

**3R - 204**

**ANNUAL  
MONITORING  
REPORT**

**2/28/2009**

**MWH****BUILDING A BETTER WORLD**

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February 28, 2009

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  
2008 Annual Reports**

Dear Mr. Von Gonten:

MWH Americas, Inc., on behalf of El Paso Tennessee Pipeline Company (EPTPC), is submitting the enclosed 2008 Annual Reports for each of EPTPC's 21 remaining San Juan River Basin pit groundwater remediation Sites. The reports present the 2008 sampling and product recovery data and include recommendations for 2009 activities at these Sites.

The 2008 Annual Reports are divided into three volumes based on location type. The volumes are as follows:

Volume    Location Type

- |   |  |
|---|--|
| 1 | Federal Land                           |
| 2 | Non-Federal Land (Excl. Navajo Nation) |
| 3 | Navajo Nation                          |

If you have any questions concerning the enclosed reports, please call either Doug Stavinoha of EPTPC (713-420-5150) or me (303-291-2276).

Sincerely,

Jed Smith  
Project Manager

encl.

cc: Bill Freeman – NNEPA, Shiprock, NM (Volume 3 Only)  
Bill Liese – BLM, Farmington, NM (Volume 1 Only)  
Brandon Powell – NMOCD, Aztec, NM (Volumes 1, 2, and 3)  
Doug Stavinoha – EPTPC (Volumes 1, 2, and 3)

**2008 ANNUAL GROUNDWATER REPORT  
FEDERAL SITES VOLUME I  
EL PASO TENNESSEE PIPELINE COMPANY**

**TABLE OF CONTENTS**

<b>METER or LINE ID</b>	<b>NMOCD CASE NO.</b>	<b>SITE NAME</b>	<b>TOWNSHIP</b>	<b>RANGE</b>	<b>SECTION</b>	<b>UNIT</b>
87640	3RP-155-0	Canada Mesa #2	24N	06W	24	I
89961	3RP-170-0	Fields A#7A	32N	11W	34	E
73220	3RP-068-0	Fogelson 4-1 Com. #14	29N	11W	4	P
89894	3RP-186-0	Hammond #41A	27N	08W	25	O
97213	3RP-190-0	Hamner #9	29N	09W	20	A
94715	3RP-196-0	James F. Bell #1E	30N	13W	10	P
70194	3RP-201-0	Johnston Fed #4	31N	09W	33	H
89232	3RP-202-0	Johnston Fed #6A	31N	09W	35	F
LD072	3RP-204-0	K27 LD072	25N	06W	4	E
LD174	3RP-212-0	LAT L 40	28N	04W	13	H
LD151	3RP-213-0	Lat 0-21 Line Drip	30N	09W	12	O
94810	3RP-223-0	Miles Fed 1A	26N	07W	5	F
89620	3RP-235-0	Sandoval GC A #1A	30N	09W	35	C



**MWH**

**2008 ANNUAL GROUNDWATER REPORT  
NON-FEDERAL SITES VOLUME II  
EL PASO TENNESSEE PIPELINE COMPANY**

**TABLE OF CONTENTS**

<b>METER or LINE ID</b>	<b>NMOCD CASE NO.</b>	<b>SITE NAME</b>	<b>TOWNSHIP</b>	<b>RANGE</b>	<b>SECTION</b>	<b>UNIT</b>
03906	3RP-179-0	GCU Com A #142E	29N	12W	25	G
93388	3RP-192-0	Horton #1E	31N	09W	28	H
LD087	3RP-205-0	K-31 Line Drip	25N	06W	16	N
72556	3RP-207-0	Knight #1	30N	13W	5	A
94967	3RP-214-0	*Lindrith B #24	24N	03W	9	N
70445	3RP-074-0	Standard Oil Com #1	29N	09W	36	N
71669	3RP-239-0	State Gas Com N #1	31N	12W	16	H

\* Lindrith B#24 Site was submitted for closure in 2006, and is pending approval from NMOCD.  
There were no activities for this site in 2008.



**EPTPC GROUNDWATER SITES  
2008 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	<b>PSH Removal in 2008?</b>	Yes

**SUMMARY OF 2008 ACTIVITIES**

**MW-1:** Annual groundwater sampling (October) and quarterly water level monitoring were performed during 2008.

**MW-2:** Quarterly free-product recovery activities and water level monitoring were performed during 2008.

**MW-3:** Annual groundwater sampling (October) and quarterly water level monitoring were performed during 2008.

**TMW-5:** Annual groundwater sampling (October) and quarterly water level monitoring were performed during 2008.

**Site-Wide Activities:** No other activities were performed at this Site during 2008.

**SITE MAP**

A Site map (October) is attached as Figure 1.

**SUMMARY TABLES AND GRAPHS**

- Historic analytical and water level data are summarized in Table 1 and presented graphically in Figures 2 through 5. Where applicable, static water level elevations were corrected for measurable thicknesses of free-product (specific gravity of 0.8).

**EPTPC GROUNDWATER SITES  
2008 ANNUAL GROUNDWATER REPORT**

**K27**

**Meter Code: LD072**

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- Historic free-product recovery data are summarized in Table 2 and presented graphically in Figures 6 and 7.
  - The 2008 laboratory report is presented in Attachment 1 (included on CD).
  - The 2008 field documentation is presented in Attachment 2 (included on CD).

