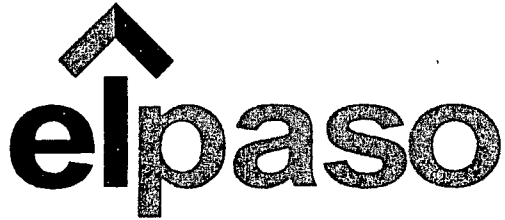


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Oil Conservation Division
Environmental Bureau

El Paso Tennessee
Pipeline Company

San Juan Basin Pit Program
Groundwater Sites Project

Final 2006 Annual Report
Federal Sites (Volume 1)

March 2007



MWH

1801 California Street, Suite 2900
Denver, Colorado 80202

**2006 ANNUAL GROUNDWATER REPORT
FEDERAL SITES VOLUME I**

RECEIVED

EL PASO TENNESSEE PIPELINE COMPANY

MAR 06 2007

**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
89232	Johnston Fed #6A	31N	09W	35	F
94715	James F. Bell #1E	30N	13W	10	P
89620	Sandoval GC A #1A	30N	09W	35	C
LD151	Lat 0-21 Line Drip	30N	09W	12	O
73220	Fogelson 4-1 Com. #14	29N	11W	4	P
97213	Hamner #9	29N	09W	20	A
LD174	LAT L 40	28N	04W	13	H
89894	Hammond #41A	27N	08W	25	O
94810	Miles Fed 1A	26N	07W	5	F
LD072	K27 LD072	25N	06W	4	E
87640	Canada Mesa #2	24N	06W	24	I
70194	Johnston Fed #4	31N	09W	33	H



3-D TopoQuads Copyright © 1999 DeLorme Yarmouth, ME 04096
3 mi Scale: 1 : 600,000 Detail: 3-4 Datum: WGS84

LIST OF ACRONYMS

B	benzene
btoc	below top of casing
E	ethylbenzene
EPTPC	El Paso Tennessee Pipeline Company
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

**EPTPC GROUNDWATER SITES
2006 ANNUAL GROUNDWATER REPORT**

**Fields A#7A
Meter Code: 89961**

SITE DETAILS

Legal Description:	Town: 32n	Range: 11w	Sec: 34	Unit: E
NMOCD Haz Ranking: 40	Land Type:	Federal	Operator: BP \ Amoco Production Company	

PREVIOUS ACTIVITIES

Site Assessment:	8/94	Excavation:	9/94 (70cy)	Soil Boring:	7/95
Monitor Well:	7/95	Geoprobe:	NA	Additional MWs:	12/95
Downgradient MWs:	12/95	Replace MW:	NA	Quarterly Initiated:	NA
ORC Nutrient Injection:	NA	Re-Excavation:	NA	PSH Removal Initiated:	8/97
Annual Initiated:	4/97	Quarterly Resumed:	NA		

SUMMARY OF 2006 ACTIVITIES

MW-1: Based on the recommendations presented in the 2005 Annual Report, free-product recovery was discontinued from MW-1 in 2006. Semi-annual water level monitoring and groundwater sampling was conducted at this well in April and October 2006.

MW-2: Semi-annual water level monitoring was performed in April and October 2006. This well was dry during both events.

MW-3: Semi-annual water level monitoring (April and October) and was conducted at this well, and a groundwater sample was collected in April 2006.

MW-4: Semi-annual water level monitoring was performed in April and October 2006. This well was dry during both events.

Site-Wide Activities: No additional activities were performed at this site in 2006. After additional site investigation, it was decided the proposed monitoring well TMW-5 would not assist in assessing possible upgradient sources. In addition, this location would be difficult to access and it appeared unlikely that water would be encountered in the new well. Therefore, this well was not installed.

**EPTPC GROUNDWATER SITES
2006 ANNUAL GROUNDWATER REPORT**

**Fields A#7A
Meter Code: 89961**

SITE MAPS

Site maps (April and October) are attached in Figures 1 and 2.

SUMMARY TABLES AND GRAPHS

- Analytical data from 2006 are included in Table 1, and historic groundwater data are presented graphically in Figures 3 through 6.
- Free-product recovery data for 2006 are included in Table 2, and historic data are presented graphically in Figures 7 and 8.
- 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 2006.

DISPOSITION OF GENERATED WASTES

All purge water was taken to the El Paso Natural Gas Rio Vista Compressor Station. Recovered free-product is stored in a 55 gallon drum and periodically picked up by Mesa Oil for recycling.

ISOCONCENTRATION MAPS

No isoconcentration maps were prepared for this site; however, the attached site maps present the water level data collected during 2006.

CONCLUSIONS

- The groundwater flow direction at this site is to the southwest, based on historic water level measurements.
- BTEX concentrations in MW-1 were substantially lower than in 1997 (benzene 951 µg/L), when the first phase of sampling ceased. However, benzene concentrations were 83.7 µg/L and 254 µg/L in April and October, respectively, which are above NMWQCC standards and similar to concentrations in 2004, when sampling was re-started. All other BTEX constituents were below standards.
- Per recommendations in the 2005 Annual Report, EPTPC attempted to sample MW-2 for parameters to assess natural attenuation potential at this site in April 2006, and semi-annual groundwater samples were scheduled to be collected from

**EPTPC GROUNDWATER SITES
2006 ANNUAL GROUNDWATER REPORT**

**Fields A#7A
Meter Code: 89961**

MW-2 during 2006; however this well was dry during both sampling events. Overall, water levels at the site continue to decline.

- BTEX concentrations in MW-3 were substantially lower than in 1997 (benzene 951 µg/L), when the first phase of sampling ceased. However, the benzene concentration was 46.4 µg/L in April 2006, which is above the NMWQCC benzene standard and greater than the concentration in April 2005. Samples from this well have shown a high degree of fluctuation. All other BTEX constituents were below standards in 2006.
- No free-product was recovered from MW-4 in 2006. This well was dry during each event.
- Semi-annual groundwater samples were scheduled to be collected from MW-4 during 2006. This well was not sampled due to insufficient quantity of water. MW-4 has been dry since May 2002.

