

Norwalk Tank Farm Update

*Presented to the Norwalk Tank Farm
Restoration Advisory Board*

January 27, 2005

Presentation Overview

Topics to be Covered

- HRA Update
- Remediation Operations Update
- Review of Intermediate Block Valve Area

HRA Update

- In a letter dated October 31, 2003, the RWQCB requested that Kinder Morgan “conduct an additional human health risk assessment (HRA), including indoor air analysis, primarily for the southern portion of the facility.”
- KMEP reviewed the HRA conducted by the DESC for the DTSC in 1993 and evaluated it based on current site conditions.
- When elevated risk is predicted using soil or groundwater data, current environmental practice is to collect soil vapor data to better predict potential risks.

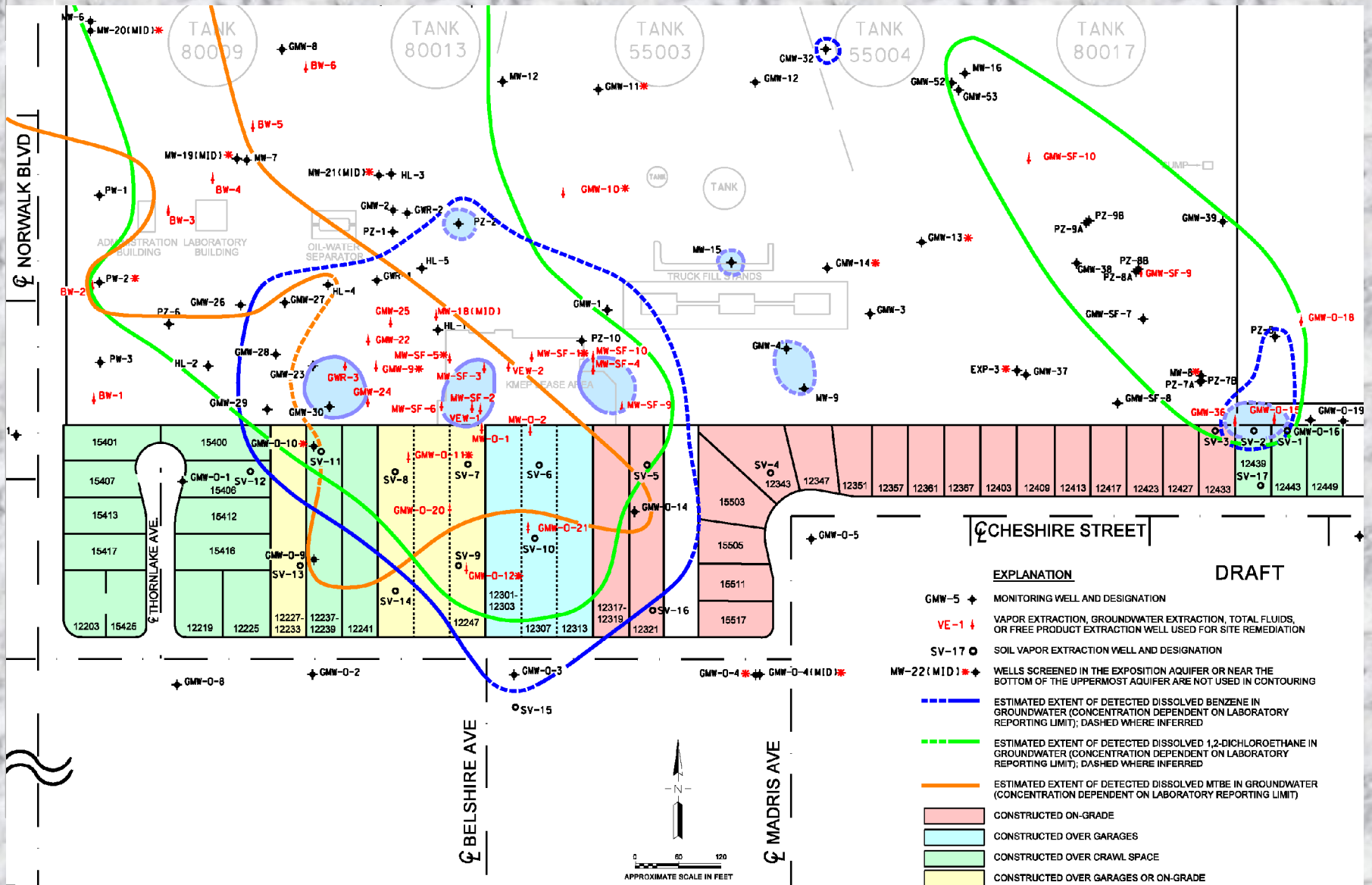
HRA Update (cont.)

- KMEP identified potential soil gas sample locations based on the following criteria:
 - availability of existing groundwater data (i.e. proximity to existing well),
 - proximity to buildings of various construction types (i.e. constructed on grade, constructed over crawl space, constructed over garages), and
 - relativity to free product and dissolved-phase plumes (i.e. over free product, within dissolved-phase plumes, or outside of dissolved-phase plumes)

