Norwalk Tank Farm Update

Defense Energy Support Center-

Americas West

Norwalk Tank Farm

Restoration Advisory Board

January 22, 2004

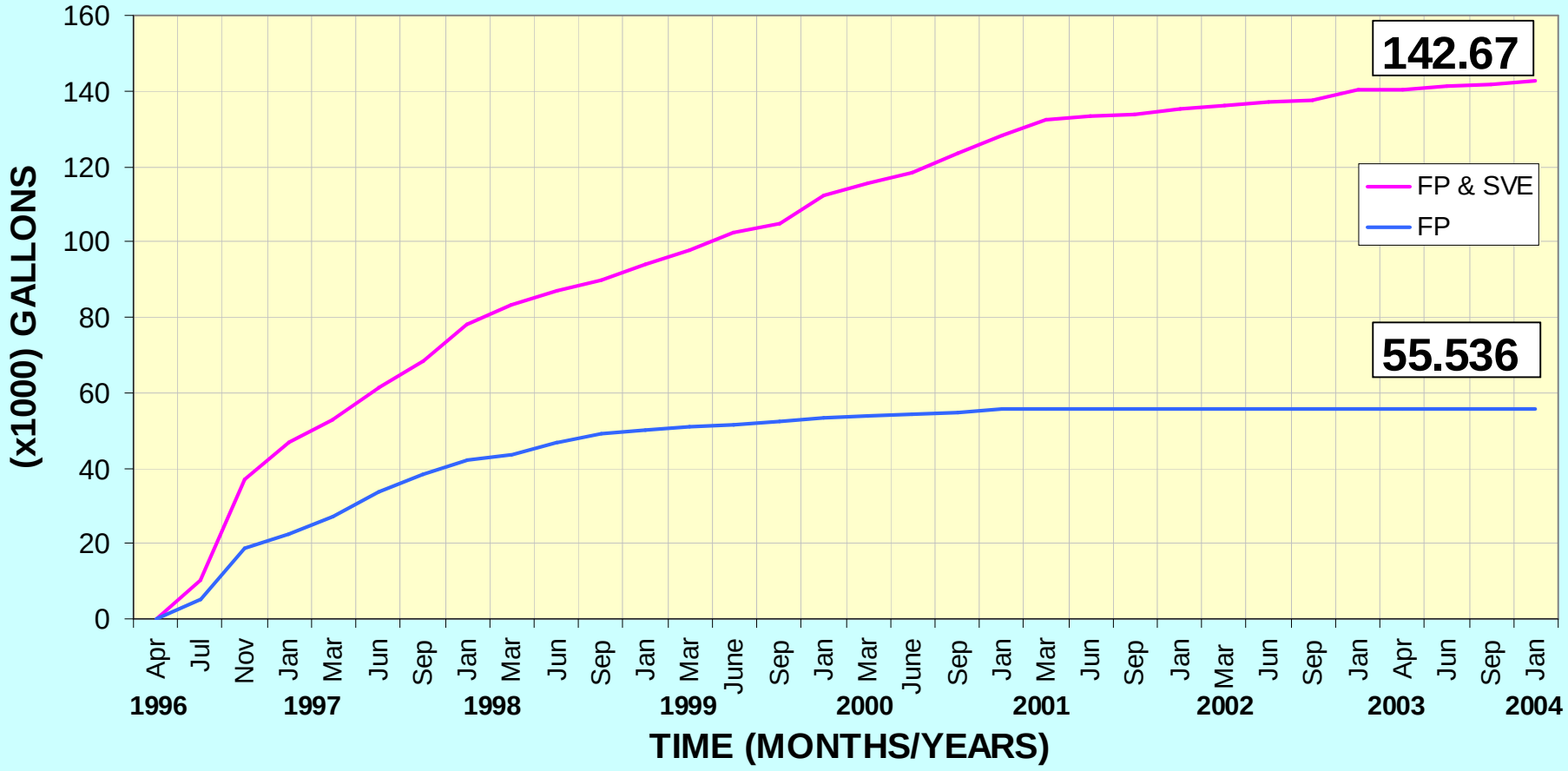
Central Plume Remediation

- System Performance Fourth Quarter 2003
  - Total Hydrocarbons Mass Removed: 1,678 gallons
    - Approx. 830 gallons recycled and destroyed
      - 0 gallons of free product recovered
      - 829 gallons of volatile hydrocarbons recovered through soil vapor extraction
      - < 1 gallon of dissolved phase hydrocarbons recovered
    - Estimated 848 gallons of hydrocarbons destroyed due to enhanced biodegradation
  - 0.44 M gallons of water treated

Central Plume Remediation

- System Performance since April 1996
  - Total Hydrocarbons Mass Removed: 257,994 gallons
    - Approx. 142,670 gallons recycled and destroyed
      - 55,536 gallons of free product recovered
      - 85,737 gallons of volatile hydrocarbons recovered through soil vapor extraction
      - 1,397 gallons of dissolved phase hydrocarbons recovered
    - Estimated 115,324 gallons of hydrocarbons destroyed due to enhanced biodegradation
  - 41.9 M gallons of water treated

HYDROCARBONS & FREE PRODUCT-CENTRAL PLUME



Recent Remedial Optimization by DESC

- Enhancing groundwater remediation
  - Readjusted pump intake levels
  - Reviewing proposal to expand biosparging
- Will install 2 Eastern boundary wells

