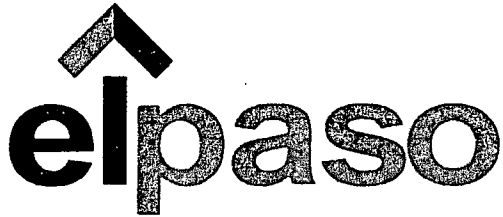


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Oil Conservation Division
Environmental Bureau

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**

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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



MWH

This topographic map depicts the Fort Belknap National Forest and surrounding regions in Montana. The Fort Belknap River is a prominent feature, flowing through the center of the map. Key locations include Great Falls, Missoula, and various Indian Reservations such as the Fort Belknap, Flathead, Kootenai, and Nez Perce. The map also shows the Fort Belknap Dam and the Fort Belknap Reservoir. A scale bar at the bottom indicates a distance of 3 miles, and a north arrow is located in the bottom right corner.

3 mil Scale: 1 : 600,000 Det-3: 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**

**Johnston Fed #6A
Meter Code: 89232**

SITE DETAILS

Legal Description:	Town:	31N	Range:	9W	Sec:	35	Unit:	F
NMOCD Haz Ranking:	40	Land Type:	Federal	Operator:	Burlington Resources			

PREVIOUS ACTIVITIES

Site Assessment:	8/94	Excavation:	9/94 (80cy)	Soil Boring:	8/95
Monitor Well:	8/95	Geoprobe:	NA	Additional MWs:	12/95
Downgradient MWs:	6/00	Replace MW:	NA	Quarterly Initiated:	4/96
ORC Nutrient Injection:	NA	Re-Excavation:	NA	PSH Removal Initiated:	7/97
Annual Initiated:	NA	Quarterly Resumed:	NA		

SUMMARY OF 2006 ACTIVITIES

MW-1: Quarterly free-product recovery and water level monitoring were performed during 2006.

MW-2: Quarterly water level monitoring was performed during 2006.

MW-3: Quarterly free-product recovery and water level monitoring were performed during 2006.

MW-4: Annual groundwater sampling (March) and quarterly water level monitoring were performed during 2006.

MW-5: Quarterly free-product recovery and water level monitoring were performed during 2006.

MW-6: This well was installed in November 2006, and water level measurements were collected in December 2006.

Site-Wide Activities: Geoprobe soil and groundwater investigation activities were performed in January 2006, and MW-6 was installed in November 2006. A right of way permit and an access grant for additional monitoring well installation were acquired in 2006. All wells were surveyed in January 2007.

**EPTPC GROUNDWATER SITES
2006 ANNUAL GROUNDWATER REPORT**

**Johnston Fed #6A
Meter Code: 89232**

SITE MAP

Site maps (one for the March 2006 sampling event and one depicting the site characterization activities) are attached as Figures 1 and 2.

SUMMARY TABLES AND GRAPHS

- Analytical data for 2006 are included in Table 1, and the data are also presented graphically in Figures 3 through 7.
- Product recovery data are included in Table 2, and the data are also presented graphically in Figures 8 through 10.
- 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

Geoprobe logs, soil boring logs, and well completion diagrams are presented in Attachment 3.

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. Soil cuttings from drilling and geoprobe activities were spread onto the ground surface near the boring location.

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 2006.

CONCLUSIONS

- The groundwater flow gradient is generally to the north-northeast.
- Free-product recovery efforts at MW-1 resulted in removal of approximately 0.66 gallons of free-phase hydrocarbons, bringing the cumulative total recovered to date to 7.83 gallons.
- The annual groundwater sample from MW-4 indicated BTEX concentrations at or below the detection limits. BTEX levels in MW-4 have been near or below standards since 2002, representing a significant decrease since 1997 (benzene concentration of 899 µg/L).

**EPTPC GROUNDWATER SITES
2006 ANNUAL GROUNDWATER REPORT**

**Johnston Fed #6A
Meter Code: 89232**

- The oil absorbent sock in MW-1 was replaced in March, June, September, and December 2006.
- Free-product was not detected in MW-5 until September 2006, at which time a sock was placed in the well. No product was detected during the December 2006 monitoring event. Approximately 12 ounces of product was recovered from the sock between September and December 2006.
- Geoprobe soil and groundwater sampling was conducted at this site in January 2006 to investigate other sources of contamination and the extent of current downgradient contamination. GP-3 and GP-4, directly down and upgradient of MW-1 (respectively) were dry. GP-1, located adjacent to the proposed location of MW-6 (installed in November 2006), and GP-2 were below NMOCD standards, indicating the extent of contamination will be defined by the new well.
- MW-6 was installed in November 2006 and will first be sampled during the next annual event, in March 2007.

RECOMMENDATIONS

- EPTPC will continue quarterly free-product recovery efforts at wells MW-1, MW-3, and MW-5; however, the frequency of these activities will be adjusted based on the observed product thicknesses and amounts recovered during the monitoring visits.
- BTEX concentrations in MW-2 have been below closure standards for four sampling events (1997 – 2002); therefore, EPTPC will sample MW-2 at closure.
- EPTPC will continue annual groundwater sampling at MW-4. Additional groundwater level measurements will also be collected from MW-4, in conjunction with product removal activities at other wells.
- MW-6 will be sampled with MW-4 in March 2007.

TABLE 1

SUMMARY OF BTEX COMPOUNDS IN GROUNDWATER SAMPLES
JOHNSTON FED #6A (METER #89232)

