

**3R - 204**

**ANNUAL  
MONITORING  
REPORT**

**03/17/2006**

**RECEIVED**

**2005 ANNUAL GROUNDWATER REPORT  
FEDERAL SITES VOLUME I**

**EL PASO TENNESSEE PIPELINE COMPANY MAR 17 2006**

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	3R170
89232	Johnston Fed #6A	31N	09W	35	F	3R202
94715	James F. Bell #1E	30N	13W	10	P	3R196
89620	Sandoval GC A #1A	30N	09W	35	C	3R235
LD151	Lat 0-21 Line Drip	30N	09W	12	O	3R213
73220	Fogelson 4-1 Com. #14	29N	11W	4	P	3R068
97213	Hamner #9	29N	09W	20	A	3R190
LD174	LAT L 40	28N	04W	13	H	3R212
89894	Hammond #41A	27N	08W	25	O	3R186
94810	Miles Fed 1A	26N	07W	5	F	3R223
LD072	K27 LD072	25N	06W	4	E	3R204?
87640	Canada Mesa #2	24N	06W	24	I	3R155



**MWH**  
MONTGOMERY WATSON HARZA

## LIST OF ACRONYMS

B	benzene
btoc	below top of casing
E	ethylbenzene
EPFS	El Paso Field Services
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

3R 204

**EPTPC GROUNDWATER SITES  
2005 ANNUAL GROUNDWATER REPORT**

**K27  
Meter Code: LD072**

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**SITE DETAILS**

<b>Legal Description:</b>	<b>Town:</b> 25N	<b>Range:</b> 6W	<b>Sec:</b> 4	<b>Unit:</b> E
<b>NMOCD Haz Ranking:</b> 40	<b>Land Type:</b> Federal	<b>Operator:</b> Enterprise		

**PREVIOUS ACTIVITIES**

<b>Site Assessment:</b> 7/94	<b>Excavation:</b> 8/94	<b>Soil Boring:</b> 9/99
<b>Monitor Well:</b> 9/95	<b>Geoprobe:</b> 9/95	<b>Additional MWs:</b> 12/99
<b>Downgradient MWs:</b> 12/99	<b>Replace MW:</b> 7/00	<b>Quarterly Initiated:</b> NA
<b>ORC Nutrient Injection:</b> NA	<b>Re-Excavation:</b> NA	<b>PSH Removal Initiated:</b> 2/98
<b>Annual Initiated:</b> NA	<b>Quarterly Resumed:</b> NA	

**SUMMARY OF 2005 ACTIVITIES**

- MW-1:** Quarterly free-product recovery activities and water level monitoring were performed in 2005.
- MW-2:** Quarterly free-product recovery activities and water level monitoring were performed in 2005.
- MW-3:** Quarterly water level monitoring was performed in 2005. Natural attenuation parameter sampling was performed in October 2005.

**Site-Wide Activities:** A technology review and data assessment were performed to evaluate free-product removal protocol and methodologies for sites with free product. The need for additional investigation was evaluated. A plan was developed to gather additional information to include potential up gradient sources, geoprobing, natural attenuation potential, and downgradient delineation was also performed in 2005. Right of way and access grants for geoprobe investigation were prepared and obtained in 2005; permits and access grants for additional monitoring well installation were prepared for submittal in 2006.

**SITE MAPS**

Site maps (November and showing TMW-4 and TMW-5) are attached in Figures 1 and 2.

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**SUMMARY TABLES AND GRAPHS**

- Historic BTEX concentrations and groundwater elevations for MW-1, MW-2 and MW-3 are presented graphically in Figures 3 through 5.
- Analytical data from 2005 are summarized in Table 1.
- Free-product removal data for 2005 are summarized in Table 2, and historic data are presented graphically in Figures 6 and 7.
- 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 performed at this site during 2005.

**DISPOSITION OF GENERATED WASTES**

All purge water was taken to the El Paso Natural Gas Rio Vista Compressor Station. Phase separated hydrocarbons are stored in a 55 gallon drum and are periodically picked up by Mesa Oil for recycling.

