

Norwalk Tank Farm Update

***Presented to the Norwalk Tank Farm
Restoration Advisory Board***

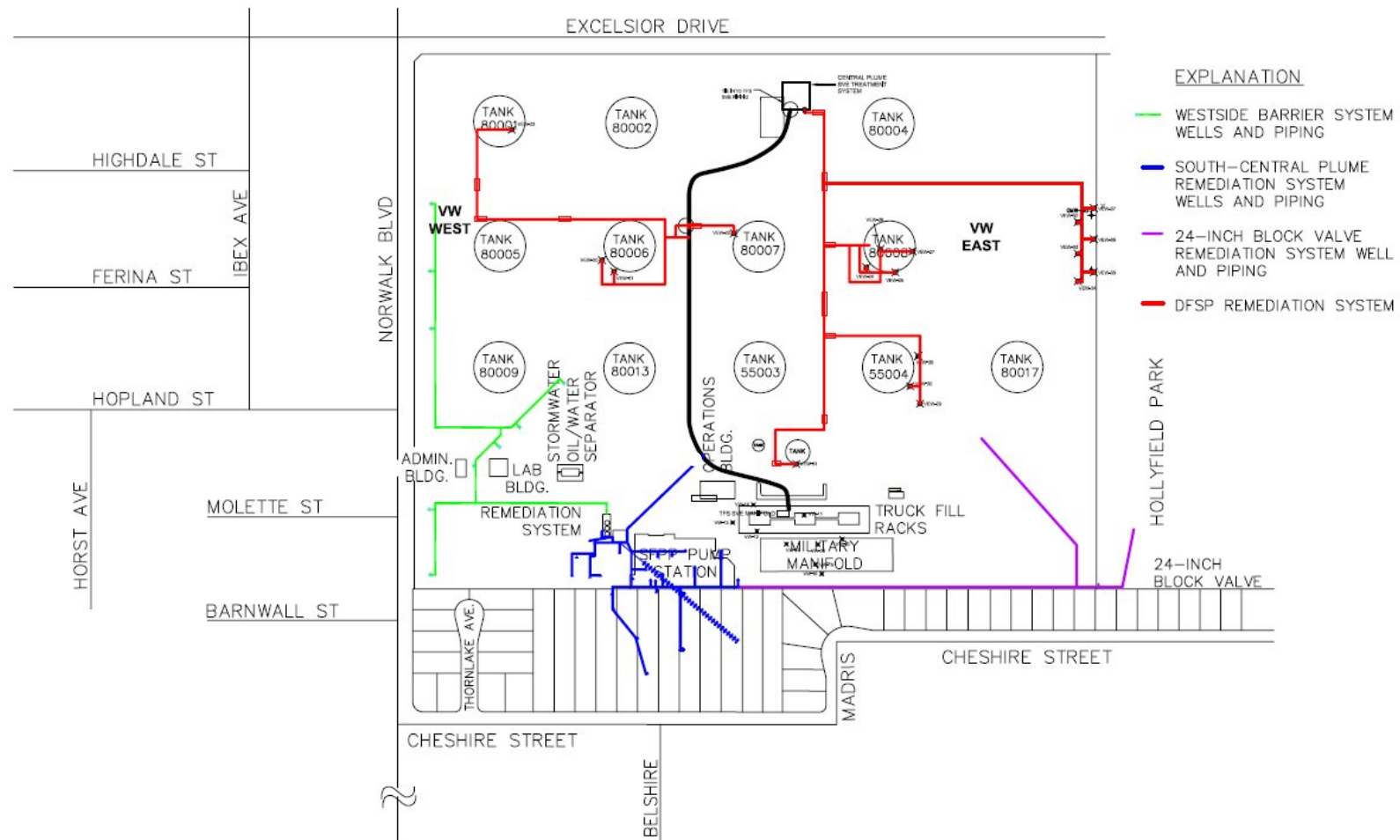
July 31, 2008

Presentation Overview

Topics to be Covered

- Remediation Operations Update
- First Semi-Annual 2008 Groundwater Monitoring Event
- Additional Assessment Updates
(Southeastern 24-Inch Block Valve Area)

Map of Remediation Systems



EXPLANATION

- WESTSIDE BARRIER SYSTEM WELLS AND PIPING
- SOUTH-CENTRAL PLUME REMEDIATION SYSTEM WELLS AND PIPING
- 24-INCH BLOCK VALVE REMEDIATION SYSTEM WELL AND PIPING
- DFSP REMEDIATION SYSTEM