Site Name	Sample Date	Monitoring Well	Benzene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	Total Xylenes (ug/L)	Depth to Water (ft btoe)	TOC Elevation	GW Elevation (ft)
Johnston Fed #6A	8/10/1995	MW-1	605	1380	74.6	718	37.24	5997.99	5960.75
Johnston Fed #6A	12/13/1995	MW-1	1330	1610	235	1540	37.35	5997.99	5960.64
Johnston Fed #6A	4/11/1996	MW-1	775	1070	124	810	37.48	5997.99	5960.51
Johnston Fed #6A	7/23/1996	MW-1	676	1980	233	2090	37.55	5997.99	5960.44
Johnston Fed #6A	10/14/1996	MW-1	1790	8350	580	6200	37.22	5997.99	5960.77
Johnston Fed #6A	1/22/1997	MW-1	6420	19800	934	10700	38.26	5997.99	5959.73
Johnston Fed #6A	4/11/1997	MW-1	7310	23500	1010	10800	38.31	5997.99	5959.68
Johnston Fed #6A	12/13/1995	MW-2	15.1	50.8	1	53.8	37.39	5997.94	5960.55
Johnston Fed #6A	4/11/1996	MW-2	1	1	1	3.13	37.47	5997.94	5960.47
Johnston Fed #6A	7/23/1996	MW-2	1	1.15	1	4.06	37.60	5997.94	5960.34
Johnston Fed #6A	10/14/1996	MW-2	1	1.04	1	4.85	37.70	5997.94	5960.24
Johnston Fed #6A	1/22/1997	MW-2	1	1	1	1	37.66	5997.94	5960.28
Johnston Fed #6A	4/11/1997	MW-2	1	1	1	1	37.58	5997.94	5960.36
Johnston Fed #6A	10/9/2000	MW-2	1	1	1	1	37.56	5997.94	5960.38
Johnston Fed #6A	6/18/2001	MW-2	1	1	1	1	37.58	5997.94	5960.36
Johnston Fed #6A	6/3/2002	MW-2	1	1	1	1	37.88	5997.94	5960.06
Johnston Fed #6A	12/13/1995	MW-3	488	1020	104	1120	37.11	5997.32	5960.21
Johnston Fed #6A	4/11/1996	MW-3	772	231	113	379	37.17	5997.32	5960.15
Johnston Fed #6A	7/25/1996	MW-3	687	112	115	209	37.30	5997.32	5960.02
Johnston Fed #6A	10/14/1996	MW-3	900	240	140	340	37.40	5997.32	5959.92
Johnston Fed #6A	1/22/1997	MW-3	907	234	215	340	37.35	5997.32	5959.97
Johnston Fed #6A	4/11/1997	MW-3	944	209	223	322	37.29	5997.32	5960.03
Johnston Fed #6A	6/18/2001	MW-3	510	23	160	98	37.26	5997.32	5960.06
Johnston Fed #6A	6/3/2002	MW-3	380	1	110	29	37.55	5997.32	5959.77
Johnston Fed #6A	12/13/1995	MW-4	545	121	114	177	37.34	5997.35	5960.01
Johnston Fed #6A	4/11/1996	MW-4	591	160	133	193	37.42	5997.35	5959.93
Johnston Fed #6A	7/25/1996	MW-4	793	96.4	172	174	37.54	5997.35	5959.81
Johnston Fed #6A	10/14/1996	MW-4	800	100	130	235	37.64	5997.35	5959.71
Johnston Fed #6A	1/22/1997	MW-4	899	26.7	157	186	37.60	5997.35	5959.75
Johnston Fed #6A	4/11/1997	MW-4	703	20.1	149	138	37.47	5997.35	5959.88
Johnston Fed #6A	10/9/2000	MW-4	81	36	45	20	37.56	5997.35	5959.79
Johnston Fed #6A	6/18/2001	MW-4	490	70	91	96	37.53	5997.35	5959.82
Johnston Fed #6A	6/3/2002	MW-4	16	1	17	2.2	37.80	5997.35	5959.55
Johnston Fed #6A	6/18/2003	MW-4	1	1	1.7	1	37.95	5997.35	5959.40
Johnston Fed #6A	6/22/2004	MW-4	0.56	1.1	2.8	3	38.04	5998.35	5960.31
Johnston Fed #6A	3/23/2005	MW-4	1	1	1	0.99	38.11	5998.35	5960.24
Johnston Fed #6A	3/27/2006	MW-4	0.39	1	1	0.83	38.16	5998.35	5960.19
Johnston Fed #6A	8/30/2000	MW-5	130	180	56	650	38.11	5998.06	5959.95
Johnston Fed #6A	6/18/2001	MW-5	170	300	68	630	38.13	5998.06	5959.93
Johnston Fed #6A	6/4/2002	MW-5	43	87	31	360	38.51	5998.06	5959.55

1 = Not Detected.

TABLE 2

**SUMMARY OF FREE-PRODUCT REMOVAL
JOHNSTON FED #6A (METER #89232)**

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)
Johnston Fed #6A	MW-1	6/18/01	37.34	38.21	0.87	1.25	2.75
Johnston Fed #6A	MW-1	9/4/01	37.54	38.27	0.73	0.75	3.50
Johnston Fed #6A	MW-1	3/4/02	37.74	38.35	0.61	0.25	3.75
Johnston Fed #6A	MW-1	6/4/02	37.81	38.14	0.43	0.25	4.00
Johnston Fed #6A	MW-1	9/10/02	38	38.24	0.24	0.20	4.20
Johnston Fed #6A	MW-1	12/12/02	38.01	38.11	0.10	0.08	4.28
Johnston Fed #6A	MW-1	3/14/03	37.95	38.08	0.13	0.10	4.38
Johnston Fed #6A	MW-1	6/18/03	37.88	38.47	0.59	0.40	4.78
Johnston Fed #6A	MW-1	9/16/03	38.17	38.25	0.59	0.06	4.84
Johnston Fed #6A	MW-1	12/17/03	38.13	38.23	0.10	0.02	4.87
Johnston Fed #6A	MW-1	3/16/04	37.9	38.57	0.67	0.47	5.34
Johnston Fed #6A	MW-1	6/22/04	37.9	38.65	0.75	0.19	5.52
Johnston Fed #6A	MW-1	9/22/04	38.21	38.60	0.39	0.25	5.77
Johnston Fed #6A	MW-1	12/21/04	38.2	38.38	0.18	0.13	5.90
Johnston Fed #6A	MW-1	3/23/05	37.95	38.50	0.55	0.39	6.29
Johnston Fed #6A	MW-1	6/17/05	38.13	38.62	0.49	0.25	6.54
Johnston Fed #6A	MW-1	9/20/05	38.4	38.83	0.43	0.25	6.79
Johnston Fed #6A	MW-1	12/14/05	38.31	38.72	0.41	0.23	7.02
Johnston Fed #6A	MW-1	3/25/06	38.15	38.66	0.51	0.15	7.17
Johnston Fed #6A	MW-1	3/27/06	38.05	38.62	0.57	0.22	7.39
Johnston Fed #6A	MW-1	6/6/06	38.29	38.84	0.55	0.22	7.61
Johnston Fed #6A	MW-1	9/25/06	38.51	39.01	0.50	0.22	7.83
Johnston Fed #6A	MW-1	12/7/06	NA	38.33	0.00	0.00	7.83
Johnston Fed #6A	MW-3	3/14/03	NA	37.66	0.00	0.00	0.00
Johnston Fed #6A	MW-3	6/18/03	37.63	37.87	0.23	0.15	0.15
Johnston Fed #6A	MW-3	9/16/03	37.87	37.89	0.23	0.02	0.17
Johnston Fed #6A	MW-3	12/17/03	NA	37.80	0.00	0.00	0.17
Johnston Fed #6A	MW-3	3/16/04	37.72	37.85	0.13	0.09	0.26
Johnston Fed #6A	MW-3	6/22/04	37.72	37.88	0.16	0.03	0.29
Johnston Fed #6A	MW-3	9/22/04	37.96	38.07	0.11	0.10	0.39
Johnston Fed #6A	MW-3	12/21/04	37.93	37.96	0.03	0.03	0.42

