

3R - 201

**ANNUAL
MONITORING
REPORTS**

DATE:

2/2005

**2004 ANNUAL GROUNDWATER REPORT
NON-FEDERAL SITES VOLUME II
EL PASO FIELD SERVICES**

TABLE OF CONTENTS

| METER or LINE ID | SITE NAME | TOWNSHIP | RANGE | SECTION | UNIT | |
|------------------|---------------------|----------|-------|---------|------|-------|
| 71669 | State Gas Com N #1 | 31N | 12W | 16 | H | 3R239 |
| 70194 | Johnston Fed #4 | 31N | 09W | 33 | H | 3R201 |
| 93388 | Horton #1E | 31N | 09W | 28 | H | 3R192 |
| 72556 | Knight #1 | 30N | 13W | 5 | A | 3R207 |
| 73551 | * Coldiron A #1 | 30N | 11W | 2 | K | 3R164 |
| 03906 | GCU Com A #142E | 29N | 12W | 25 | G | 3R197 |
| 70445 | Standard Oil Com #1 | 29N | 09W | 36 | N | 3R238 |
| LD087 | K-31 Line Drip | 25N | 06W | 16 | N | 3R205 |
| 94967 | ** Lindrith B #24 | 24N | 03W | 9 | N | 3R214 |

* Coldiron A#1 Site was closed by NMOCD in October 2004.

** 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 |
| $\mu\text{g/L}$ | micrograms per liter |
| X | total xylenes |

3-D TopoQuads Copyright © 1999 Delorme Vermont, ME 04896 3 mil Scale: 1 : 600,000 Detail: 3 : 4 Datum: WGS84

EPFS GROUNDWATER SITES
2004 ANNUAL GROUNDWATER REPORT

3R201

Johnston Fed #4
Meter Code: 70194

SITE DETAILS

Legal Description: Town: 31N Range: 09W Sec: 33 Unit: H
NMOCD Haz Ranking: 40 Land Type: Fee Operator: Burlington Resources

PREVIOUS ACTIVITIES

| | | | | | |
|----------------------------|-------|-----------------------|-----------------|---------------------------|-------|
| Site Assessment: | 8/94 | Excavation: | 9/94 (60 cy) | Soil Boring: | 8/95 |
| Monitor Well: | 8/95 | Geoprobe: | 9/97 | Additional MWs: | 12/95 |
| Downgradient MWs: | 12/95 | Replace MW: | NA | Quarterly Initiated: | NA |
| ORC Nutrient Injection: | NA | Re-Excavation: | NA | PSH Removal Initiated: | 9/97 |
| Annual Initiated: | 6/01 | Quarterly Resumed: | NA | | |

SUMMARY OF 2004 ACTIVITIES

MW-1: Quarterly free-product recovery and water level monitoring was performed during 2004.

MW-2: Annual groundwater sampling (June) and quarterly water level monitoring was performed during 2004.

MW-3: Quarterly free-product recovery and water level monitoring was performed during 2004.

Site-Wide Activities: A technology review and data assessment were performed to evaluate free-product removal protocol and methodologies for sites with free-product.

SITE MAPS

Site maps (June) are attached in Figure 1.

**EPFS GROUNDWATER SITES
2004 ANNUAL GROUNDWATER REPORT**

**Johnston Fed #4
Meter Code: 70194**

SUMMARY TABLES AND GRAPHS

- Analytical data from 2004 are summarized in Table 1, and historic data are presented graphically in Figures 2 through 4.
- Free-product recovery data from 2004 are summarized in Table 2, and historic data are presented graphically in Figures 5 and 6.
- Laboratory reports are presented in Attachment 1.
- Field documentation is presented in Attachment 2.

GEOLOGIC LOGS AND WELL COMPLETION DIAGRAMS

No subsurface activities were performed at this site during 2004.

DISPOSITION OF GENERATED WASTES

All phase-separated hydrocarbons were disposed of at the EPFS Kutz Separator located in Bloomfield, New Mexico.

ISOCONCENTRATION MAPS

No isoconcentration maps were prepared for this site, however, the attached site maps present the water level and analytical data collected during 2004.

