

**3R - 407**

**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

3R407

**2007 ANNUAL GROUNDWATER REPORT  
NAVAJO SITES VOLUME III  
EL PASO TENNESSEE PIPELINE COMPANY**

**TABLE OF CONTENTS**

<b>METER or LINE ID</b>	<b>SITE NAME</b>	<b>TOWNSHIP</b>	<b>RANGE</b>	<b>SECTION</b>	<b>UNIT</b>
95608	Gallegos Canyon Unit #124E	28N	12W	35	N



**EPTPC GROUNDWATER SITES  
2007 ANNUAL GROUNDWATER REPORT**

**GCU #124E  
Meter Code: 95608**

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**SITE DETAILS**

<b>Legal Description:</b>	<b>Town:</b>	28N	<b>Range:</b>	12W	<b>Sec:</b>	35	<b>Unit:</b>	N
<b>NMOCD Haz Ranking:</b>	20	<b>Land Type:</b>	Navajo	<b>Operator:</b>	BP / Amoco Production			

**PREVIOUS ACTIVITIES**

<b>Site Assessment:</b>	Jan/95	<b>Excavation:</b>	Oct/95 (196 cy)	<b>Soil Boring:</b>	Mar/98
<b>Monitor Well:</b>	Jun/98	<b>Geoprobe:</b>	NA	<b>Additional MWs:</b>	*
<b>Downgradient MWs:</b>	*	<b>Replace MW:</b>	NA	<b>Quarterly Initiated:</b>	Jun/98
<b>ORC Nutrient Injection:</b>	NA	<b>Re-Excavation:</b>	NA	<b>PSH Removal Initiated:</b>	Apr/99
<b>Annual Initiated:</b>	NA	<b>Quarterly Resumed:</b>	NA	<b>PSH Removal in 2007?</b>	No

\* Attempts were made in November 2000 to install additional wells that resulted in dry holes.

**SUMMARY OF 2007 ACTIVITIES**

**MW-1:** Quarterly water level gauging and groundwater sampling were performed in 2007.

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

**SITE MAP**

Site maps (January, April, July, and October) are attached as Figures 1-4.

**SUMMARY TABLES AND GRAPHS**

- Analytical data are summarized in Table 1 and presented graphically in Figure 5.
- Product removal data are summarized in Table 2 and presented graphically in Figure 6.
- Laboratory analytical data are presented in Attachment 1 (included on CD).
- Field documentation is presented in Attachment 2 (included on CD).

**EPTPC GROUNDWATER SITES  
2007 ANNUAL GROUNDWATER REPORT**

**GCU #124E  
Meter Code: 95608**

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**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 generated for this Site. However, the attached Site maps present the 2007 water level and analytical data.

