Norwalk Tank Farm Update

Presented to the Norwalk Tank Farm Restoration Advisory Board

July 25, 2002

Presentation Overview

Topics to be Covered

- OCCS Update
- Remediation Operations Update
- April 2002 Semi-Annual Monitoring Event
- Supplemental Groundwater Assessment Northwest of 24-Inch Block Valve Area

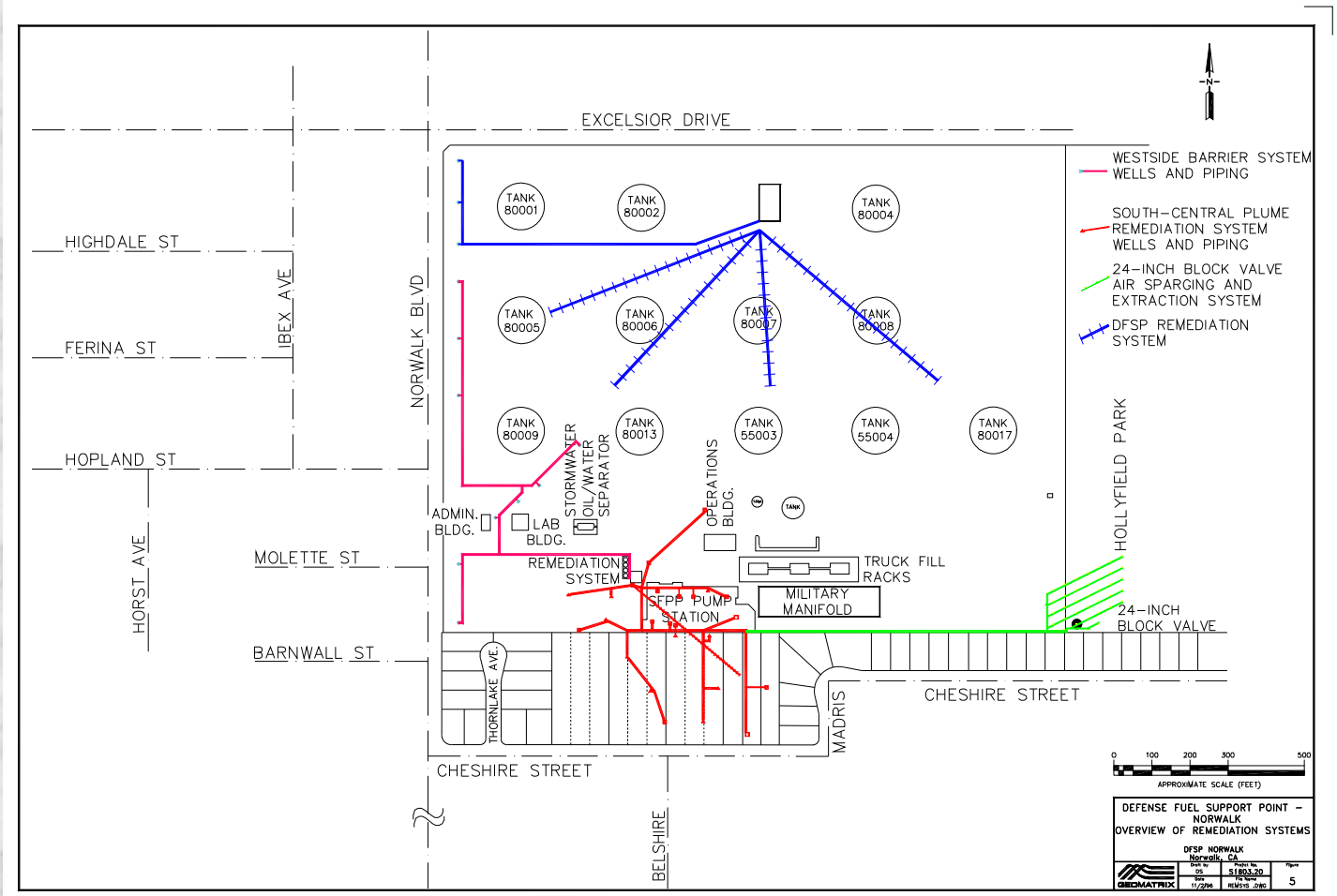
OCCS Update

- Response to Additional Comments from RWQCB and OEHHA
  - October 1, 2000 - Submitted initial response to comments (including Sensitivity Analysis document)
  - October 23, 2001 - Received additional RWCB comments
  - January 30, 2002 - Received additional OEHHA comments
  - February 22, 2002 - Submitted draft of response to OCCS
  - March 7, 2002 - Met with OCCS
  - March 29, 2002 - Submitted response to additional comments

OCCS Update cont.