CONCLUSIONS

- The groundwater flow direction at this site trends toward the northeast.
- Monitoring wells MW-2 and MW-3 are located cross-gradient of the former pit. The presence of hydrocarbon contamination in MW-2 suggests an alternative source of contamination at the site. In 1997, a temporary monitoring well, PH-2 (see Figure 1) located upgradient (south/southwest) of MW-1 and downgradient of the operator's production pit contained BTEX concentrations well above that at MW-1 and NMWQCC standards.
- Free-product recovery efforts at MW-1 resulted in the removal of approximately 0.23 gallons of free-phase hydrocarbons during 2004 bringing the cumulative total volume recovered to date to approximately 10.5 gallons. Free-product removal in 2003 totaled 1.8 gallons, compared to 0.23 gallons in 2004, demonstrating that product accumulation is decreasing.
- The benzene concentration in the annual groundwater sample collected at MW-2 continued to decrease from 186 µg/l (June 2003) to 88.9 µg/l in June 2004.

**EPFS GROUNDWATER SITES
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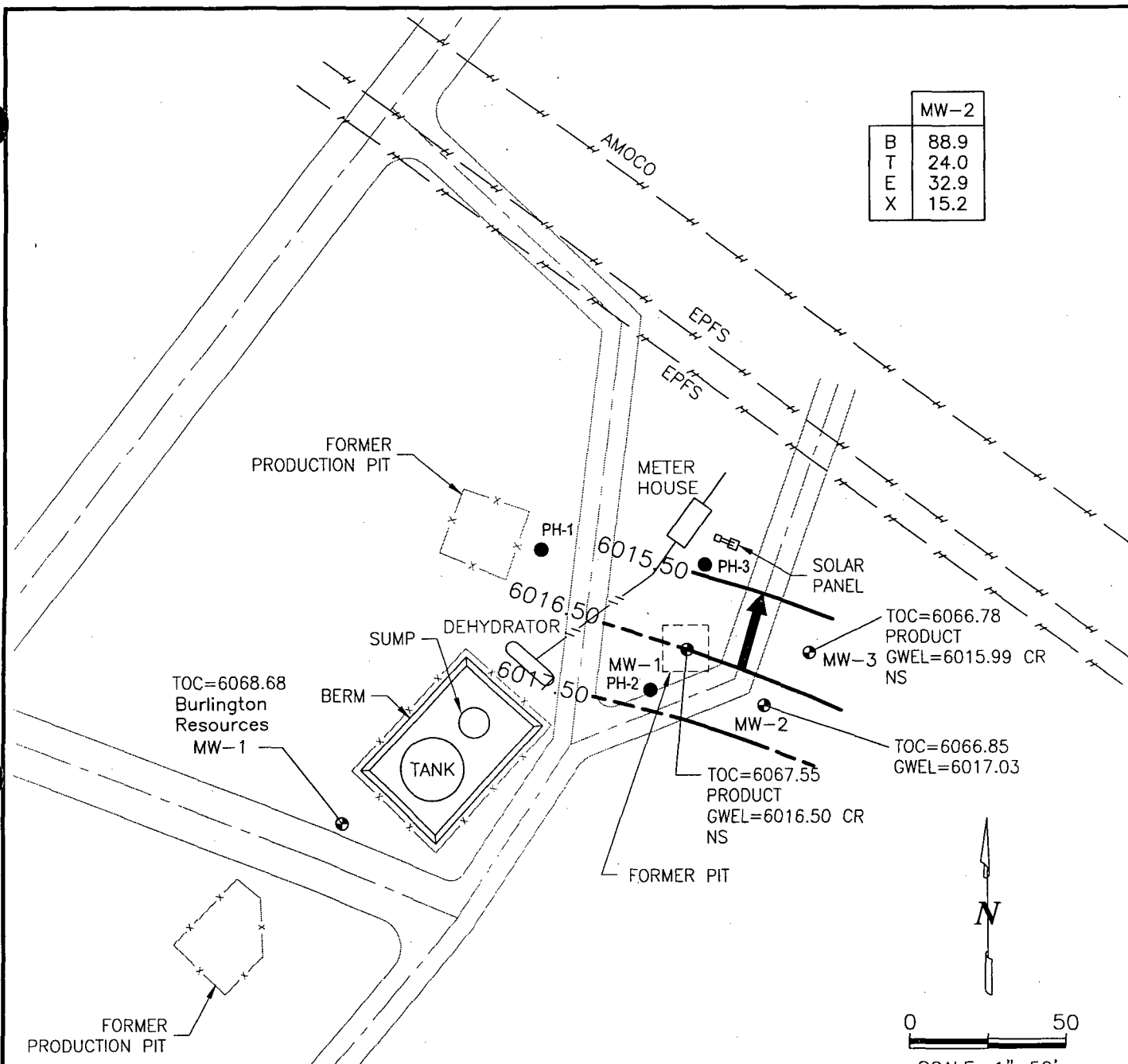
**Johnston Fed #4
Meter Code: 70194**