**ISOCONCENTRATION MAPS**

No isoconcentration maps were prepared for this site, however, the attached site maps present water level data collected during 2005.

**CONCLUSIONS**

- The groundwater flow direction is approximately to the north (varies between northeast to northwest) at this site.
- Approximately 0.32 gallons of free-product was removed from MW-1 during 2005 bringing the cumulative total of recovered hydrocarbons at this well to 2.34 gallons since 2001. A similar amount of product was removed in 2004.
- Approximately 1.56 gallons of free-product was removed from MW-2 during 2005 bringing the cumulative total of recovered hydrocarbons at this well to 7.39 gallons since 2001. A similar amount of product was removed in 2004.
- Oil absorbent socks were installed in MW-1 and MW-2 during the April 2005 monitoring event.
- Based on the technology review and free product removal data for this site, it was

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concluded that oil absorbent socks are the most efficient and cost-effective product removal technique for MW-1 and MW-2 at this time.

- The high concentration of sulfate in MW-3 (7,280 mg/L) during the November 2005 sampling event indicates conditions are favorable for natural attenuation at this site.

**RECOMMENDATIONS**

- EPTPC will continue quarterly free-product recovery efforts at MW-1 and MW-2; however, the frequency of monitoring will be adjusted based on the amount of product recovered during the monitoring visits.
- EPTPC will continue to monitor groundwater levels on a quarterly basis at MW-3.
- Once free-product recovery efforts are completed at this site, each well will be sampled on an annual basis until sample results approach closure criteria. The wells will then be scheduled for quarterly sampling until closure criteria are met.
- In order to assess possible upgradient sources of contamination, as well as the extent of impact downgradient of MW-3, EPTPC will conduct a geoprobe investigation in January 2006.
- Based on the results of the geoprobe investigation, EPTPC will attempt to install temporary monitoring wells TMW-4 north of MW-1, and TMW-5 northwest of MW-2 (shown on Figure 2).
- A slug test will be conducted at MW-3 in March 2006 in order to assess hydraulic conductivity at this site.