Other Groundwater Issues

- Odor complaint from well WCW-8 investigated
- WCW-8 re-sampled on 12/30/03
  - No odor identified
  - Analytical results consistent with recent events

Date	TPHfp (ug/L)	TPHg (ug/L)
4/11/02	470	<300
10/24/02	360	<300
4/10/03	270	61
10/11/03	430	<100
12/30/03	270	<100

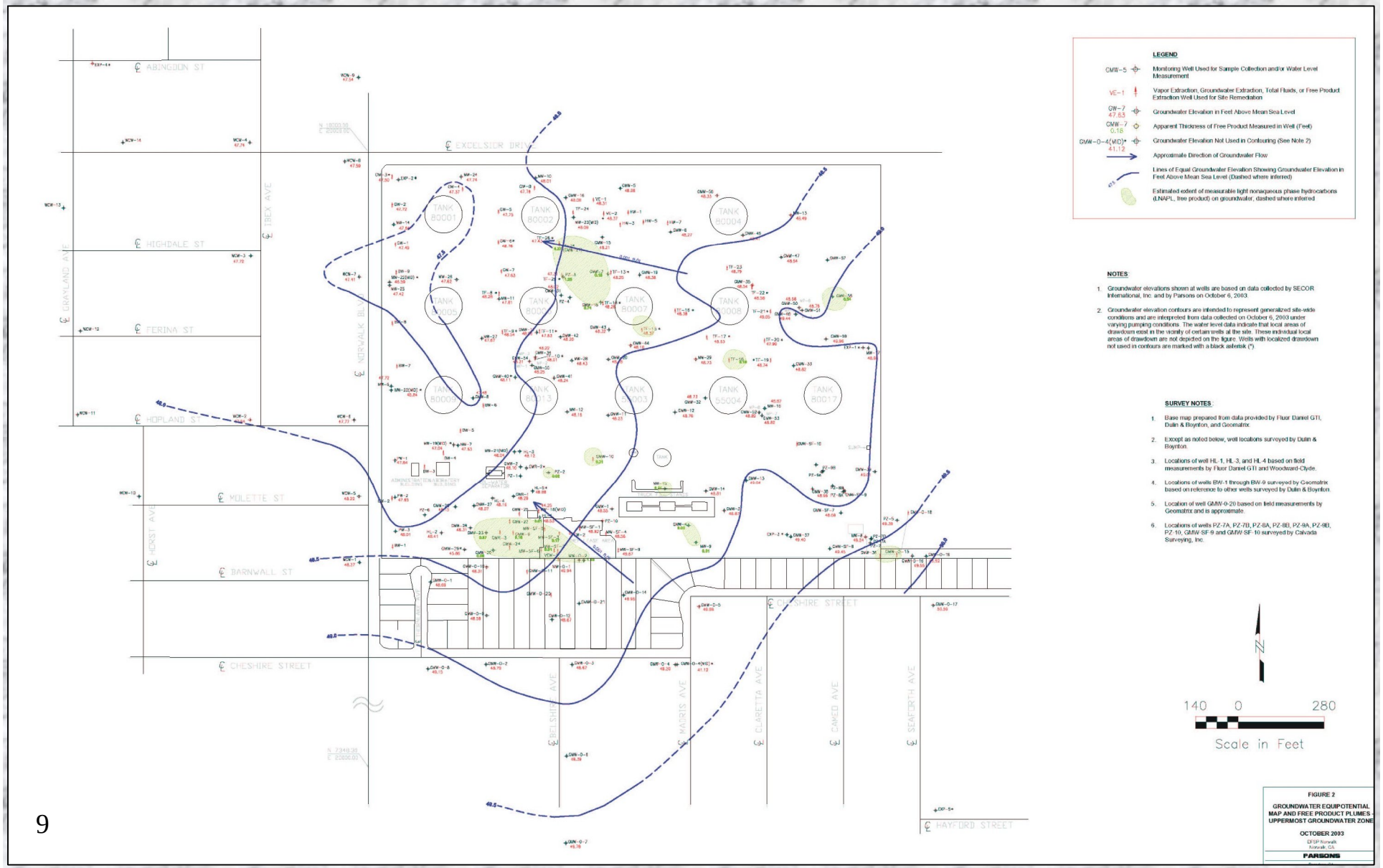
Soil Remediation Activities by DESC

- Approved truck fill station proposal for SVE — workplan underway
- Installed two soil borings in Oily Waste Area — awaiting analytical results
- Approved Economic Cost Analysis recommendations for tank farm
  - Recommended soil remediation with tanks in place
  - Cost proposal underway