- Free-product recovery efforts at MW-3 resulted in the removal of approximately 1.5 gallons of free-phase hydrocarbons during 2004, bringing the cumulative total volume recovered to 7.21 gallons. Free-product removal in 2003 totaled 3.1 gallons, compared to 1.5 gallons in 2004, demonstrating that product accumulation is decreasing.
- Based on the technology review and free-product removal data for this site, the free-product removal evaluation concluded that free-product removal would be most efficient using a passive skimmer in MW-3 and oil-absorbent socks in MW-1.

RECOMMENDATIONS

- EPFS recommends installation of oil-absorbent socks into MW-1, and installation of a 4" skimmer (moved from GCU 124E) into MW-3 to facilitate free-product removal during 2005. EPFS will continue quarterly free-product recovery efforts at these wells; however, the frequency of monitoring will be adjusted based on the amount of product recovered during the monitoring visits.
- EPFS will continue annual sampling and quarterly water level monitoring at MW-2 until analytical results indicate that BTEX concentrations are approaching closure criteria. This well will then be scheduled for quarterly sampling until closure criteria have been met.
- EPFS will continue to evaluate the potential of other upgradient sources to EPFS' former pit; this effort may include installation of a new monitoring well at the site.

| MW-2 | |
|------|------|
| B | 88.9 |
| T | 24.0 |
| E | 32.9 |
| X | 15.2 |



LEGEND

| | | | | | |
|--|------|---|--|---------|--|
| | MW-1 | Approximate Monitoring Well Location and Number | | 6018 | Potentiometric Surface (Approximate & Assumed Where Dashed) |
| | PH-1 | Temporary Geoprobe Locations | | GWEL | Direction of Groundwater Flow (Estimated) |
| | | Centerline of Road | | TOC | Groundwater Elevation (FT Above Mean Level Unless Otherwise Noted) |
| | | Fence Line | | NS | Top of Casing |
| | | Pipeline | | < | Not Sampled |
| | B | Benzene ($\mu\text{g/L}$) | | Product | Not Detected. Value Shown is Detection Limit. |
| | T | Toluene ($\mu\text{g/L}$) | | CR | Free-Product Present |
| | E | Ethylbenzene ($\mu\text{g/L}$) | | | Water Level Corrected for Product |
| | X | Total Xylenes ($\mu\text{g/L}$) | | | |

JOHNSTON FEDERAL #4, METER 70194
JUNE 2004

GROUNDWATER SITES
EL PASO FIELD SERVICES

FIGURE 1

TABLE 1
SUMMARY OF BTEX COMPOUNDS IN 2004 GROUNDWATER SAMPLES
JOHNSTON FED #4 (METER #70194)

| Site Name | Monitoring Well | Sample Date | Benzene (ug/L) | Toluene (ug/L) | Ethylbenzene (ug/L) | Total Xylenes (ug/L) | Depth to Water (ft btoc) |
|------------------------|-----------------|-------------|-------------------|-------------------|------------------------|-------------------------|-----------------------------|
| Johnston Fed #4 | MW-2 | 6/22/2004 | 88.9 | 24.0 | 32.9 | 15.2 | 49.82 |

< = Analyte not detected at Method Detection Limit (MDL). Value shown is MDL.

J = Value estimated

TABLE 2
SUMMARY OF FREE-PRODUCT REMOVAL DURING 2004
JOHNSTON FED #4 (METER #70194)