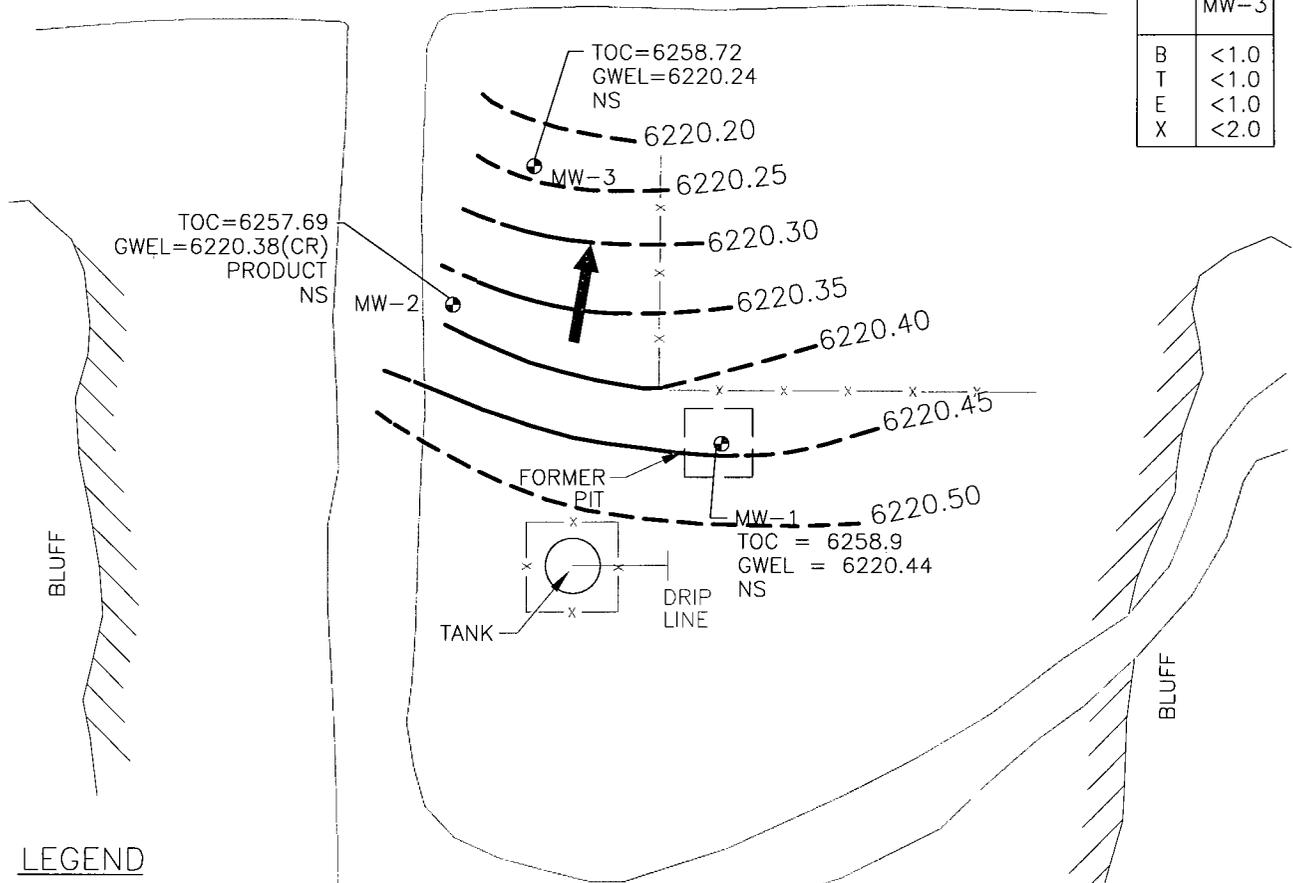
LARGO WASH

WFS DOGIE STATION

LARGO ROAD

MW-1	1/25/05	4/14/05	7/19/05	10/12/05
Product Removed (Gallons)	0.03	0.09	0.20	0.16

