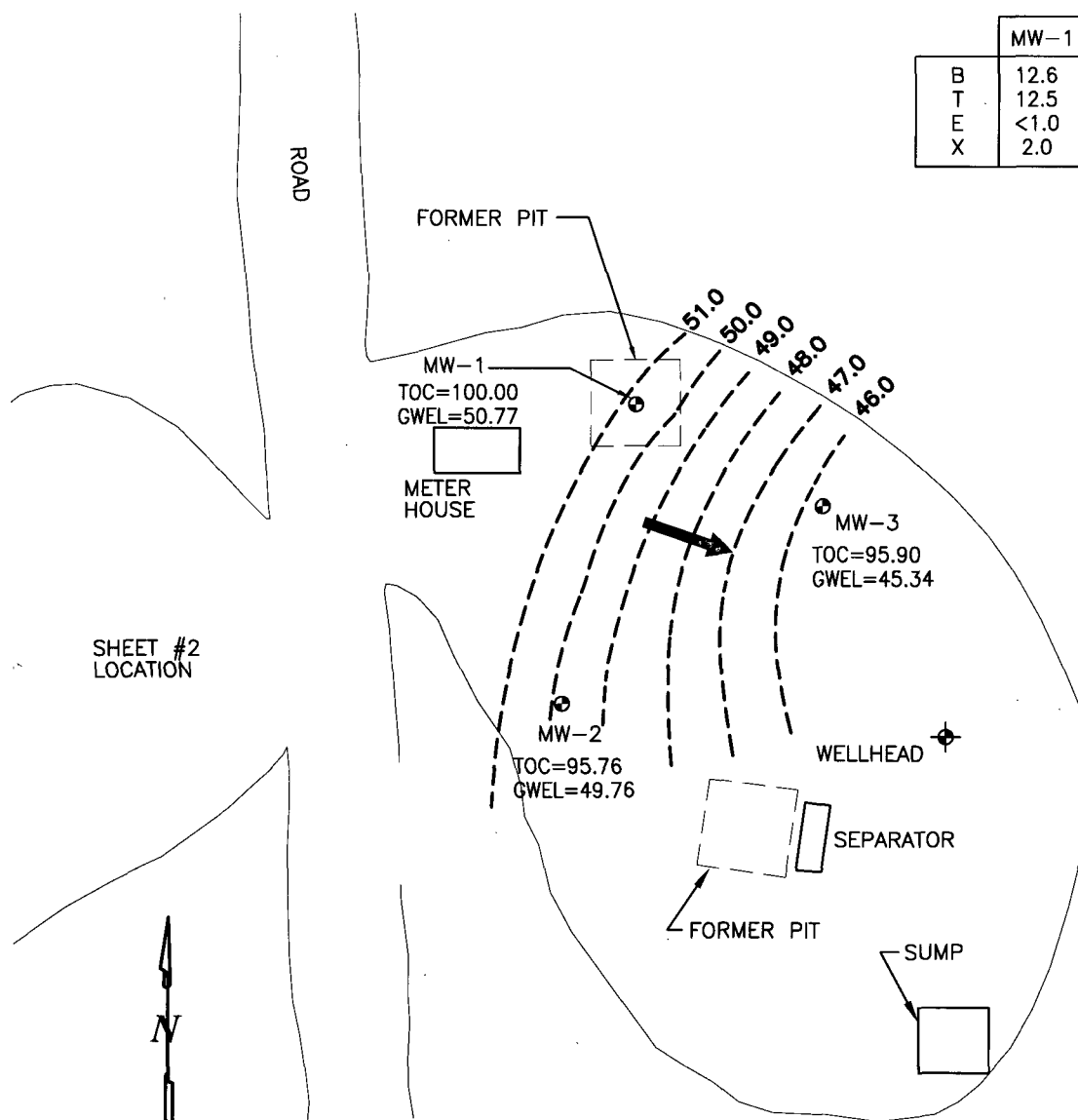
- Continue quarterly groundwater sampling (March, June, September and December) of MW-1.
- Wells MW-2 and MW-3 have been below detection limits since 1999. These wells will be sampled at closure.
- EPTPC recommends that water level measurements be collected from MW-2 and MW-3, in conjunction with the quarterly sampling of MW-1.