TABLE 2

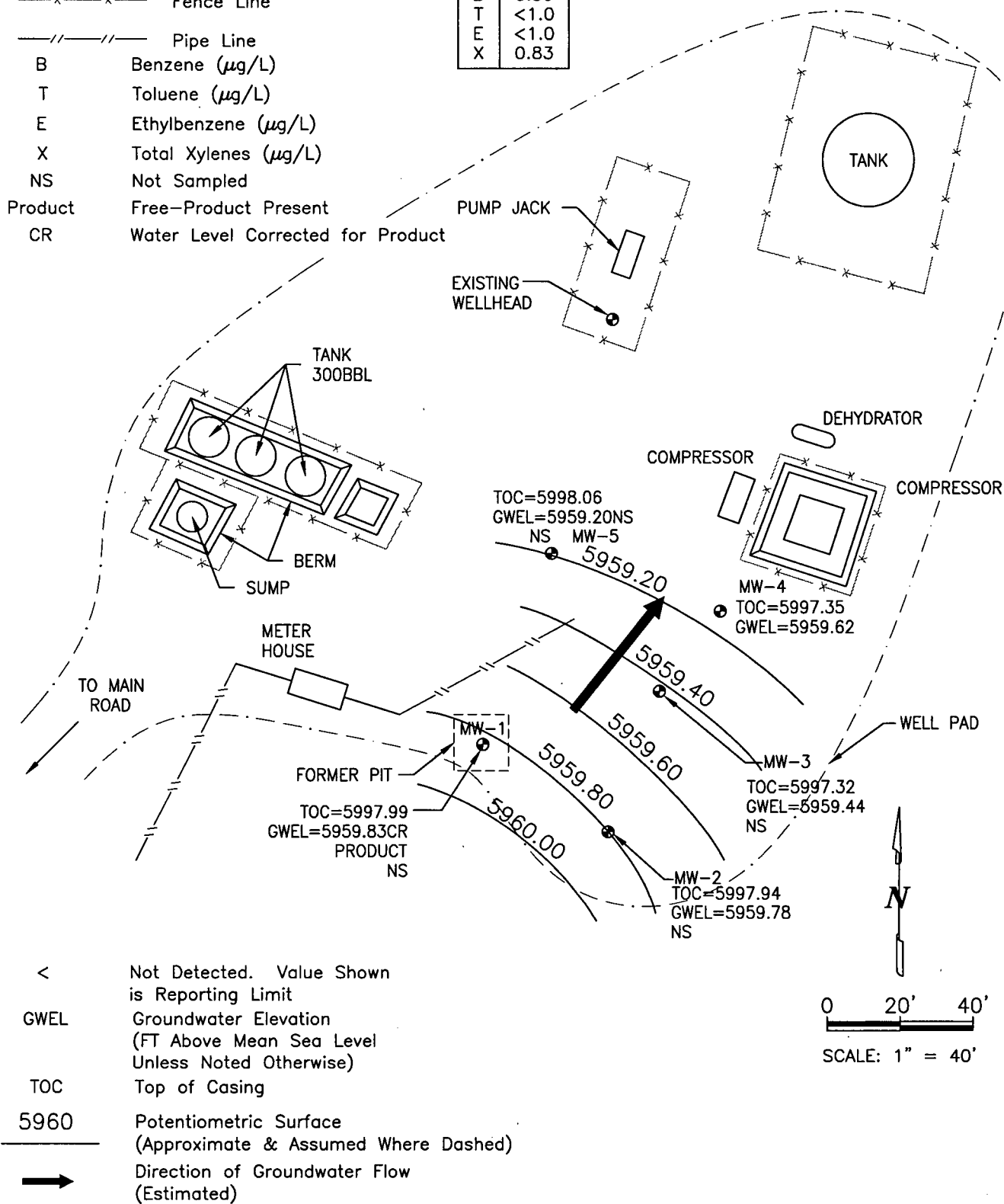
**SUMMARY OF FREE-PRODUCT REMOVAL
JOHNSTON FED #6A (METER #89232)**

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)
Johnston Fed #6A	MW-3	3/23/05	37.80	37.88	0.08	0.06	0.48
Johnston Fed #6A	MW-3	6/17/05	NA	37.92	0.00	0.00	0.48
Johnston Fed #6A	MW-3	9/20/05	NA	38.16	0.00	0.00	0.48
Johnston Fed #6A	MW-3	12/14/05	NA	38.09	0.00	0.00	0.48
Johnston Fed #6A	MW-3	3/25/06	NA	38.09	0.00	0.00	0.48
Johnston Fed #6A	MW-3	3/27/06	NA	37.88	0.00	0.00	0.48
Johnston Fed #6A	MW-3	6/6/06	NA	37.98	0.00	0.00	0.48
Johnston Fed #6A	MW-3	9/25/06	NA	38.16	0.00	0.00	0.48
Johnston Fed #6A	MW-3	12/7/06	NA	38.06	0.00	0.00	0.48
Johnston Fed #6A	MW-5	9/10/02	38.54	39.13	0.59	0.00	0.00
Johnston Fed #6A	MW-5	12/12/02	38.62	38.83	0.21	0.03	0.03
Johnston Fed #6A	MW-5	3/14/03	38.60	38.70	0.11	0.02	0.05
Johnston Fed #6A	MW-5	6/18/03	38.62	38.85	0.23	0.06	0.11
Johnston Fed #6A	MW-5	9/16/03	38.83	38.88	0.23	0.02	0.13
Johnston Fed #6A	MW-5	12/17/03	38.74	38.75	0.01	0.01	0.14
Johnston Fed #6A	MW-5	3/16/04	38.68	38.72	0.04	0.01	0.14
Johnston Fed #6A	MW-5	6/22/04	38.70	38.74	0.04	0.02	0.16
Johnston Fed #6A	MW-5	9/22/04	38.74	38.95	0.21	0.05	0.21
Johnston Fed #6A	MW-5	12/21/04	38.92	38.93	0.01	0.00	0.21
Johnston Fed #6A	MW-5	3/23/05	NA	38.72	0.00	0.00	0.21
Johnston Fed #6A	MW-5	6/17/05	NA	38.72	0.00	0.00	0.21
Johnston Fed #6A	MW-5	9/20/05	NA	39.06	0.00	0.00	0.21
Johnston Fed #6A	MW-5	12/14/05	NA	38.94	0.00	0.00	0.21
Johnston Fed #6A	MW-5	3/27/06	NA	38.86	0.00	0.00	0.21
Johnston Fed #6A	MW-5	6/6/06	NA	38.97	0.00	0.00	0.21
Johnston Fed #6A	MW-5	9/25/06	37.18	37.20	0.02	0.00	0.21
Johnston Fed #6A	MW-5	12/7/2006	NA	39.07	0.00	0.00	0.21
Johnston Fed #6A	MW-6	12/7/2006	NA	39.62	0.00	0.00	0.00