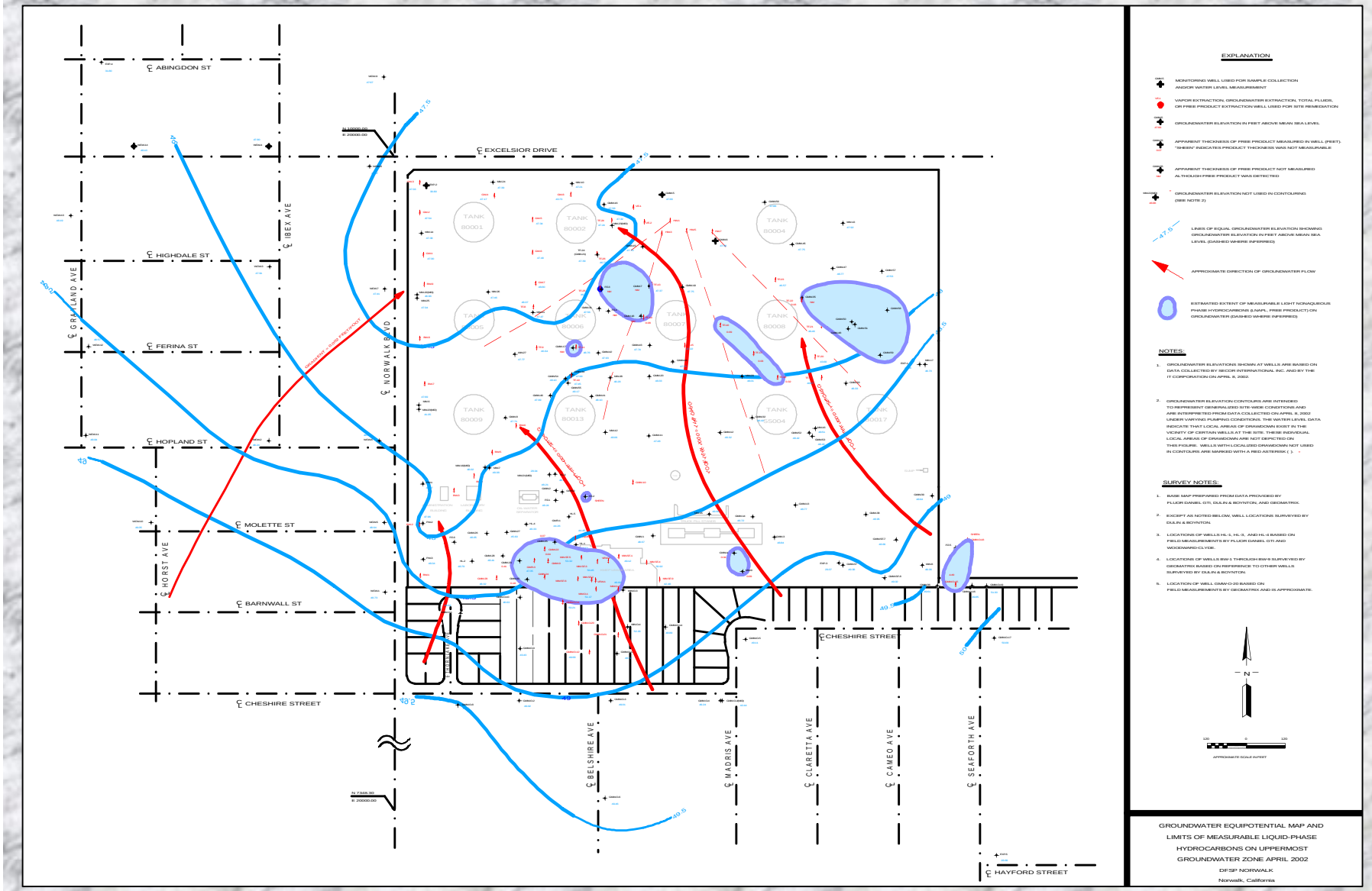
Free Product
October 2003 Semiannual Monitoring

- 94 wells sampled, including 5 Exposition wells
  - No contaminants detected in Exposition wells
- Free product observed in 18 of 161 wells gauged
  - Free-product plumes similar size to past 2 years
  - Isolated to individual wells or areas
    - North-Central area maximum 1.25 ft in PZ-03
    - South-Central area maximum 1.19 ft in MW-0-2

Groundwater Equipotential Map and Limits of Measurable Liquid-Phase Hydrocarbons – October 2003



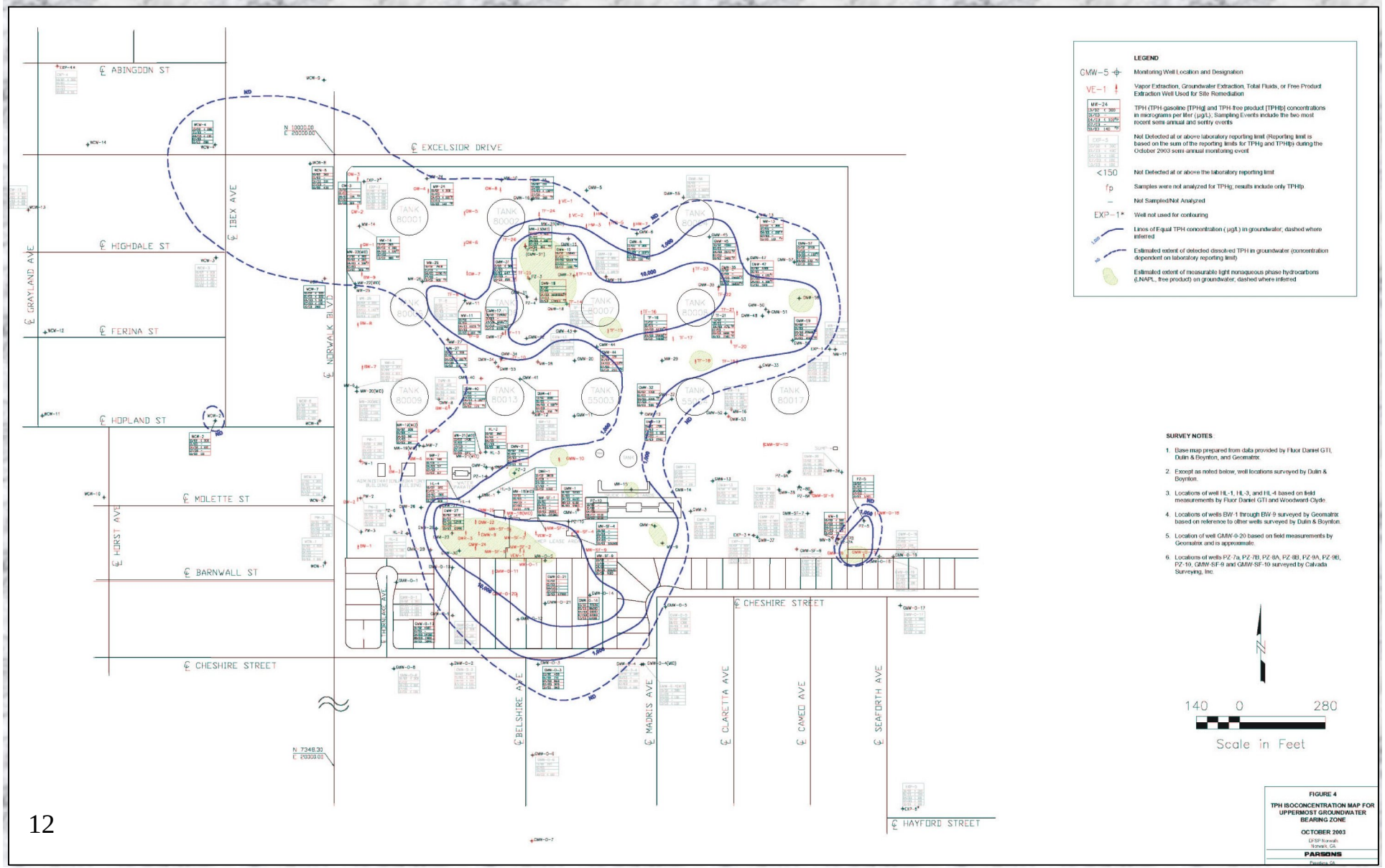
Groundwater Equipotential Map and Limits of Measurable Liquid-Phase Hydrocarbons – April 2002



