

3R - 239

**ANNUAL  
MONITORING  
REPORTS**

**DATE:**

3/2006

**2005 ANNUAL GROUNDWATER REPORT RECEIVED**  
**NON-FEDERAL SITES VOLUME II**

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

Oil Conservation Division  
**TABLE OF CONTENTS** Environmental Bureau

METER or LINE ID	SITE NAME	TOWNSHIP	RANGE	SECTION	UNIT	
71669	State Gas Com N #1	31N	12W	16	H	3R 239
70194	Johnston Fed #4	31N	09W	33	H	3R 201
93388	Horton #1E	31N	09W	28	H	3R 192
72556	Knight #1	30N	13W	5	A	3R 207
03906	GCU Com A #142E	29N	12W	25	G	3R 197
70445	Standard Oil Com #1	29N	09W	36	N	3R 238
LD087	K-31 Line Drip	25N	06W	16	N	3R 205
94967	*Lindrith B #24	24N	03W	9	N	3R 214

\* Lindrith B#24 Site has been submitted for closure, and is pending approval from NMOCD.



**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

[illegible]

3-D Type Quads Copyright © 1999 Delacorte Yearbook, ME 04296  
104 x 305 6/02/02 3 mil Scale: 1 : 600,000 Detail: 2:4 Datum: WGS84

**EPTPC GROUNDWATER SITES  
2005 ANNUAL GROUNDWATER REPORT**

3R239

**State Gas Com N #1  
Meter Code: 71669**

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**SITE DETAILS**

**Legal Description:**                      **Town:** 31N                      **Range:** 12W                      **Sec:** 16                      **Unit:** H  
**NMOCD Haz Ranking:** 30                      **Land Type:** State                      **Operator:** BP / Amoco Production Company

**PREVIOUS ACTIVITIES**

<b>Site Assessment:</b>	3/94	<b>Excavation:</b>	5/94 (80 cy)	<b>Soil Boring:</b>	10/95
<b>Monitor Well:</b>	10/95	<b>Geoprobe:</b>	NA	<b>Additional MWs:</b>	12/01
<b>Downgradient MWs:</b>	11/95	<b>Replace MW:</b>	NA	<b>Quarterly Initiated:</b>	NA
<b>ORC Nutrient Injection:</b>	NA	<b>Re-Excavation:</b>	NA	<b>PSH Removal Initiated:</b>	NA
<b>Annual Initiated:</b>	NA	<b>Quarterly Resumed:</b>	NA		

**SUMMARY OF 2005 ACTIVITIES**

**MW-1:** Annual groundwater sampling (September) and semi-annual (March and June) free-product recovery and/or water level monitoring were performed during 2005.

**MW-2:** Annual groundwater sampling (September) and semi-annual (March and June) free-product recovery and/or water level monitoring were performed during 2005.

**MW-3:** Semi-annual (March and June) free-product recovery and water level monitoring were performed during 2005.

**MW-4:** Annual groundwater sampling (September) and semi-annual (March and June) water level monitoring were performed during 2005.

**MW-5:** Annual groundwater sampling (September) and semi-annual (March and June) water level monitoring were performed during 2005.

**MW-6:** Quarterly free-product recovery and water level monitoring were performed during 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. Easement and right of way permit applications for groundwater monitoring well installation were prepared for submission in 2006.

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**SITE MAPS**

Site maps (September and showing MW-7, MW-8, and MW-9) are attached in Figures 1 and 2.

**SUMMARY TABLES AND GRAPHS**

- Analytical data from 2005 are summarized in Table 1, and historic data are presented graphically in Figures 3 through 8.
- Free-product recovery data from 2005 are summarized in Table 2, and historic data are presented graphically in Figures 9 through 12.
- 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 the water level and analytical data collected during 2005.

**CONCLUSIONS**

- The groundwater flow direction at this site trends toward the southeast.
- Free-product recovery efforts at MW-1 did not produce any free-phase hydrocarbons during 2005. This well has not contained significant amounts of free-product since 2001.
- Free-product recovery efforts at MW-2 did not produce any free-phase hydrocarbons during 2005. This well has not contained significant amounts of free-product since 2001.
- Oil absorbent socks were installed in MW-3 and MW-6 in March 2005.

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- Free-product recovery efforts at MW-3 resulted in removal of approximately 0.03 gallons of free-phase hydrocarbons during 2005 bringing the cumulative total volume removed to 61.80 gallons. The sock was removed in September 2005 when product failed to accumulate in the well after removal.
- Laboratory results from the annual groundwater sample collected at MW-4 indicate that BTEX concentrations remain elevated at this well. Benzene results for the sample collected in September indicated a concentration of 18,600 µg/L.
- Laboratory results from the annual groundwater sample collected at MW-5 indicate that BTEX concentrations remain elevated at this well. Benzene results for the sample collected in September indicate a concentration of 22,800 µg/L.
- Free-product recovery efforts at MW-6 resulted in removal of approximately 0.50 gallons of free-phase hydrocarbons during 2005 bringing the cumulative total volume removed to 4.29 gallons.
- Based on the technology review and free product removal data for this site, it was concluded that oil absorbent socks would be the most efficient and cost-effective product removal technique for MW-6 at this time. As MW-3 has accumulated no product since sock removal in September 2005, it was concluded that oil absorbent socks would be of no additional benefit in MW-3 at this time.