Soil Vapor Extraction System

- 24 on-site 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

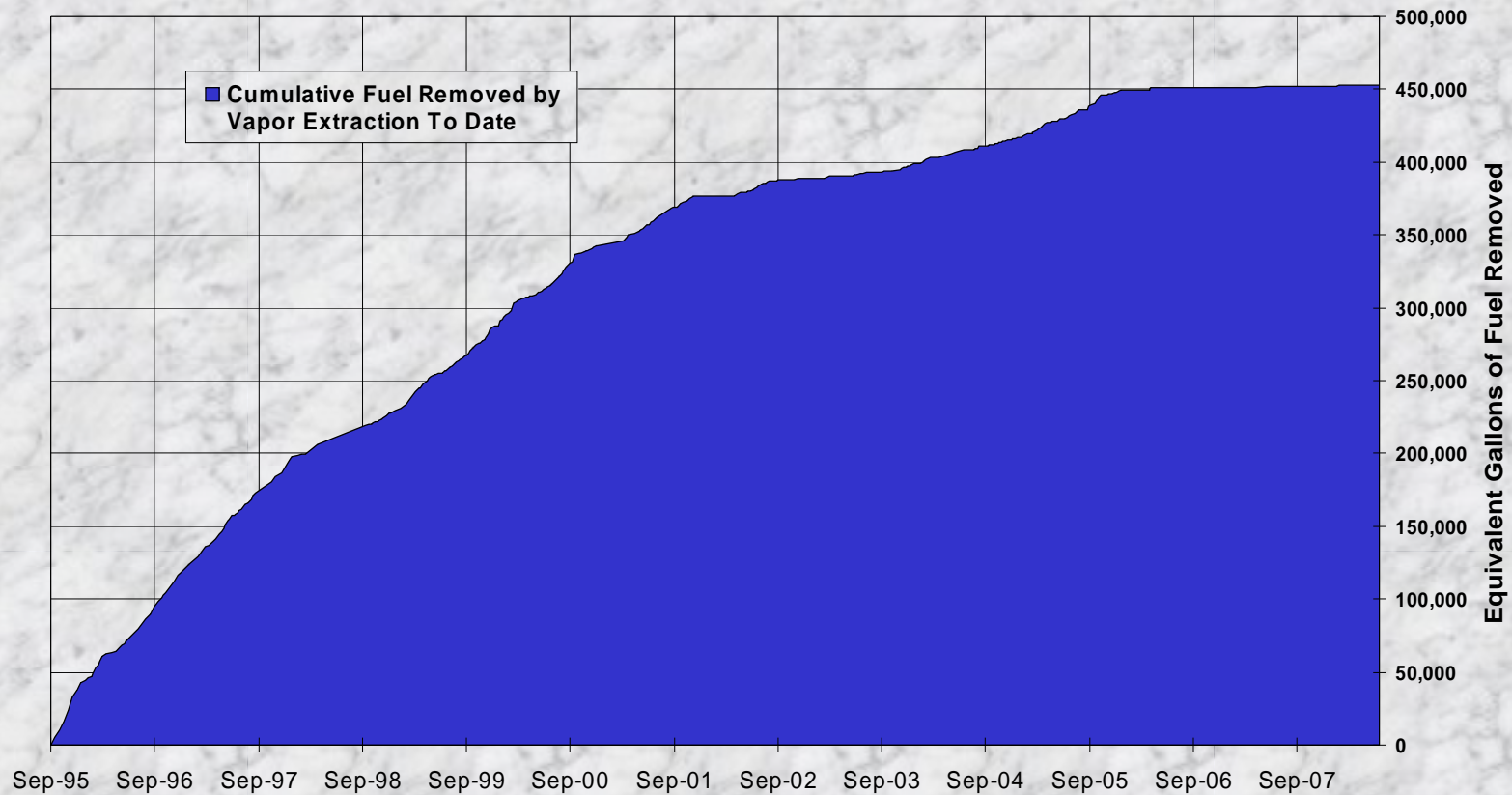
- Approximately 225 gallons equivalent of fuel removed from soil and destroyed by catalytic oxidation during second quarter 2008.
- Approximately 452,800 gallons equivalent of fuel removed from soil and destroyed by catalytic and thermal oxidation since September 1995.
- Approximately 61,594 hours of operation since September 1995.