RECOMMENDATIONS

- Assuming that free-product continues to be absent from MW-1, this well will be sampled semi-annually (April and October) until BTEX concentrations approach NMWQCC standards. MW-1 will then be scheduled for quarterly sampling until BTEX concentrations are below standards for four consecutive quarters, at which time this site will be submitted for closure.
- EPTPC will attempt semi-annual groundwater level measurements and annual groundwater sampling in April at MW-2, MW-3 and MW-4. Based on the April sampling results, groundwater sampling may be performed again in October 2007 at these wells, if possible.

TABLE 1

**SUMMARY OF BTEX COMPOUNDS IN GROUNDWATER SAMPLES
FIELDS A#7A (METER #89961)**

Site Name	Sample Date	Monitoring Well	Benzene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	Total Xylenes (ug/L)	Depth to Water (ug/L)
Fields A#7A	8/9/95	MW-1	1950	1946	115	1361	22.50
Fields A#7A	1/3/96	MW-1	3150	5280	361	3460	23.28
Fields A#7A	4/18/96	MW-1	1300	2140	119	1240	24.20
Fields A#7A	7/29/96	MW-1	503	804	28	363	25.07
Fields A#7A	10/21/96	MW-1	843	1300	26	422	25.45
Fields A#7A	1/30/97	MW-1	1300	2200	76.8	966	26.83
Fields A#7A	4/21/97	MW-1	951	1920	73	894	26.47
Fields A#7A	1/26/04	MW-1	121	54	15.8	216	31.03
Fields A#7A	4/21/04	MW-1	116	58.1	29.3	83.3	30.67
Fields A#7A	4/18/05	MW-1	108	29	14.2	274	30.19
Fields A#7A	10/22/05	MW-1	180	69.2	6.3	154	30.74
Fields A#7A	4/25/06	MW-1	83.7	23.8	2.1	82.5	31.41
Fields A#7A	10/25/06	MW-1	254	108	4	169	31.39
Fields A#7A	1/3/96	MW-2	28.8	1	297	1169	24.27
Fields A#7A	4/18/96	MW-2	1	1	2.64	1	25.53
Fields A#7A	7/29/96	MW-2	1	1	1	1	26.48
Fields A#7A	10/21/96	MW-2	1	1	1	1	26.96
Fields A#7A	1/30/97	MW-2	1	1	1	1	27.73
Fields A#7A	4/21/97	MW-2	1	1	1	1	27.77
Fields A#7A	4/13/01	MW-2	1	1	1	1	30.33
Fields A#7A	4/18/05	MW-2	1	1	1	2	30.98
Fields A#7A	1/3/96	MW-3	176	16.4	225	1550	24.88
Fields A#7A	4/18/96	MW-3	129	1	212	463	25.75
Fields A#7A	7/29/96	MW-3	212	1	167	393	26.64
Fields A#7A	10/21/96	MW-3	165	1	157	467	2716.00
Fields A#7A	1/30/97	MW-3	144	1	198	851	27.92
Fields A#7A	4/21/97	MW-3	2070	4340	332	4730	28.00
Fields A#7A	4/13/01	MW-3	120	5.2	1	80	30.48
Fields A#7A	4/18/05	MW-3	1	1	1	2	30.77
Fields A#7A	4/25/06	MW-3	46.4	5	5	10	31.61
Fields A#7A	10/25/06	MW-3	NS	NS	NS	NS	31.90

TABLE 1

SUMMARY OF BTEX COMPOUNDS IN GROUNDWATER SAMPLES
FIELDS A#7A (METER #89961)

Site Name	Sample Date	Monitoring Well	Benzene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	Total Xylenes (ug/L)	Depth to Water (ug/L)
Fields A#7A	1/3/96	MW-4	2470	1880	206	2350	25.69
Fields A#7A	4/18/96	MW-4	4760	2460	235	1880	26.42
Fields A#7A	7/29/96	MW-4	1830	2380	106	967	28.65
Fields A#7A	10/21/96	MW-4	3320	4520	149	1680	28.84
Fields A#7A	1/30/97	MW-4	4320	7420	280	3250	28.85
Fields A#7A	4/21/97	MW-4	2410	5170	219	2530	28.68

1 = Not Detected

TABLE 2

SUMMARY OF FREE-PRODUCT REMOVAL
FIELDS A#7A (METER #89961)