**GEOLOGIC LOGS AND WELL COMPLETION DIAGRAMS**

No subsurface activities were conducted at this Site during 2008.

**DISPOSITION OF GENERATED WASTES**

All purge water was taken to the El Paso Natural Gas Rio Vista Compressor Station. Spent product recovery socks were managed as non-hazardous solid waste.

**ISOCONCENTRATION MAPS**

No isoconcentration maps were prepared for this Site, however, the attached Site map presents the analytical and product recovery data from 2008.

**RESULTS**

- The groundwater flow direction is approximately to the north-northeast.
- No free-product was observed in MW-1 in 2008. Thin accumulations of product have been observed at times in this well (most recently in 2006). The cumulative total of recovered free-product from MW-1 is approximately 2.34 gallons since 2001.
- MW-1 was added to the annual sampling list for 2008. The groundwater sample from MW-1 met the NMWQCC standards for BTEX, with benzene at 7.3 µg/L, toluene at 3.9 µg/L, ethylbenzene at 20.2 µg/L, and total xylenes at 68.7 µg/L. The previous samples from MW-1 were collected between 1996 and 1999, with a high benzene concentration of 1,690 µg/L observed in 1997. It appears that passive product recovery coupled with natural attenuation has been effective at this Site.
- Approximately 0.06 gallons of free-product were removed from MW-2 during 2008, bringing the cumulative total recovery from this well to approximately 7.92 gallons since 2001.
- The annual sample from MW-3 was non-detect for BTEX. This well has been sampled 6 times, beginning in September 2000, and the BTEX constituents were only detected on one occasion, at concentrations just above the detection limits. This well appears to be clean.