LEGEND

- MW-1 Approximate Monitoring Well Location and Number
- x—x— Fence Line
- //—//— Pipe Line
- B Benzene ($\mu\text{g/L}$)
- T Toluene ($\mu\text{g/L}$)
- E Ethylbenzene ($\mu\text{g/L}$)
- X Total Xylenes ($\mu\text{g/L}$)
- NS Not Sampled
- Product Free-Product Present
- CR Water Level Corrected for Product

MW-4	
B	0.39
T	<1.0
E	<1.0
X	0.83

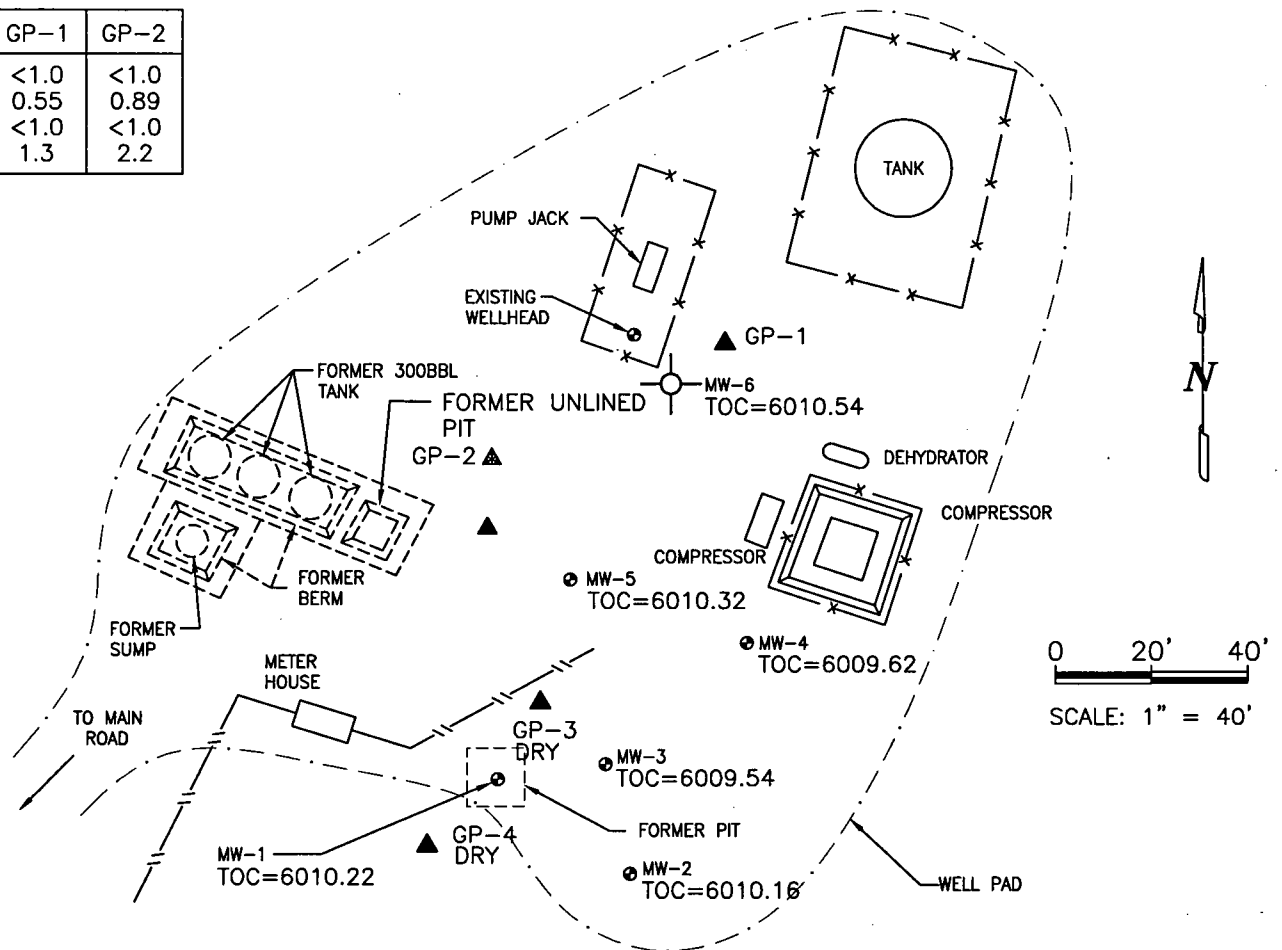


JOHNSTON FEDERAL #6A, METER 70194
MARCH 2006

GROUNDWATER SITES
EL PASO TENNESSEE PIPELINE COMPANY

FIGURE 1

1/5/06	GP-1	GP-2
B	<1.0	<1.0
T	0.55	0.89
E	<1.0	<1.0
X	1.3	2.2



LEGEND

● MW-1	Monitoring Well Location and Number	<	Not Detected. Reporting limit Shown
⊙ MW-6	New Monitoring Well Location and Number	B	Benzene ($\mu\text{g/L}$)
▲ GP-1	Geoprobe Location	T	Toluene ($\mu\text{g/L}$)
—x—x—	Fence Line	E	Ethylbenzene ($\mu\text{g/L}$)
—//—//—	Pipe Line	X	Total Xylenes ($\mu\text{g/L}$)
— — —	Centerline of Road		
TOC	Top of Casing		