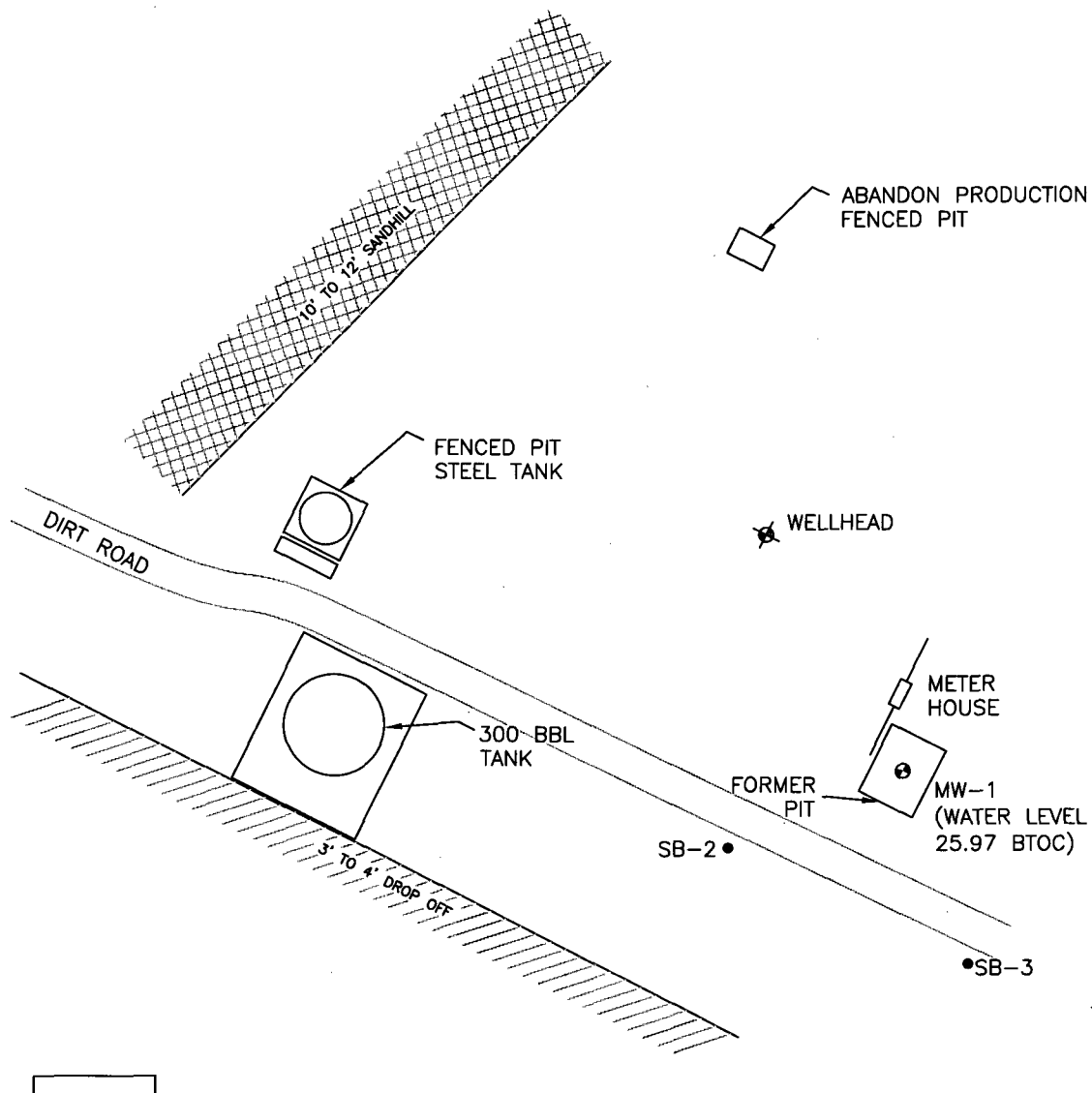
**CONCLUSIONS**

- Quarterly gauging at MW-1 did not detect any free product in the well in 2007. Free product has not been detected in the well since 2003. The majority of free-product was removed from MW-1 by 2002 (approximately 19 gallons); between 2003 and 2005, a total of only 0.03 gallons of product were removed, and an oily sheen was periodically detected on the water.
- Benzene concentrations were above the applicable standards until the four quarter of 2007. The quarterly results were 22.4 µg/L, 30.0 µg/L, 35.3 µg/L, and 9.0 µg/L for January, April, July, and October 2007, respectively. Concentrations appear to be attenuating steadily.
- Toluene, ethylbenzene, and total xylenes concentrations were below all applicable standards during 2007.

**RECOMMENDATIONS**

- Because the BTEX concentrations in MW-1 have now fallen below the their respective groundwater standards, EPTPC will continue to sample MW-1 quarterly.
- Sampling will continue on a quarterly basis until BTEX concentrations are below the applicable NNEPA/USEPA standards for three consecutive quarters and NMWQCC standards for four consecutive quarters.
- Following approval for closure by both the NNEPA/USEPA and the NMOCD, the monitoring well will be removed in accordance with the approved EPTPC Monitoring Well Abandonment Plan.