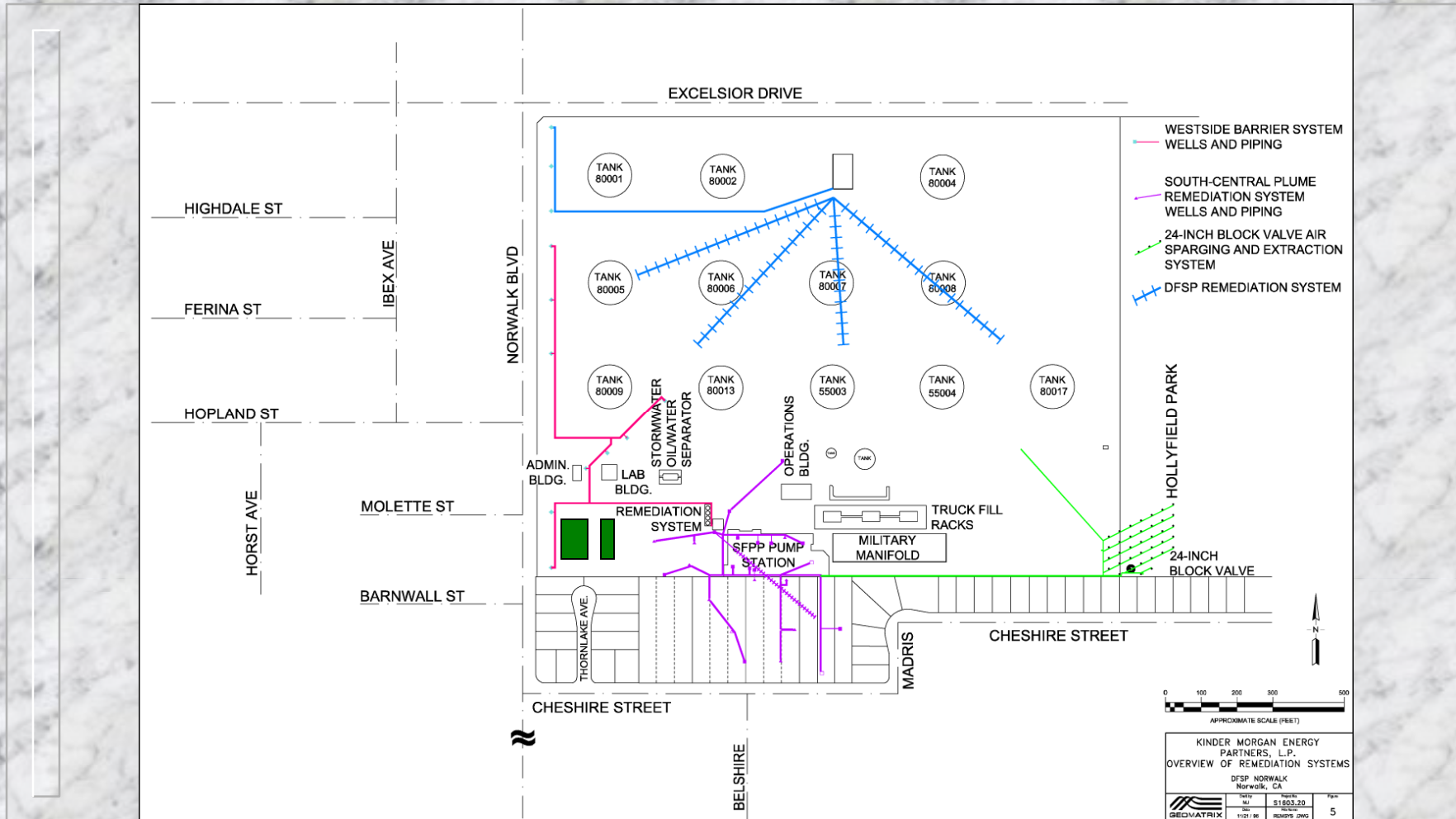
HRA Update (cont.)

- Final soil gas sampling locations and work plan for HRA contingent on confirming property access.
- Request for property access is in progress.

HRA Update (cont.)



Map of Current Remediation Systems



Soil Vapor Extraction System

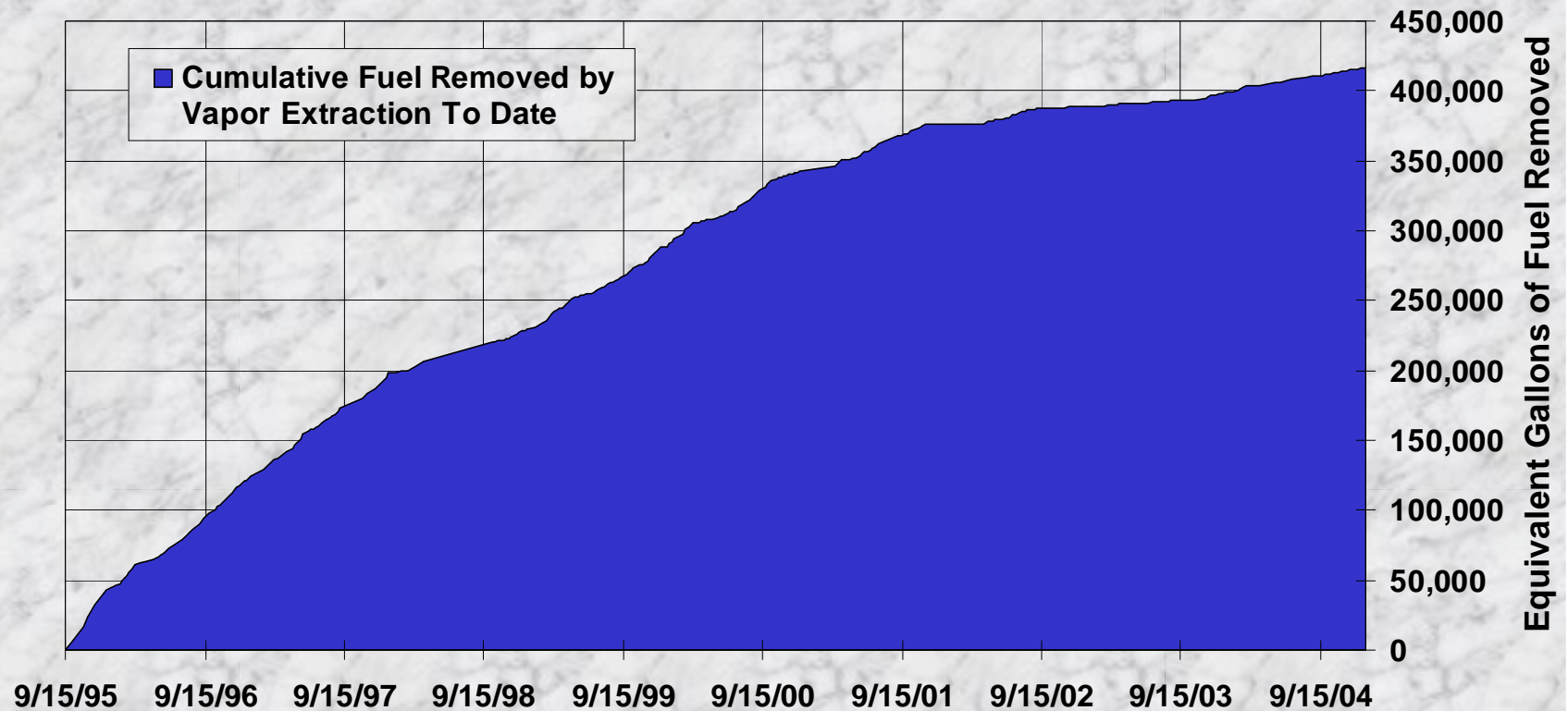
- 17 onsite and 6 off-site vapor extraction wells in the South-Central Plume area.
- 2 vapor extraction wells in the Southeastern 24-Inch Block Valve area.