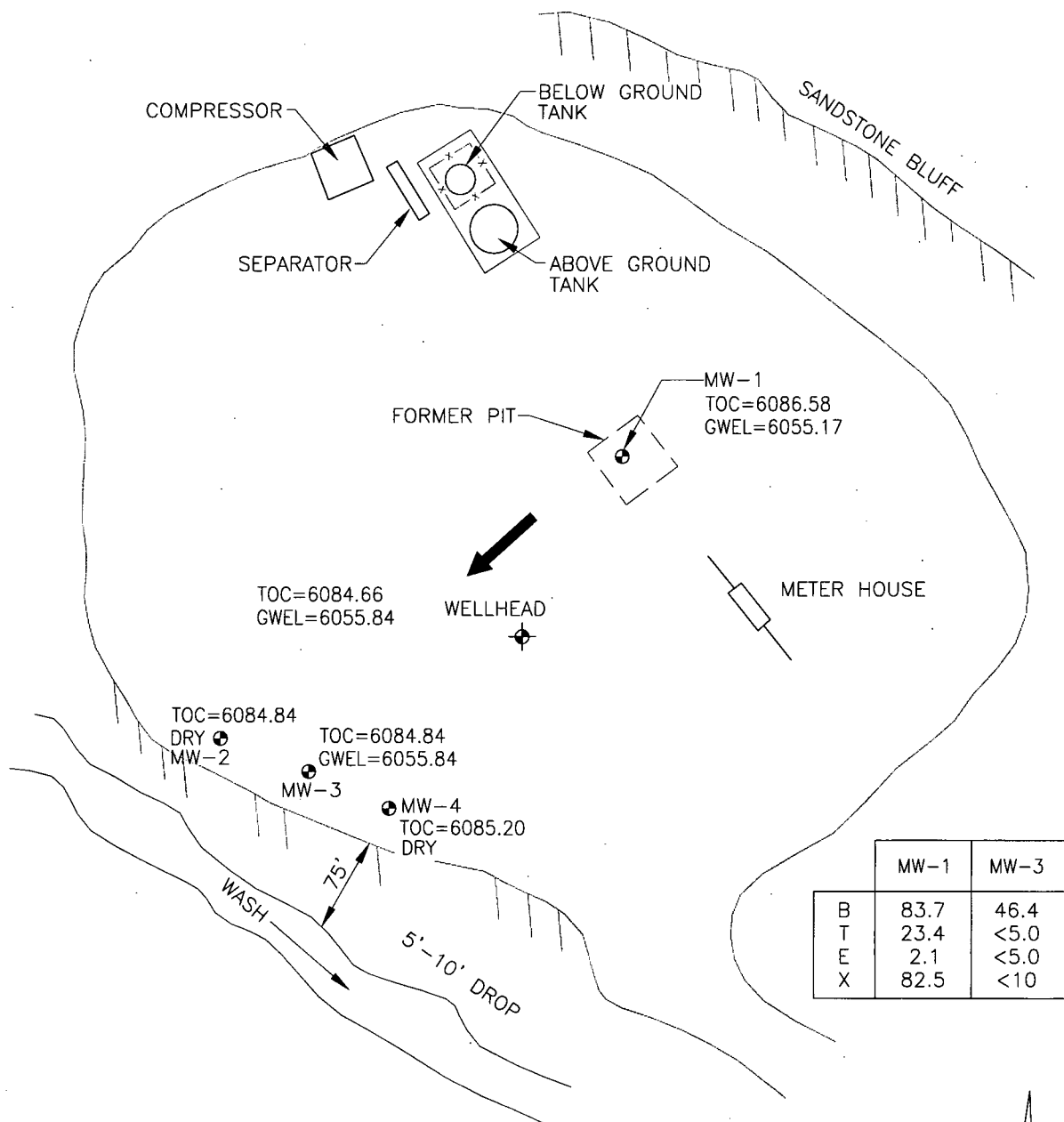
Site Name	Monitoring Well	Removal Date	Depth to Product (feet bgs)	Depth to Water (feet bgs)	Product Thickness (feet)	Volume of Product Removed (gallons)	Cumulative Volume of Product Removed (gallons)
FIELDS A#7A	MW-1	1/3/02	30.69	30.40	0.00	0.00	12.30
FIELDS A#7A	MW-1	1/7/02	30.58	30.59	0.01	0.00	12.30
FIELDS A#7A	MW-1	1/23/02	30.40	30.41	0.00	0.01	12.31
FIELDS A#7A	MW-1	1/31/02	30.94	30.95	0.01	0.00	12.31
FIELDS A#7A	MW-1	2/7/02	31.11	31.12	0.01	0.00	12.31
FIELDS A#7A	MW-1	2/14/02	31.17	31.18	0.01	0.00	12.31
FIELDS A#7A	MW-1	2/20/02	31.14	31.15	0.01	0.00	12.31
FIELDS A#7A	MW-1	3/21/02	30.78	30.80	0.02	0.00	12.31
FIELDS A#7A	MW-1	3/28/02	NA	30.92	0.00	0.01	12.32
FIELDS A#7A	MW-1	4/4/02	NA	30.64	0.00	0.00	12.32
FIELDS A#7A	MW-1	4/12/02	NA	31.45	0.00	0.00	12.32
FIELDS A#7A	MW-1	4/19/02	NA	31.56	0.00	0.00	12.32
FIELDS A#7A	MW-1	4/25/02	NA	31.54	0.00	0.00	12.32
FIELDS A#7A	MW-1	5/3/02	NA	31.51	0.00	0.00	12.32
FIELDS A#7A	MW-1	5/10/02	NA	31.59	0.00	0.00	12.32
FIELDS A#7A	MW-1	5/17/02	NA	31.16	0.00	0.00	12.32
FIELDS A#7A	MW-1	5/24/02	NA	31.38	0.00	0.00	12.32
FIELDS A#7A	MW-1	5/31/02	NA	31.23	0.00	0.00	12.32
FIELDS A#7A	MW-1	6/6/02	NA	31.32	0.00	0.00	12.32
FIELDS A#7A	MW-1	6/14/02	NA	31.34	0.00	0.00	12.32
FIELDS A#7A	MW-1	6/21/02	NA	31.67	0.00	0.00	12.32
FIELDS A#7A	MW-1	6/27/02	NA	31.81	0.00	0.00	12.32
FIELDS A#7A	MW-1	7/2/02	NA	31.82	0.00	0.00	12.32
FIELDS A#7A	MW-1	7/11/02	NA	31.84	0.00	0.00	12.32
FIELDS A#7A	MW-1	7/18/02	NA	31.45	0.00	0.00	12.32
FIELDS A#7A	MW-1	8/21/02	NA	32.12	0.00	0.00	12.32
FIELDS A#7A	MW-1	10/1/02	NA	31.77	0.00	0.02	12.34
FIELDS A#7A	MW-1	1/15/03	NA	31.90	0.00	0.00	12.34
FIELDS A#7A	MW-1	4/27/03	31.06	31.07	0.01	0.02	12.36
FIELDS A#7A	MW-1	7/16/03	NA	31.295	0.00	0.00	12.36
FIELDS A#7A	MW-1	10/27/03	NA	30.97	0.00	0.00	12.36
FIELDS A#7A	MW-1	1/26/04	NA	31.03	0.00	0.00	12.36
FIELDS A#7A	MW-1	4/21/04	NA	30.67	0.00	0.00	12.36
FIELDS A#7A	MW-1	7/27/04	NA	30.83	0.00	0.00	12.36
FIELDS A#7A	MW-1	10/18/04	NA	30.97	0.00	0.00	12.36
FIELDS A#7A	MW-1	1/25/05	NA	31.15	0.00	0.00	12.36
FIELDS A#7A	MW-1	4/18/05	NA	30.19	0.00	0.00	12.36
FIELDS A#7A	MW-4	1/3/02	31.61	NA	0.04	0.01	1.36
FIELDS A#7A	MW-4	1/7/02	31.61	NA	0.04	0.00	1.36
FIELDS A#7A	MW-4	1/23/02	31.62	NA	0.04	0.00	1.36
FIELDS A#7A	MW-4	1/31/02	31.61	NA	0.04	0.00	1.36
FIELDS A#7A	MW-4	2/7/02	31.60	NA	0.05	0.00	1.36
FIELDS A#7A	MW-4	2/14/02	31.62	NA	0.03	0.00	1.36
FIELDS A#7A	MW-4	2/20/02	31.62	NA	0.03	0.00	1.36