Soil Vapor Extraction System Operations Summary

- The SVE system operated continuously during second quarter 2008 with the following exceptions:
 - Electrical disruption due to tripped breaker at main electrical panel (approximately 10 days), electrical components replaced on remediation systems
- Percent operation: 87%

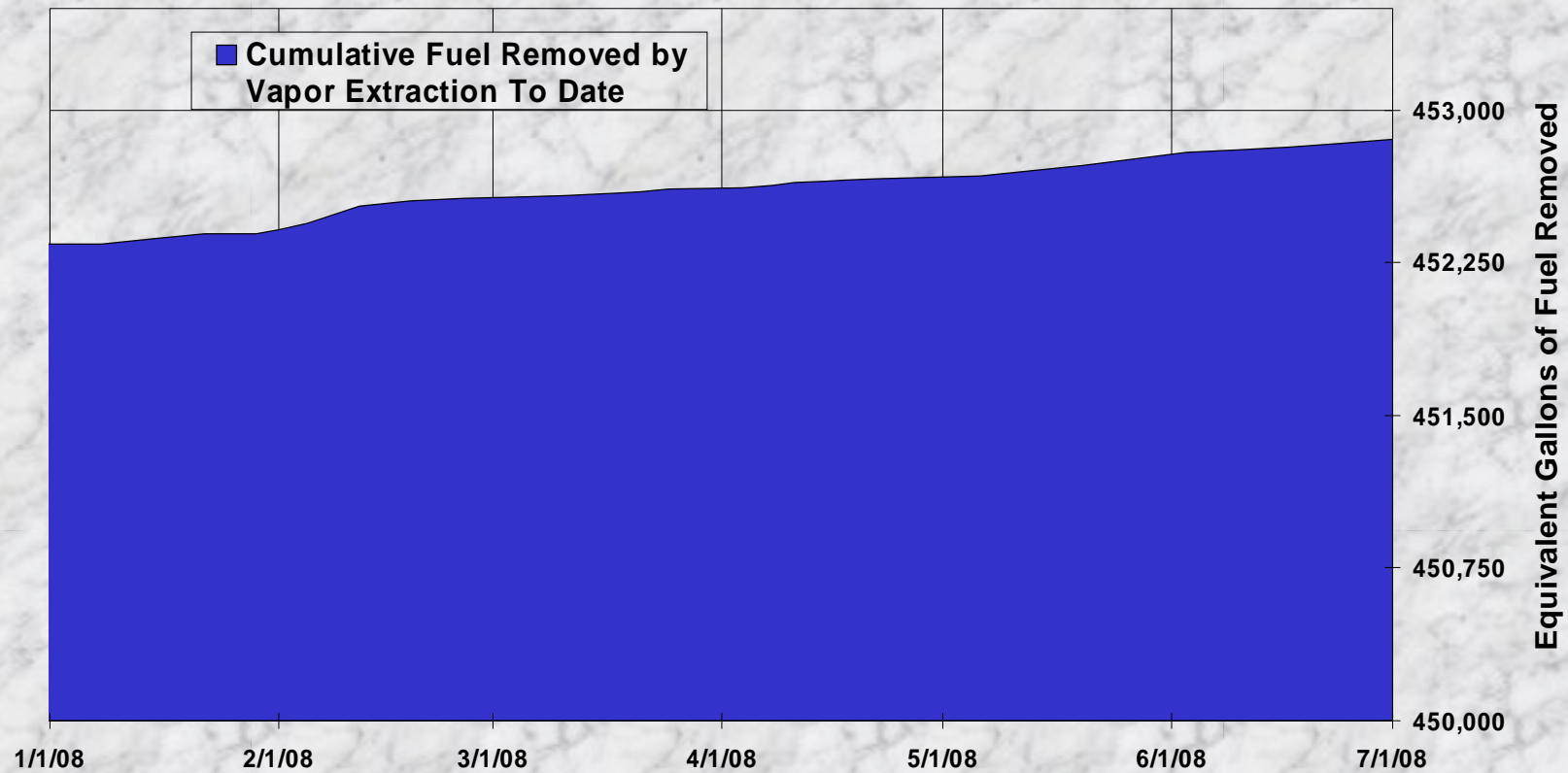
Soil Vapor Extraction System Operations Summary

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

- 18 total fluids (product and groundwater) extraction wells and 2 groundwater extraction wells in the South-Central Plume area
- 2 total fluids (product and groundwater) extraction wells in the Southeastern 24-Inch Block Valve area
- 3 groundwater extraction wells in the West Side Barrier area