Soil Vapor Extraction System Operations Summary

- Approximately 4,373 gallons equivalent of fuel removed from soil and destroyed by thermal oxidation since the October 2004 RAB meeting.
- Approximately 416,890 gallons equivalent of fuel removed from soil and destroyed by thermal oxidation since September 1995.

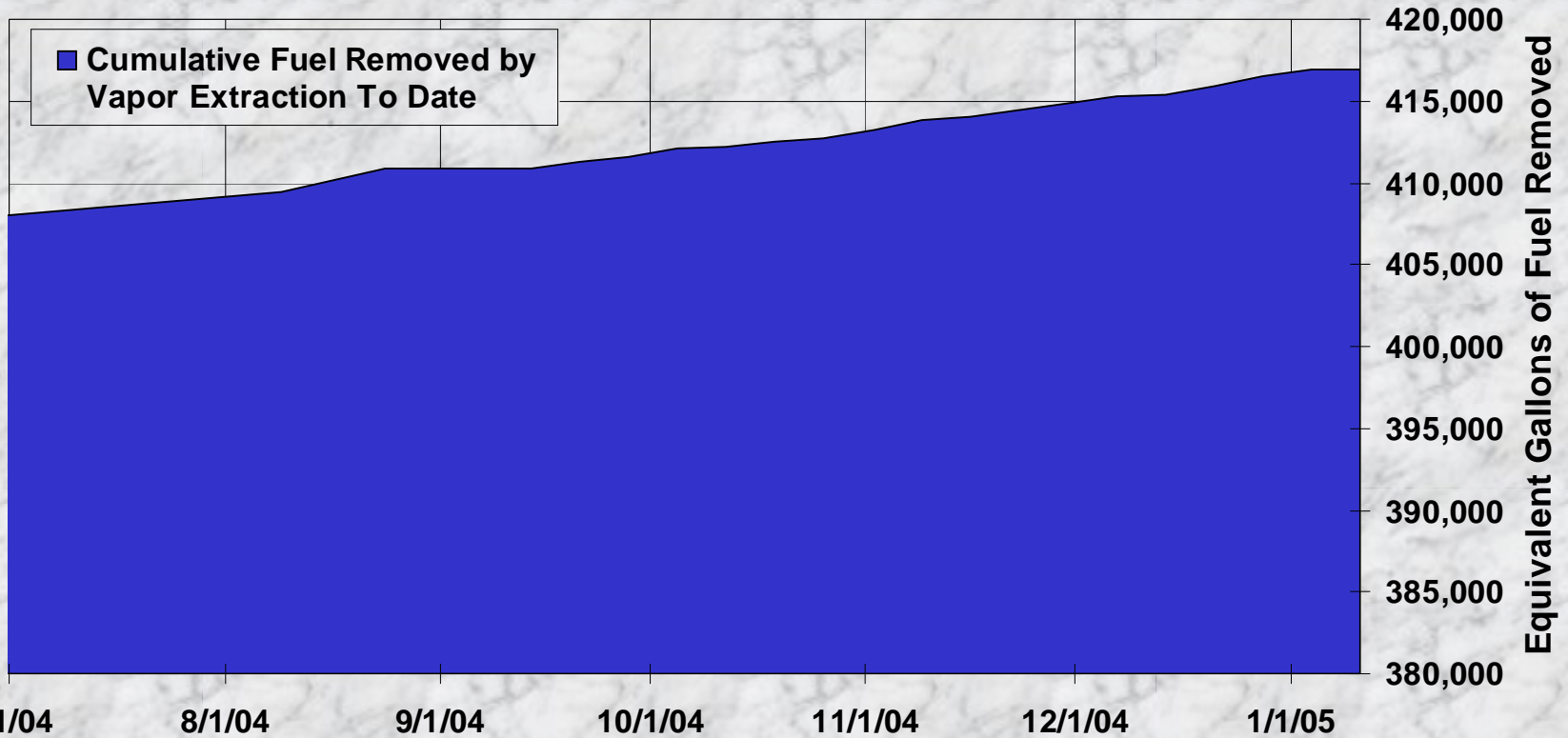
Soil Vapor Extraction System Operations Summary