\* MW-1 was re-analyzed.  
This column shows the  
second set of results.



**GROUNDWATER POTENTIOMETRIC SURFACE  
CONTOURS AND BTEX CONCENTRATIONS  
MARCH 2007**

MW-1	
B	12.6
T	12.5
E	<1.0
X	2.0



#### LEGEND

- ⊕ MW-1 Approximate Monitoring Well Location and Number
- NS Not Sampled
- GWEL Groundwater Elevation (Relative)
- TOC Top of Casing
- 49 --- Potentiometric Surface (Inferred Where Dashed)
- Direction of Groundwater Flow (Estimated)

- B Benzene ( $\mu\text{g/L}$ )
- T Toluene ( $\mu\text{g/L}$ )
- E Ethylbenzene ( $\mu\text{g/L}$ )
- X Total Xylenes ( $\mu\text{g/L}$ )

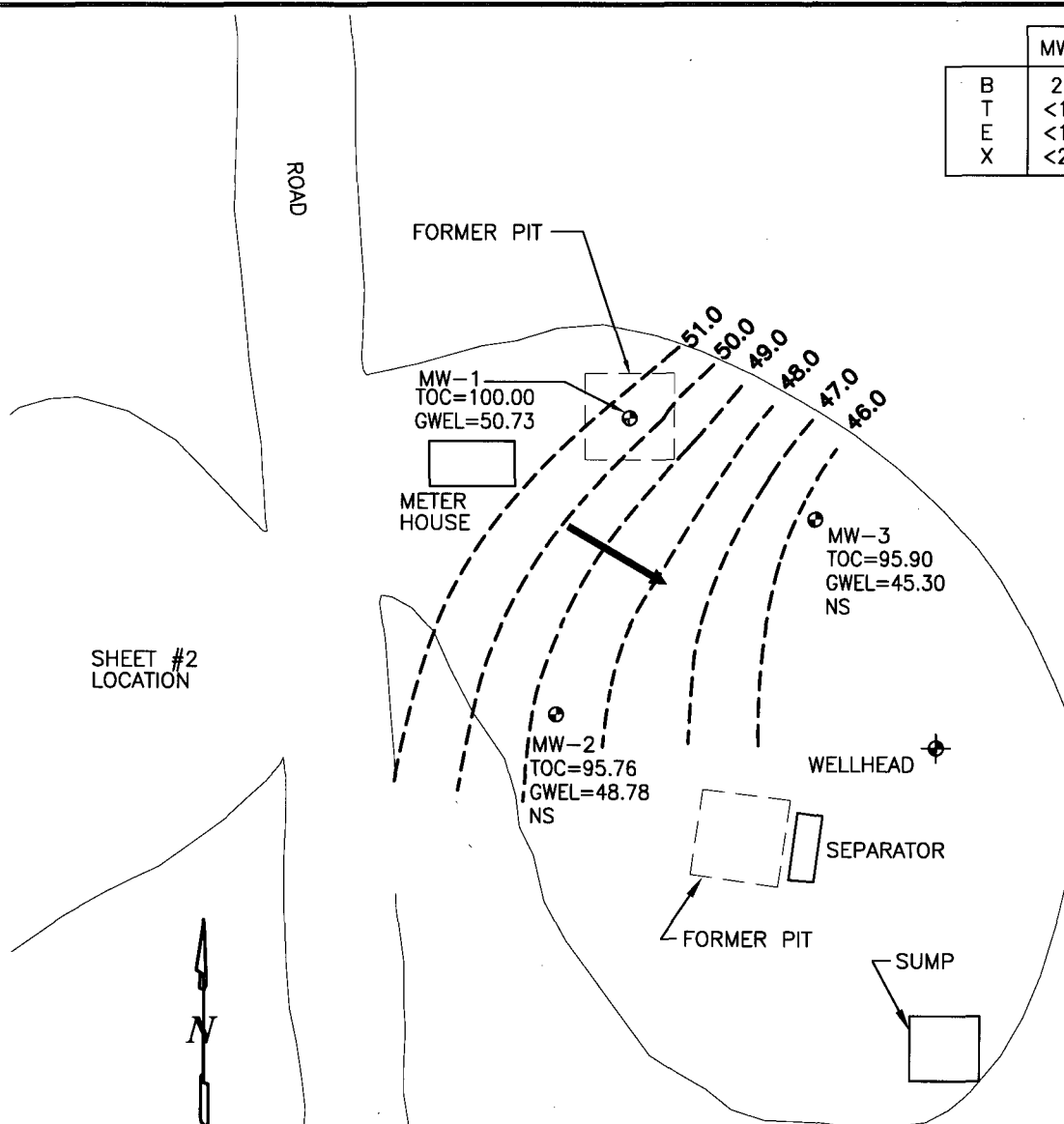
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REV. No.	REVISIONS	REV. DATE	DESIGN BY	DRAWN BY	REVIEWED AND SIGNED BY
PROJECT No.: 1005521.0601					
AutoCAD FILE: HORTON1E					
SCALE: As Shown			FIGURE No: 2		