- The RWQCB and OEHHA comments addressed technical clarification and revisions/additions to the sensitivity analysis. The proposed responses were reviewed with the OCCS prior to submittal to the RWQCB. The RWQCB has not responded since the response was submitted.

Map of Current Remediation Systems



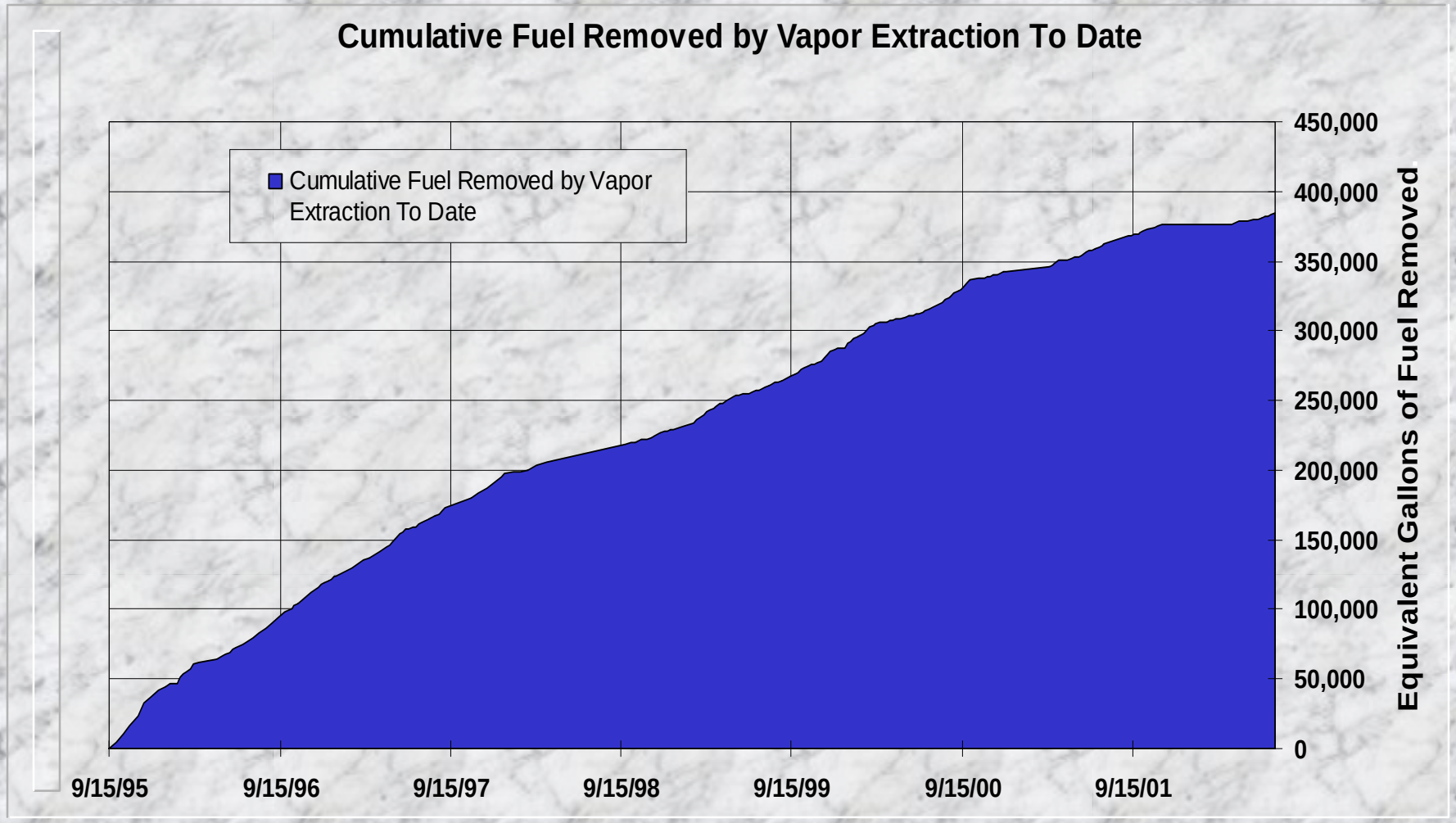
Soil Vapor Extraction System

- 16 onsite and 7 offsite vapor extraction wells in the South-Central Plume area.
- 2 vapor extraction wells in the 24-inch Valve area.

Soil Vapor Extraction System Operations Summary

- 7,605 gallons equivalent of fuel removed from soil and destroyed by thermal oxidation since January 2002 RAB meeting.
- 384,175 gallons equivalent of fuel removed from soil and destroyed by thermal oxidation since September 1995.
- Soil vapor extraction system was shut down between November 2001 and April 2002 for system repairs and conversion to catalytic oxidation.