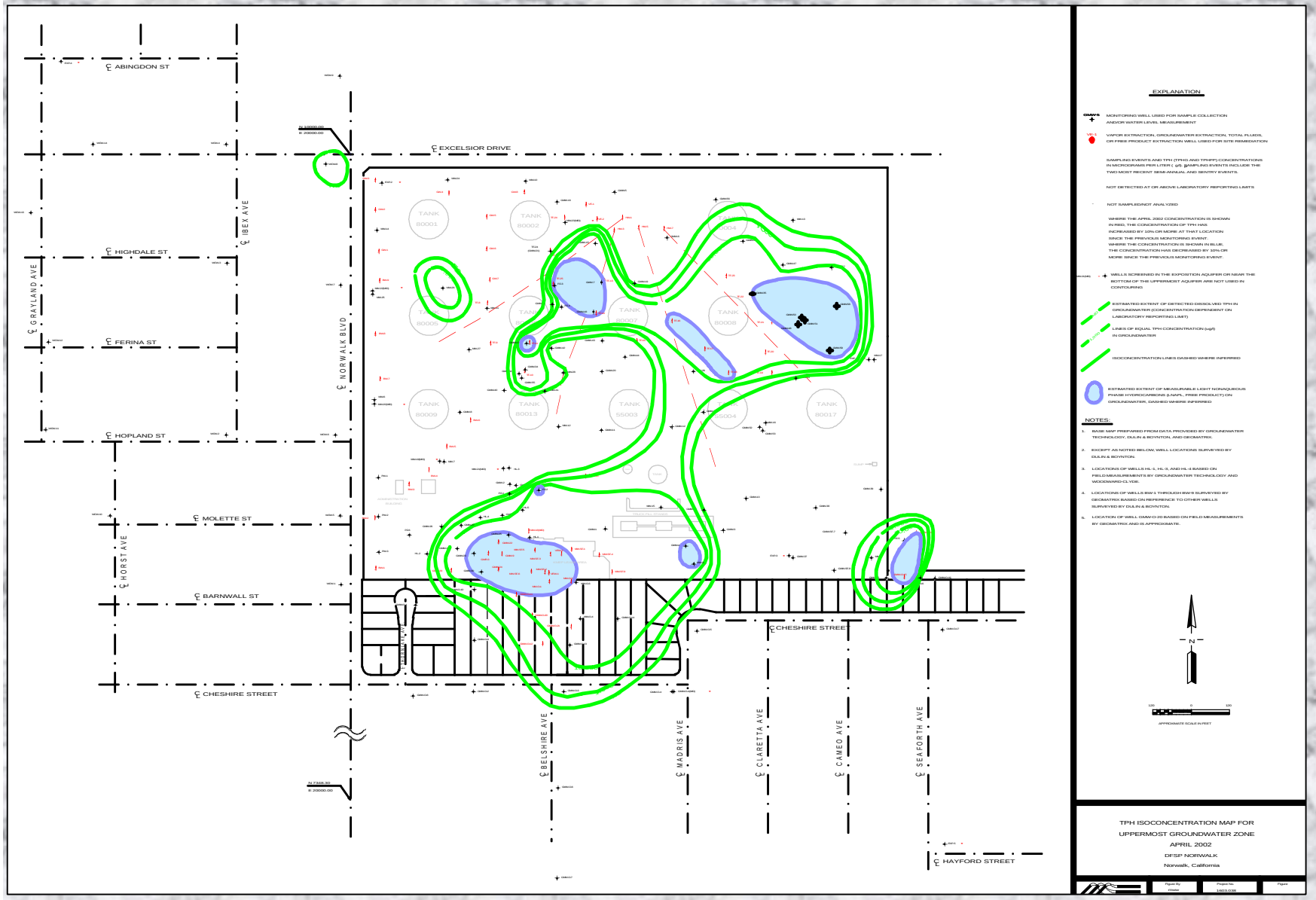
TPH
October 2003 Semiannual Monitoring

- North Central plume TPH distribution changed
  - 10,000 ug/L contour expanded south, while contracting from east
  - Non-detect contour (~200 ug/L) expanded west, south, & east
- TPH distribution in South-Central plume largely unchanged