**EPTPC GROUNDWATER SITES  
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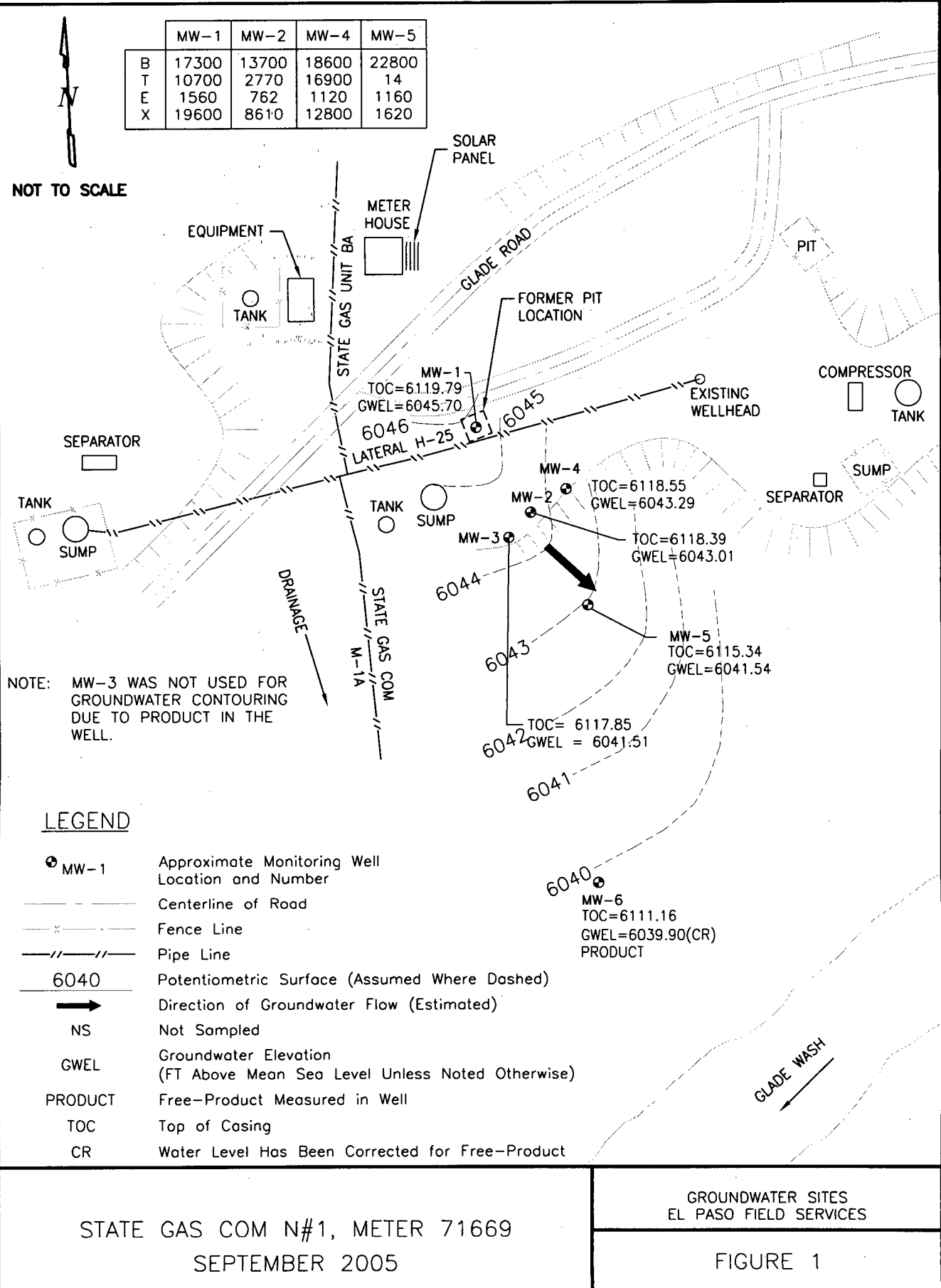
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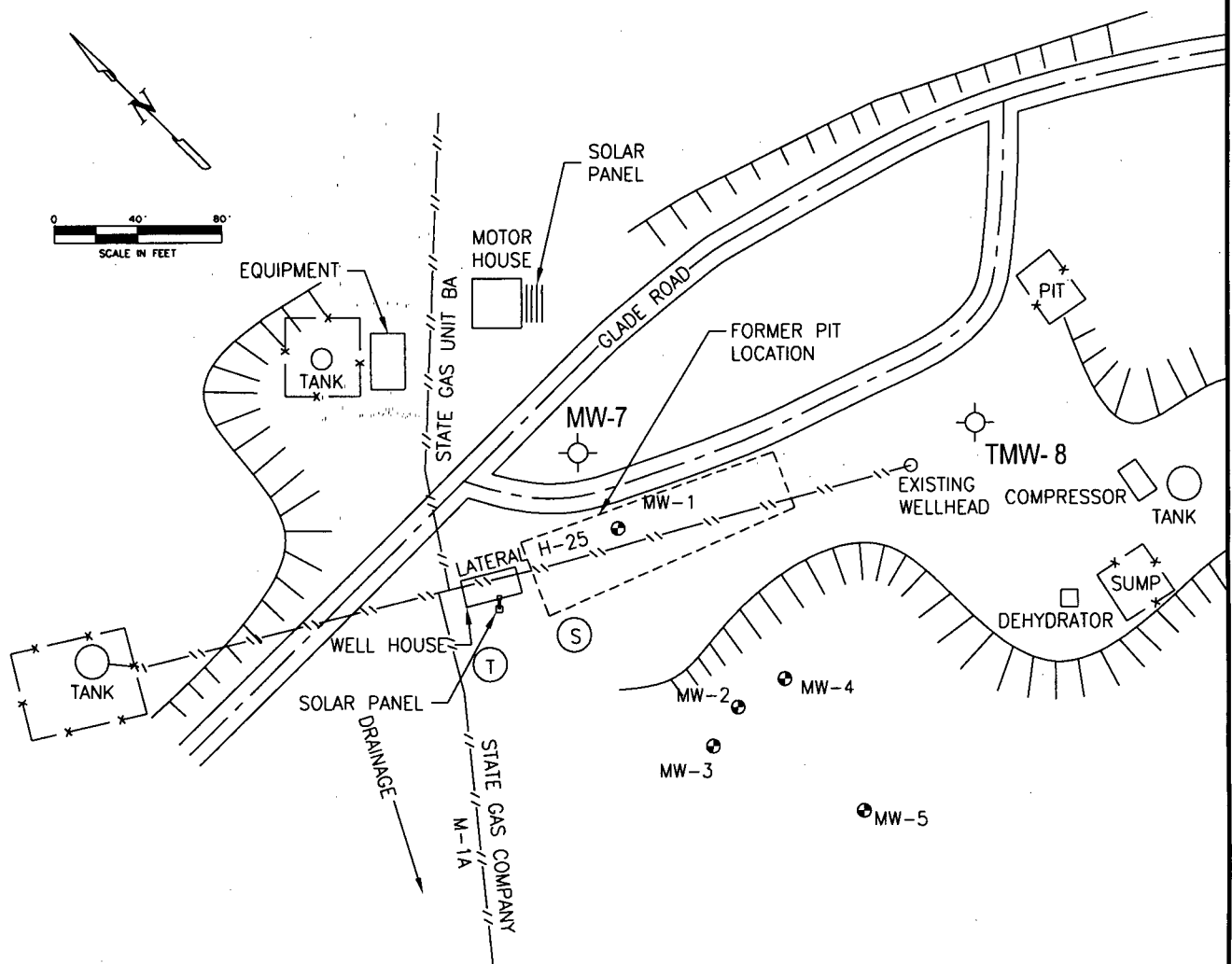
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**RECOMMENDATIONS**

- EPTPC recommends continuing free-product recovery efforts at MW-1, MW-2, MW-3 and MW-6. EPTPC will continue semi-annual free-product recovery efforts at MW-1, MW-2, and MW-3 and quarterly free-product recovery at MW-6; however, the frequency of monitoring will be adjusted based on the amount of product recovered during the monitoring visits.
- EPTPC recommends a monthly oil absorbent sock replacement for MW-6.
- If product accumulates in MW-3 EPTPC recommends replacement of the oil absorbent sock.
- EPTPC recommends annual groundwater sampling at MW-1 and MW-2, if free-product continues to be absent from these wells.
- EPTPC recommends annual groundwater sampling at wells MW-4 and MW-5.
- EPTPC recommends semi-annual water level measurements at all wells.
- In order to assess upgradient and secondary sources of contamination at this site, EPTPC will attempt to install MW-7 to the north of MW-1, and MW-8 to the northeast of MW-1 (shown in Figure 2) in March 2006. To assess the extent of contamination EPTPC will attempt to install MW-9 to the south of MW-6.
- If installation of MW-7 is successful, EPTPC will conduct slug testing at this well to assess hydraulic conductivity at this site in March 2006.