Cumulative Fuel Removed by Vapor Extraction To Date



Soil Vapor Extraction System Operations Summary

Cumulative Fuel Removed by Vapor Extraction - Past Six Months



Groundwater/Product Extraction System

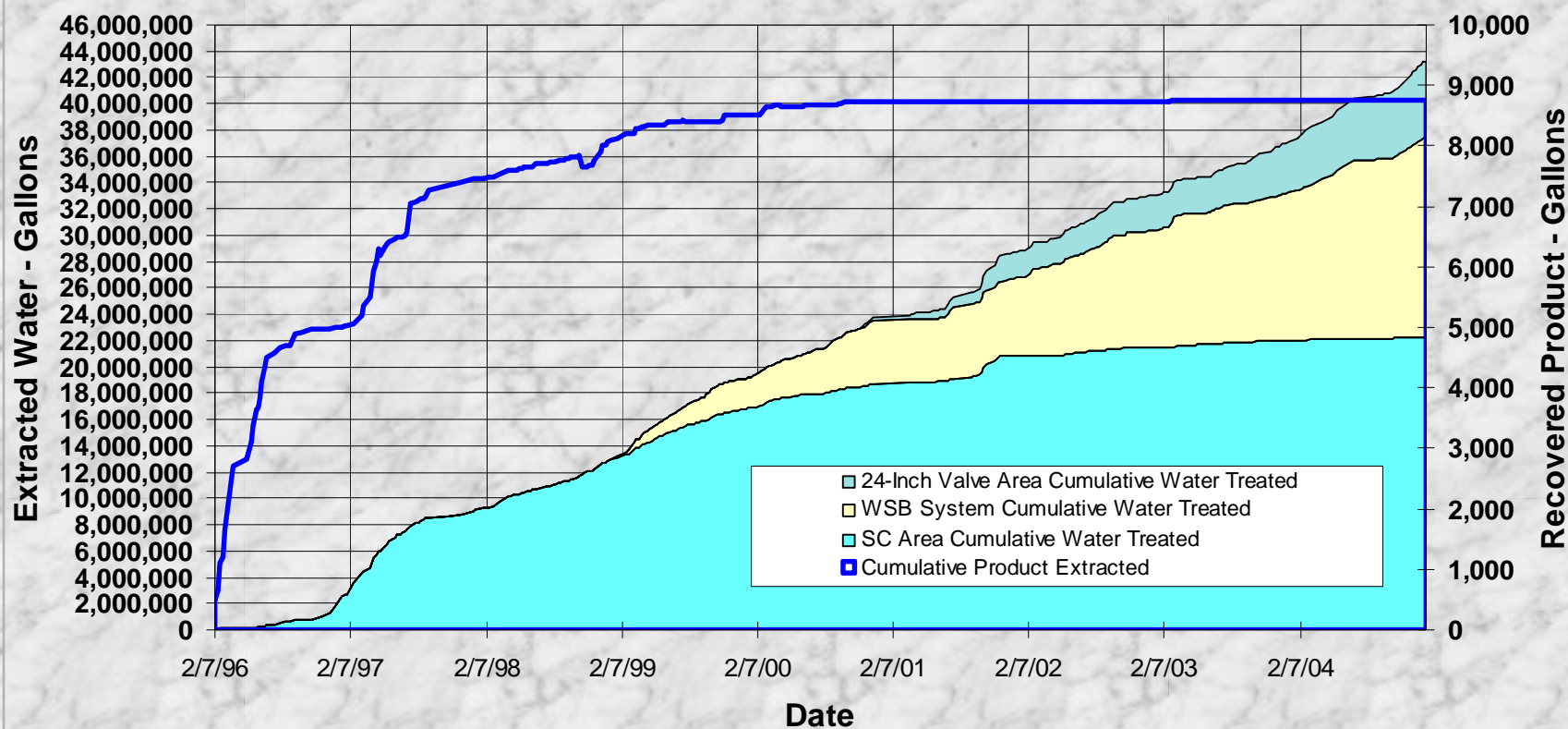
- 8 groundwater extraction wells in the West Side Barrier area
- 8 groundwater/product extraction wells in the South-Central Plume area
- 3 groundwater/product extraction wells and 2 groundwater extraction wells in the Southeastern 24-Inch Block Valve area

Groundwater/Product Extraction System Operations Summary

- Total groundwater extracted since October 2004 RAB meeting:
 - South-Central Plume area, 117,400 gallons
 - Southeastern 24-Inch Valve area, 713,000 gallons
 - West Side Barrier area, 1,413,200 gallons
 - No free product was recovered
- Total groundwater extracted since September 1995:
 - South-Central Plume area, 22.3 million gallons
 - Southeastern 24-Inch Valve area, 5.8 million gallons
 - West Side Barrier area, 15.2 million gallons
 - Total groundwater extracted, 43.3 million gallons
 - 8,745 gallons free product removed