EL PASO TENNESSEE PIPELINE COMPANY  
HORTON #1E, METER 93388

GROUNDWATER POTENTIOMETRIC SURFACE  
CONTOURS AND BTEX CONCENTRATIONS  
JUNE 2007

MW-1	
B	2.5
T	<1.0
E	<1.0
X	<2.0



#### LEGEND

- MW-1 Approximate Monitoring Well Location and Number
- NS Not Sampled
- GWEL Groundwater Elevation (Relative)
- TOC Top of Casing
- 49 --- Potentiometric Surface (Inferred Where Dashed)
- Direction of Groundwater Flow (Estimated)

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- X Total Xylenes ( $\mu\text{g/L}$ )

1	Issued for 2007 Report	10/10	D. Wade	N. Day	J. Smith
0	Issued For 2007 Report	08/07	D. Wade	N. Day	J. Smith
REV. No.	REVISIONS	REV. DATE	DESIGN BY	DRAWN BY	REVIEWED AND SIGNED BY
PROJECT No.: 1005521.0601					
AutoCAD FILE: Horton1E					
SCALE: As Shown					
FIGURE No: 3					

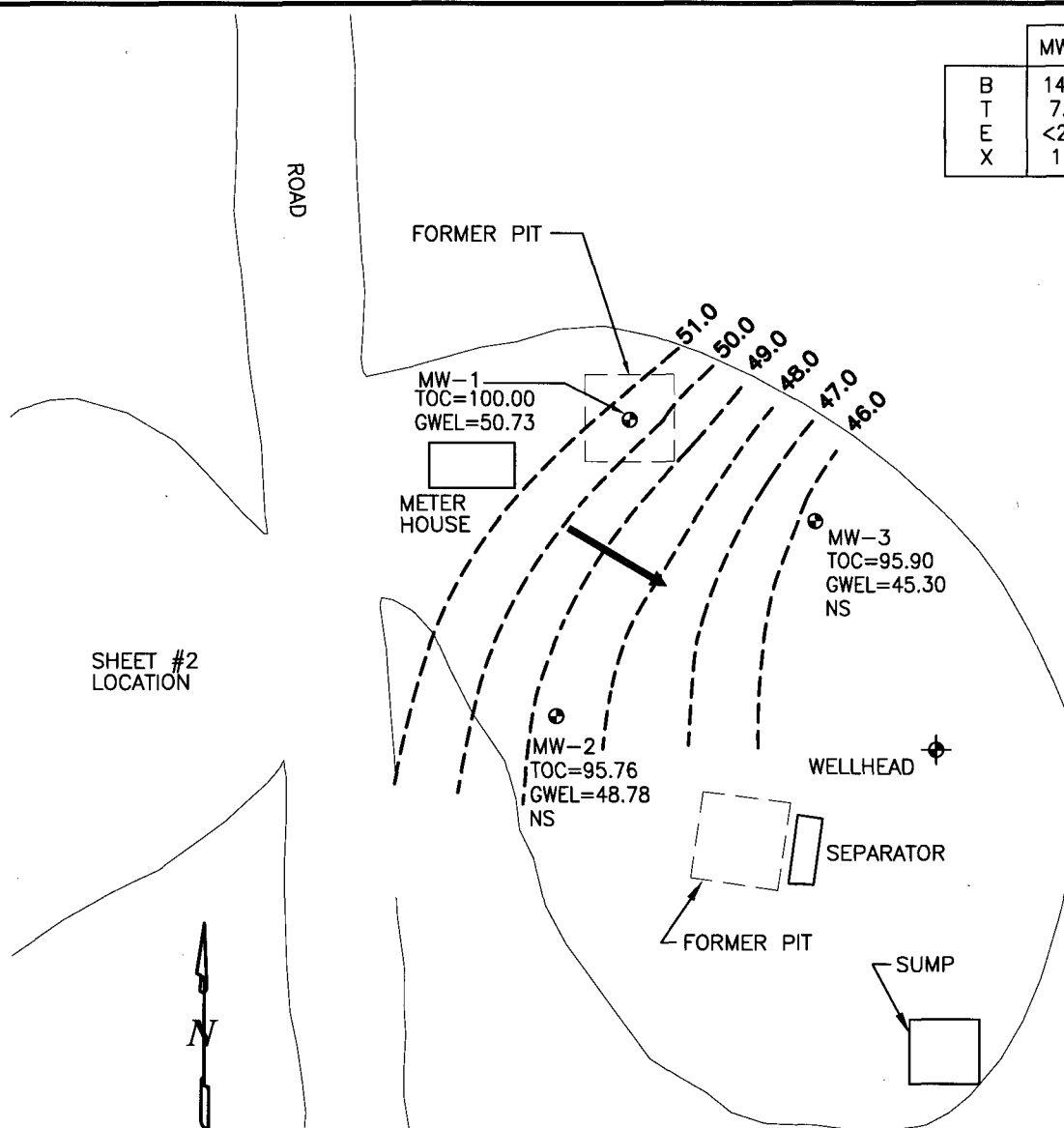


EL PASO TENNESSEE PIPELINE COMPANY  
HORTON #1E, METER 93388

GROUNDWATER POTENTIOMETRIC SURFACE  
CONTOURS AND BTEX CONCENTRATIONS  
SEPTEMBER 2007



MW-1	
B	14.2
T	7.6
E	<2.0
X	1.1



# LEGEND

- ⊙ MW-1 Approximate Monitoring Well Location and Number
- NS Not Sampled
- GWEL Groundwater Elevation (Relative)
- TOC Top of Casing
- 49 Potentiometric Surface (Inferred Where Dashed)
- Direction of Groundwater Flow (Estimated)