### LEGEND

- ⊙ MW-1 Approximate Monitoring Well Location and Number
- ⊙ MW-9 Proposed New Monitoring Well/Boring Location and Number
- — — Centerline of Road
- x — x — Fence Line
- // — // — Pipe Line

SITE LOCATION MAP  
STATE GAS COM N#1, METER 71669  
PROPOSED NEW MONITORING WELL LOCATIONS

GROUNDWATER SITES  
EL PASO TENNESSEE PIPELINE COMPANY

FIGURE 2

TABLE 1

## SUMMARY OF BTEX COMPOUNDS IN 2005 GROUNDWATER SAMPLES

STATE GAS COM N#1 (METER #71669)

Site Name	Sample Date	Monitoring Well	Benzene (ug/L)	Toluene (ug/L)	Ethylbenzene (ug/L)	Total Xylenes (ug/L)	Depth to Water (feet)	TOC Elevation	GW Elevation (ft)
State Gas Com N #1	9/15/2005	MW-1	17,300	10,700	1,560	19,600	74.09	6119.79	6045.70
State Gas Com N #1	9/15/2005	MW-2	13,700	2,770	762	8,610	75.38	6118.39	6043.01
State Gas Com N #1	9/15/2005	MW-4	18,600	19,600	1,120	12,800	75.26	6118.55	6043.29
State Gas Com N #1	9/15/2005	MW-5	22,800	14	1,160	1,620	73.80	6115.34	6041.54

TABLE 2

SUMMARY OF FREE-PRODUCT REMOVAL DURING 2005  
STATE GAS COM N#1 (METER #71669)

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)
State Gas Com N#1	MW-1	3/17/05	0.00	74.23	0.00	0.00	79.61
State Gas Com N#1	MW-1	6/17/05	0.00	74.15	0.00	0.00	79.61
State Gas Com N#1	MW-2	3/17/05	0.00	75.37	0.00	0.00	133.20
State Gas Com N#1	MW-2	6/17/05	0.00	75.72	0.00	0.00	133.20
State Gas Com N#1	MW-3	3/17/05	75.39	75.43	0.04	0.03	61.80
State Gas Com N#1	MW-3	6/17/05	0.00	75.43	0.00	0.00	61.80
State Gas Com N#1	MW-3	9/15/05	0.00	75.49	0.00	0.00	61.80
State Gas Com N#1	MW-6	3/17/05	71.79	0.83	0.83	0.14	3.94
State Gas Com N#1	MW-6	6/17/05	71.05	72.05	1.00	0.12	4.06
State Gas Com N#1	MW-6	9/15/05	71.04	72.14	1.10	0.12	4.17
State Gas Com N#1	MW-6	12/22/05	72.22	71.30	0.92	0.12	4.29