	MW-3
B	<1.0
T	<1.0
E	<1.0
X	<2.0



LEGEND

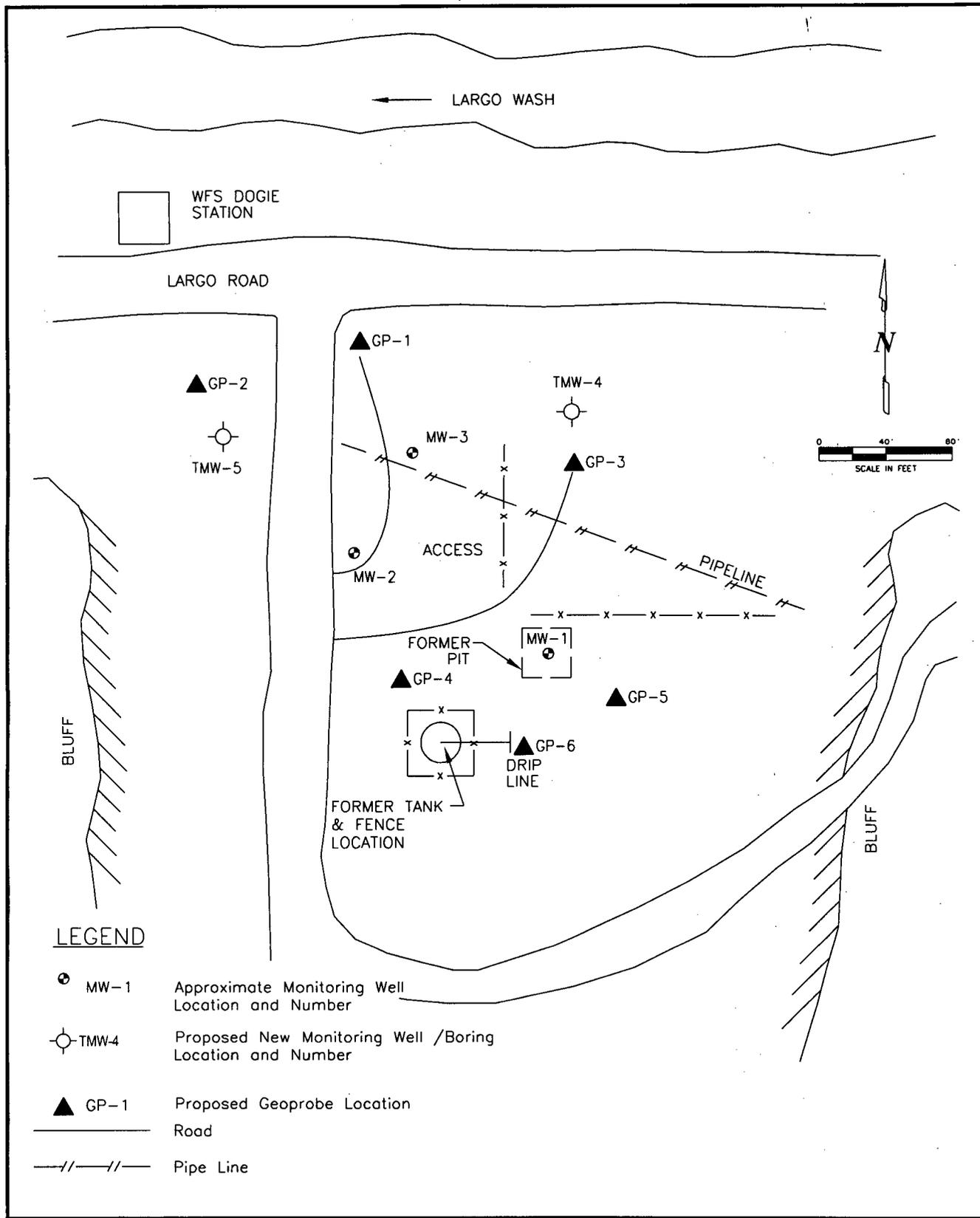
- MW-1 Approximate Monitoring-Well Location and Number
- Road
- Fence Line
- Pipe Line
- 6566.0 Potentiometric Surface (Assumed Where Dashed)
- Direction of Groundwater Flow
- GWEL Groundwater Elevation (FT Above Mean Sea Level Unless Noted Otherwise)
- TOC Top of Casing
- Product
- NS Not Sampled
- CR Water Level Has Been Corrected for Free-Product
- 0 40 SCALE: 1"=40'