Soil Vapor Extraction System Operations Summary



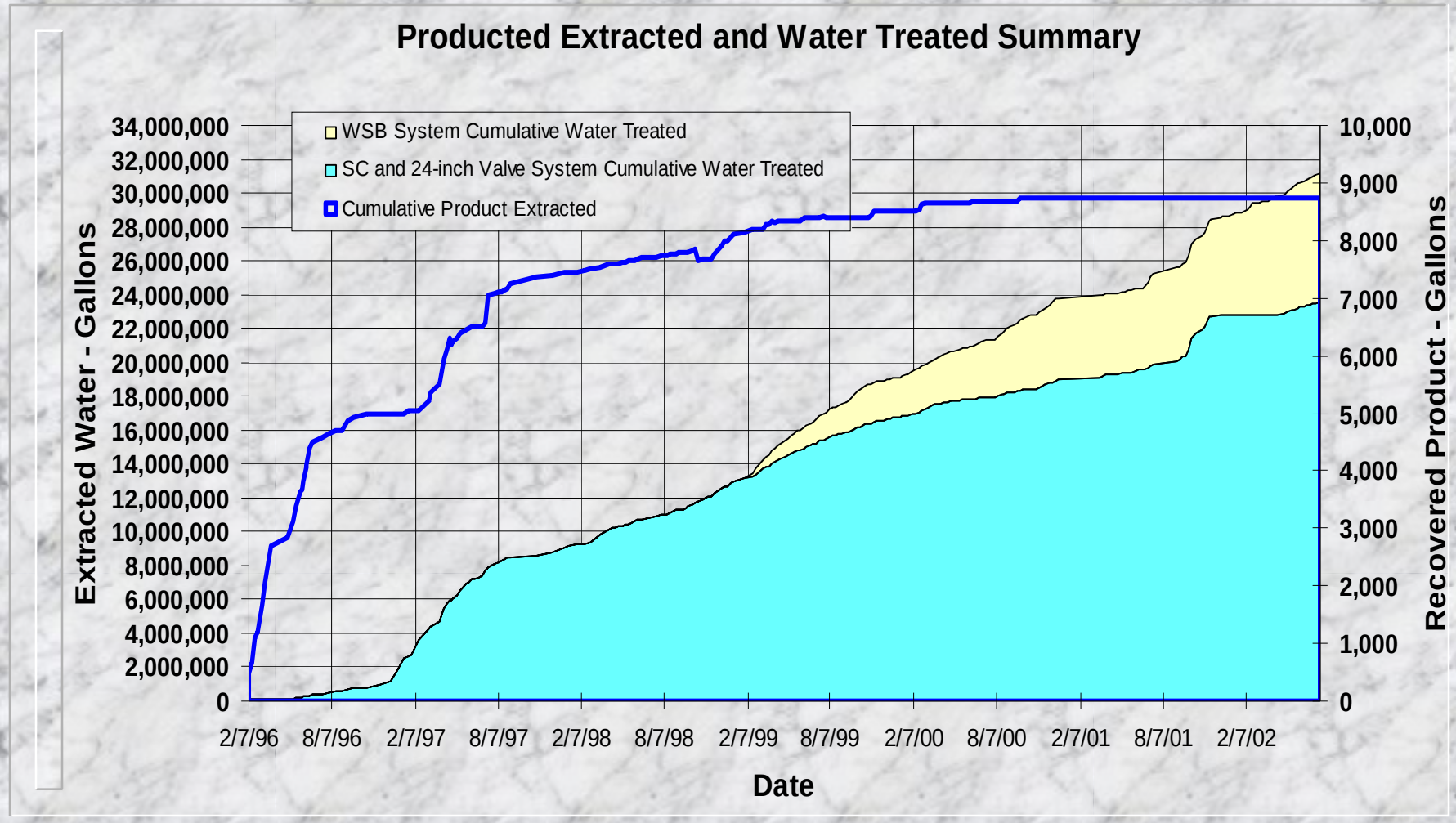
Groundwater/Product Extraction System

- 8 groundwater wells in West-Side Barrier area
- 6 groundwater/product wells in South-Central Plume area
- 2 groundwater/product wells in 24-inch Valve area

Groundwater/Product Extraction System Operations Summary

- Total groundwater extracted since January 2002 RAB meeting:
  - South-Central Plume area, 373,900 gallons
  - 24-inch Valve area, 410,800 gallons
  - West-Side Barrier area, 1.6 million gallons
  - No free product removed
- Total groundwater extracted since September 1995:
  - South-Central Plume/24-inch Valve areas, 23.5 million gallons
  - West-Side Barrier area, 7.6 million gallons
  - Total groundwater extracted, more than 31.2 million gallons
  - 8,735 gallons free product removed
- The groundwater/product extraction system was shut down between November 2001 and April 2002 pending soil vapor extraction system repairs. The West-Side Barrier groundwater extraction system continued to operate independently of the South-Central/ 24-Inch Valve area remediation system.