MW-1	
B	30.0
T	<1.0
E	60.6
X	407

0 60  
SCALE: 1"=60'

### LEGEND

- ⊕ MW-1 Approximate Monitoring Well Location and Number
- Dry 2000 Borehole
- BTOC Below Top of Casing (ft.) April 2007
- Direction of Groundwater Flow

- B BENZENE (μg/L)  
T TOLUENE (μg/L)  
E ETHYLBENZENE (μg/L)  
X TOTAL XYLENES (μg/L)

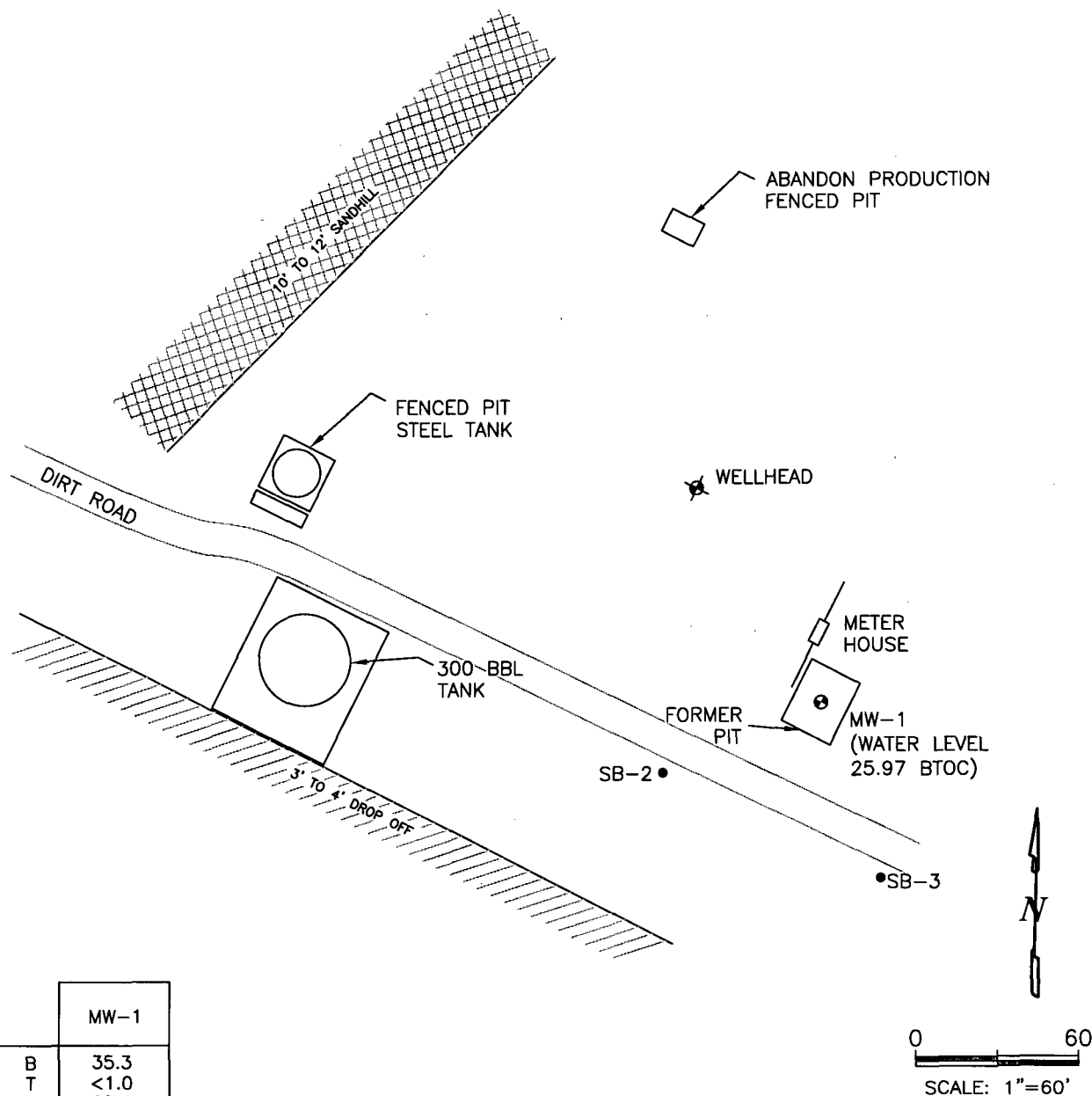
- TOC Top of Casing  
NS Not Sampled  
Product Free-Product Present  
CR Water Level Corrected for Product