K-27 LINE DRIP, METER LD072  
OCTOBER 2005

GROUNDWATER SITES  
EL PASO TENNESSEE PIPELINE COMPANY

FIGURE 1

K27LD\_10-05.dwg



k27ld\_02.dwg

K-27 LINE DRIP, METER LD072  
 PROPOSED NEW MONITORING WELL LOCATIONS

GROUNDWATER SITES  
 EL PASO TENNESSEE PIPELINE COMPANY

FIGURE 2

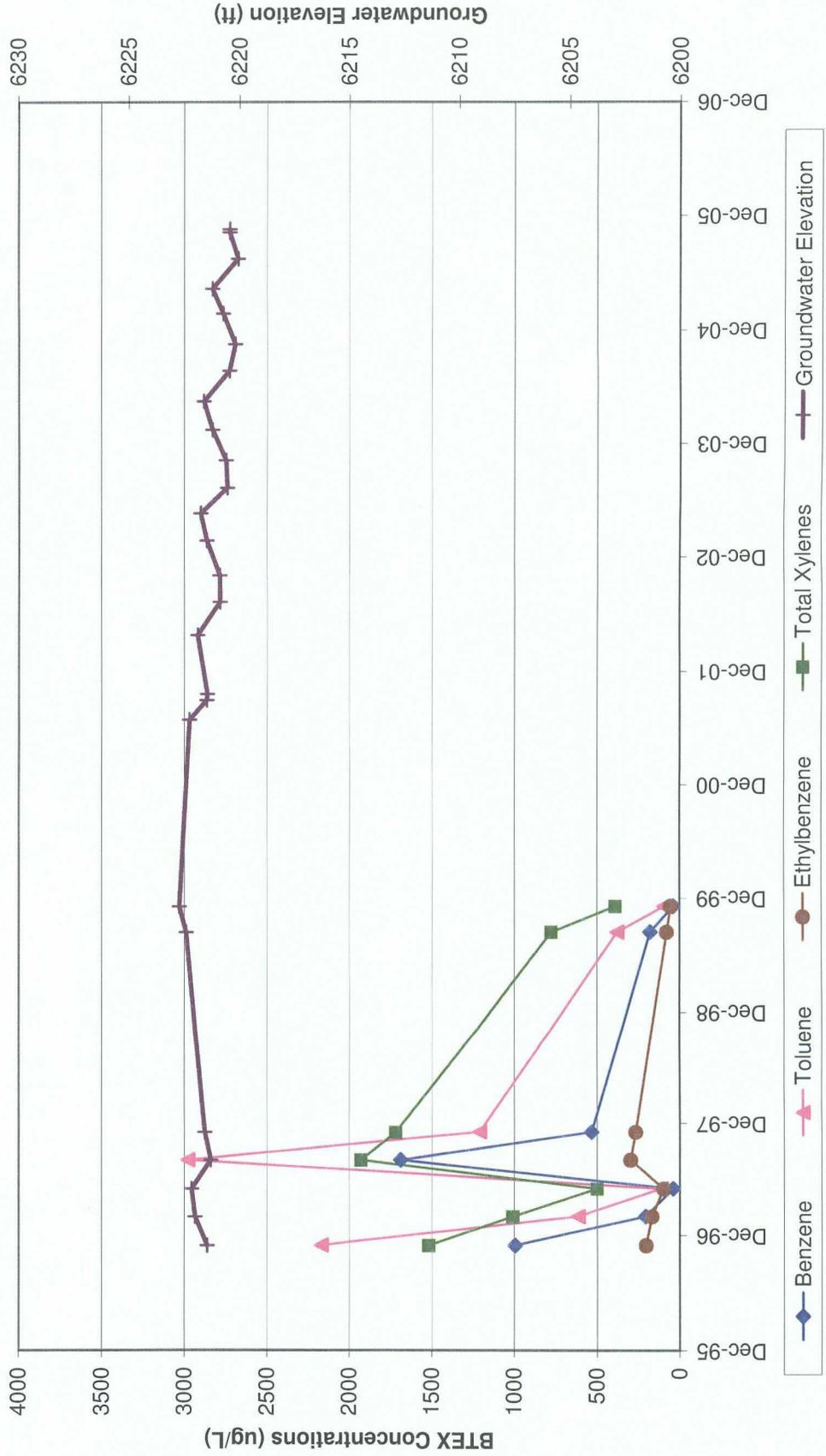
TABLE 1  
 SUMMARY OF BTEX COMPOUNDS IN 2005 GROUNDWATER SAMPLES  
 K27 LD072 (METER #LD072)

Site Name	Sample Date	MW#	Benzene	Toluene	Ethylbenzene	Total Xylenes	Depth to Water	TOC Elevation	GW Elevation (ft)
K27	10/21/2005	3	<1.0	<1.0	<1.0	<2.0	38.48	6258.72	6220.24