Groundwater/Product Extraction System Operations Summary



Remediation System Enhancements

- Install catalyst in thermal oxidizer upon completion of oxidizer repairs.
- Successful installation and operation of flow meters in eight West-Side Barrier wells.
- Optimized placement of extraction pumps in South-Central Plume area to enhance product recovery.

April 2002
Semi-Annual Monitoring Event

- 99 wells sampled, including 5 Exposition wells.
- No chemicals detected in Exposition wells.
- Free product detected in 20 wells.
- North-Central free-product plume decreased in lateral extent and separated into smaller plumes.
- South-Central free-product plume decreased in lateral extent along northern, eastern, and southern boundaries.
- Free product observed in 24-inch valve area.
- Lateral extent and concentrations of TPH decreased in the area between the North-Central and South-Central free-product plumes.

April 2002
Semi-Annual Monitoring Event cont.

- TPH concentrations in GMW-28 and GMW-O-10 (west and southwest of South-Central free-product plume) continued to decrease. TPH concentration in GMW-57 (northeast of North-Central free-product plumes) also decreased.
- TPH was detected at a historically high concentration in MW-15 near truck fill stands. This well will be resampled during the next Sentry event.
- Benzene concentrations increased in wells west and northeast of the North-Central free-product plumes and decreased in GMW-32, MW-16, and MW-29 south of the North-Central free-product plumes.

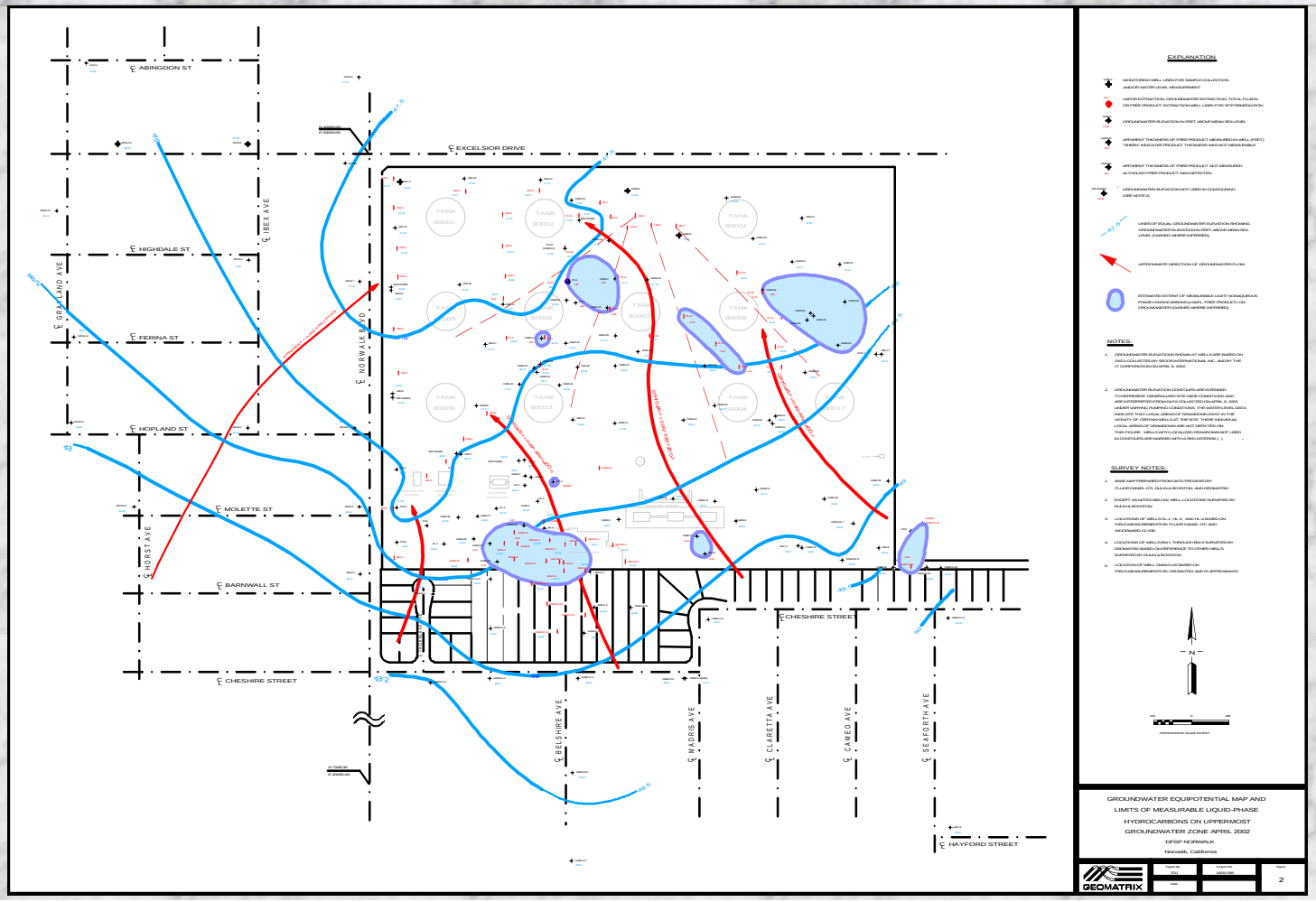
April 2002
Semi-Annual Monitoring Event cont.