Groundwater/Product Extraction System Operations Summary

Producted Extracted and Water Treated Summary

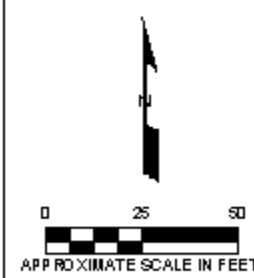
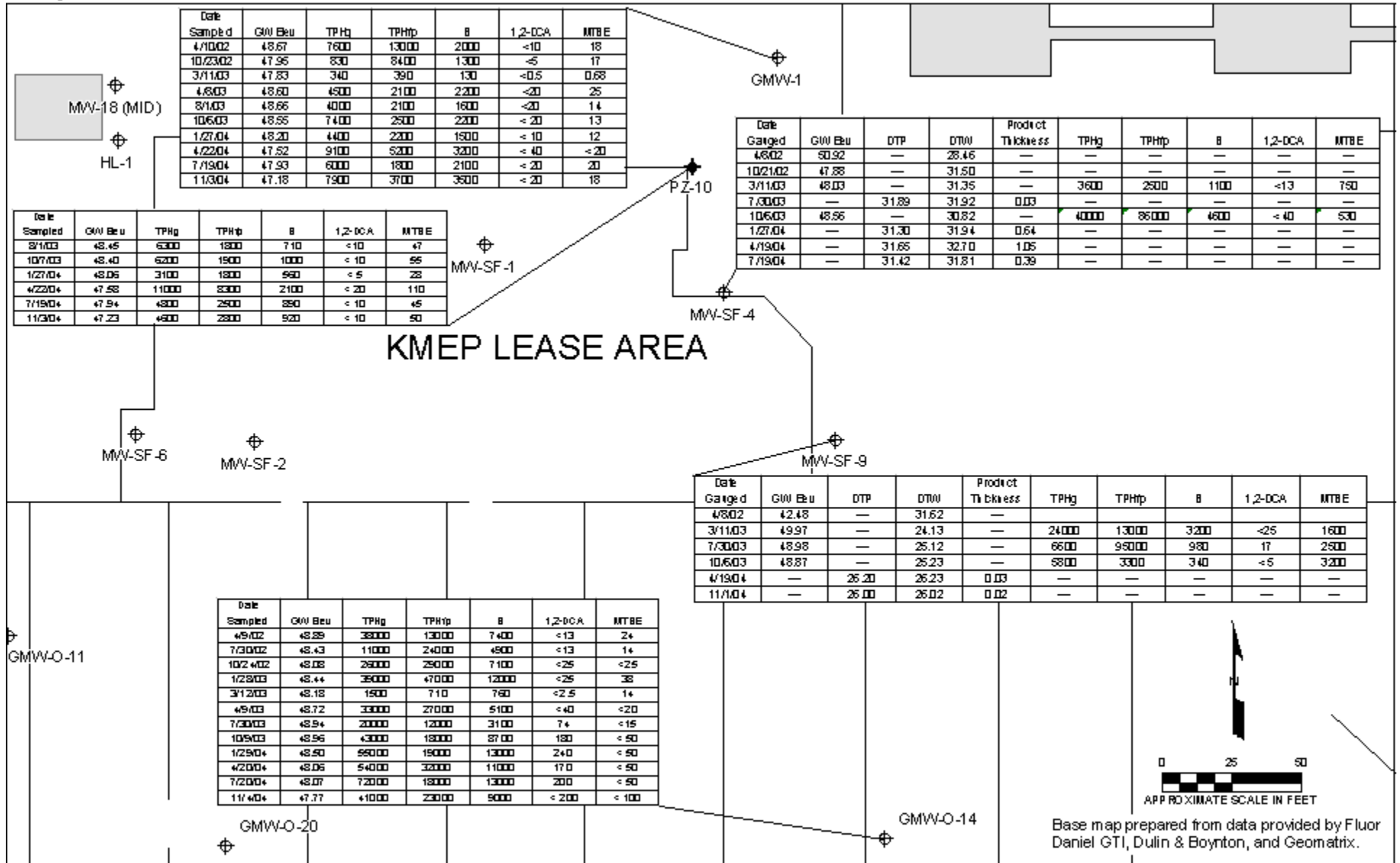


Phytoremediation

- Trees planted in July 1999.
- Performed Phytoremediation Evaluation in 2004.
- Trees currently dormant.
- Will continue to monitor groundwater conditions in and around phytoremediation area.
- Will continue to monitor health of trees.

Review of Intermediate Block Valve Area

- KMEP performed pipeline testing on its pipelines during January and February 2003.
- KMEP exposed and repaired intermediate block valve in February 2003.
- Geomatrix sampled wells near intermediate block valve in March 2003.
- Performed site assessment and installed PZ-10 in April 2003.



Base map prepared from data provided by Fluor Daniel GTI, Dulin & Boynton, and Geomatrix.