- B Benzene ( $\mu\text{g/L}$ )
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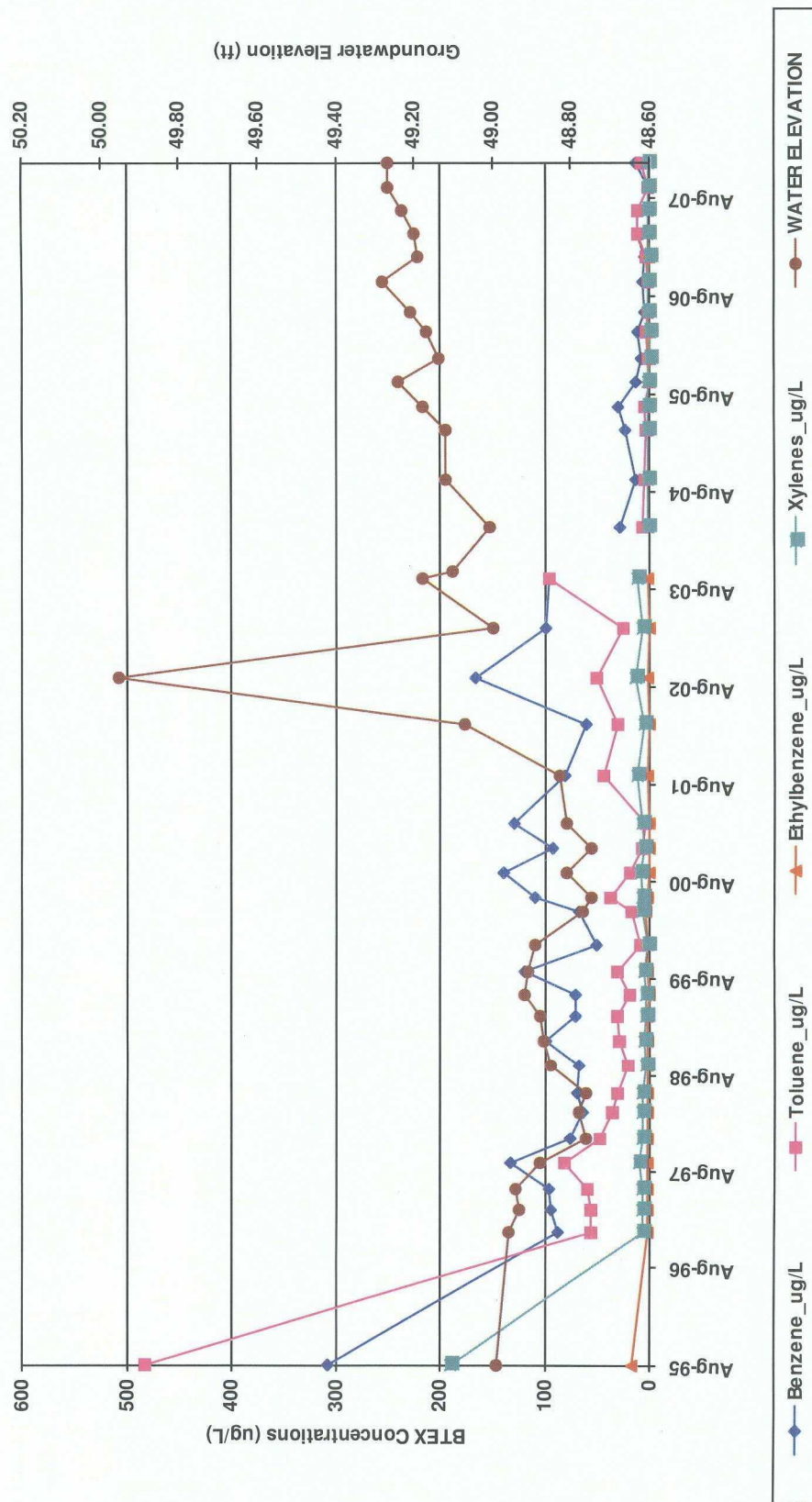
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0	Issued For 2007 Report	08/07	D. Wade	N. Day	J. Smith
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PROJECT No.: 1005521.0101					
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SCALE: As Shown					
FIGURE No: 4					