JOHNSTON FEDERAL #6A, METER 89232
GEOPROBE AND NEW
MONITORING WELL LOCATION

GROUNDWATER SITES
EL PASO TENNESSEE PIPELINE COMPANY

FIGURE 2

FIGURE 3
HISTORIC BTEX CONCENTRATIONS AND GROUNDWATER ELEVATIONS
JOHNSTON FEDERAL #6A
MW-1

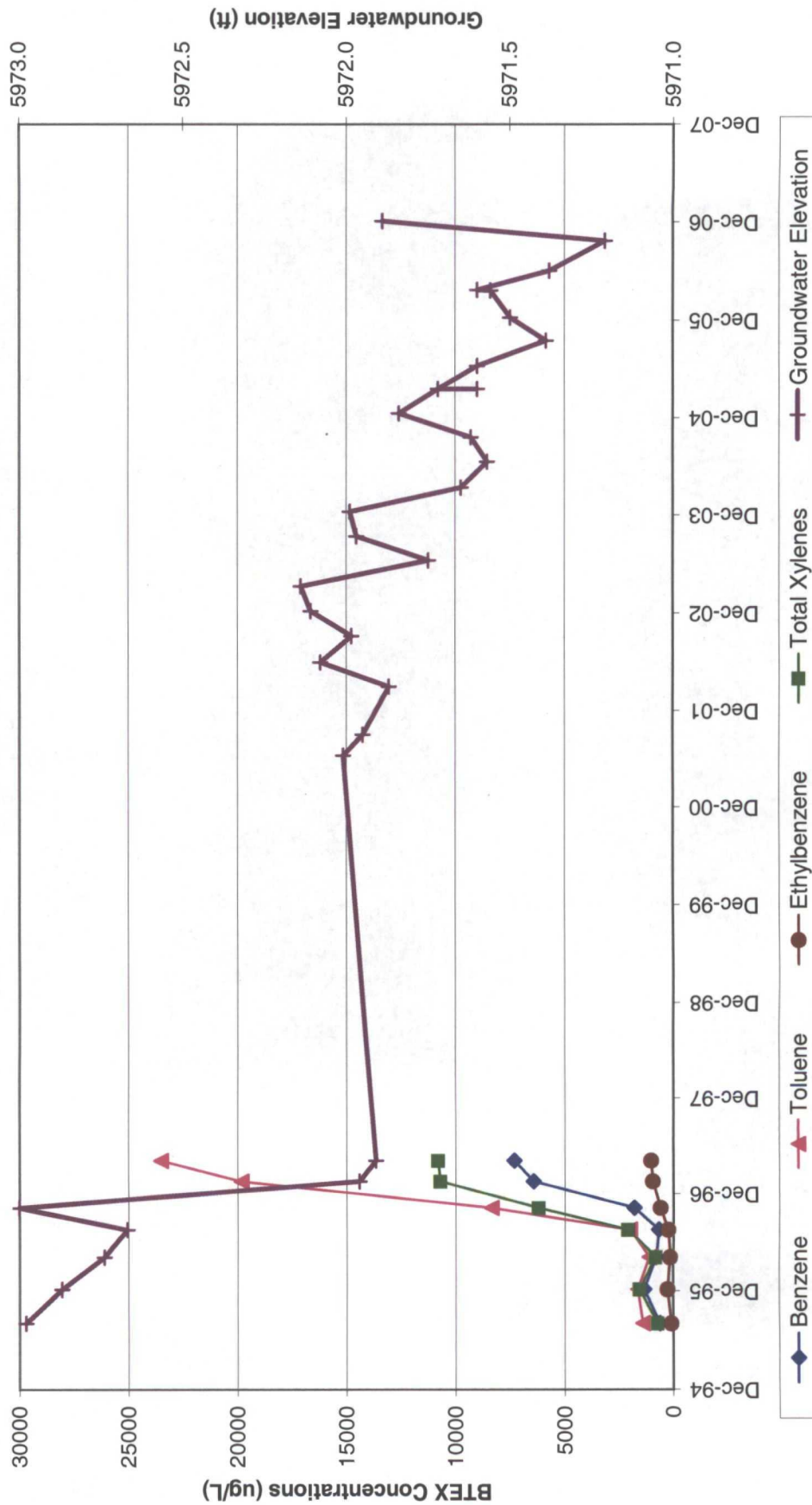
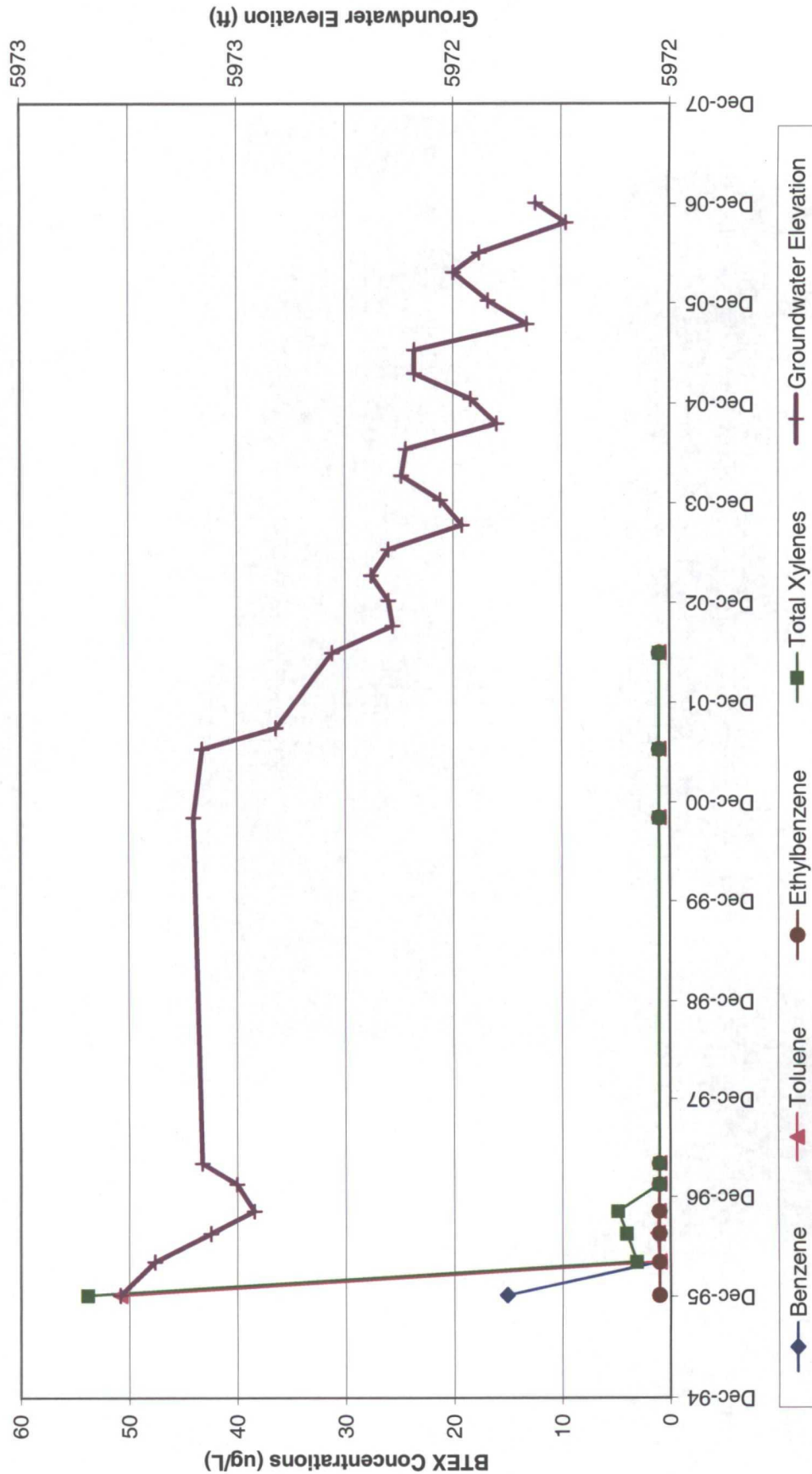
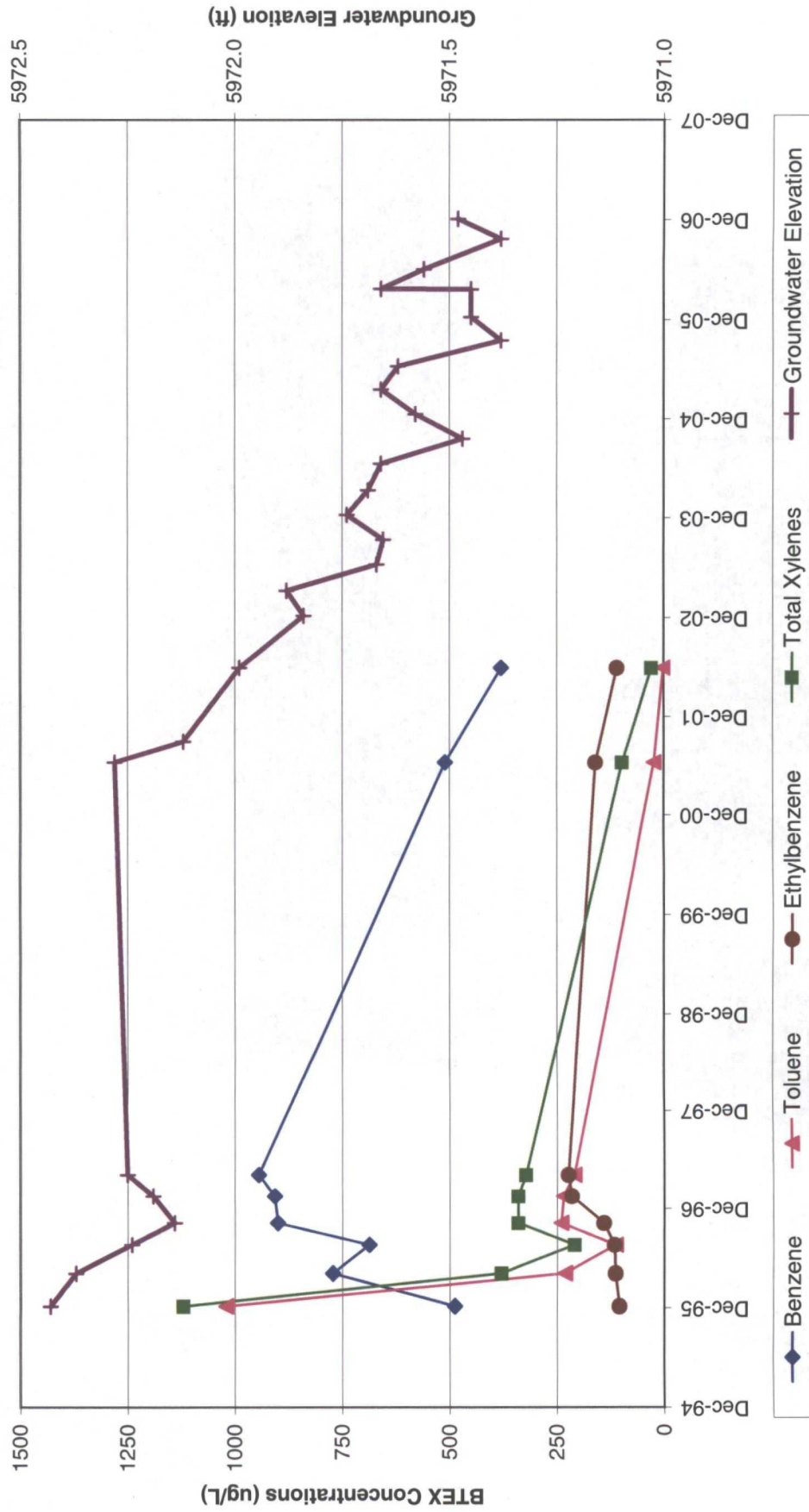