**FIGURE 3**  
**HISTORIC BTEX CONCENTRATIONS AND GROUNDWATER ELEVATIONS**  
**STATE GAS COM N#1**  
**MW-1**

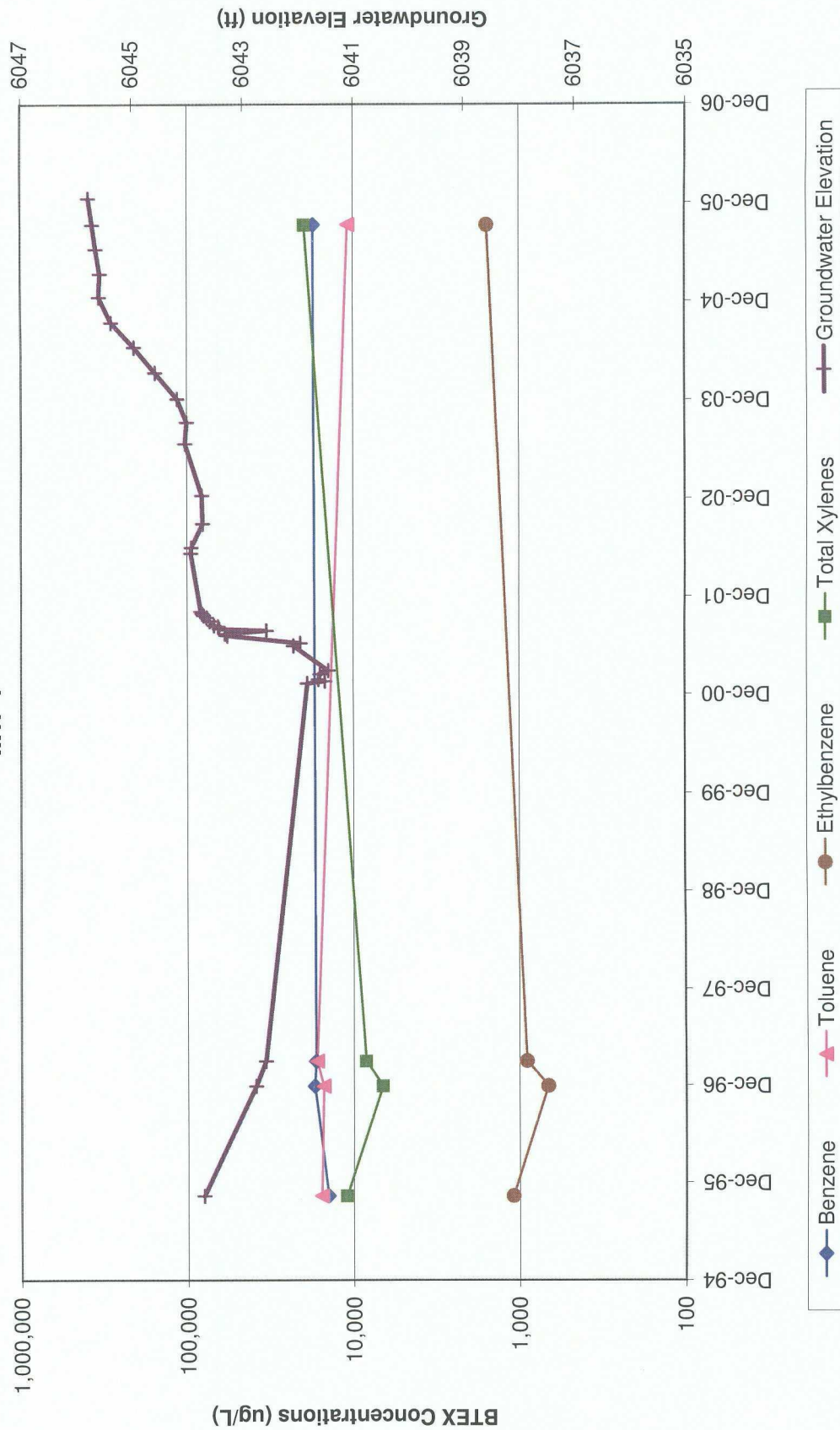
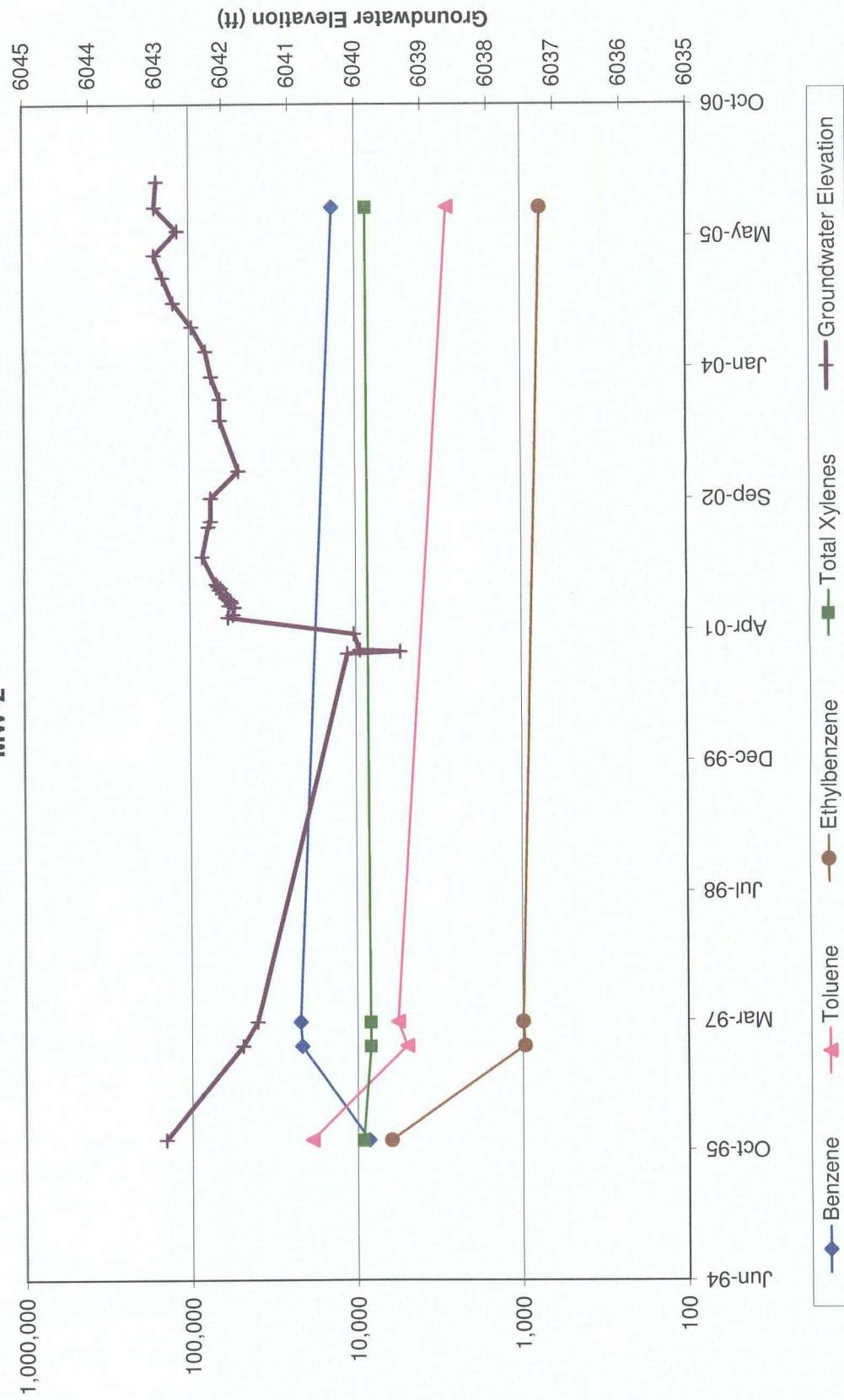
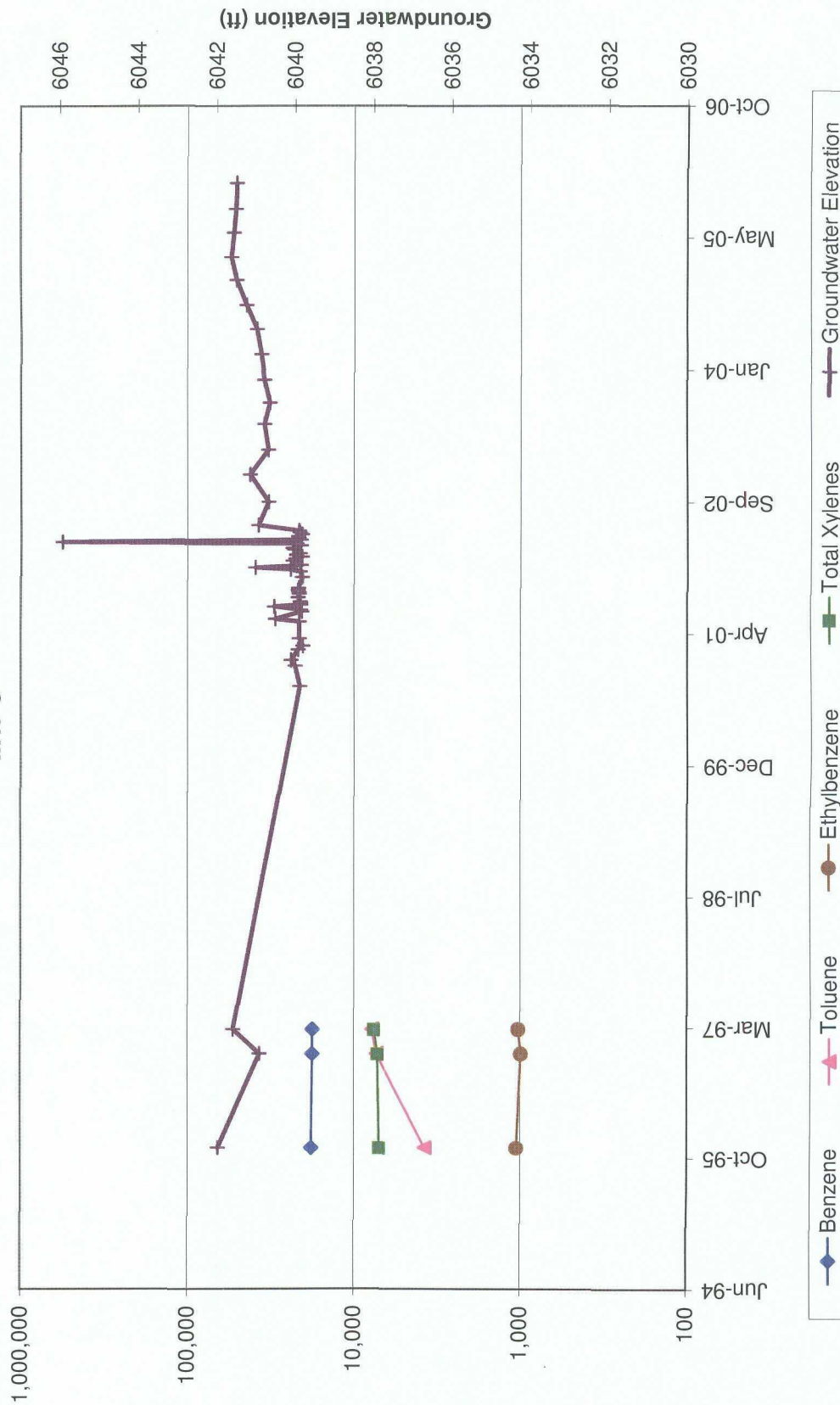