| Site Name | Monitoring Well | Removal Date | Depth to Product (feet btoc) | Depth to Water (feet btoc) | Product Thickness (feet) | Volume of Product Removed (gallons) | Cummulative Volume of Product Removed (gallons) |
|-----------------|-----------------|--------------|------------------------------|----------------------------|--------------------------|-------------------------------------|---|
| Johnston Fed #4 | MW-1 | 3/16/04 | 50.98 | 51.14 | 0.16 | 0.06 | 10.32 |
| Johnston Fed #4 | MW-1 | 6/22/04 | 51.02 | 51.15 | 0.13 | 0.02 | 10.33 |
| Johnston Fed #4 | MW-1 | 9/22/04 | 51.06 | 51.18 | 0.12 | 0.09 | 10.42 |
| Johnston Fed #4 | MW-1 | 12/21/04 | 51.08 | 51.15 | 0.07 | 0.06 | 10.49 |
| Johnston Fed #4 | MW-3 | 3/16/04 | 50.68 | 51.10 | 0.42 | 0.31 | 5.99 |
| Johnston Fed #4 | MW-3 | 6/22/04 | 50.68 | 51.22 | 0.54 | 0.09 | 6.09 |
| Johnston Fed #4 | MW-3 | 9/22/04 | 50.69 | 51.30 | 0.61 | 0.50 | 6.59 |
| Johnston Fed #4 | MW-3 | 12/21/04 | 50.71 | 51.32 | 0.61 | 0.63 | 7.21 |