- Benzene concentrations in wells north and west of the South-Central free-product plume decreased or remained low. Benzene concentration increases in four wells surrounding the South-Central free-product plume and in GMW-36 near the 24-inch valve area may be due to non-operation of the South-Central remediation system during repairs.
- 1,2-DCA plume west of the site decreased since May 2001; 1,2-DCA not detected in WCW-13 and concentrations continue to decrease in WCW-3 and WCW-7.
- Wells in vicinity of West-Side Barrier wells have shown a decrease in 1,2-DCA concentration since the redevelopment of the West-Side Barrier wells in October 2001.

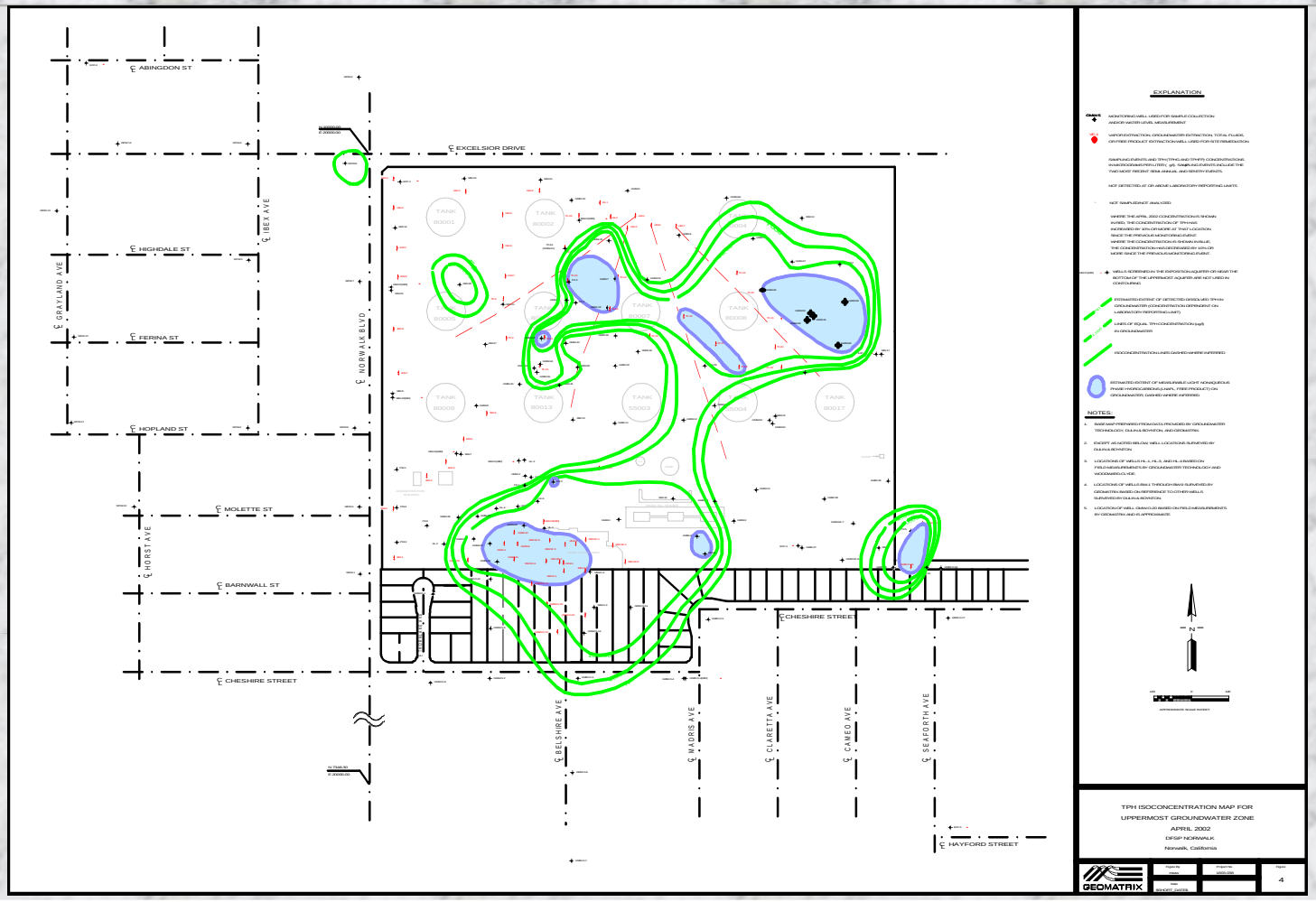
April 2002
Semi-Annual Monitoring Event cont.