FIGURE 4  
HISTORIC BTEX CONCENTRATIONS AND GROUNDWATER ELEVATIONS  
STATE GAS COM N#1  
MW-2

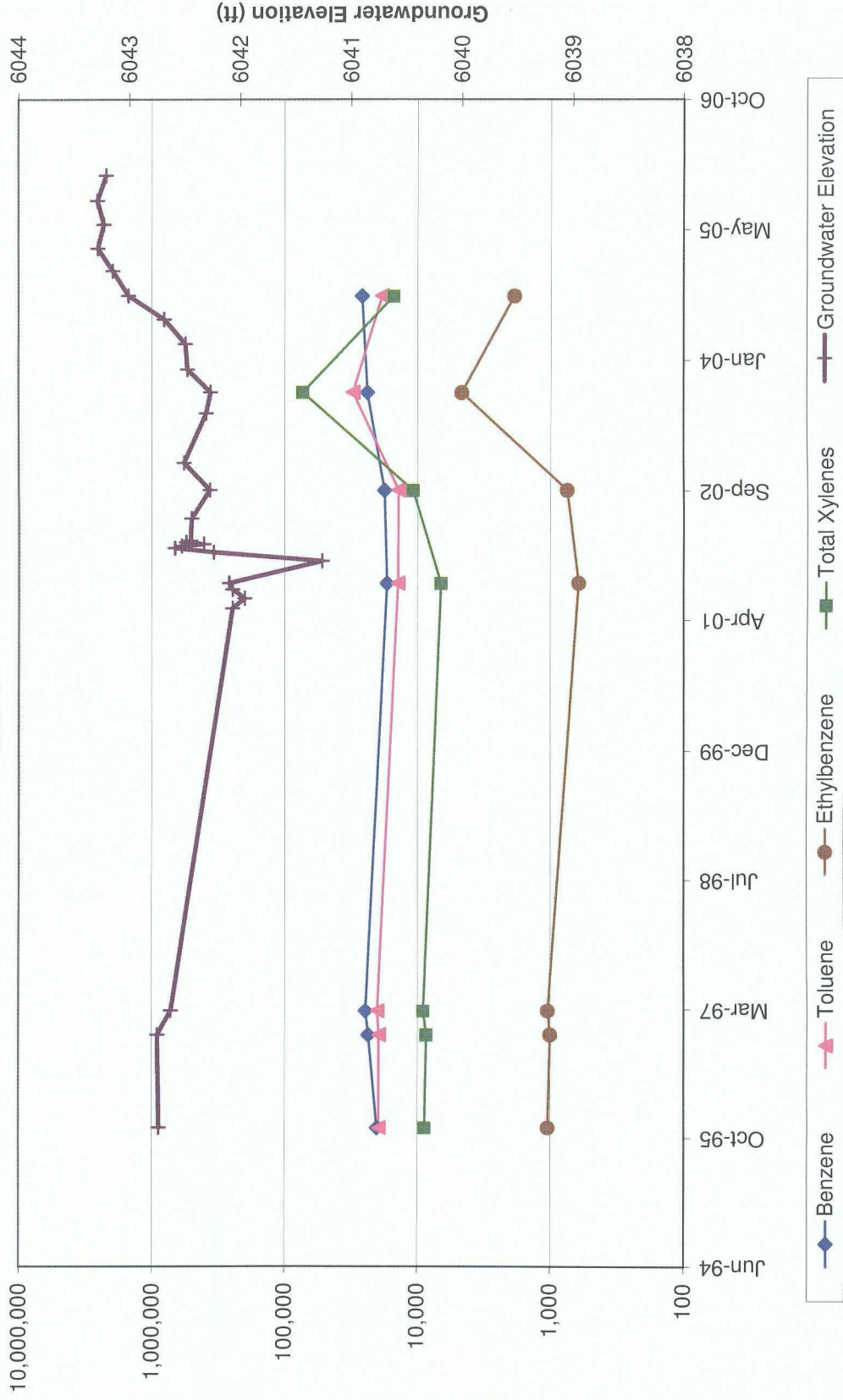


**FIGURE 5**  
**HISTORIC BTEX CONCENTRATIONS AND GROUNDWATER ELEVATIONS**  
**STATE