FIGURE 2
HISTORIC BTEX CONCENTRATIONS AND GROUNDWATER ELEVATIONS
JOHNSTON FED #4
MW-1

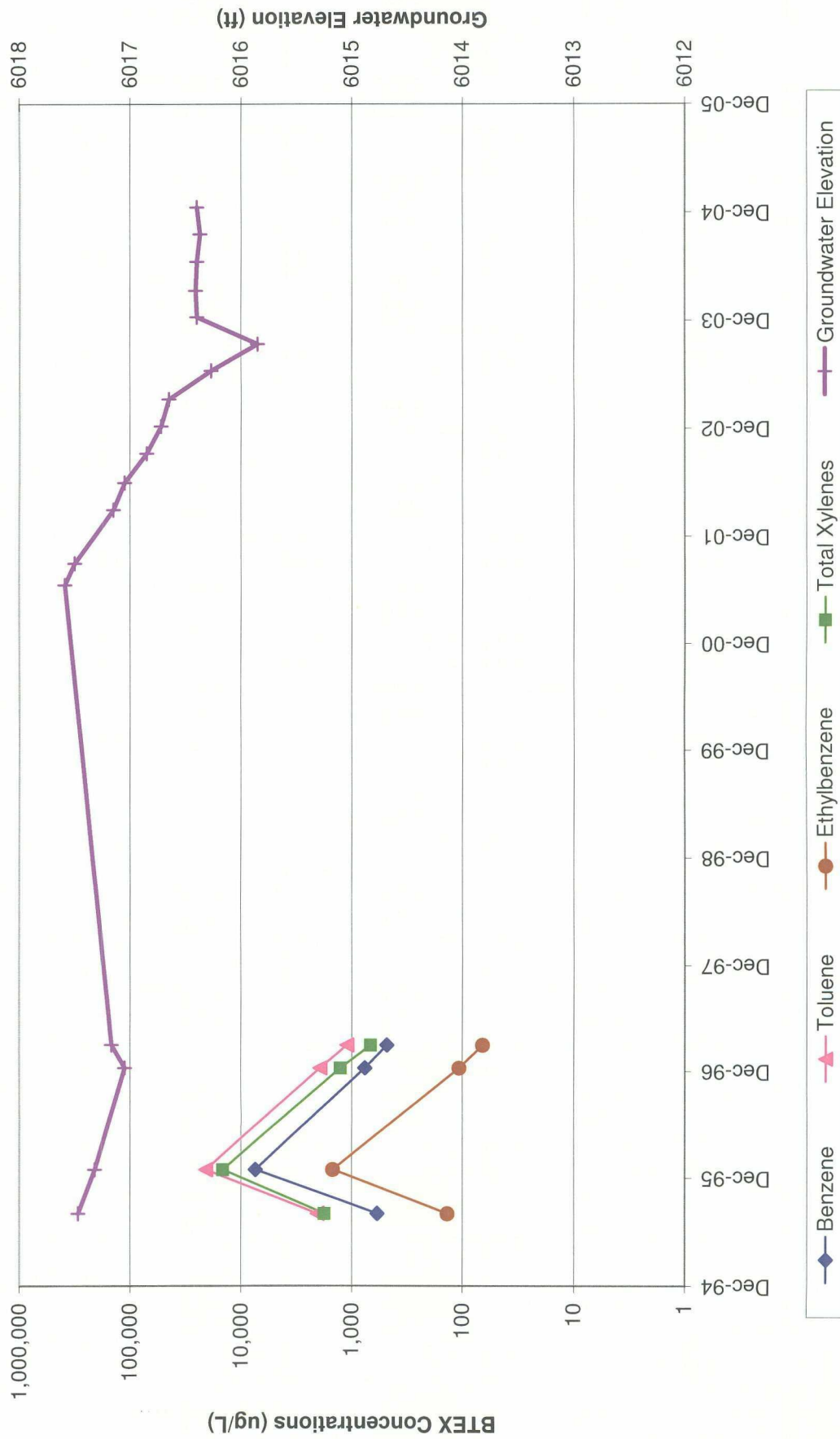


FIGURE 3
HISTORIC BTEX CONCENTRATIONS AND GROUNDWATER ELEVATIONS