- Lateral extent of 1,2-DCA receded from the south as shown by non-detect levels of 1,2-DCA in offsite wells GMW-O-1, GMW-O-2, and GMW-O-9.
- MTBE detected for the first time in GMW-O-14 located southeast of South-Central free-product plume. This well will be resampled during the next Sentry event.

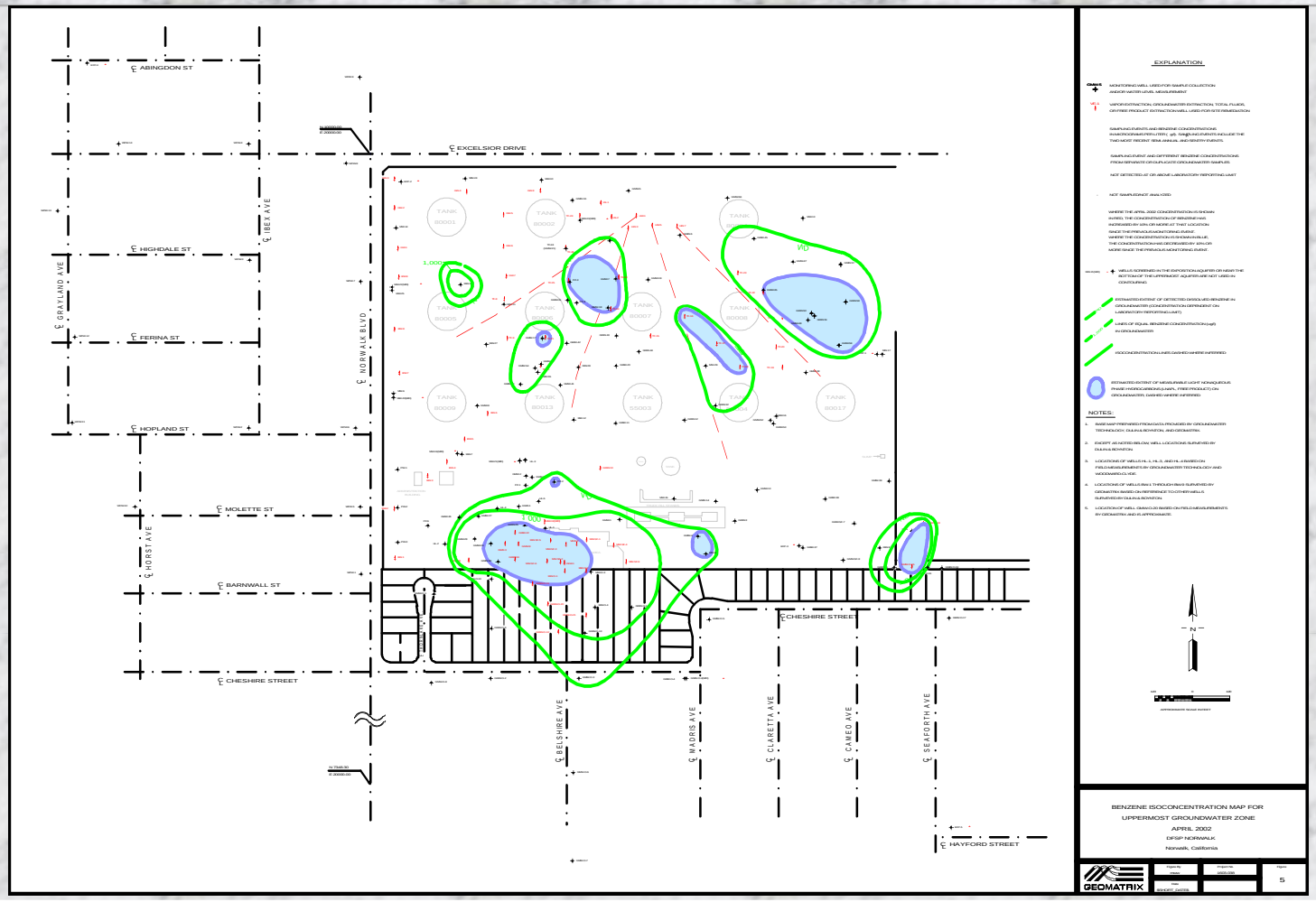
Groundwater Equipotential Map and Limits of Measureable Liquid-Phase Hydrocarbons April 2002