INTERMEDIATE BLOCK VALVE AREA
DFSP NORWALK
Norwalk, California

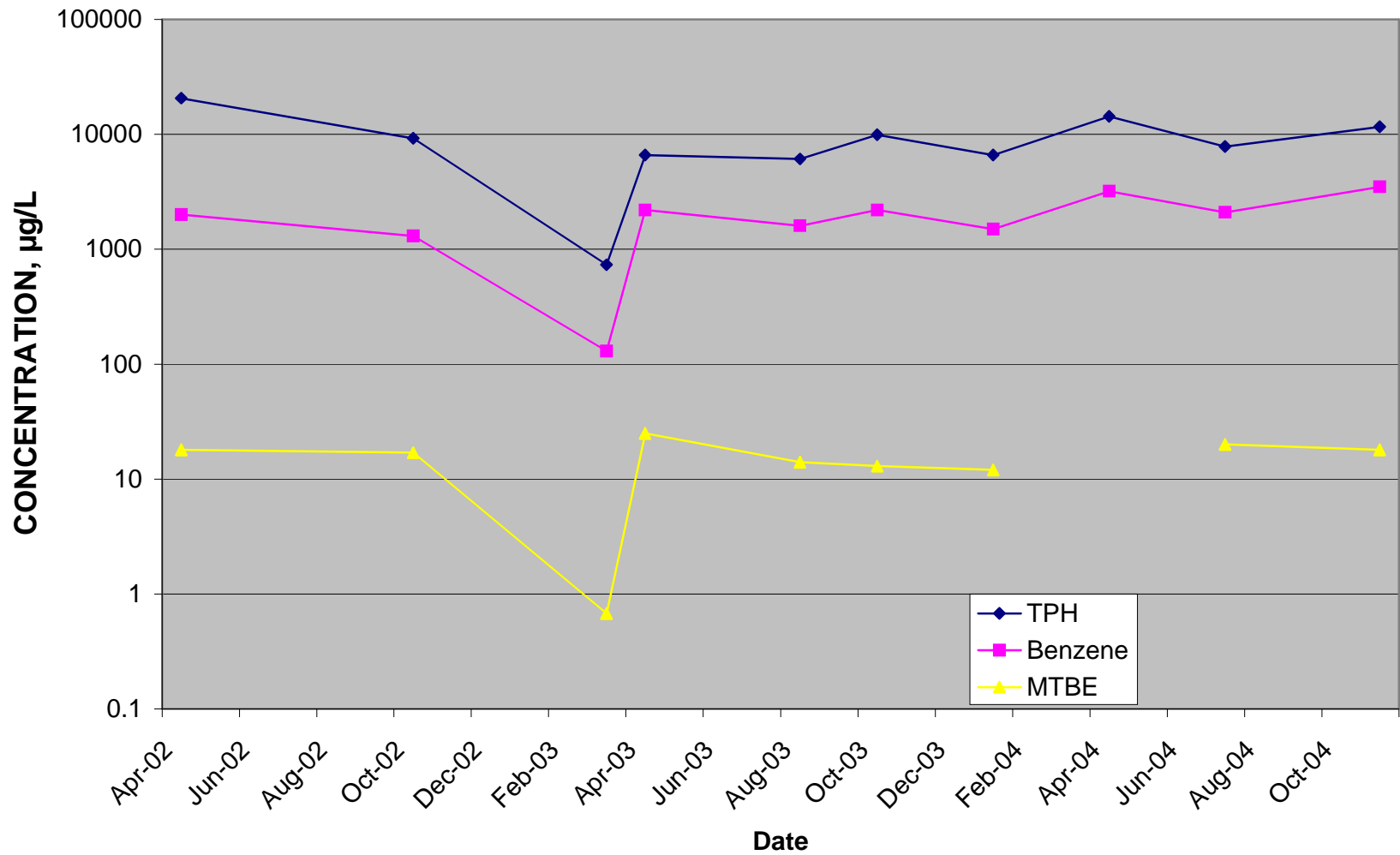
Project No.
1603
Figure
1

Groundwater Monitoring Data Review

- Historical data for well GMW-1 during past 3 years:
 - No product detected.
 - TPH concentrations remained within historical limits. Highest TPHg concentration observed in April 2004.
 - Benzene concentrations remained within historical limits. Highest benzene concentration observed in November 2004.
 - 1,2-DCA not detected above detection limits.
 - MTBE concentrations remained similar.