1	Issued for Report	10/07	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.: 1005521.0101					
AutoCAD FILE: gallegos124e1007					
SCALE: As Shown			FIGURE No: 2		



EL PASO TENNESSEE PIPELINE COMPANY  
GALLEGOS CANYON UNIT 124E, METER 95608

**GROUNDWATER POTENTIOMETRIC SURFACE  
CONTOURS AND BTEX CONCENTRATION  
APRIL 2007**



### LEGEND

- MW-1 Approximate Monitoring Well Location and Number  
 • Dry 2000 Borehole  
 BTOC Below Top of Casing (ft.) April 2007  
 → Direction of Groundwater Flow

- B BENZENE (µg/L)  
 T TOLUENE (µg/L)  
 E ETHYLBENZENE (µg/L)  
 X TOTAL XYLENES (µg/L)

- TOC Top of Casing  
 NS Not Sampled  
 Product Free-Product Present  
 CR Water Level Corrected for Product

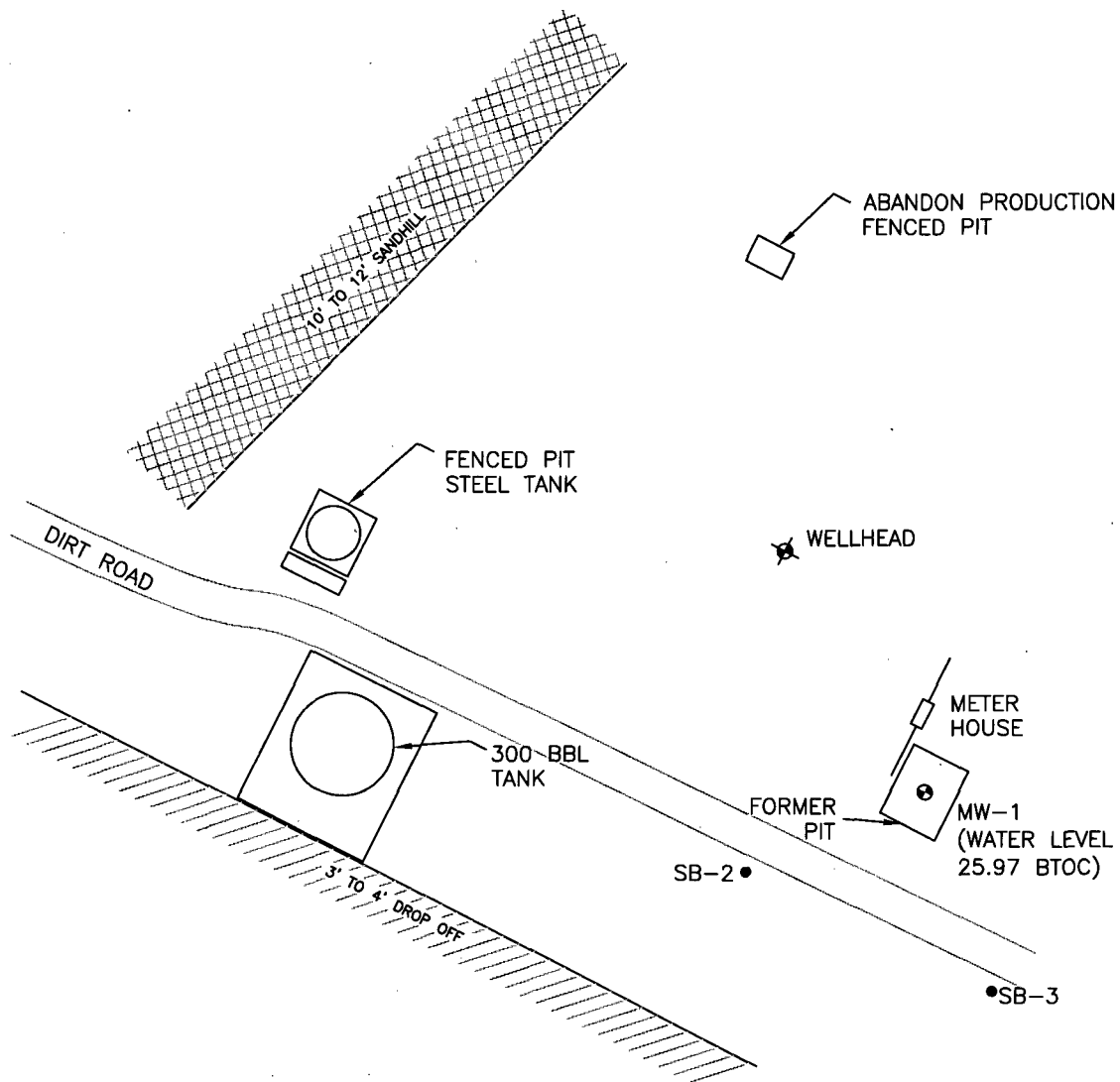
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0	Issued to Report	06-07	J. Hurley	N. Day	J. Smith
REV. No.	REVISIONS	REV. DATE	DESIGN BY	DRAWN BY	REVIEWED AND SIGNED BY
PROJECT No.: 1005521.0101					
AutoCAD FILE: gallegos124e1007					
SCALE: As Shown					
FIGURE No: 3					