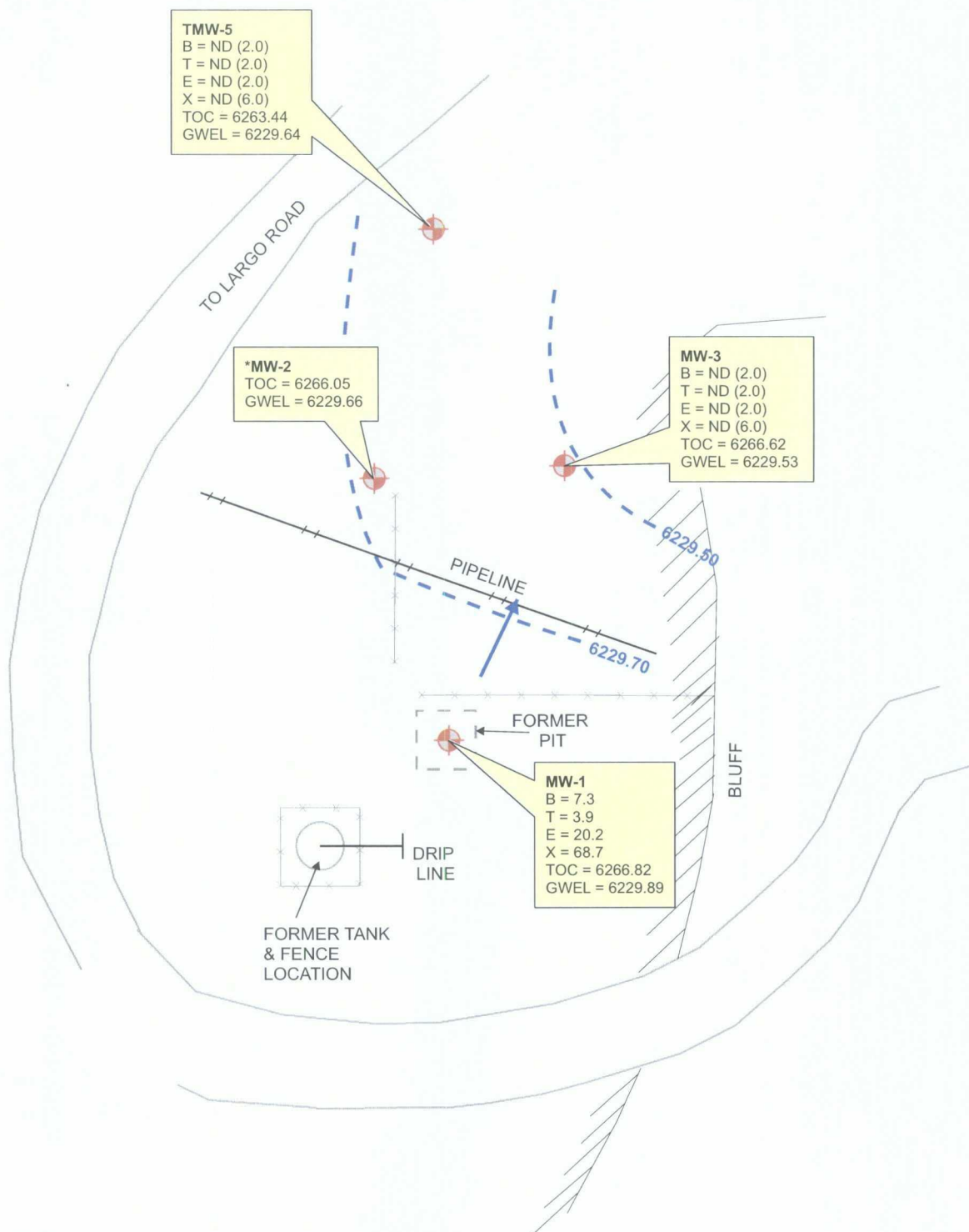
**EPTPC GROUNDWATER SITES  
2008 ANNUAL GROUNDWATER REPORT**

**K27  
Meter Code: LD072**

- 
- Monitor well TMW-5 (installed in 2006) was sampled for the third time in October 2008. As was the case in the first two sampling events, there were no detections of BTEX. This well appears to be clean.

**RECOMMENDATIONS**

- EPTPC will gauge MW-1 quarterly and sample annually if free-product does not re-appear.
- EPTPC will continue quarterly gauging and free-product recovery efforts at MW-2; however, the frequency of monitoring may be adjusted based on the amount of product recovered during the monitoring visits.
- EPTPC will continue to monitor groundwater levels on a quarterly basis and sample annually at MW-3.
- EPTPC will monitor groundwater levels at new well TMW-5 on a quarterly basis and sample annually in conjunction with activities at MW-1 and 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.



Product Removed (Gallons)	1/25/08	4/18/08	7/23/08	10/8/08
*MW-2	0	0	0.06	0

### LEGEND

**MW-4** Existing Monitoring / Observation Well

**PZ-01** Abandoned Monitoring Well

Groundwater Flow Direction

—1275— Potentiometric Surface Contour (Inferred Where Dashed)

**B** Benzene (ug/L)

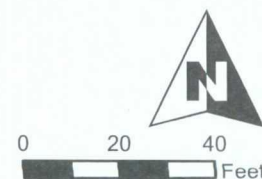
**T** Toluene (ug/L)

**E** Ethylbenzene (ug/L)

**X** Total Xylenes (ug/L)

**TOC** Top of Casing (ft. AMSL)

**GWEL** Groundwater Elevation (ft. AMSL)



**MWH**



PROJECT:

K-27 LD072

TITLE:

Groundwater Potentiometric Surface Map,  
and BTEX Concentrations - October 8, 2008

FIGURE:

1



FIGURE 2  
SUMMARY OF BTEX COMPOUNDS IN GROUNDWATER SAMPLES  
K27 LD072 (METER #LD072)  
MW01

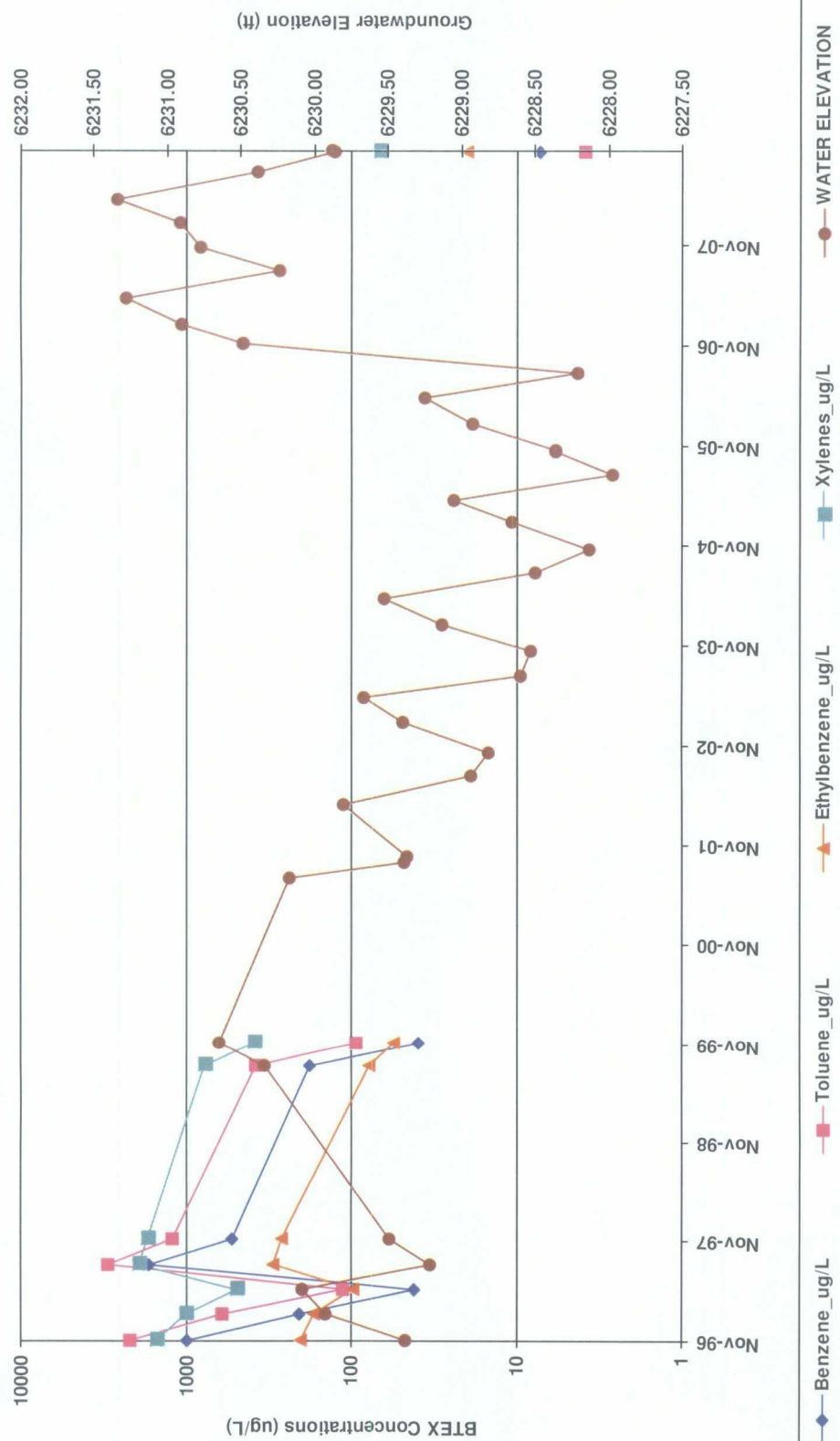


FIGURE 3  
SUMMARY OF BTEX COMPOUNDS IN GROUNDWATER SAMPLES  