FIGURE 4
HISTORIC BTX CONCENTRATIONS AND GROUNDWATER ELEVATIONS
JOHNSTON FEDERAL #6A
MW-2



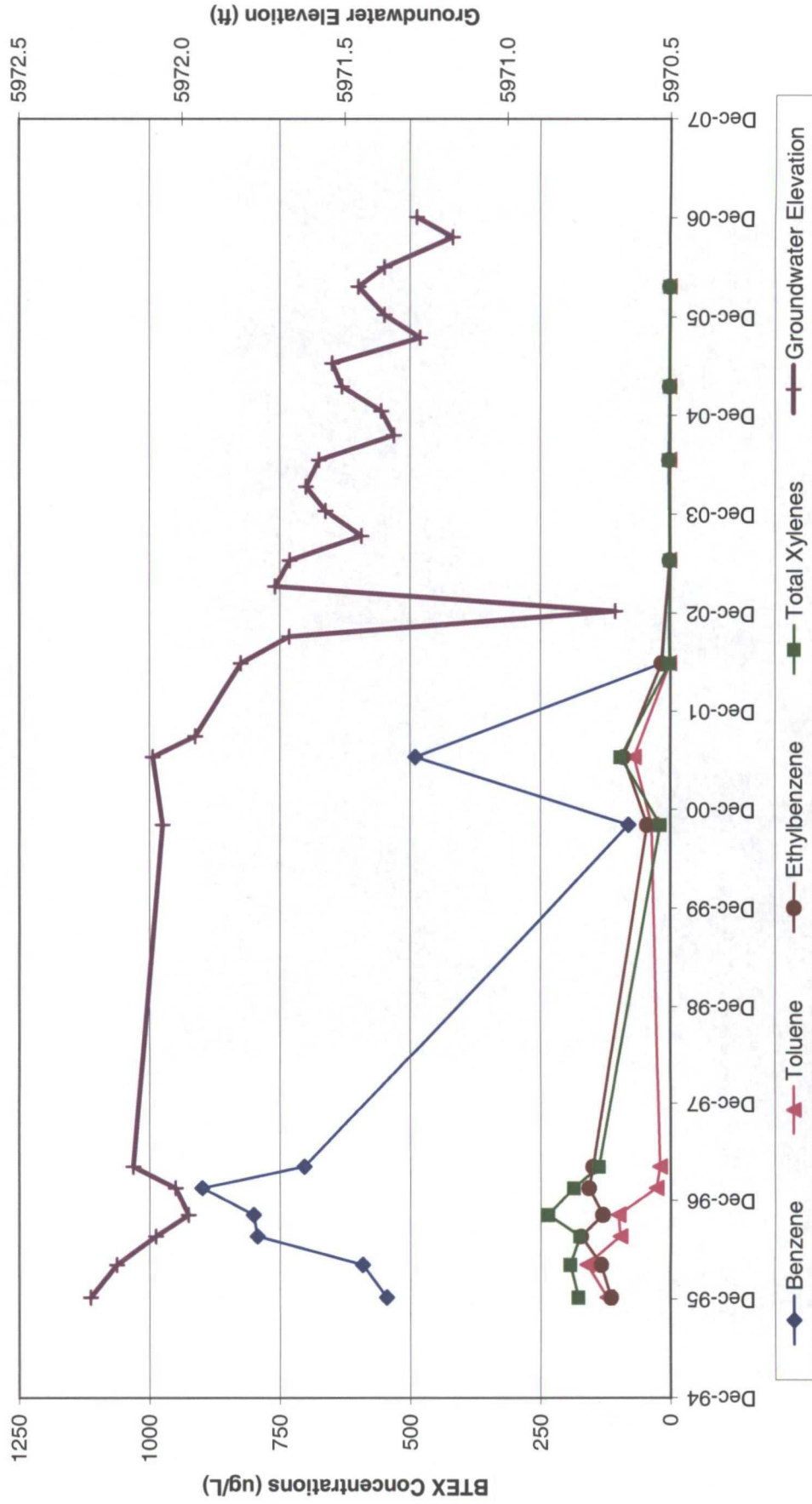
Note: A value of 1 indicates parameter not detected.