EL PASO TENNESSEE PIPELINE COMPANY  
HORTON #1E, METER 93388

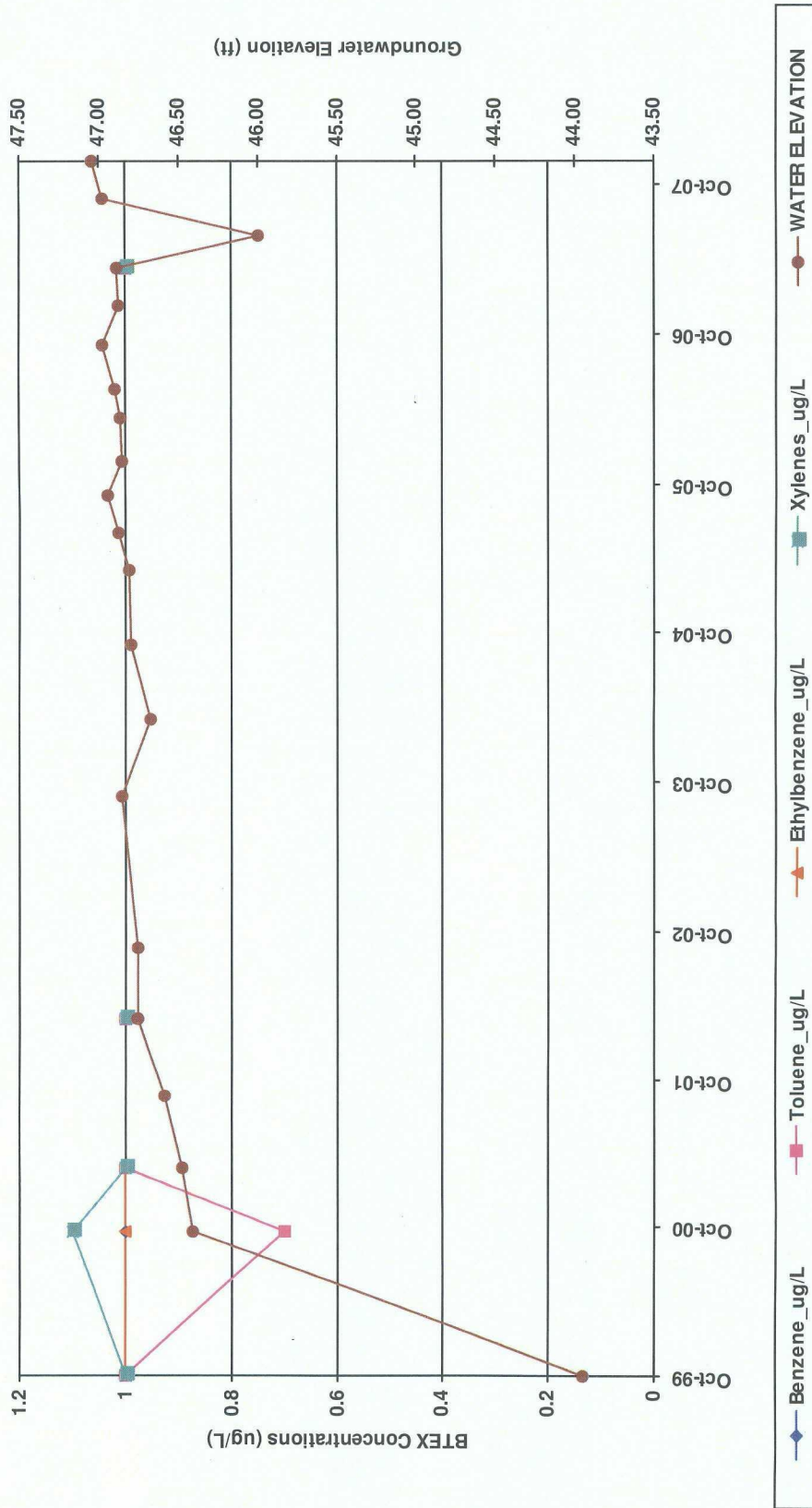
GROUNDWATER POTENTIOMETRIC SURFACE  
CONTOURS AND BTEX CONCENTRATIONS  
DECEMBER 2007