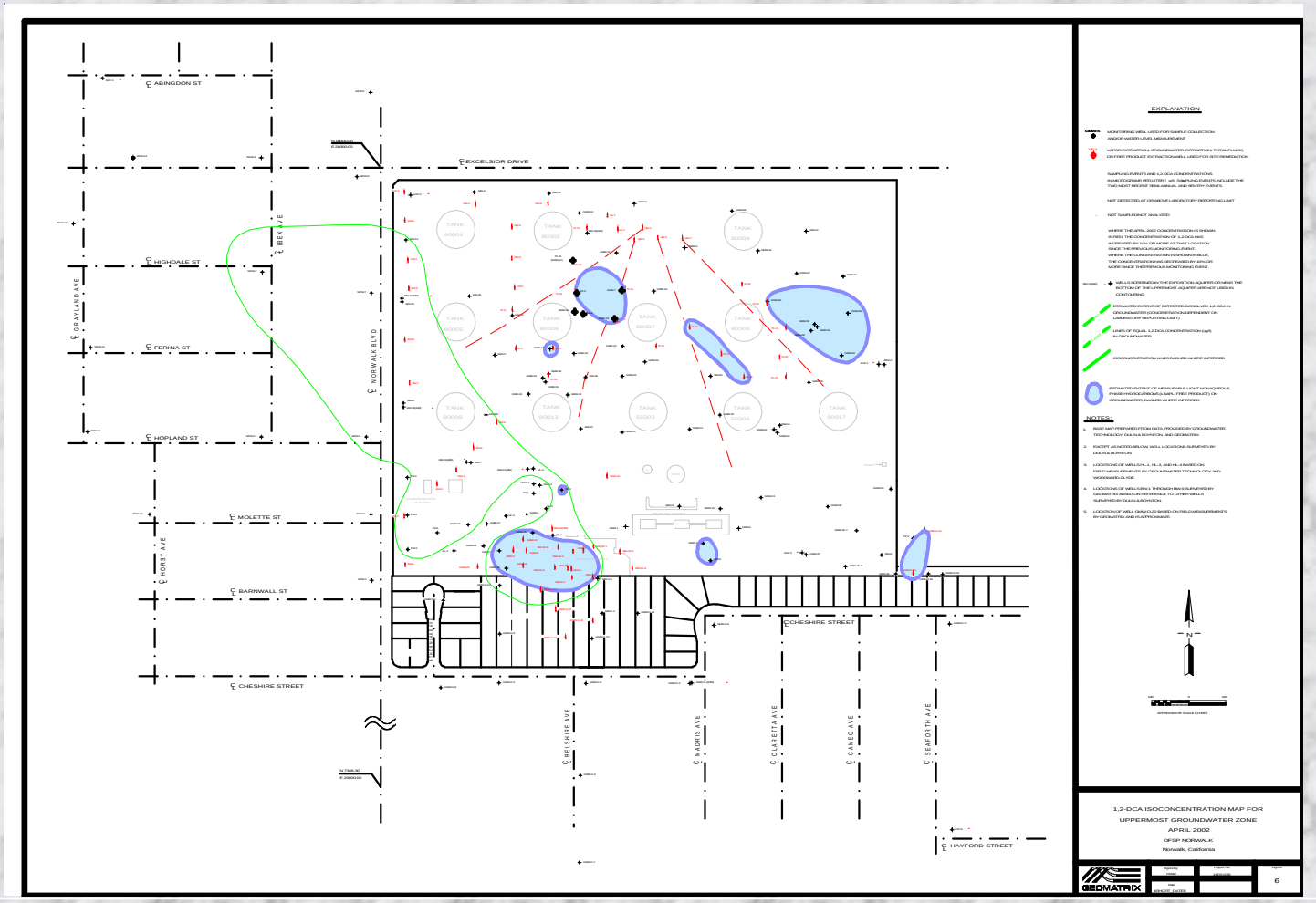
Total Petroleum Hydrocarbons
Isoconcentration Map
April 2002