EL PASO TENNESSEE PIPELINE COMPANY  
GALLEGOS CANYON UNIT 124E, METER 95608

GROUNDWATER POTENTIOMETRIC SURFACE  
CONTOURS AND BTEX CONCENTRATION  
JULY 2007





MW-1	
B	9.0
T	<1.0
E	33.2
X	173

### LEGEND

- ⊙ MW-1 Approximate Monitoring Well Location and Number
- Dry 2000 Borehole
- BTOC Below Top of Casing (ft.) April 2007
- Direction of Groundwater Flow

- B BENZENE (μg/L)
- T TOLUENE (μg/L)
- E ETHYLBENZENE (μg/L)
- X TOTAL XYLENES (μg/L)

- TOC Top of Casing
- NS Not Sampled
- Product Free-Product Present
- CR Water Level Corrected for Product

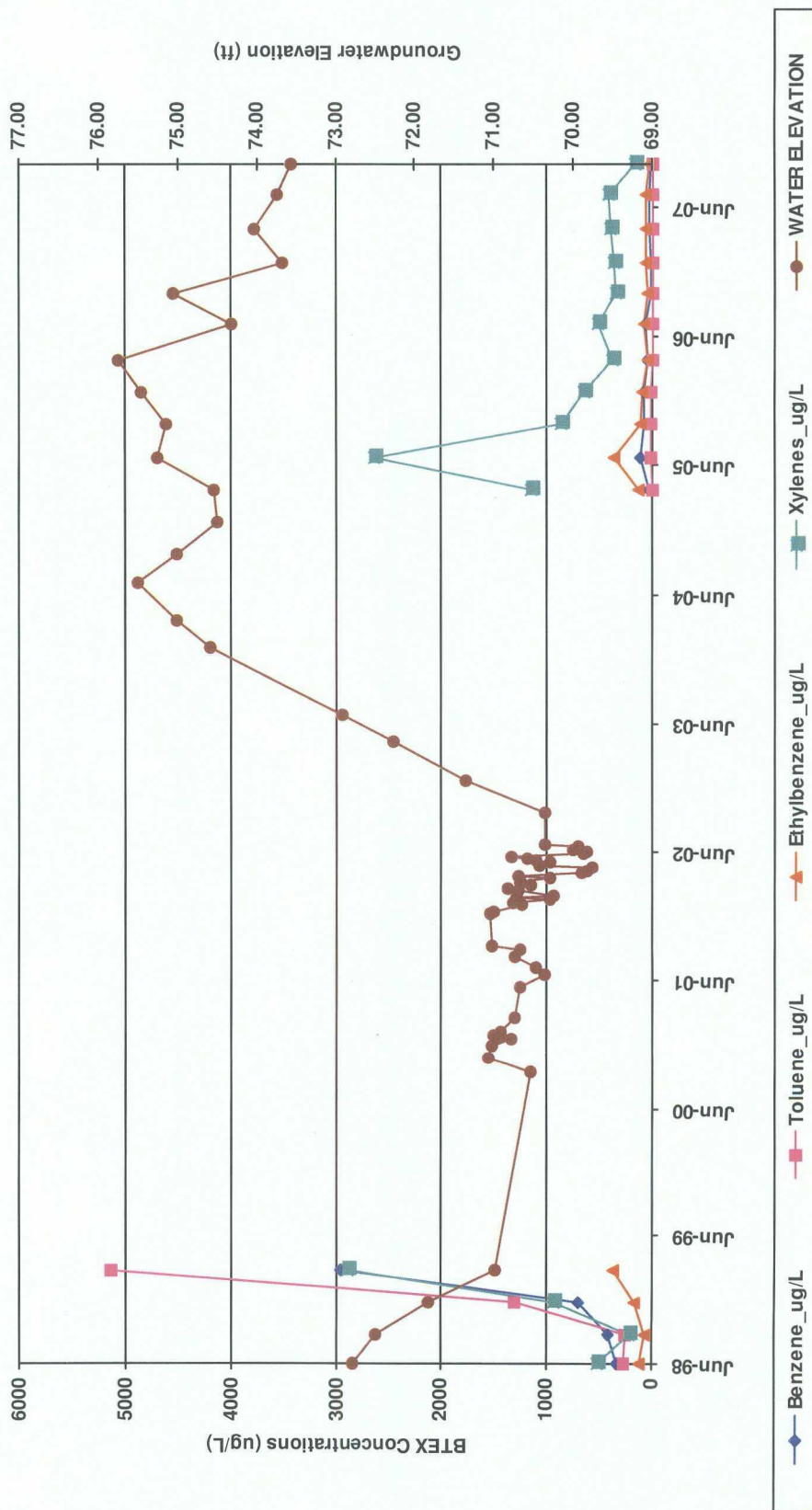
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REV. No.	REVISIONS	REV. DATE	DESIGN BY	DRAWN BY	REVIEWED AND SIGNED BY
PROJECT No.: 1005521.0101					
AutoCAD FILE: gallegos124e1007					
SCALE: As Shown					
FIGURE No: 4					