FIGURE 5  
SUMMARY OF BTEX COMPOUNDS IN GROUNDWATER SAMPLES  
HORTON #1E (METER #93388)  
MW01



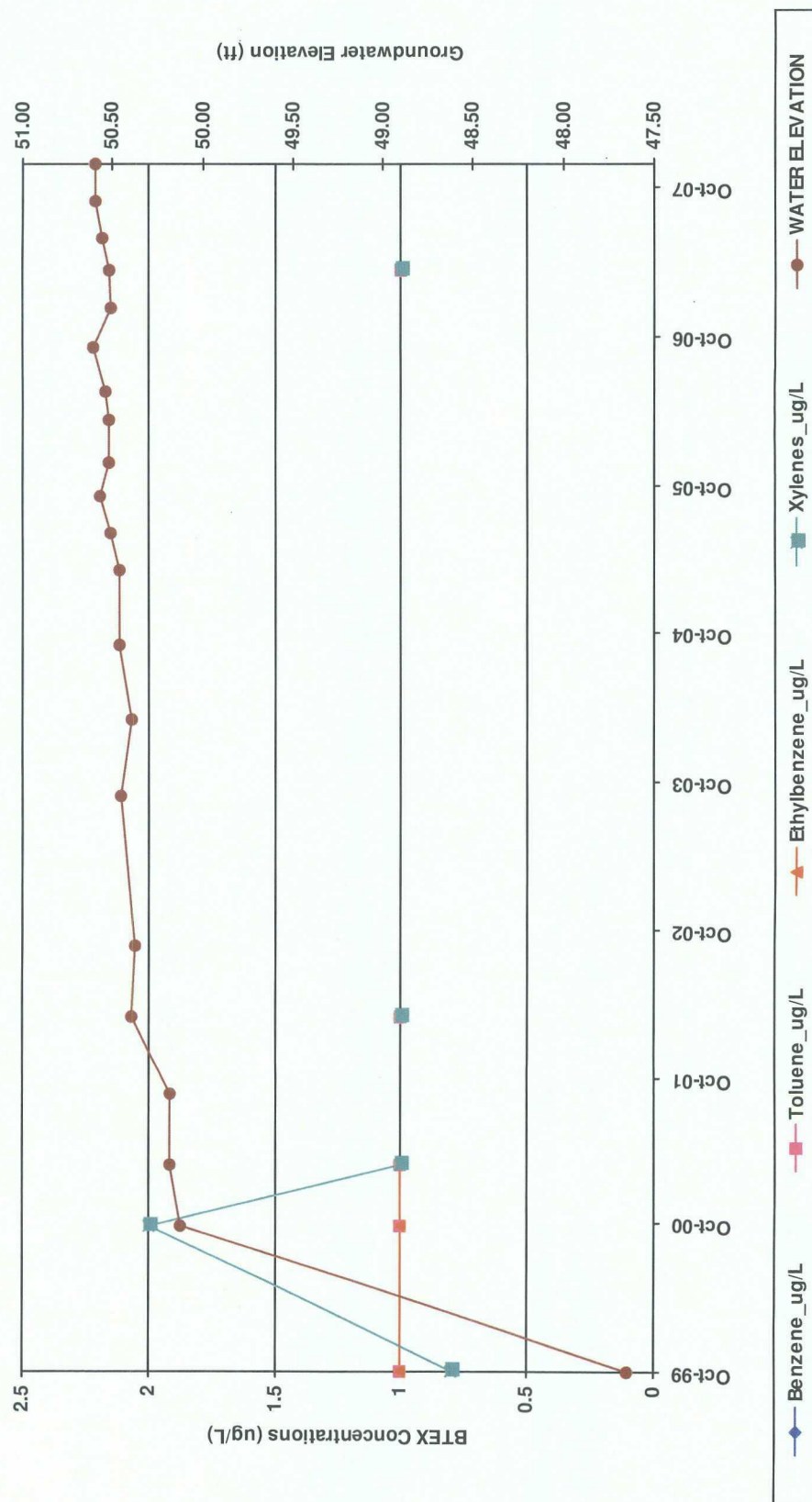
Note: Non Detects are represented by a value of 1.