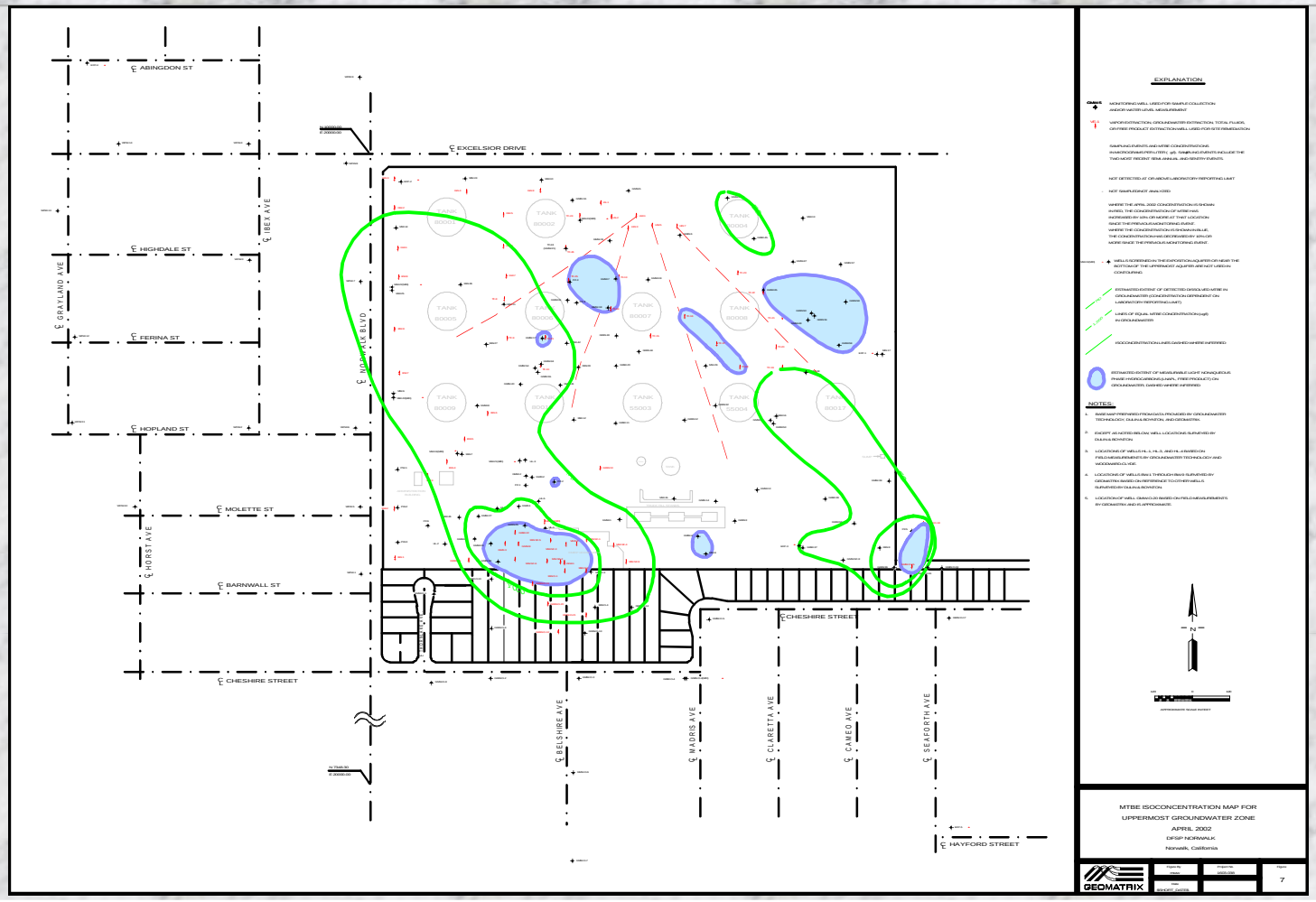
Benzene Isoconcentration Map
April 2002



1,2-Dichloroethane Isoconcentration Map
April 2002



Methyl tert-Butyl Ether Isoconcentration Map April 2002



Supplemental Groundwater Assessment Northwest of 24-Inch Block Valve Area

- Wells northwest of the 24-inch valve area were resampled in February 2002 and confirmed the increased MTBE concentration detected in MW-16 during the November 2001 semi-annual monitoring event.
- In April 2002, collected more groundwater samples from wells and 20 direct push locations. MTBE concentration in MW-16 similar to that detected in February 2002.
- Groundwater samples collected from 43-46 feet bgs in April 2002 indicate an area of elevated MTBE concentration in groundwater northwest of 24-inch valve area.
- MTBE concentrations in shallower groundwater in this area were generally low or non-detected.