Groundwater Monitoring Data Review

GMW-1

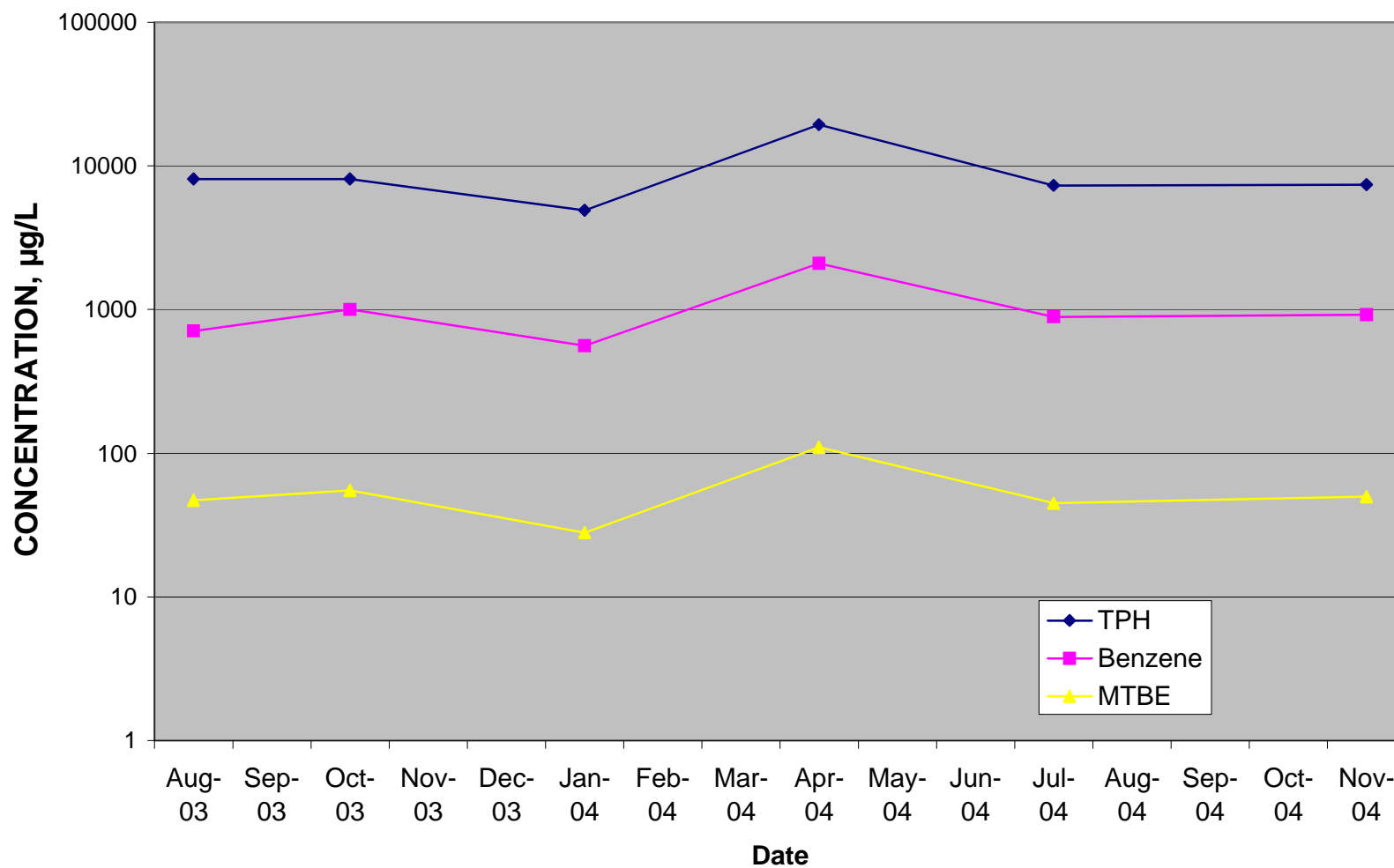


Groundwater Monitoring Data Review

- Historical data for well PZ-10 during past 2 years:
 - No product detected.
 - TPH concentrations ranged from 4900 $\mu\text{g/l}$ (Jan. 2004) to 19,300 $\mu\text{g/l}$ (April 2004).
 - Highest benzene concentration observed in April 2004.
 - 1,2-DCA not detected above detection limits.
 - MTBE concentrations remained similar.

Groundwater Monitoring Data Review

PZ-10

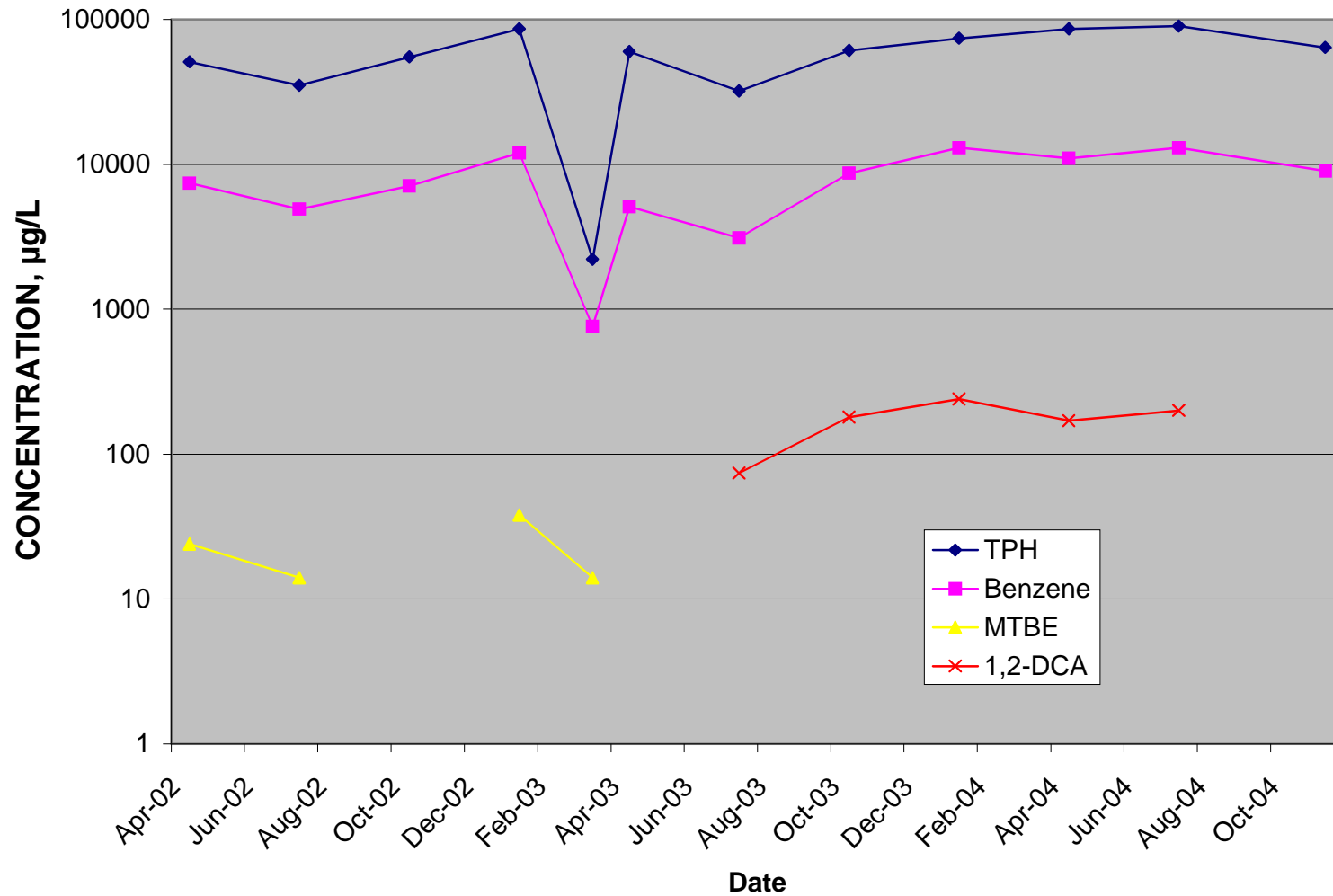


Groundwater Monitoring Data Review

- Historical data for well GMW-O-14 during past 3 years:
 - No product detected.
 - TPH concentrations remained within historical limits. Highest TPH concentration observed in July 2004.
 - Benzene concentrations increased. Highest benzene concentration observed in January and July 2004.
 - 1,2-DCA not detected since November 1996. Recently detected again since July 2003.
 - MTBE concentrations remained similar.