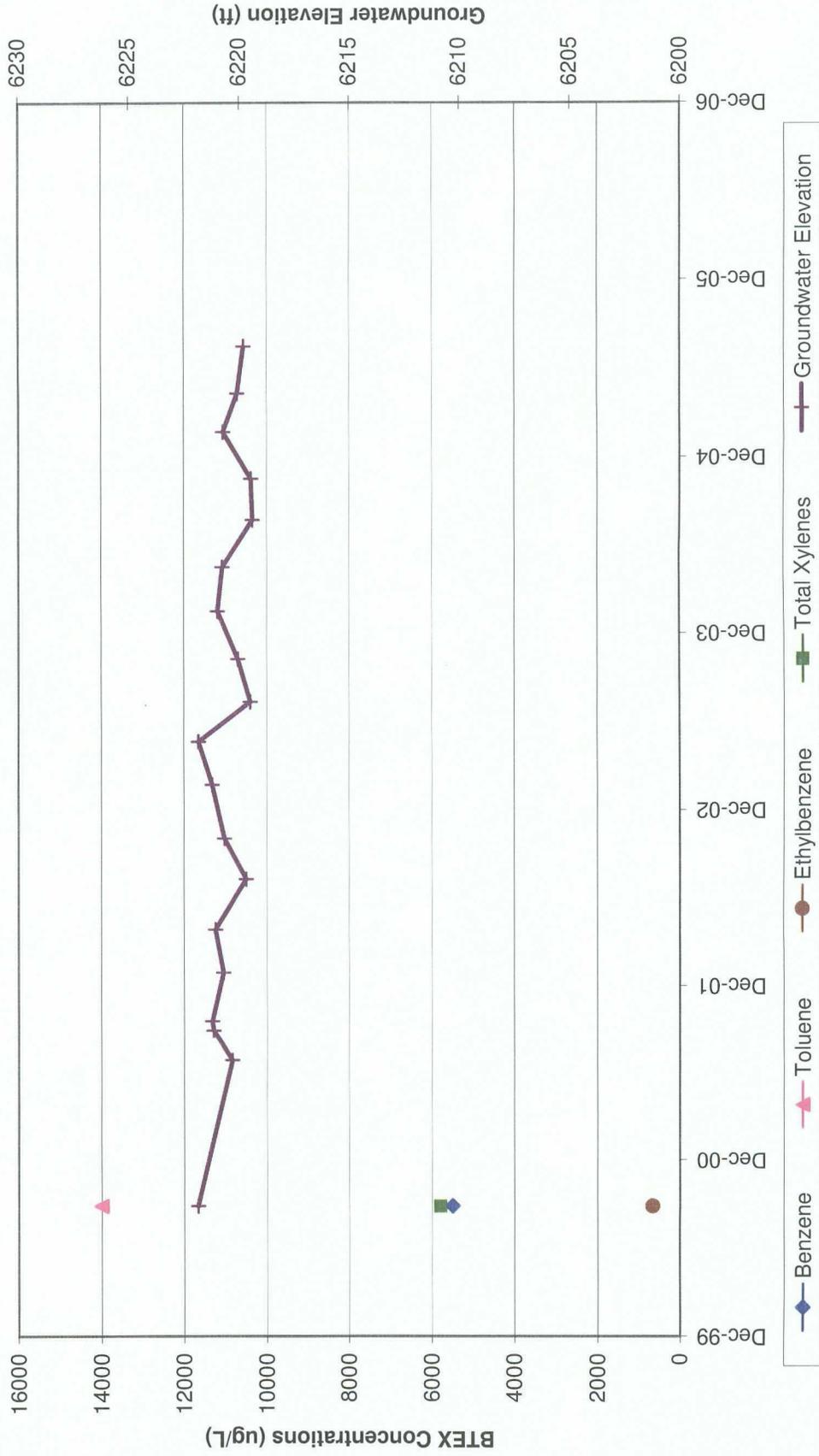
**TABLE 2**  
**SUMMARY OF FREE-PRODUCT REMOVAL DURING 2005**  
**K27 LD072 (METER #LD072)**

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)
K27 LD072	MW-1	1/25/05	38.155	38.18	0.03	0.03	2.05
K27 LD072	MW-1	4/14/05	37.84	37.75	0.09	0.09	2.14
K27 LD072	MW-1	7/19/05	0	38.84	0.00	0.20	2.34
K27 LD072	MW-2	1/25/05	36.77	37.9	1.16	0.61	6.44
K27 LD072	MW-2	4/14/05	36.55	37.88	0.33	0.08	6.52
K27 LD072	MW-2	7/19/05	37.55	38.16	0.61	0.12	6.64
K27 LD072	MW-2	10/21/05	37.06	38.31	1.25	0.75	7.39