Total Petroleum Hydrocarbons Isoconcentration Map – October 2003



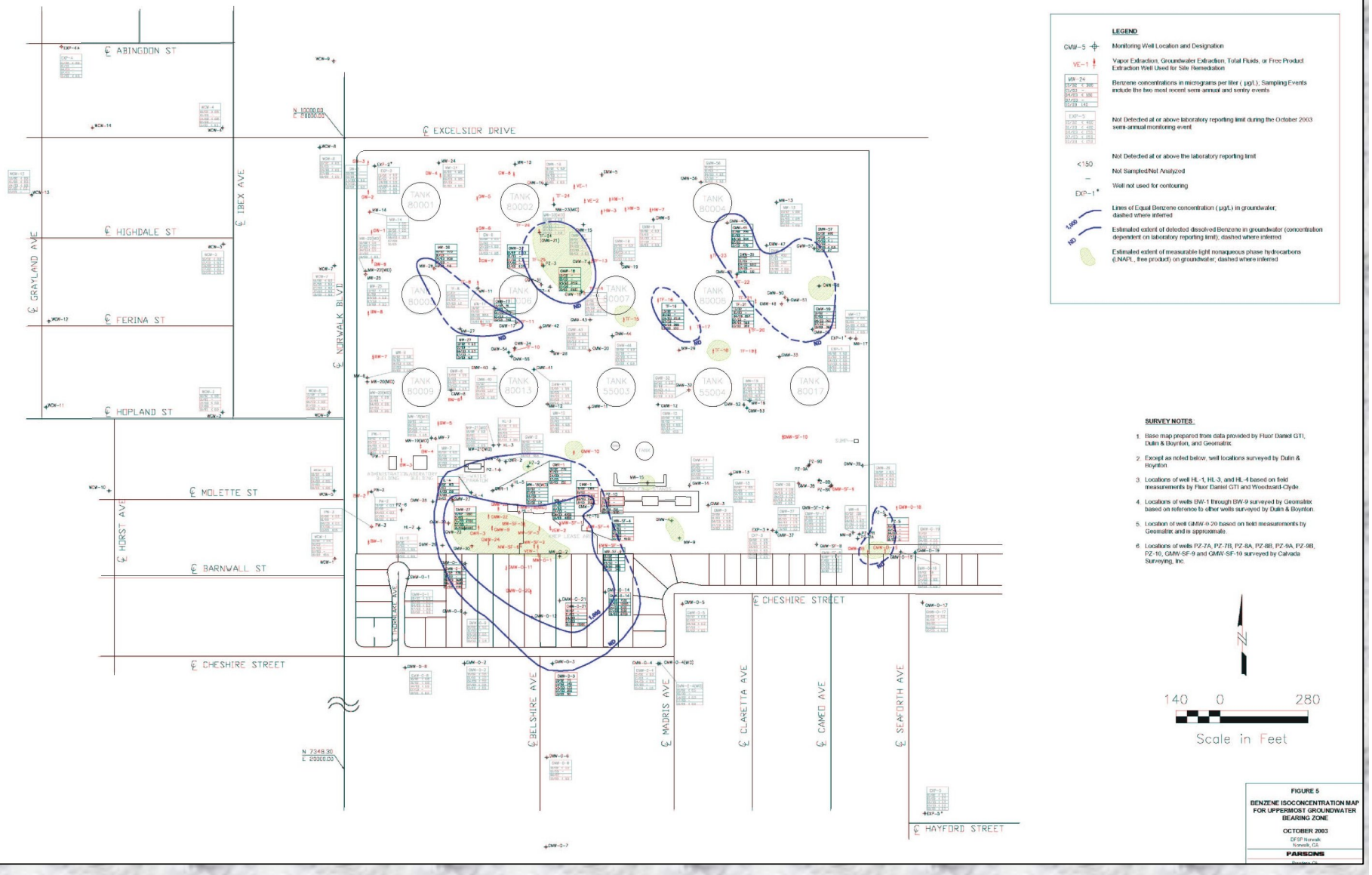
Total Petroleum Hydrocarbons Isoconcentration Map – April 2002