GAS COM N#1**  
**MW-3**

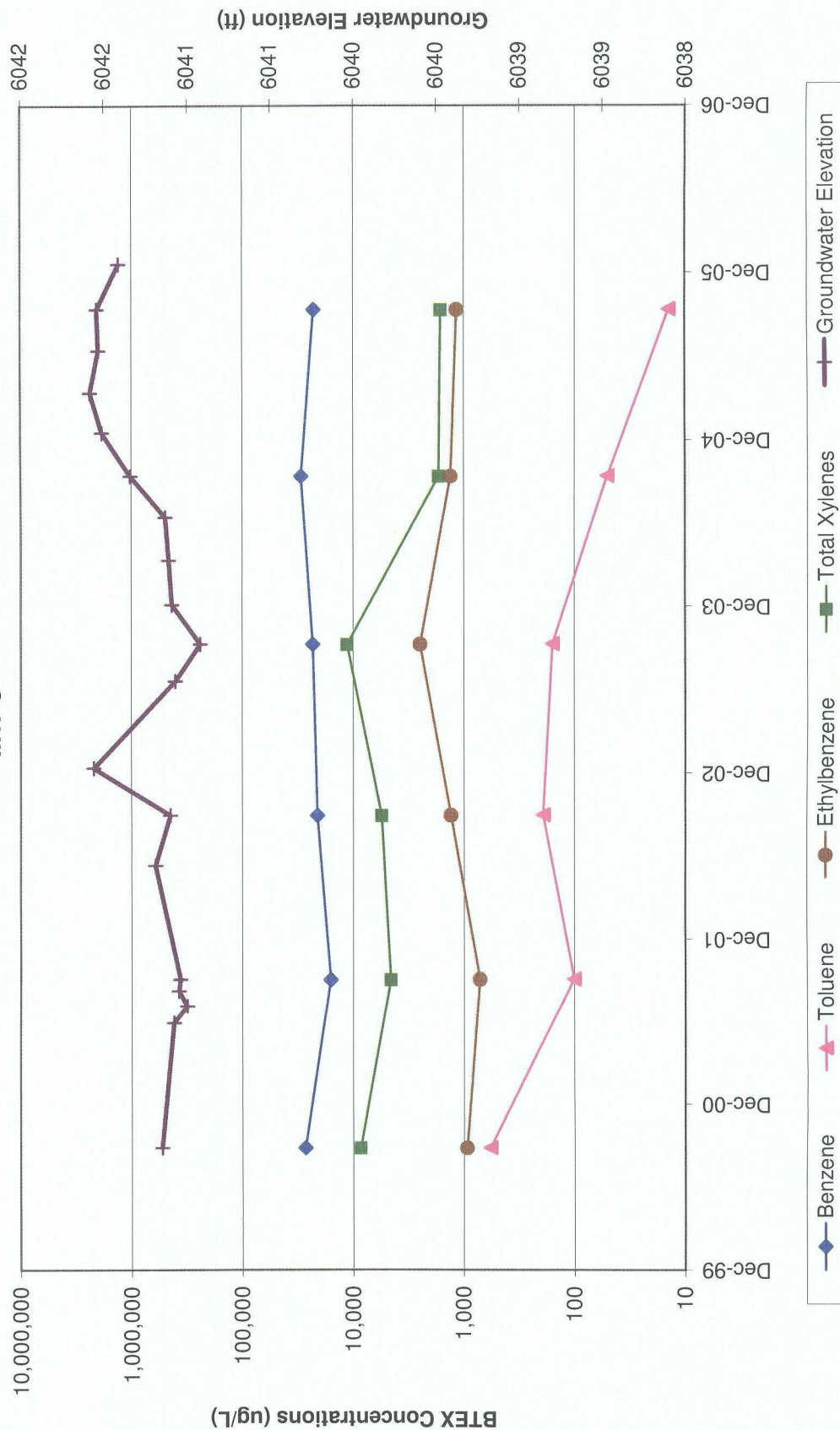




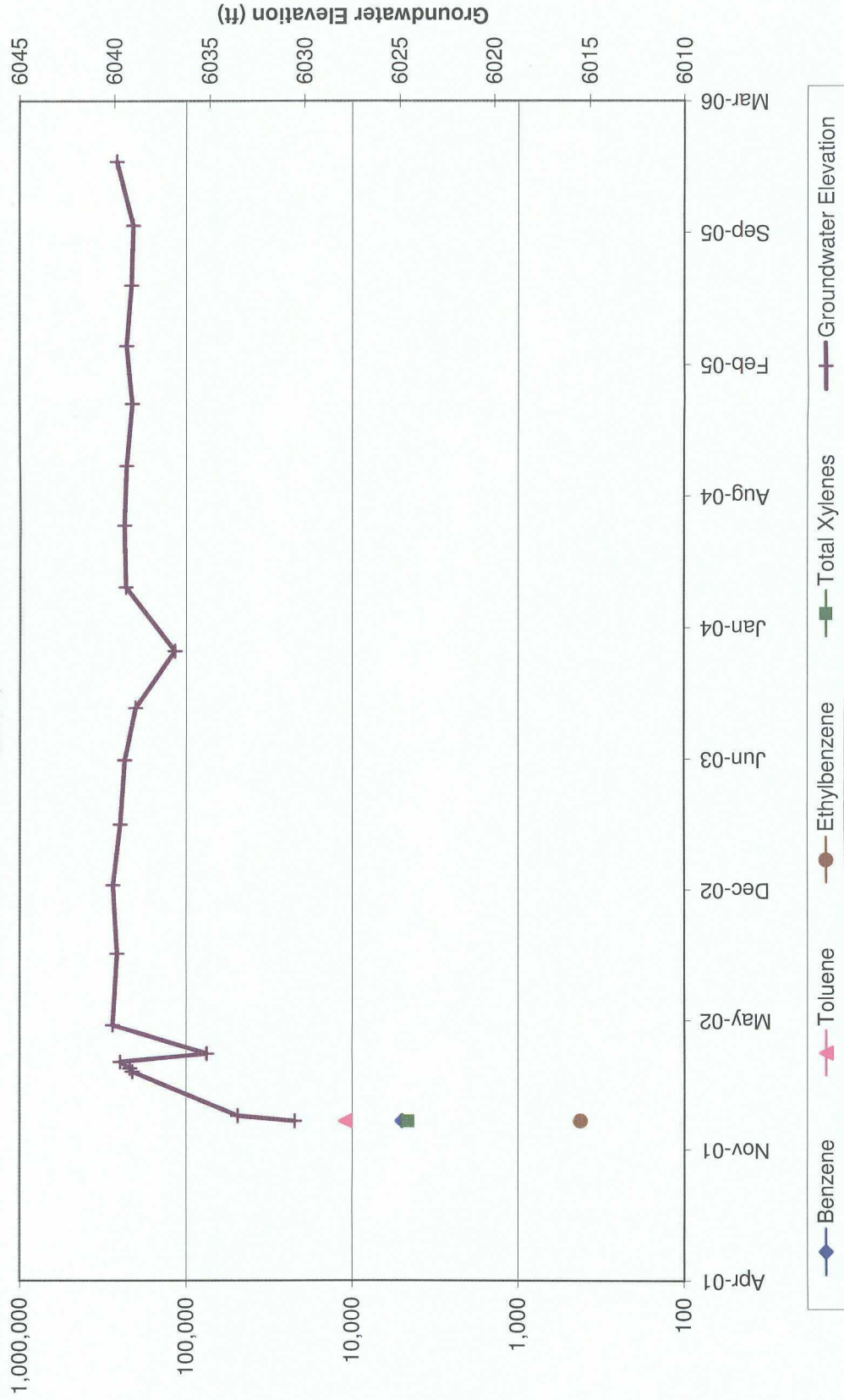
**FIGURE 6**  
**HISTORIC BTEX CONCENTRATIONS AND GROUNDWATER ELEVATIONS**  
**STATE GAS COM N#1**  
**MW-4**