**FIGURE 3**  
**HISTORIC BTEX CONCENTRATIONS AND GROUNDWATER ELEVATIONS**  
**K27 LD072**  
**MW-1**



**FIGURE 4**  
**HISTORIC BTEX CONCENTRATIONS AND GROUNDWATER ELEVATIONS**  
**K27 LD072**  
**MW-2**



**FIGURE 5**  
**HISTORIC BTEX CONCENTRATIONS AND GROUNDWATER ELEVATIONS**  
**K27 LD072**  
**MW-3**

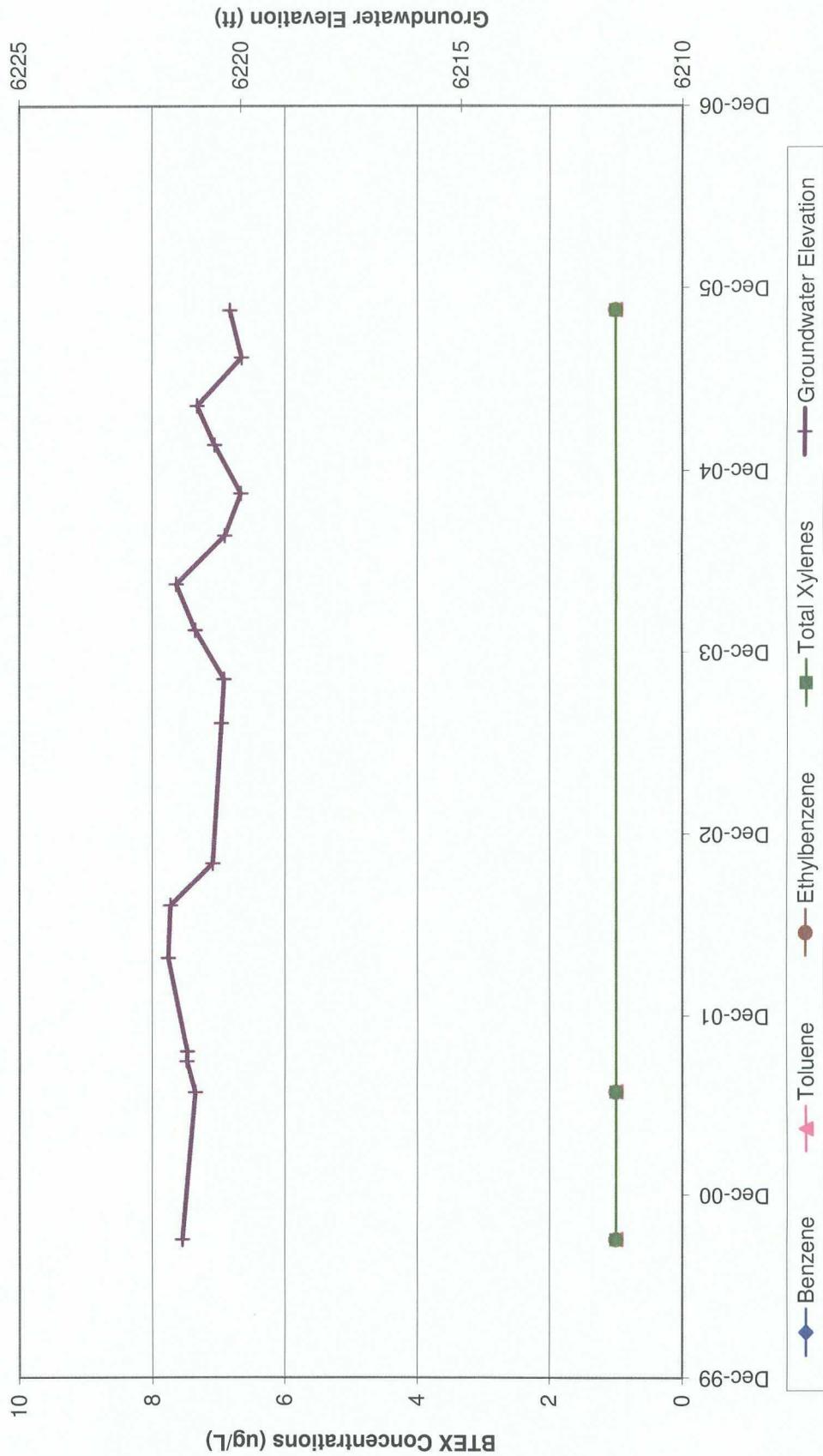


FIGURE 6  
 HISTORIC FREE-PRODUCT RECOVERY  
 K27 LD072  
 MW-1

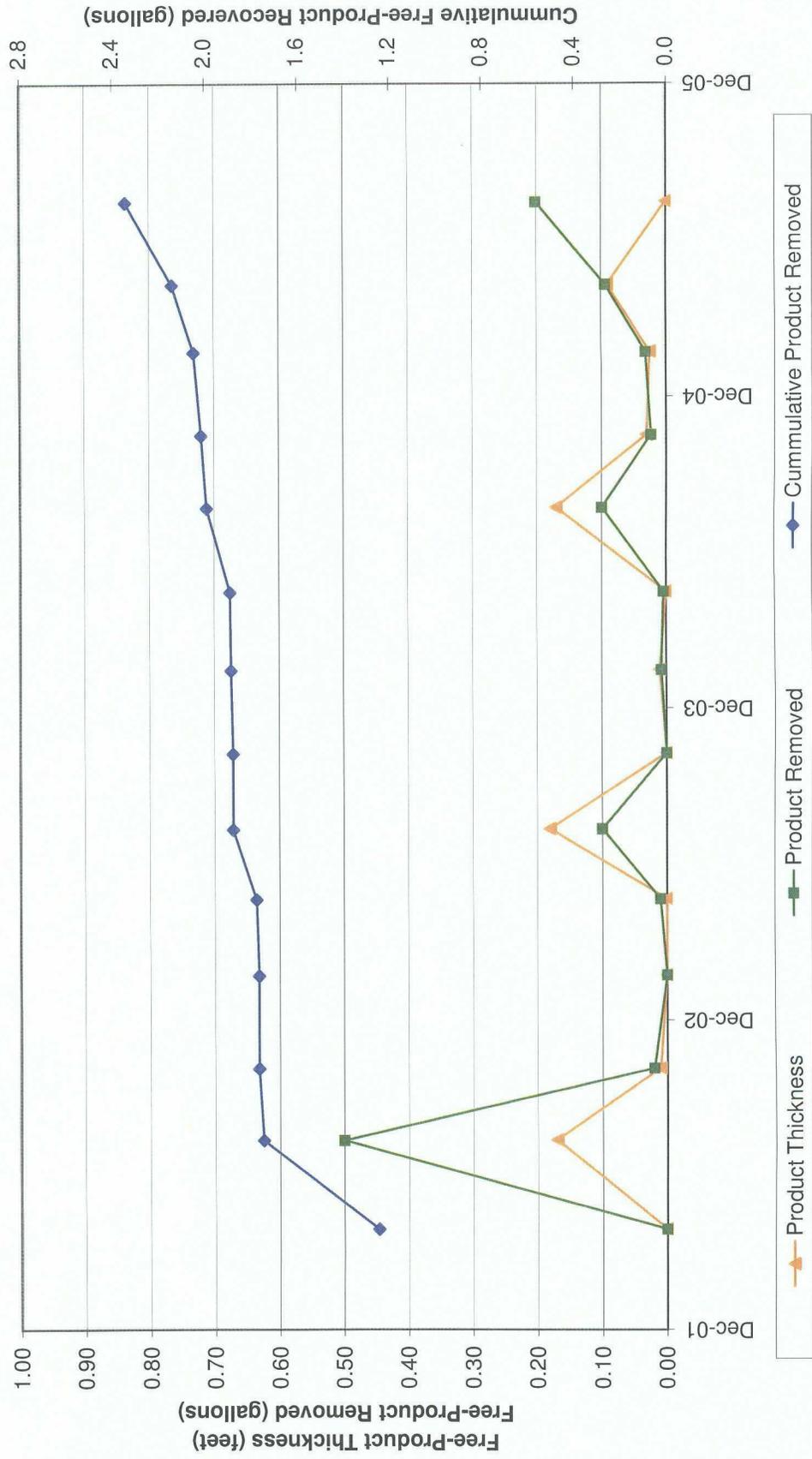


FIGURE 7  
 HISTORIC FREE-PRODUCT RECOVERY  
 K27 LD072  
 MW-2