TABLE 2

SUMMARY OF FREE-PRODUCT REMOVAL
FIELDS A#7A (METER #89961)

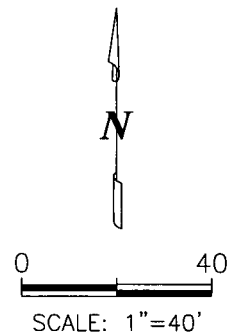
Site Name	Monitoring Well	Removal Date	Depth to Product (feet bgs)	Depth to Water (feet bgs)	Product Thickness (feet)	Volume of Product Removed (gallons)	Cumulative Volume of Product Removed (gallons)
Fields A#7A	MW-4	3/21/02	Dry	Dry	0.00	0.00	1.36
Fields A#7A	MW-4	4/2/02	Dry	Dry	0.00	0.00	1.36
Fields A#7A	MW-4	5/17/02	Dry	Dry	0.00	0.00	1.36
Fields A#7A	MW-4	5/24/02	Dry	Dry	0.00	0.00	1.36
Fields A#7A	MW-4	5/31/02	Dry	Dry	0.00	0.00	1.36
Fields A#7A	MW-4	6/6/02	Dry	Dry	0.00	0.00	1.36
Fields A#7A	MW-4	6/14/02	Dry	Dry	0.00	0.00	1.36
Fields A#7A	MW-4	7/18/02	Dry	Dry	0.00	0.00	1.36
Fields A#7A	MW-4	10/1/02	Dry	Dry	0.00	0.00	1.36
Fields A#7A	MW-4	1/15/03	Dry	Dry	0.00	0.00	1.36
Fields A#7A	MW-4	7/16/03	Dry	Dry	0.00	0.00	1.36
Fields A#7A	MW-4	10/27/03	Dry	Dry	0.00	0.00	1.36
Fields A#7A	MW-4	1/26/04	Dry	Dry	0.00	0.00	1.36
Fields A#7A	MW-4	4/21/04	Dry	Dry	0.00	0.00	1.36
Fields A#7A	MW-4	7/27/04	Dry	Dry	0.00	0.00	1.36
Fields A#7A	MW-4	10/18/04	Dry	Dry	0.00	0.00	1.36
Fields A#7A	MW-4	1/25/05	Dry	Dry	0.00	0.00	1.36
Fields A#7A	MW-4	4/18/05	Dry	Dry	0.00	0.00	1.36
Fields A#7A	MW-4	10/22/05	Dry	Dry	0.00	0.00	1.36