EL PASO TENNESSEE PIPELINE COMPANY  
GALLEGOS CANYON UNIT 124E, METER 95608

**GROUNDWATER POTENTIOMETRIC SURFACE  
CONTOURS AND BTEX CONCENTRATION  
OCTOBER 2007**

FIGURE 5  
SUMMARY OF BTEX COMPOUNDS IN GROUNDWATER SAMPLES  
GCU #124E (METER #95608)  
MW01



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

FIGURE 6  
SUMMARY OF FREE-PRODUCT REMOVAL  
GCU #124E (METER #95608)  
MW01

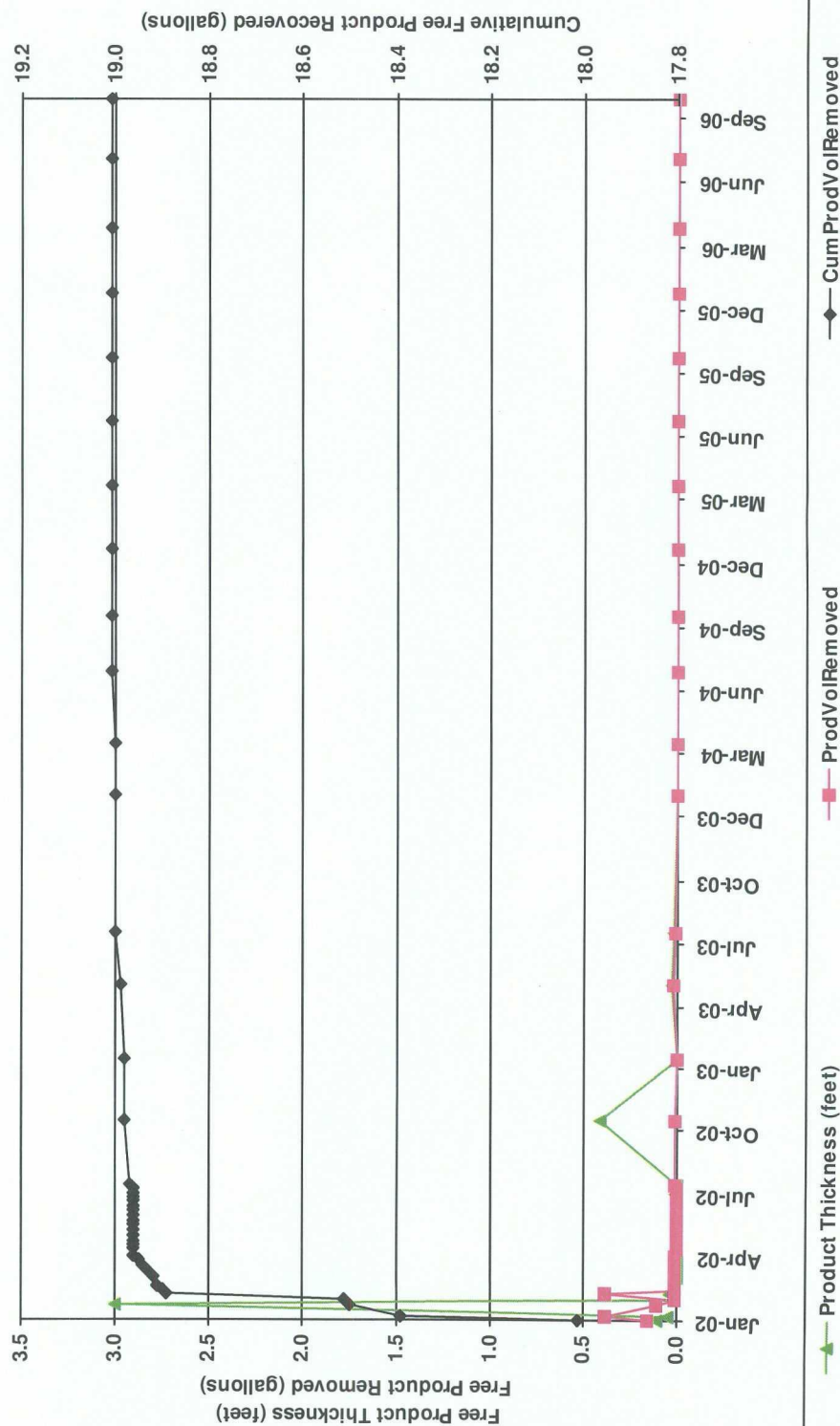


TABLE 1

**SUMMARY OF BTEX COMPOUNDS IN GROUNDWATER SAMPLES**  
**GCU #124E (METER #95608)**

Monitoring Well	Sample Date	Benzene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	Total Xylenes (ug/L)	Depth to Water (ft BTOC)
MW01	6/25/1998	340	271	111	510	27.21
	9/14/1998	410	251	68.3	220	27.50
	12/15/1998	710	1300	160	940	28.16
	3/16/1999	2960	5130	367	2890	29.02
	4/19/2005	38.8	1	142	1160	25.45
	7/20/2005	125	11.4	371	2640	24.73
	10/20/2005	86.8	11.3	125	864	24.85
	1/19/2006	77.9	12	101	656	24.53
	4/24/2006	45.1	3.5	56.1	377	24.25
	7/31/2006	60.8	1.5	79.3	524	25.68
	10/24/2006	21.1	1	56.6	349	24.94
	1/19/2007	22.4	1	60	367	26.33
	4/24/2007	30.3	1	60.6	407	25.97
	7/31/2007	35.3	1	68.4	416	26.26
	10/25/2007	9	1	33.2	173	26.44

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

**TABLE 2**  
**SUMMARY OF FREE-PRODUCT REMOVAL**  
**GCU #124E (METER #95608)**

Monitoring Well	Removal Date	Depth to Product (feet btoc)	Depth to Water (feet btoc)	Product Thickness (feet)	Volume Removed (gallons)	Cumulative Volume of Product Removed (gallons)
MW01	1/2/2002	28.85	28.96	0.11	0.16	18.01
	1/7/2002	28.94	28.99	0.05	0.38	18.39