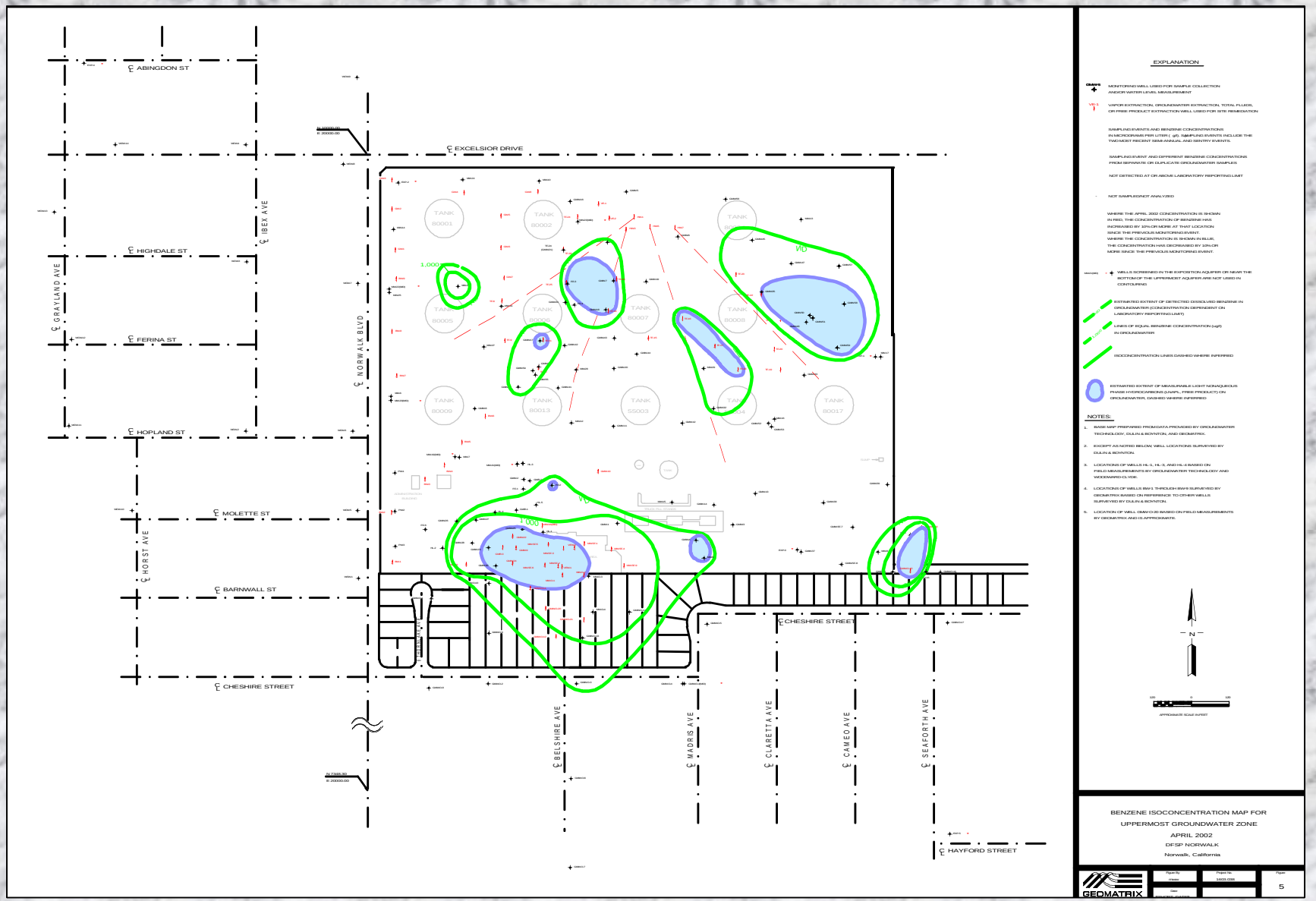
Benzene
October 2003 Semiannual Monitoring

- North-central benzene plume extent similar
  - No benzene detected west of site
  - Decreasing trend: No benzene detected in GMW- 47 near biosparging
- South-Central plume extent also consistent
  - Highest benzene concentration (15,000 ug/L) detected in GMW-O-21, adjacent to GMW-O-14
- Southeastern 24-inch valve area
  - Only detected benzene in PZ-05
  - No benzene detected in MW-8 and GMW-O-16