JOHNSTON FED #4
MW-2

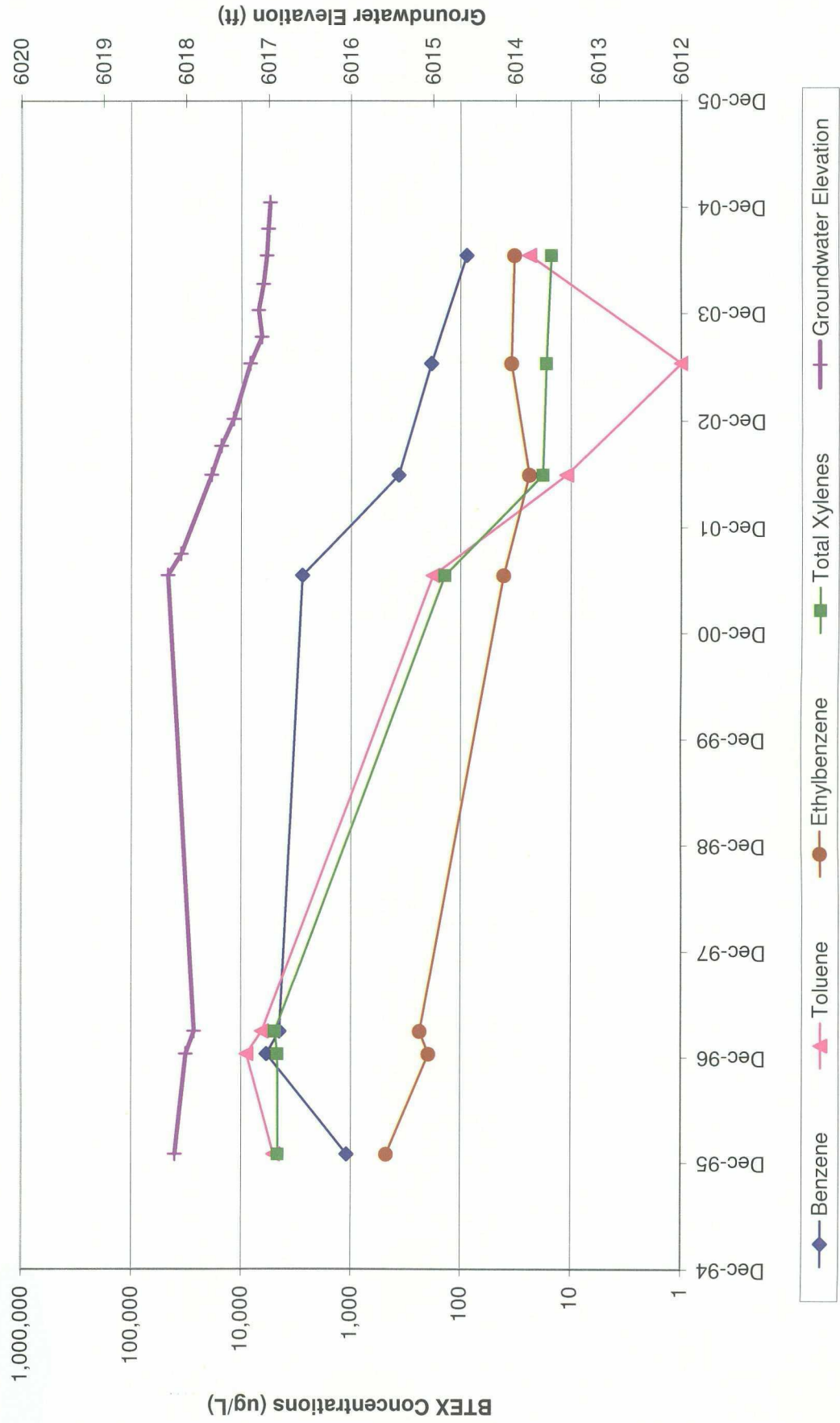


FIGURE 4
HISTORIC BTEX CONCENTRATIONS AND GROUNDWATER ELEVATIONS
JOHNSTON FED #4
MW-3

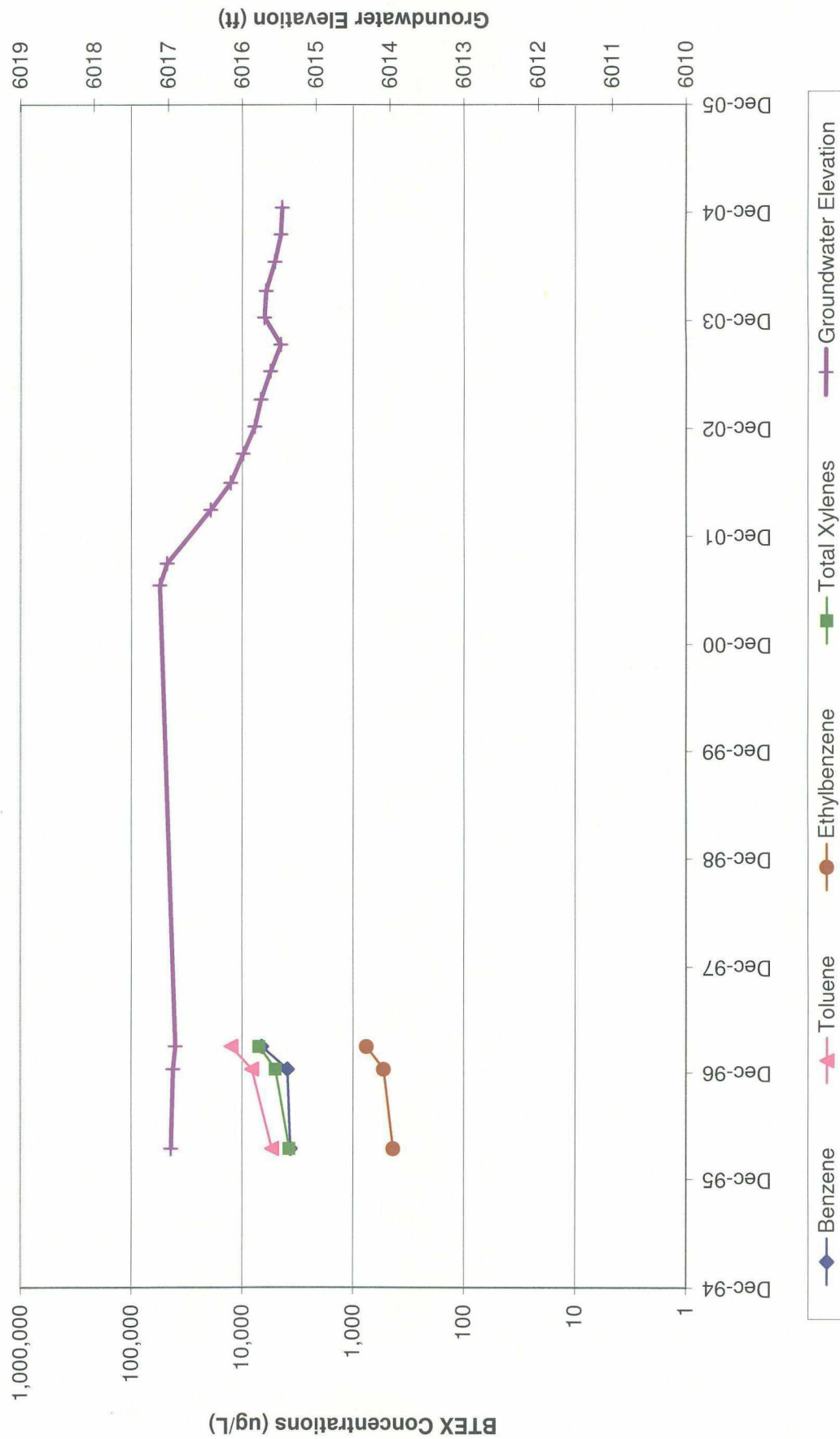