	1/23/2002	26.35	29.35	3.00	0.11	18.50
	1/30/2002	29.22	29.24	0.02	0.01	18.51
	2/7/2002	29.66	29.7	0.04	0.38	18.89
	2/14/2002	29.28	29.29	0.01	0.01	18.90
	2/20/2002	29.75	29.76	0.01	0.01	18.91
	3/4/2002		29.3	0	0.01	18.92
	3/11/2002		29.17	0	0.01	18.93
	3/21/2002		29.47	0	0.01	18.94
	3/28/2002		29.33	0	0.01	18.95
	4/3/2002		29.33	0	0.01	18.96
	4/12/2002		29.7	0	0	18.96
	4/18/2002		29.31	0	0	18.96
	4/25/2002		30.11	0	0	18.96
	5/3/2002		30.18	0	0	18.96
	5/10/2002		30.25	0	0	18.96
	5/17/2002		29.57	0	0	18.96
	5/24/2002		29.7	0	0	18.96
	5/31/2002		29.54	0	0	18.96
	6/7/2002		29.42	0	0	18.96
	6/12/2002		29.21	0	0	18.96
	6/21/2002		30.12	0	0	18.96
	6/27/2002		30.18	0	0	18.96
	7/2/2002	29.98	29.99	0.01	0	18.96
	7/11/2002		30.06	0	0	18.96
	7/15/2002		29.63	0	0.01	18.97
	10/16/2002	29.24	29.65	0.41	0.01	18.98
	1/15/2003		28.63	0	0	18.98
	5/5/2003	27.69	27.72	0.03	0.02	18.99
	7/18/2003	27.06	27.08	0.02	0.01	19.00
	1/29/2004		25.4	0	0	19.00
	4/15/2004		24.98	0	0.004	19.00
	7/26/2004		24.5	0	0.004	19.01
	10/15/2004		24.98	0	0	19.01
	1/17/2005		25.49	0	0	19.01
	4/19/2005		25.45	0	0	19.01
	7/20/2005		24.73	0	0	19.01
	10/20/2005		24.85	0	0	19.01

**TABLE 2****SUMMARY OF FREE-PRODUCT REMOVAL  
GCU #124E (METER #95608)**

<b>Monitoring Well</b>	<b>Removal Date</b>	<b>Depth to Product (feet btoc)</b>	<b>Depth to Water (feet btoc)</b>	<b>Product Thickness (feet)</b>	<b>Volume Removed (gallons)</b>	<b>Cumulative Volume of Product Removed (gallons)</b>
<b>MW01</b>	1/19/2006		24.53	0	0	19.01
	4/24/2006		24.25	0	0	19.01
	7/31/2006		25.68	0	0	19.01
	10/24/2006		24.94	0	0	19.01