K27 LD072 (METER #LD072)  
MW02

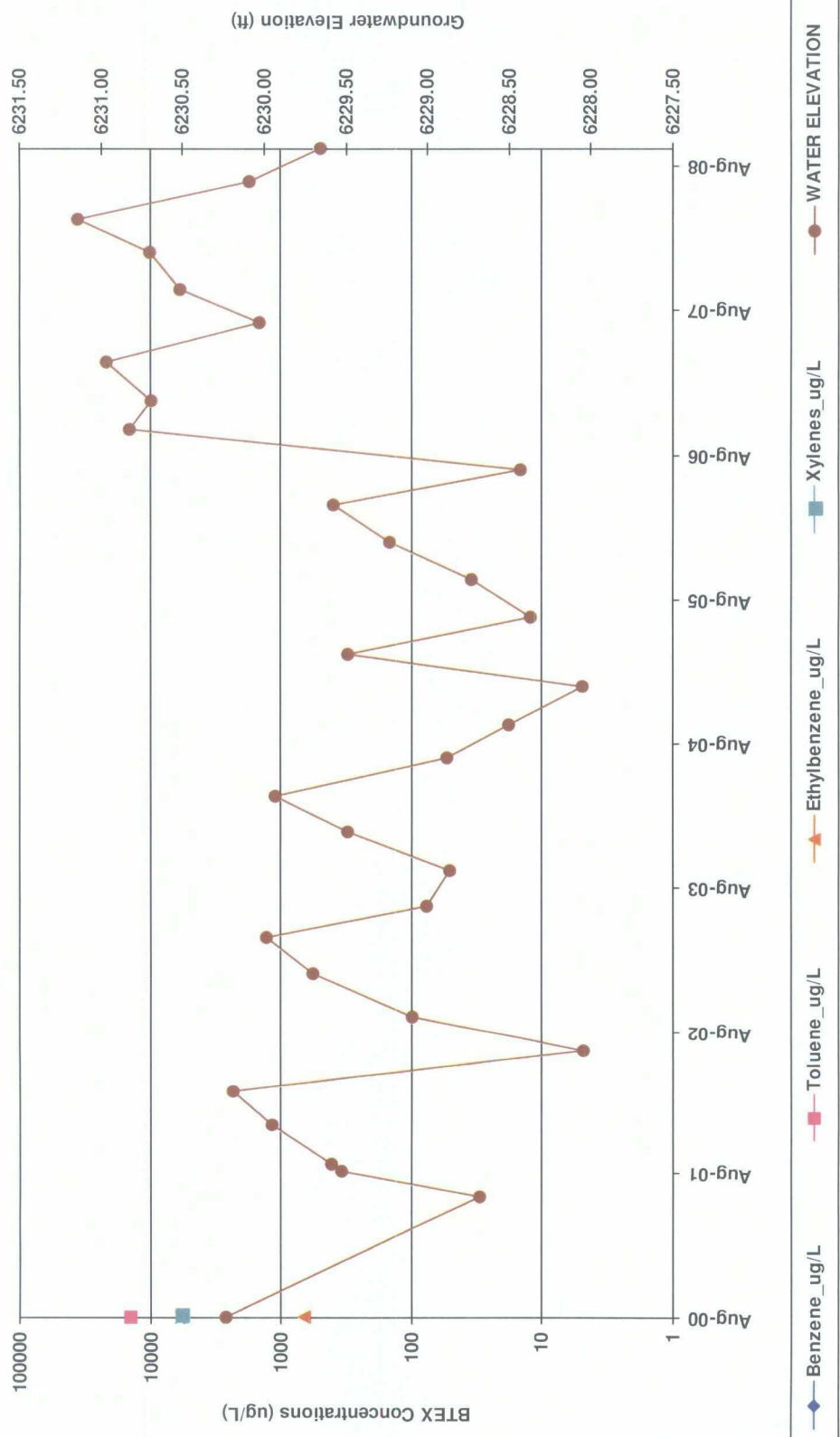


FIGURE 4  
SUMMARY OF BTEX COMPOUNDS IN GROUNDWATER SAMPLES  
K27 LD072 (METER #LD072)  