1 = Not Detected



LEGEND

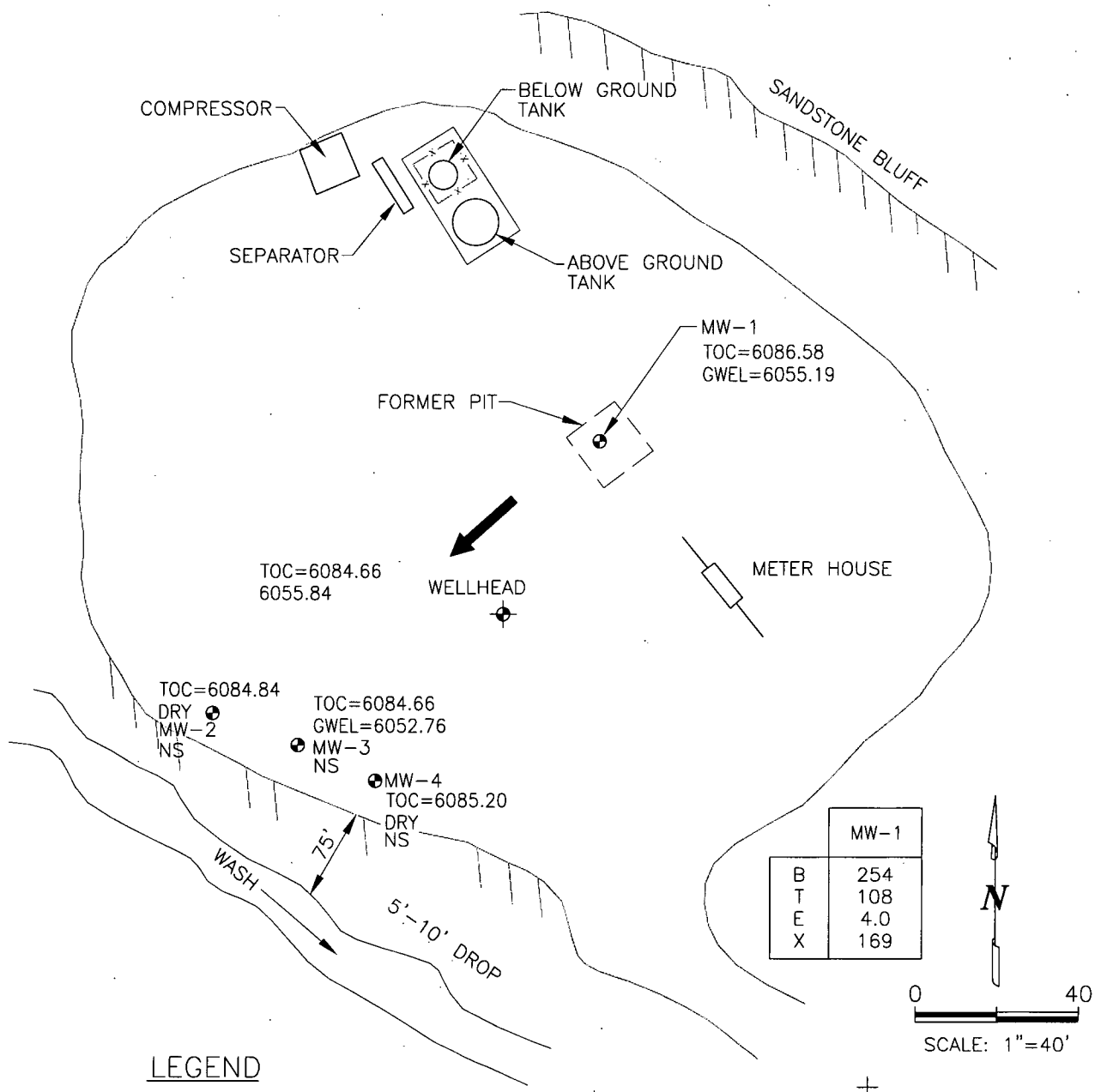
- | | | | |
|--------|--|---|-----------------------------------|
| ● MW-1 | Approximate Monitoring Well Location and Number | B | Benzene ($\mu\text{g/L}$) |
| GWEL | Groundwater Elevation (FT Above Mean Sea Level Unless Noted Otherwise) | T | Toluene ($\mu\text{g/L}$) |
| ← | Direction of Groundwater Flow (Estimated) | E | Ethylbenzene ($\mu\text{g/L}$) |
| NS | Not Sampled | X | Total Xylenes ($\mu\text{g/L}$) |
| TOC | Top of Casing | | |



FIELDS A #7A, METER 89961/97546
APRIL 2006

GROUNDWATER SITES
EL PASO TENNESSEE PIPELINE COMPANY

FIGURE 1



LEGEND

- ⊕ MW-1 Approximate Monitoring Well Location and Number
- GWEL Groundwater Elevation (FT Above Mean Sea Level Unless Noted Otherwise)
- ← Direction of Groundwater Flow (Estimated)
- NS Not Sampled
- TOC Top of Casing
- B Benzene ($\mu\text{g/L}$)
- T Toluene ($\mu\text{g/L}$)
- E Ethylbenzene ($\mu\text{g/L}$)
- X Total Xylenes ($\mu\text{g/L}$)