FIGURE 5
HISTORIC BTEX CONCENTRATIONS AND GROUNDWATER ELEVATIONS
JOHNSTON FEDERAL #6A
MW-3



Note: A value of 1 indicates parameter not detected.

FIGURE 6
HISTORIC BTX CONCENTRATIONS AND GROUNDWATER ELEVATIONS
JOHNSTON FEDERAL #6A
MW-4



Note: A value of 1 indicates parameter not detected.

FIGURE 7
HISTORIC BTEX CONCENTRATIONS AND GROUNDWATER ELEVATIONS
JOHNSTON FEDERAL #6A
MW-5

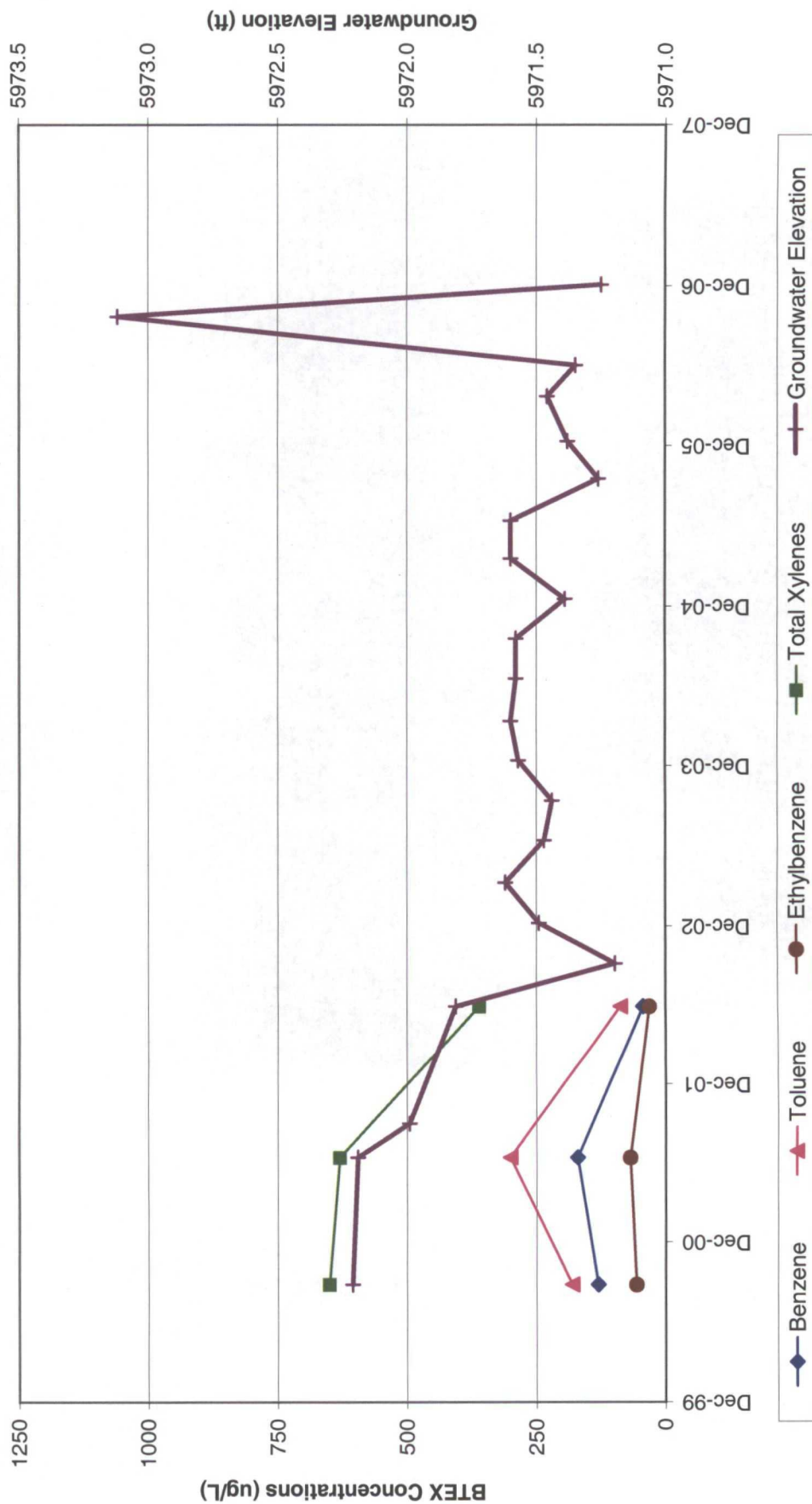


FIGURE 8
HISTORIC FREE-PRODUCT RECOVERY
JOHNSTON FEDERAL #6A
MW-1

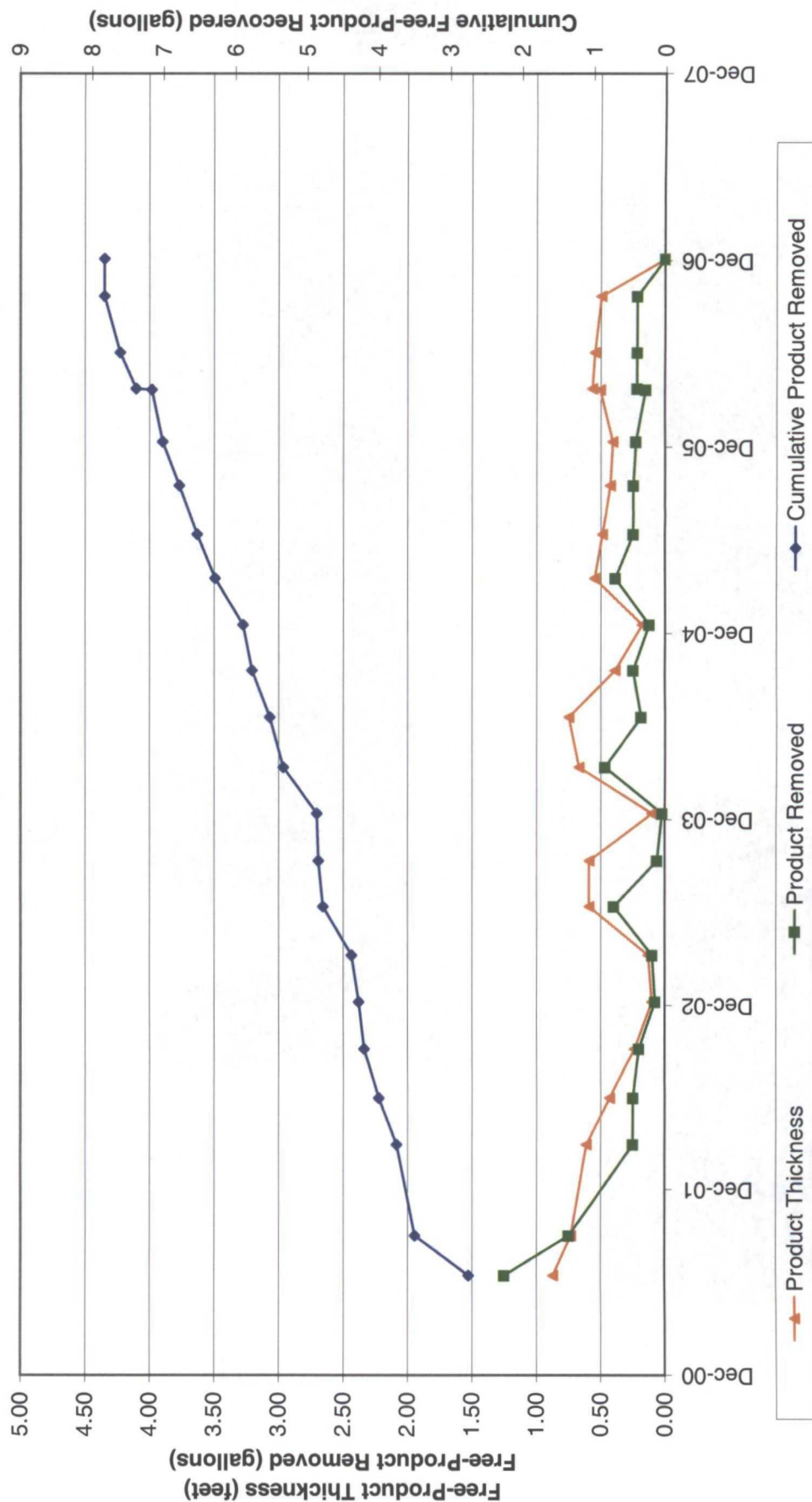


FIGURE 9
HISTORIC FREE-PRODUCT RECOVERY
JOHNSTON FEDERAL #6A
MW-3

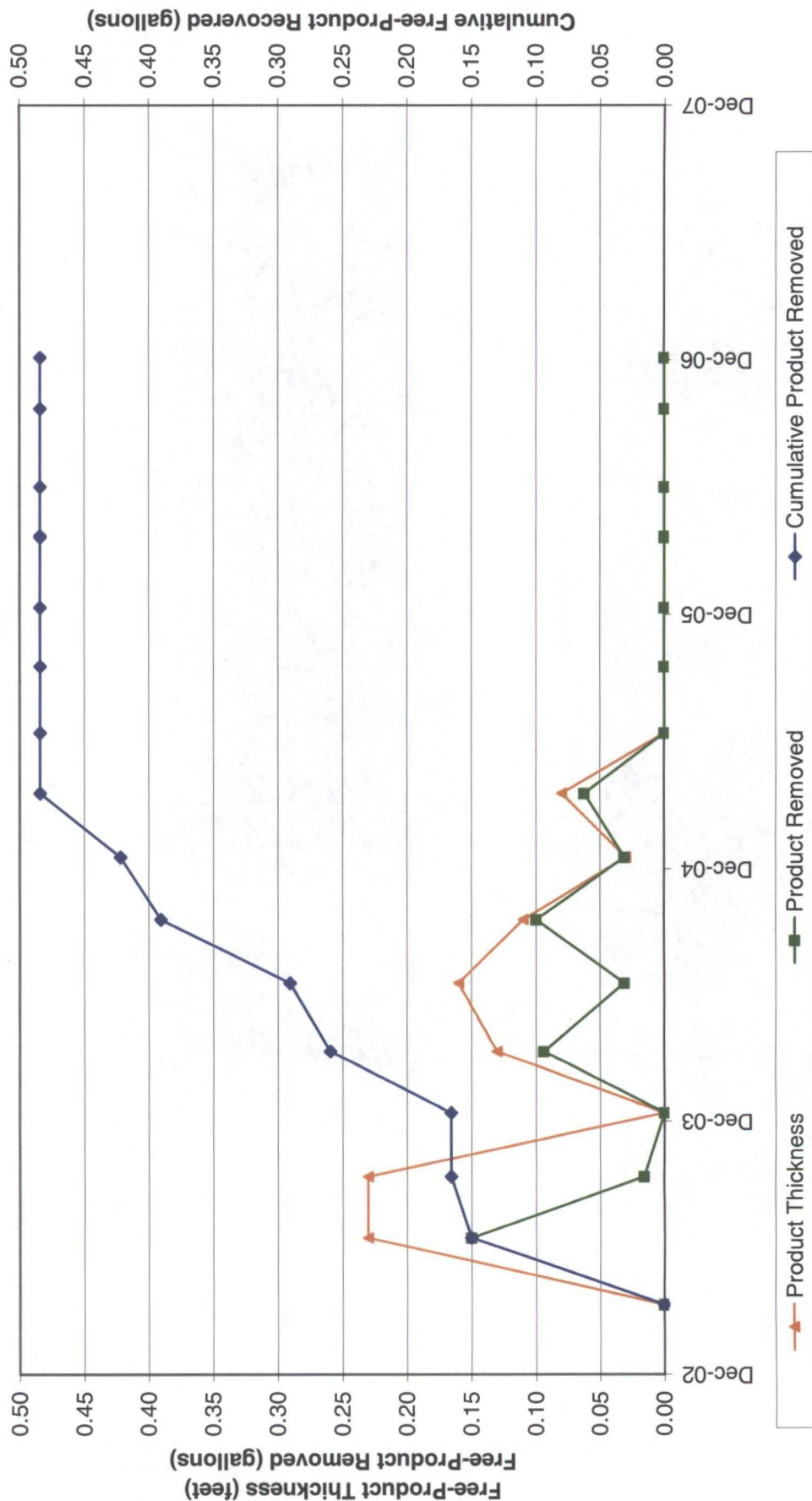


FIGURE 10
HISTORIC FREE-PRODUCT RECOVERY
JOHNSTON FEDERAL #6A
MW-5