FIGURE 5
HISTORIC FREE-PRODUCT RECOVERY
JOHNSTON FED #4
MW-1

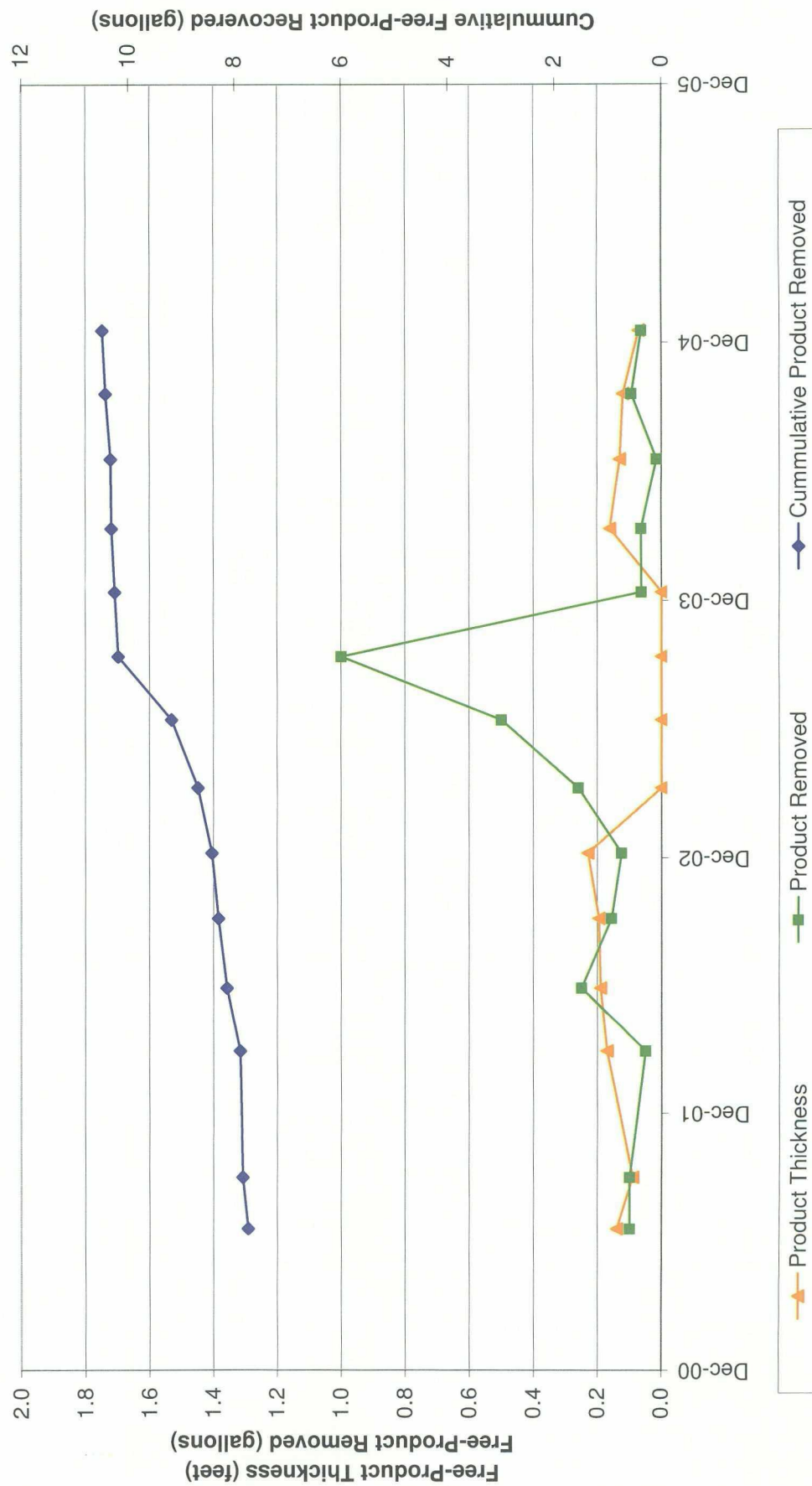


FIGURE 6
HISTORIC FREE-PRODUCT RECOVERY
JOHNSTON FED #4
MW-3