Groundwater Monitoring Data Review

GMW-O-14

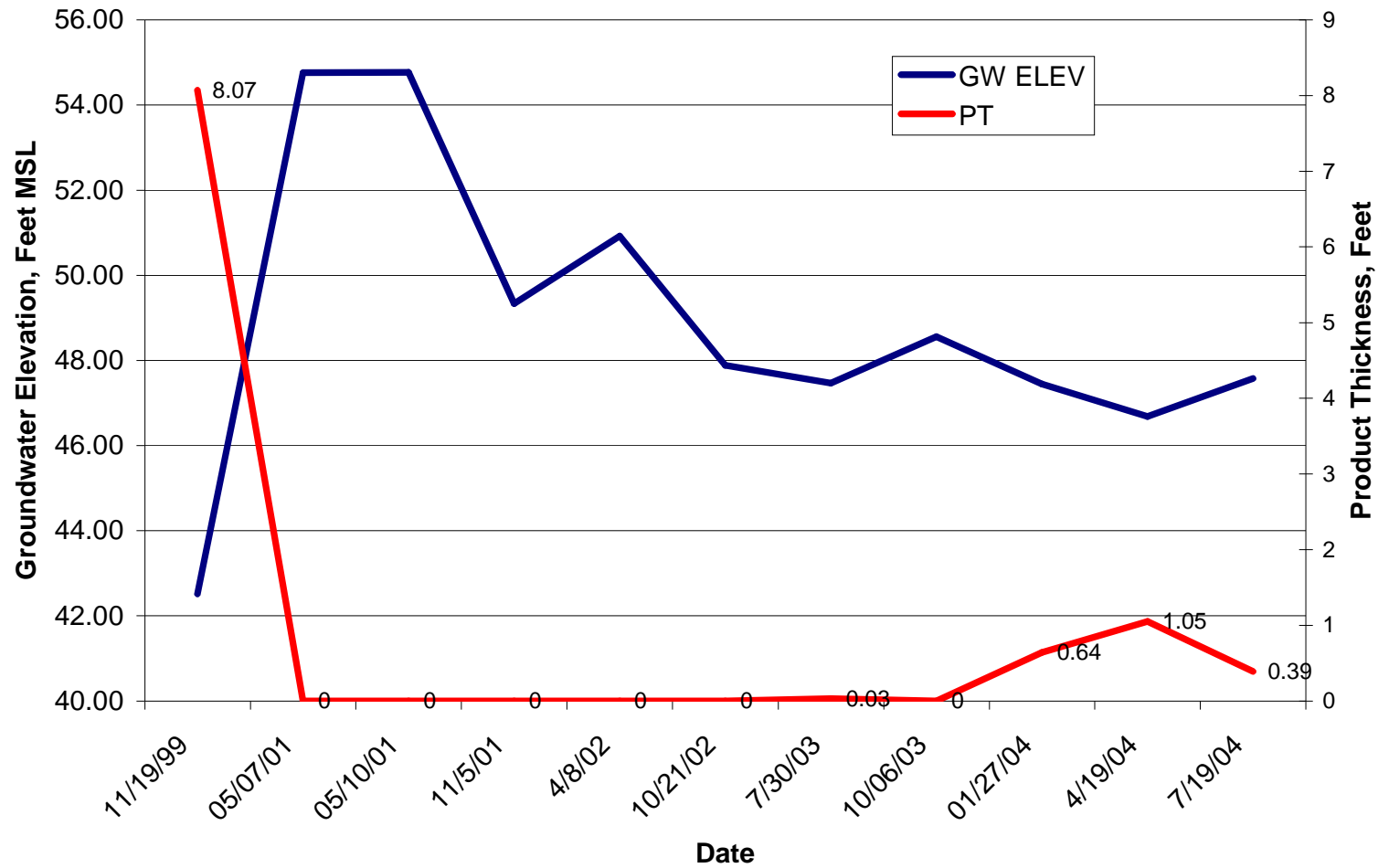


Groundwater Monitoring Data Review

- Historical data for well MW-SF-4 during past 3 years:
 - Product thickness has varied between 0 and 1.05 feet.
 - COCs detected:
 - TPH: 6100 - 126,000 $\mu\text{g/L}$
 - Benzene: 1100 - 4600 $\mu\text{g/L}$
 - MTBE: 530 - 750 $\mu\text{g/L}$

Groundwater Monitoring Data Review

MW-SF-4



Groundwater Monitoring Data Review

- Historical data for well MW-SF-9 during past 3 years:
 - Product thickness has varied between 0 and 0.03 feet.
 - COCs detected:
 - TPH: 9100 - 101,600 $\mu\text{g/L}$
 - Benzene: 340 - 3200 $\mu\text{g/L}$
 - MTBE: 1600 - 3200 $\mu\text{g/L}$
 - 1,2-DCA: 17 $\mu\text{g/L}$

Groundwater Monitoring Data Review

MW-SF-9