**FIGURE 7**  
**HISTORIC BTEX CONCENTRATIONS AND GROUNDWATER ELEVATIONS**  
**STATE GAS COM N#1**  
**MW-5**



**FIGURE 8**  
**HISTORIC BTEX CONCENTRATIONS AND GROUNDWATER ELEVATIONS**  
**STATE GAS COM N#1**  
**MW-6**



**FIGURE 9**  
**HISTORIC FREE-PRODUCT RECOVERY**  
**STATE GAS COM N#1**  
**MW-1**

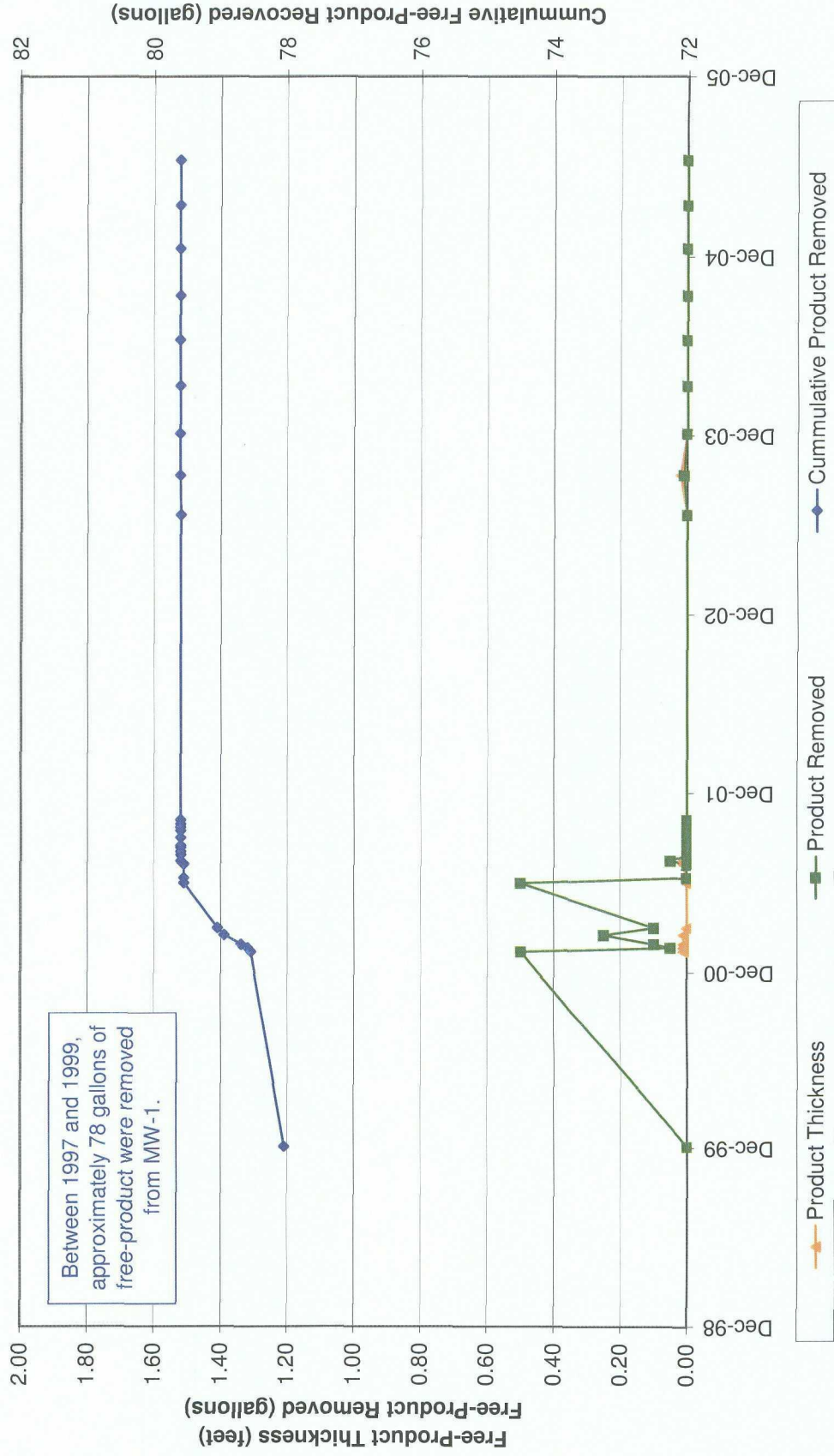