MW03

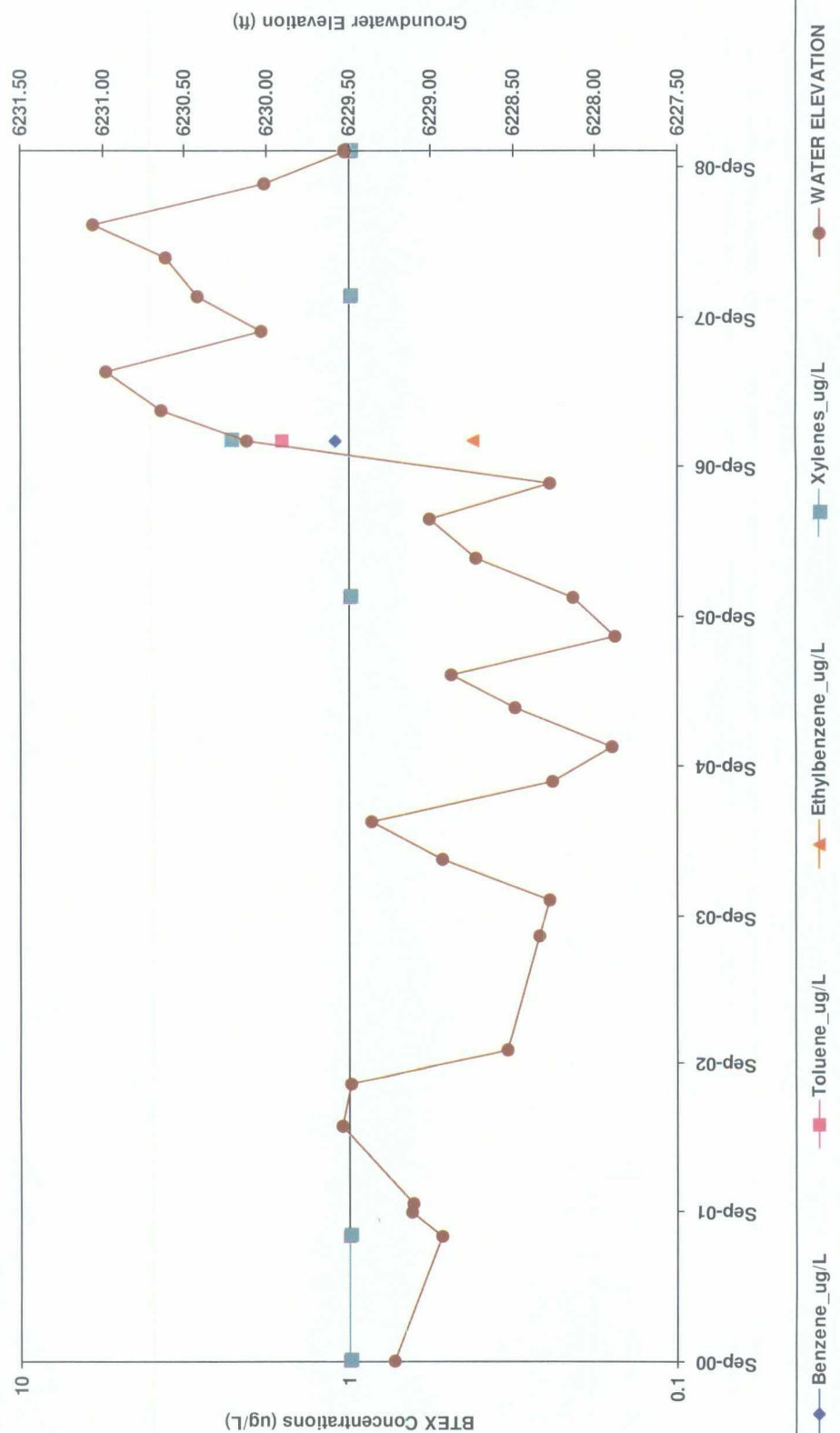


FIGURE 5  
SUMMARY OF BTEX COMPOUNDS IN GROUNDWATER SAMPLES  
K27 LD072 (METER #LD072)  
TMW05

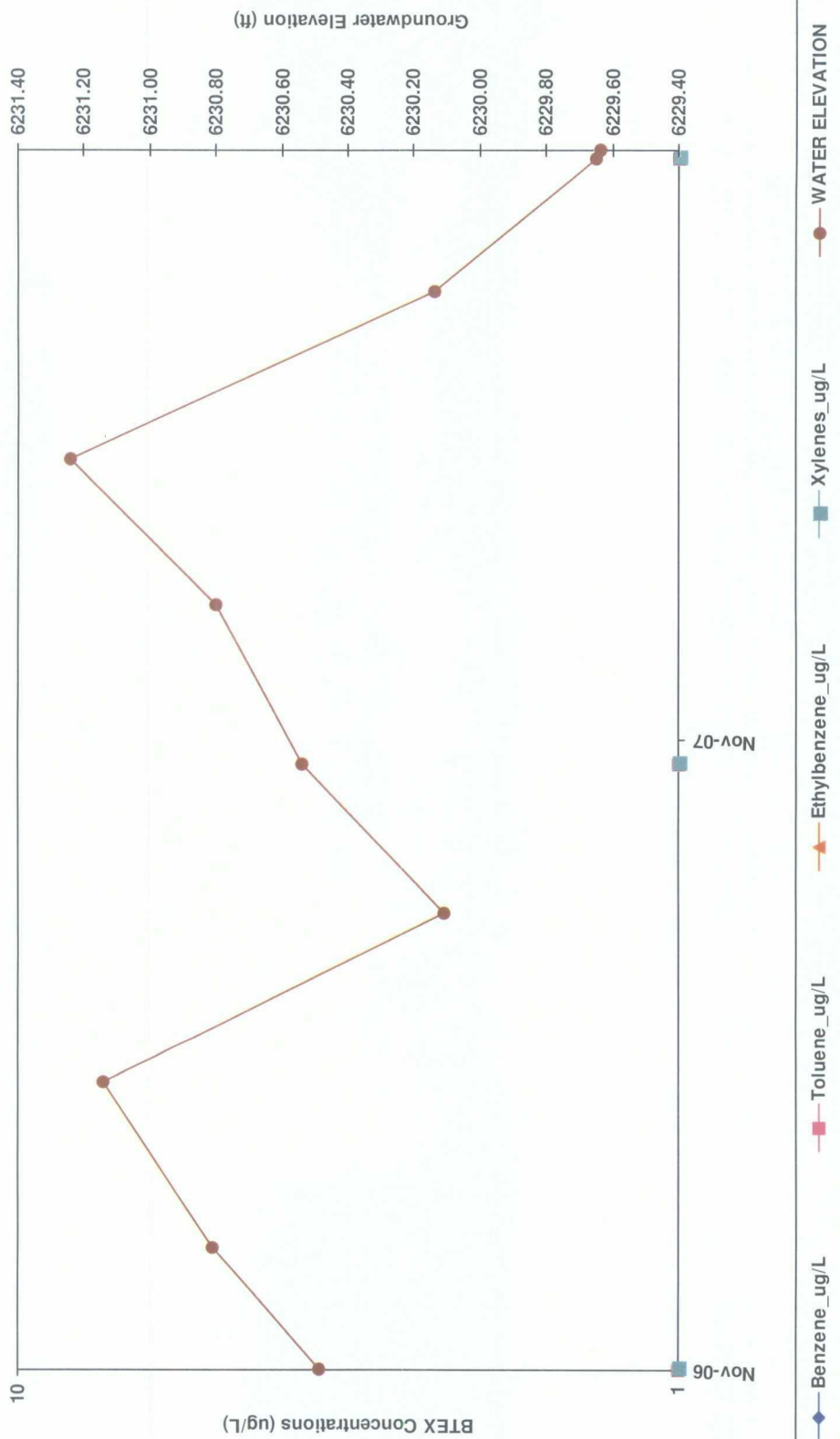