FIGURE 6  
SUMMARY OF BTEX COMPOUNDS IN GROUNDWATER SAMPLES  
HORTON #1E (METER #93388)  
MW02



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

FIGURE 7  
SUMMARY OF BTEX COMPOUNDS IN GROUNDWATER SAMPLES  
HORTON #1E (METER #93388)  
MW03



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

TABLE 1

**SUMMARY OF BTEX COMPOUNDS IN GROUNDWATER SAMPLES  
HORTON #1E (METER #93388)**

<b>Monitoring Well</b>	<b>Sample Date</b>	<b>Benzene (ug/L)</b>	<b>Toluene (ug/L)</b>	<b>Ethylbenzene (ug/L)</b>	<b>Total Xylenes (ug/L)</b>	<b>Depth to Water (ft BTOC)</b>
<b>MW01</b>	8/7/1995	308	483	16.9	190	51.01
	12/17/1996	86.8	55.5	1	6.66	51.04
	3/10/1997	93.3	55.3	1.02	6.34	51.07
	6/2/1997	96.1	58.8	1.07	6.82	51.06
	9/8/1997	132	80.7	1.59	9.46	51.12
	12/10/1997	74.9	47.1	1	5.94	51.24
	3/23/1998	63.6	35.9	1	6.93	51.22
	6/4/1998	68.1	30.6	1	6.6	51.24
	9/14/1998	67.7	19.4	1	3.26	51.15
	12/17/1998	100	29	1.1	5.8	51.13
	3/23/1999	70.1	30.6	1	3	51.12
	6/11/1999	71	19	0.8	2.6	51.08
	9/2/1999	120	30	1.8	5.8	51.09
	12/9/1999	50	9.1	1	1.8	51.11
	4/12/2000	67	16	3.6	7.2	51.23
	6/9/2000	110	37	1.1	7.4	51.25
	9/8/2000	140	18	0.8	7.6	51.19
	12/11/2000	93	7.2	0.6	5.3	51.25
	3/13/2001	130	3.8	0.7	6.6	51.19
	9/7/2001	80	43	1.3	11	51.17
	3/20/2002	60	30	0.6	4.9	50.93
	9/10/2002	167	49.9	2.4	12.7	50.04
	3/14/2003	100	25.5	0.5	6.1	51.00
	9/16/2003	95.5	95.8	1.3	12.5	50.82
	3/23/2004	27.8	6.1	1	1.2	50.99
	9/22/2004	12.8	4.5	1	1	50.88
	3/23/2005	22.8	3.7	1	1.4	50.88
	6/23/2005	30.6	4.4	1	1.8	50.82
	9/20/2005	12.8	0.47	1	2	50.76
	12/14/2005	8.8	2.4	1	0.74	50.86
	3/27/2006	12.5	2.7	1	0.82	50.83
	6/7/2006	5.6	1.3	1	1	50.79
	9/25/2006	6.5	1	1	1	50.72
	12/27/2006	4.3	2.9	1	0.39	50.81
	3/28/2007	11.9	11.3	1	1.5	50.80

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

TABLE 1

**SUMMARY OF BTEX COMPOUNDS IN GROUNDWATER SAMPLES  
HORTON #1E (METER #93388)**

<b>Monitoring Well</b>	<b>Sample Date</b>	<b>Benzene (ug/L)</b>	<b>Toluene (ug/L)</b>	<b>Ethylbenzene (ug/L)</b>	<b>Total Xylenes (ug/L)</b>	<b>Depth to Water (ft BTOC)</b>
<b>MW01</b>	6/18/2007	12.6	12.5	1	2	50.77
	9/17/2007	2.5	1	1	1	50.73
	12/17/2007	14.2	7.6	1	1.1	50.73
<b>MW02</b>	10/20/1999	1	1	1	1	51.81
	10/9/2000	1	0.7	1	1.1	49.35
	3/13/2001	1	1	1	1	49.29
	3/20/2002	1	1	1	1	49.01
	3/31/2007	1	1	1	1	48.87
<b>MW03</b>	10/20/1999	1	1	1	0.8	48.25
	10/10/2000	1	1	1	2	45.78
	3/13/2001	1	1	1	1	45.72
	3/20/2002	1	1	1	1	45.50
	3/31/2007	1	1	1	1	45.38

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