FIELDS A #7A, METER 89961/97546
OCTOBER 2006

GROUNDWATER SITES
EL PASO TENNESSEE PIPELINE COMPANY

FIGURE 2

FIGURE 3
HISTORIC BTEX CONCENTRATIONS AND GROUNDWATER ELEVATIONS
FIELDS A #7A
MW-1

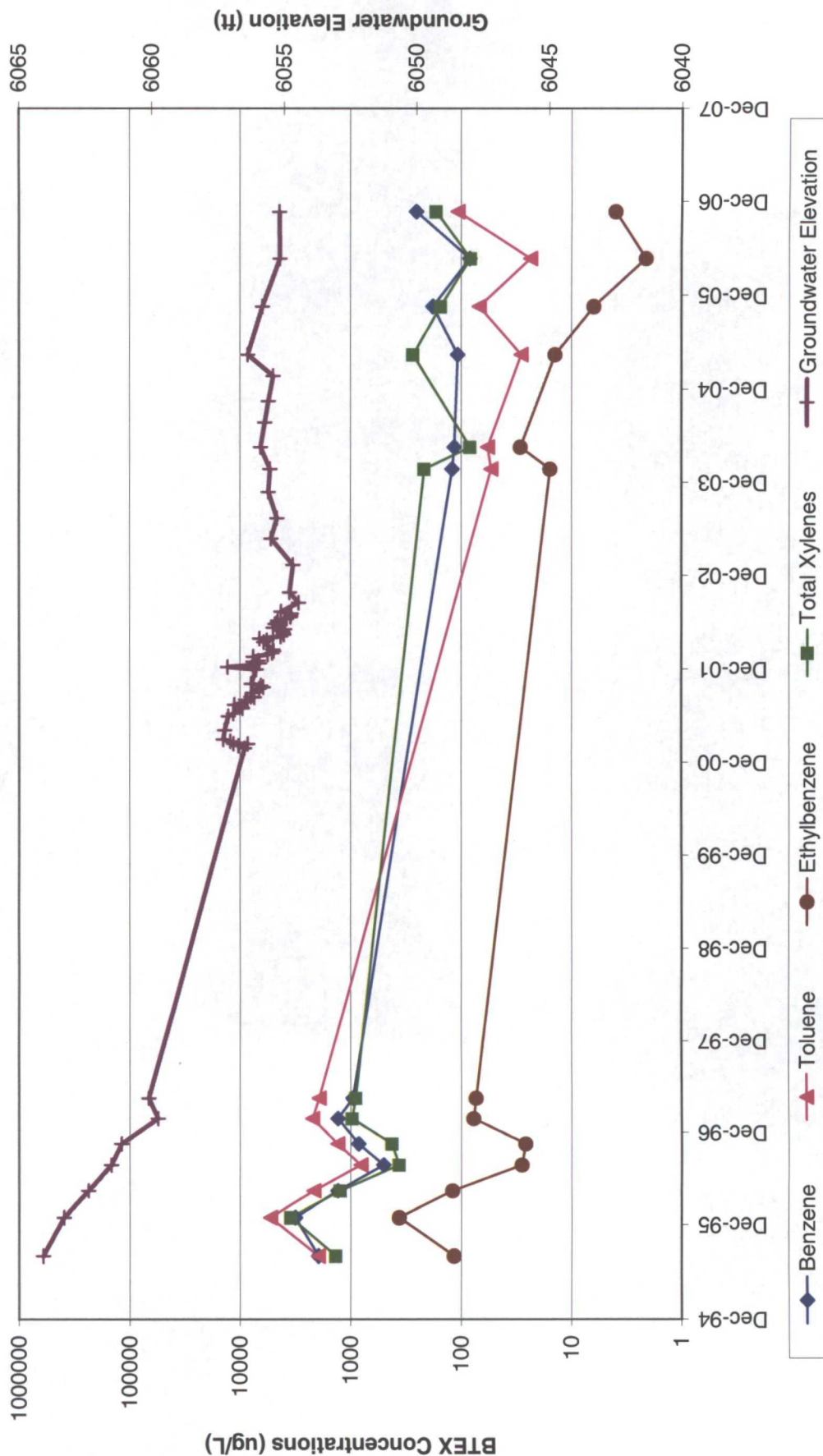
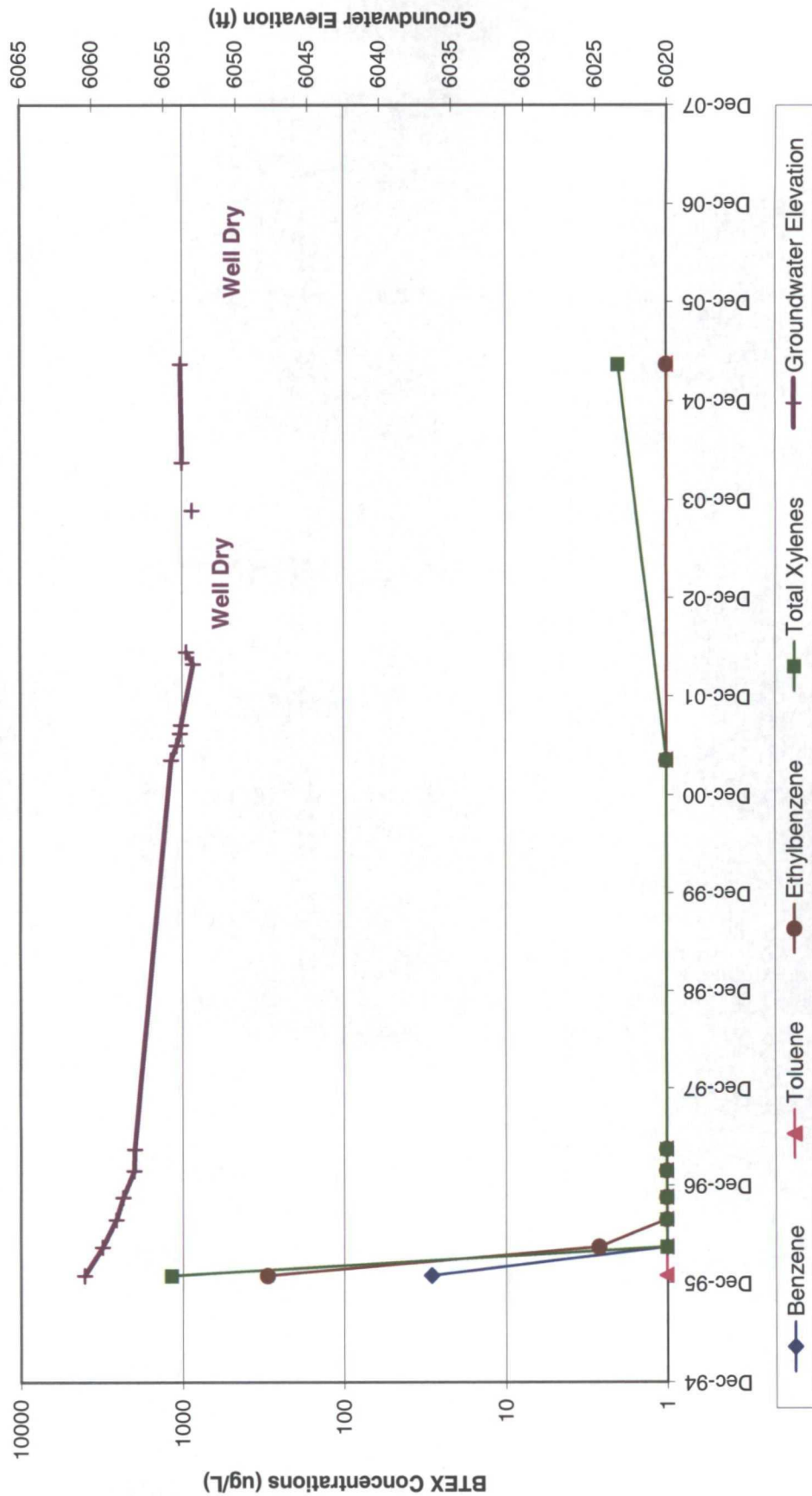
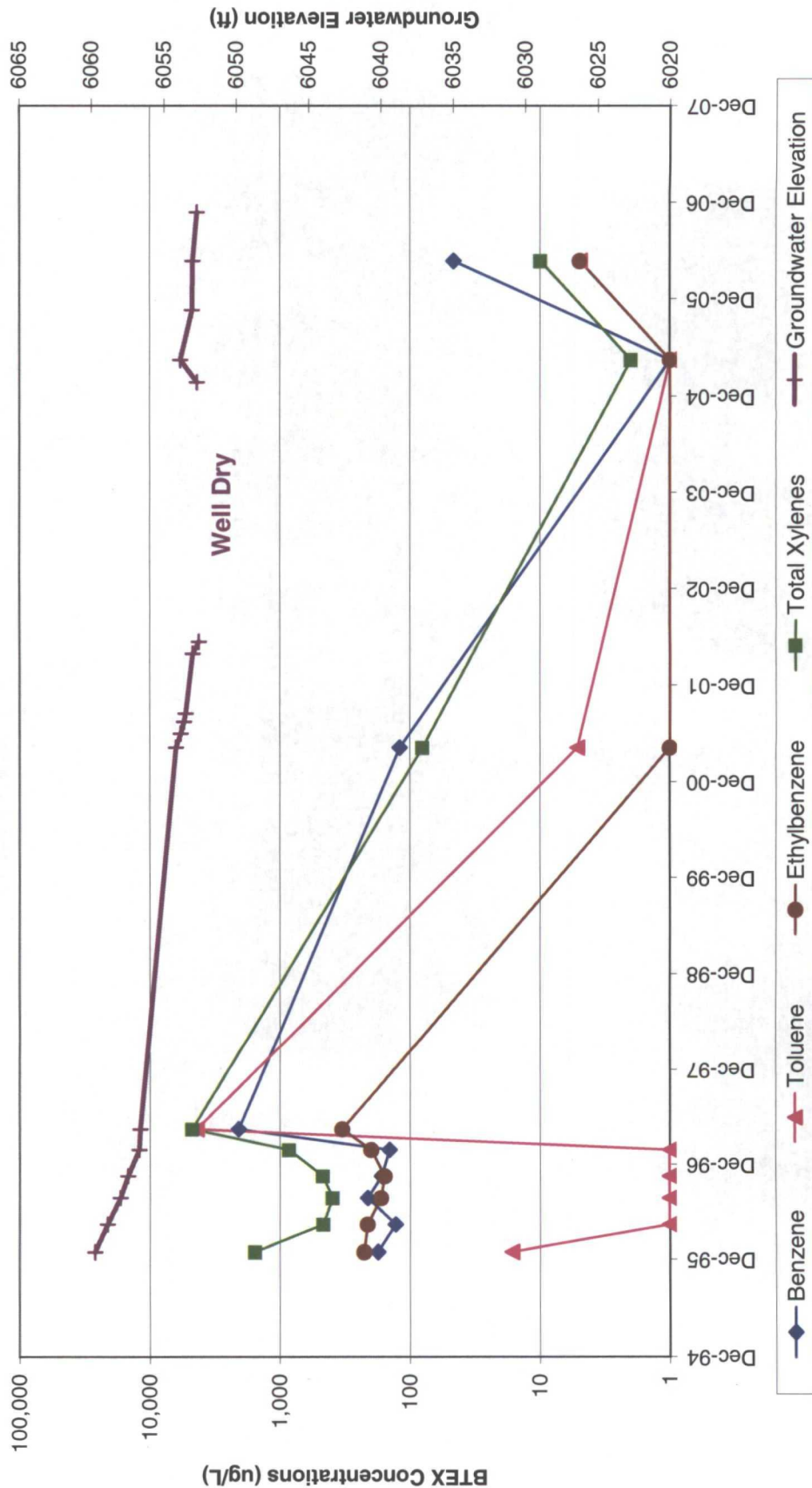