FIGURE 10  
HISTORIC FREE-PRODUCT RECOVERY  
STATE GAS COM N#1  
MW-2

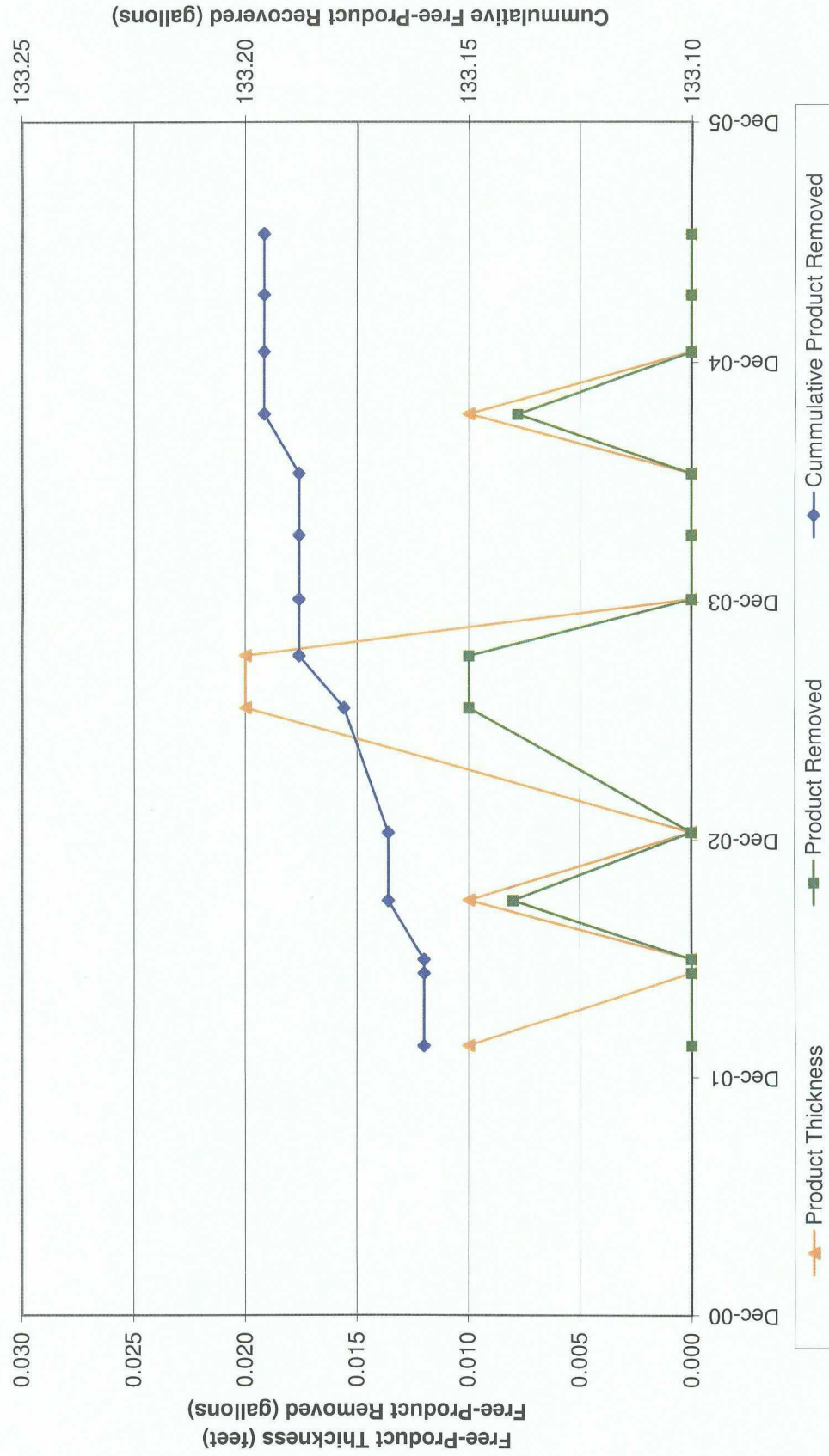


FIGURE 11  
HISTORIC FREE-PRODUCT RECOVERY  
STATE GAS COM N#1  
MW-3

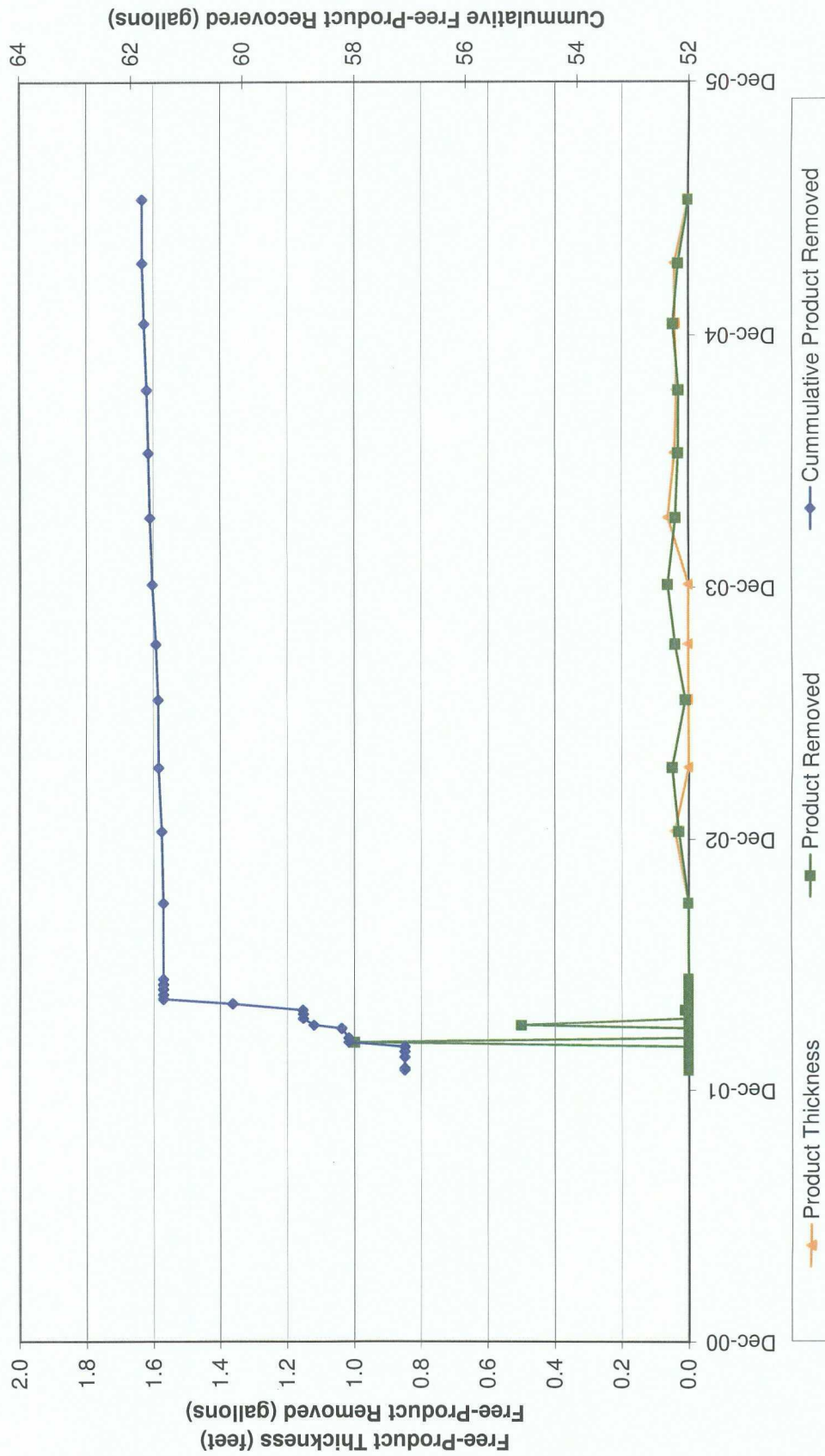


FIGURE 12  
HISTORIC FREE-PRODUCT RECOVERY  
STATE GAS COM N#1  
MW-6