Benzene Isoconcentration Map
October 2003



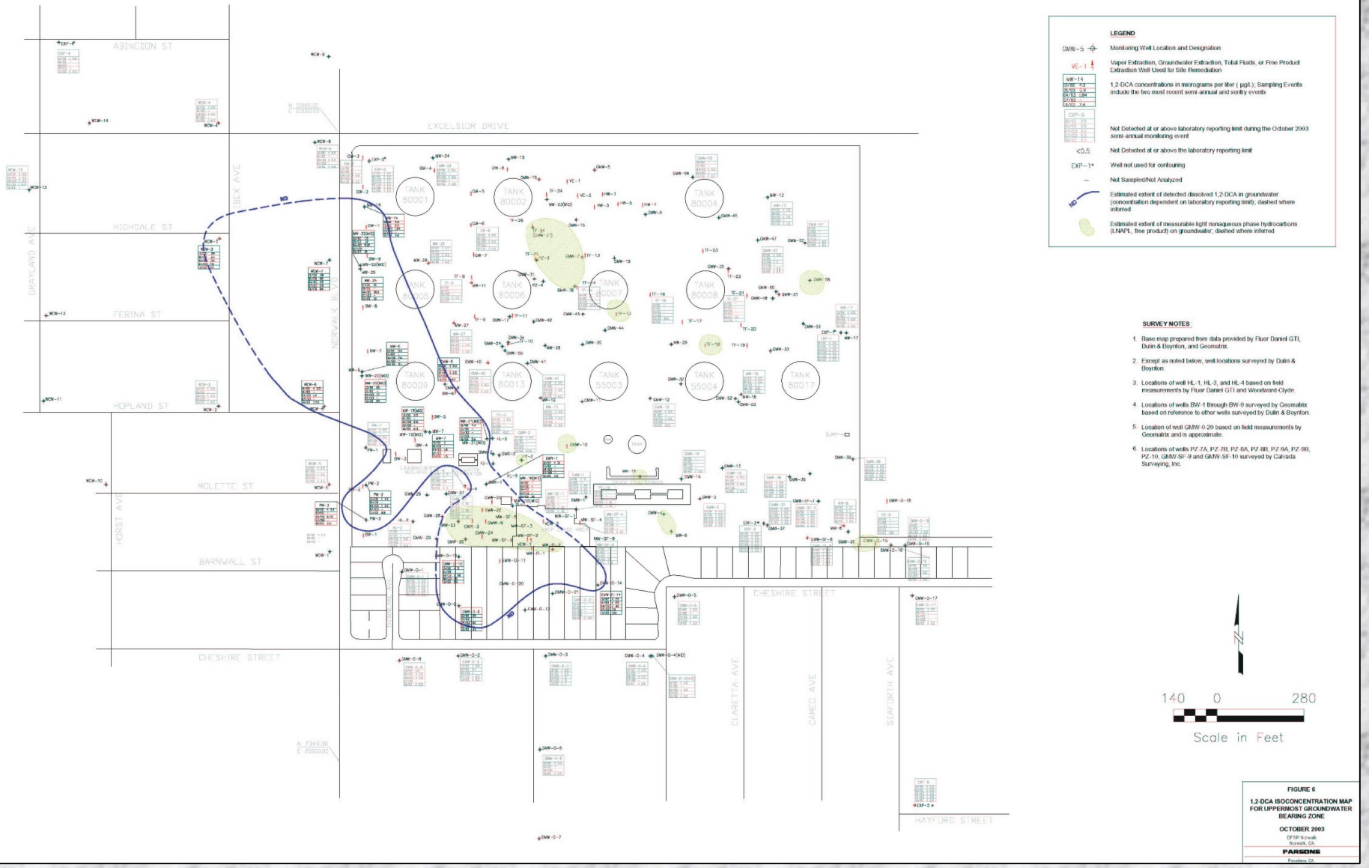
Benzene Isoconcentration Map
April 2002



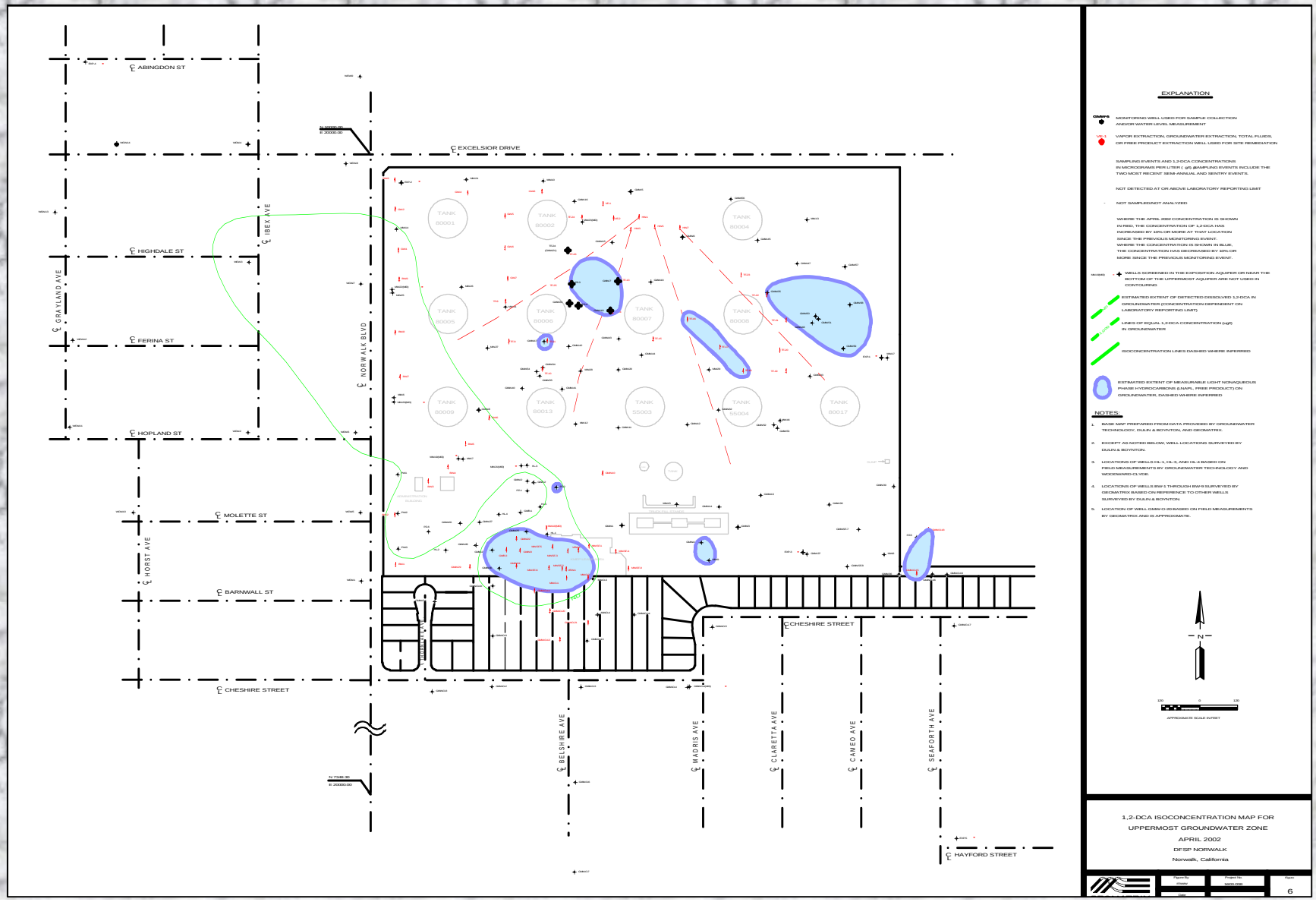
1,2-DCA
October 2003 Semiannual Monitoring