FIGURE 4
HISTORIC BTEX CONCENTRATIONS AND GROUNDWATER ELEVATIONS
FIELDS A #7A
MW-2



Note: A value of 1 indicated parameter not detected.

FIGURE 5
HISTORIC BTEX CONCENTRATIONS AND GROUNDWATER ELEVATIONS
FIELDS A #7A
MW-3



Note: A value of 1 indicated parameter not detected.

FIGURE 6
HISTORIC BTEX CONCENTRATIONS AND GROUNDWATER ELEVATIONS
FIELDS A #7A
MW-4

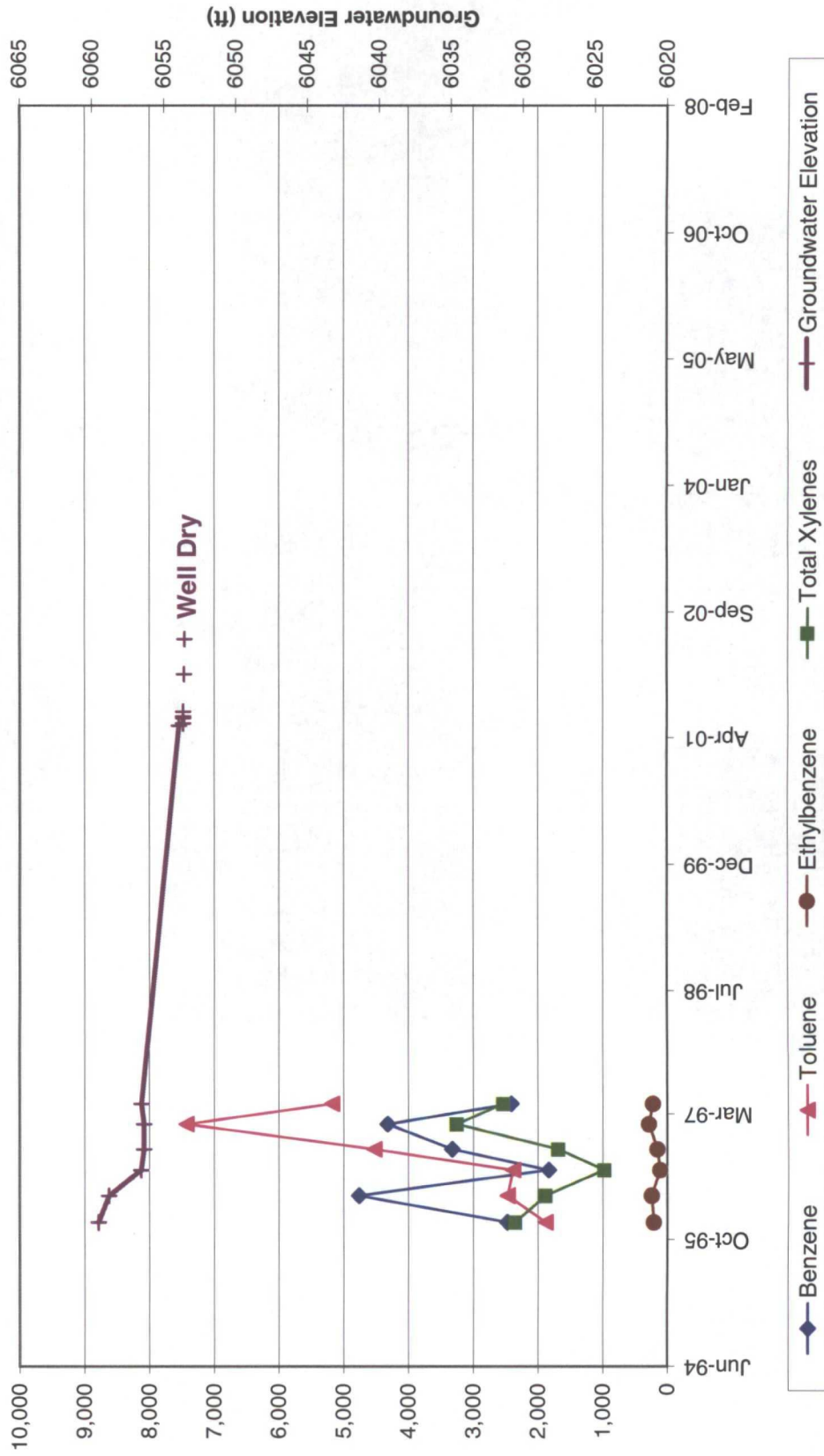


FIGURE 7
HISTORIC FREE-PRODUCT RECOVERY
FIELDS A #7A
MW-1

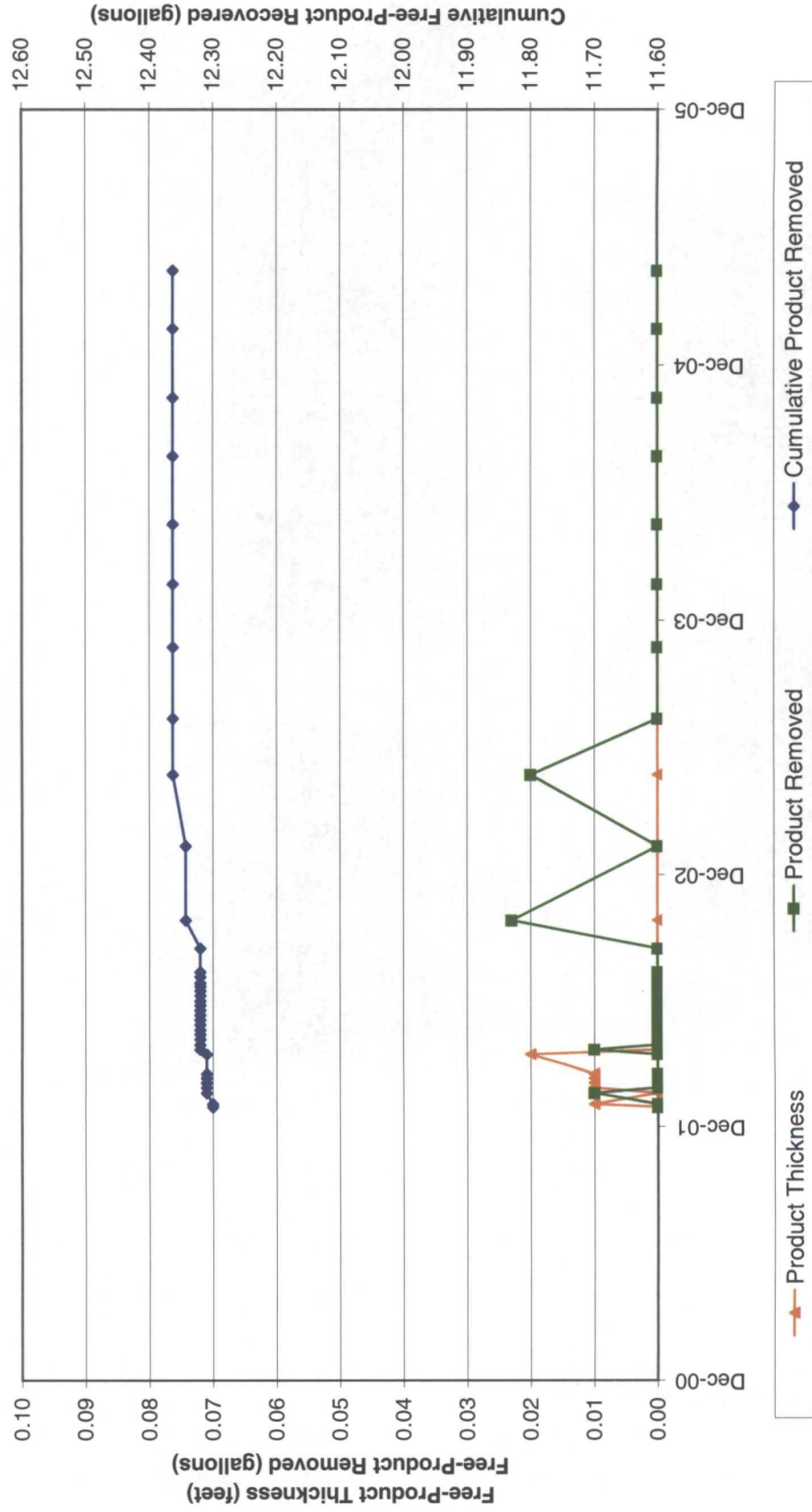


FIGURE 8
HISTORIC FREE-PRODUCT RECOVERY
FIELDS A #7A
MW-4