FIGURE 6  
SUMMARY OF FREE-PRODUCT REMOVAL  
K27 LD072 (METER #LD072)  
MW01

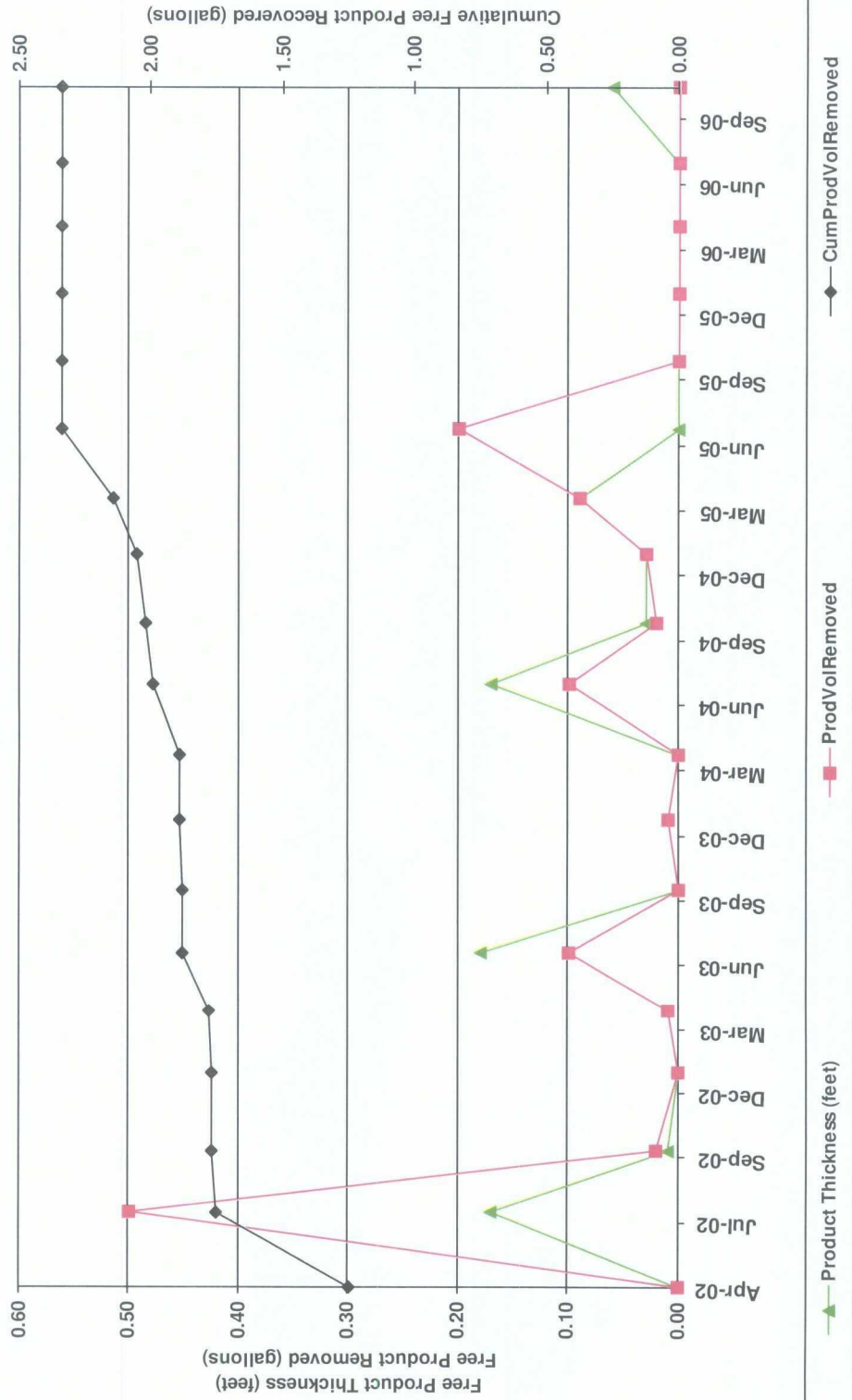
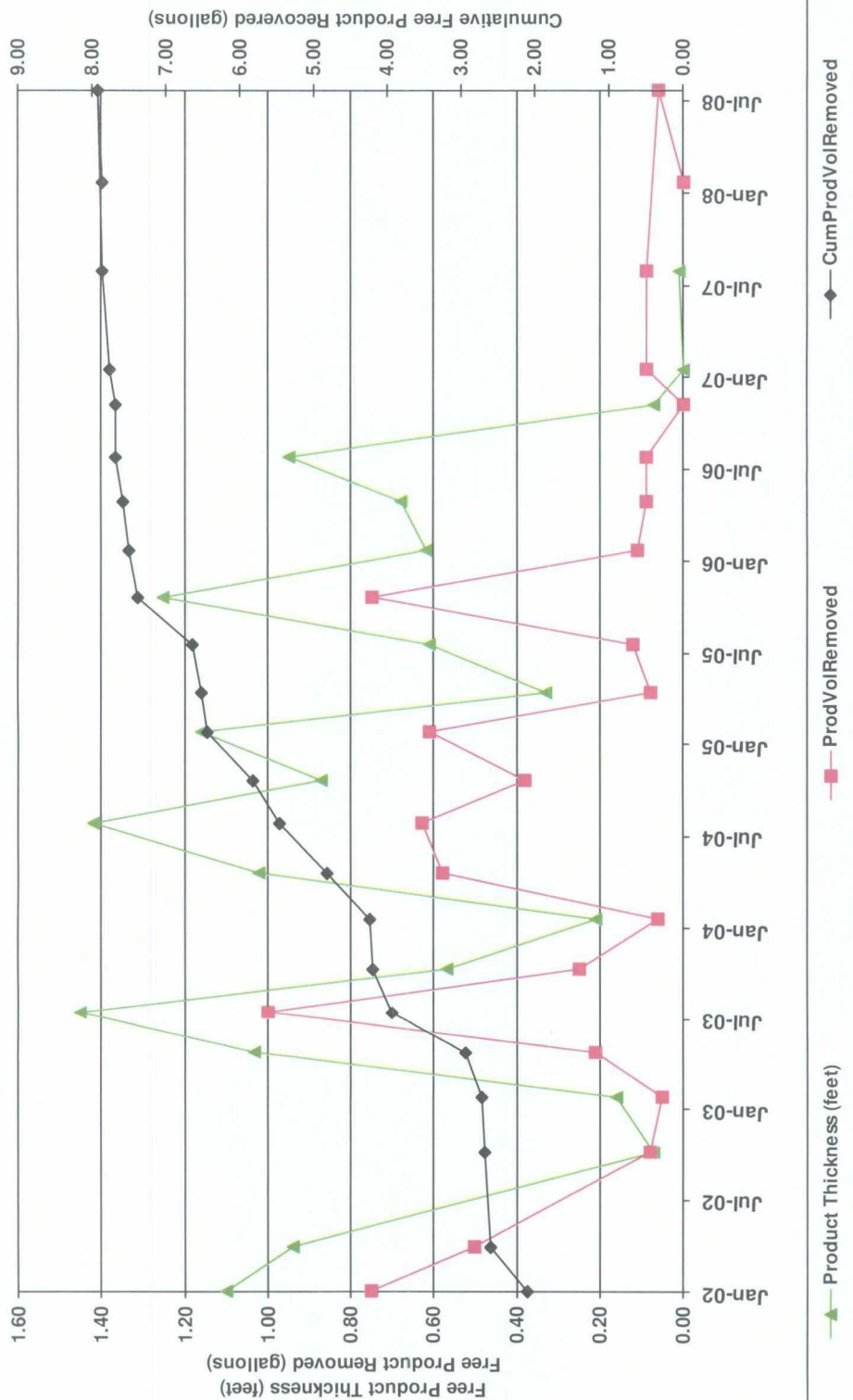