- 1,2-DCA again detected above Risk-Based Corrective Action concentration of 70 ug/L
- 1,2-DCA again detected in off-site wells west of site
  - Detected in same 3 wells
  - Remains above 70 ug/L in WCW-7
- South-Central plume extended farther south
  - 1,2-DCA detected in GMW-O-9 and GMW-O-14
- None detected in southeastern 24-inch valve area

1,2-Dichloroethane Isoconcentration Map
October 2003



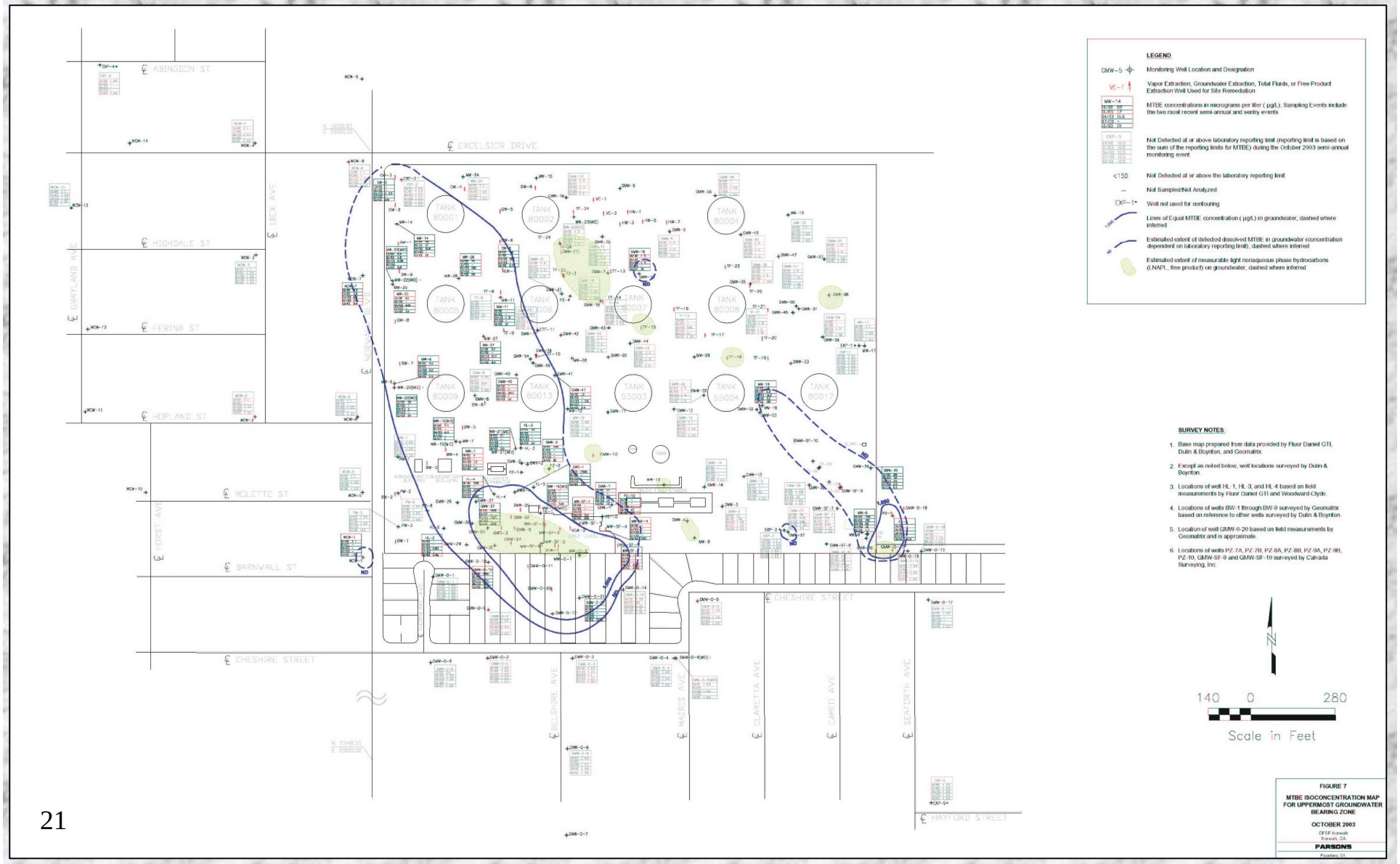
1,2-Dichloroethane Isoconcentration Map
April 2002



MTBE
October 2003 Semiannual Monitoring

- MTBE was detected in 2 off-site monitoring wells west of site
  - First time detected in WCW-1
- South-Central plume similar in extent
  - MTBE concentrations in wells MW-19 (MID) continued to decrease to 1 ug/L
- MTBE plume in the southeastern portion of the site is narrower east-west
  - Highest MTBE concentration in PZ-5

MTBE Isoconcentration Map
October 2003



MTBE Isoconcentration Map
April 2002