FIGURE 7  
SUMMARY OF FREE-PRODUCT REMOVAL  
K27 LD072 (METER #LD072)  
MW02



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

Monitoring Well	Sample Date	Benzene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	Total Xylenes (ug/L)	Depth to Water (ft BTOC)
<b>MW01</b>	11/4/1996	996	2170	204	1520	37.44
	2/5/1997	207	613	168	1010	36.89
	5/7/1997	41.8	114	97.8	500	36.73
	8/8/1997	1690	2980	298	1930	37.61
	11/7/1997	533	1210	267	1720	37.33
	8/19/1999	179	379	79.1	777	36.48
	11/10/1999	39	95	56	390	36.17
	10/8/2008	7.3	3.9	20.2	68.7	36.95
<b>MW02</b>	8/31/2000	5500	14000	670	5800	35.81
<b>MW03</b>	9/5/2000	1	1	1	1	37.40
	7/3/2001	1	1	1	1	37.69
	10/21/2005	1	1	1	1	38.48
	11/7/2006	1.1	1.6	0.42	2.3	36.50
	10/25/2007	1	1	1	1	36.20
	10/8/2008	1	1	1	1	37.09
<b>TMW05</b>	11/8/2006	1	1	1	1	32.95
	10/25/2007	1	1	1	1	32.90
	10/8/2008	1	1	1	1	33.79

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

TABLE 2

**SUMMARY OF FREE-PRODUCT REMOVAL  
K27 LD072 (METER #LD072)**

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	4/1/2002		37.01	0.00	0.00	1.25
	7/15/2002	37.85	38.02	0.17	0.50	1.75
	10/8/2002	38.00	38.01	0.01	0.02	1.77
	1/27/2003		37.42	0.00	0.00	1.77
	4/26/2003		37.15	0.00	0.01	1.78
	7/17/2003	38.18	38.36	0.18	0.10	1.88
	10/13/2003		38.29	0.00	0.00	1.88
	1/19/2004	37.68	37.69	0.01	0.01	1.89
	4/20/2004		37.29	0.00	0.00	1.89
	7/27/2004	38.28	38.45	0.17	0.10	1.99
	10/20/2004	38.68	38.71	0.03	0.02	2.02
	1/25/2005	38.16	38.18	0.02	0.03	2.05
	4/14/2005	37.75	37.84	0.09	0.09	2.14
	7/19/2005		38.84	0.00	0.20	2.34
	10/21/2005		38.46	0.00	0.00	2.34
	1/23/2006		37.89	0.00	0.00	2.34
	4/28/2006		37.57	0.00	0.00	2.34
	7/26/2006		38.61	0.00	0.00	2.34
	11/7/2006	36.31	36.37	0.06	0.00	2.34
MW02	1/2/2002	35.87	36.97	1.10	0.75	2.10
	4/1/2002	35.67	36.61	0.94	0.50	2.60
	10/8/2002	36.94	37.01	0.07	0.08	2.68
	1/27/2003	36.31	36.47	0.16	0.05	2.73
	4/26/2003	35.85	36.88	1.03	0.21	2.94
	7/17/2003	36.75	38.20	1.45	1.00	3.94
	10/13/2003	37.07	37.64	0.57	0.25	4.19
	1/19/2004	36.51	36.72	0.21	0.06	4.25
	4/20/2004	35.91	36.93	1.02	0.58	4.83
	7/27/2004	36.88	38.30	1.42	0.63	5.46
	10/20/2004	37.37	38.23	0.86	0.38	5.83
	1/25/2005	36.77	42.87	6.10	0.61	6.44
	4/14/2005	36.55	36.55	0.00	0.08	6.52
	7/19/2005	37.55	38.16	0.61	0.12	6.64
	10/21/2005	37.06	38.31	1.25	0.75	7.39
	1/23/2006	36.69	37.31	0.62	0.11	7.50
	4/28/2006	36.33	37.01	0.68	0.09	7.59
	7/26/2006	37.42	38.37	0.95	0.09	7.68
	11/7/2006	35.21	35.28	0.07	0.00	7.68
	1/17/2007		35.35	0.00	0.09	7.77



TABLE 2

SUMMARY OF FREE-PRODUCT REMOVAL  
K27 LD072 (METER #LD072)

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)
MW02	7/31/2007	36.01	36.03	0.02	0.09	7.86
	1/25/2008	35.34	35.37	0.03	0.00	7.86
	7/23/2008		35.95	0.00	0.06	7.92
MW03	7/15/2002		37.13	0.00	0.75	0.75
	10/8/2002		38.08	0.00	0.00	0.75