Groundwater/Product Extraction System Operations Summary

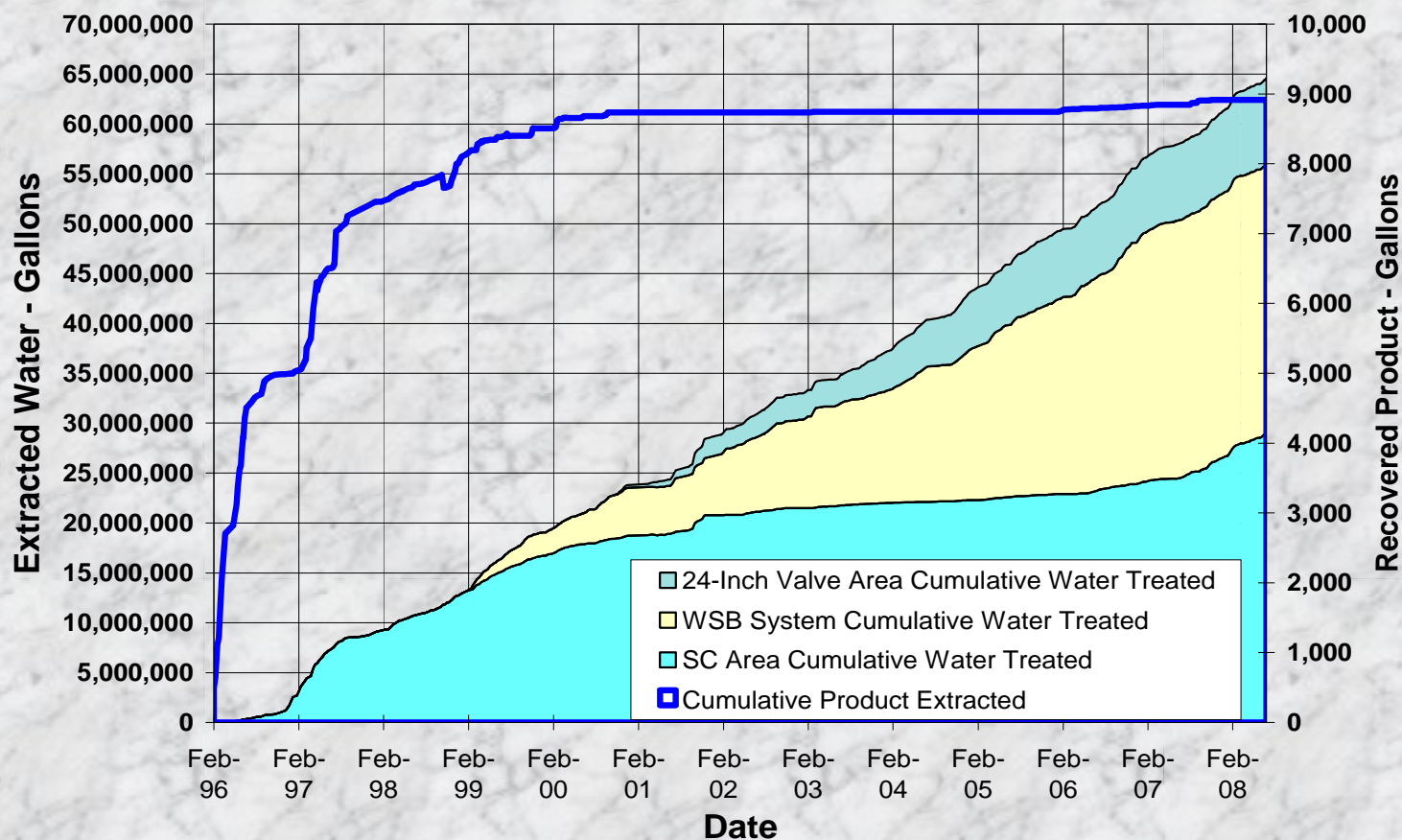
- Total groundwater extracted second quarter 2008:
 - South-Central Plume area: 902,000 gallons
 - Southeastern 24-Inch Valve area: 141,000 gallons
 - West Side Barrier area: 35,600 gallons
- Total groundwater extracted since September 1995:
 - South-Central Plume area: 29 million gallons
 - Southeastern 24-Inch Valve area: 8.7 million gallons
 - West Side Barrier area: 26.9 million gallons
 - Total groundwater extracted: 64.6 million gallons
 - 8,917 gallons free product removed

Groundwater/Product Extraction System Operations Summary

- The groundwater/product extraction system operated continuously during second quarter 2008 with the following exceptions:
 - Operating intermittently due to faulty water level sensor and controller in transfer tank
 - Electrical disruption due to tripped breaker at main electrical panel (approximately 10 days), electrical components replaced on remediation systems
 - Liquid phase granular activated carbon changeout (approximately 2 days)
- Percent operation: 40%

Groundwater/Product Extraction System Operations Summary

Summary of Product Extracted and Water Treated



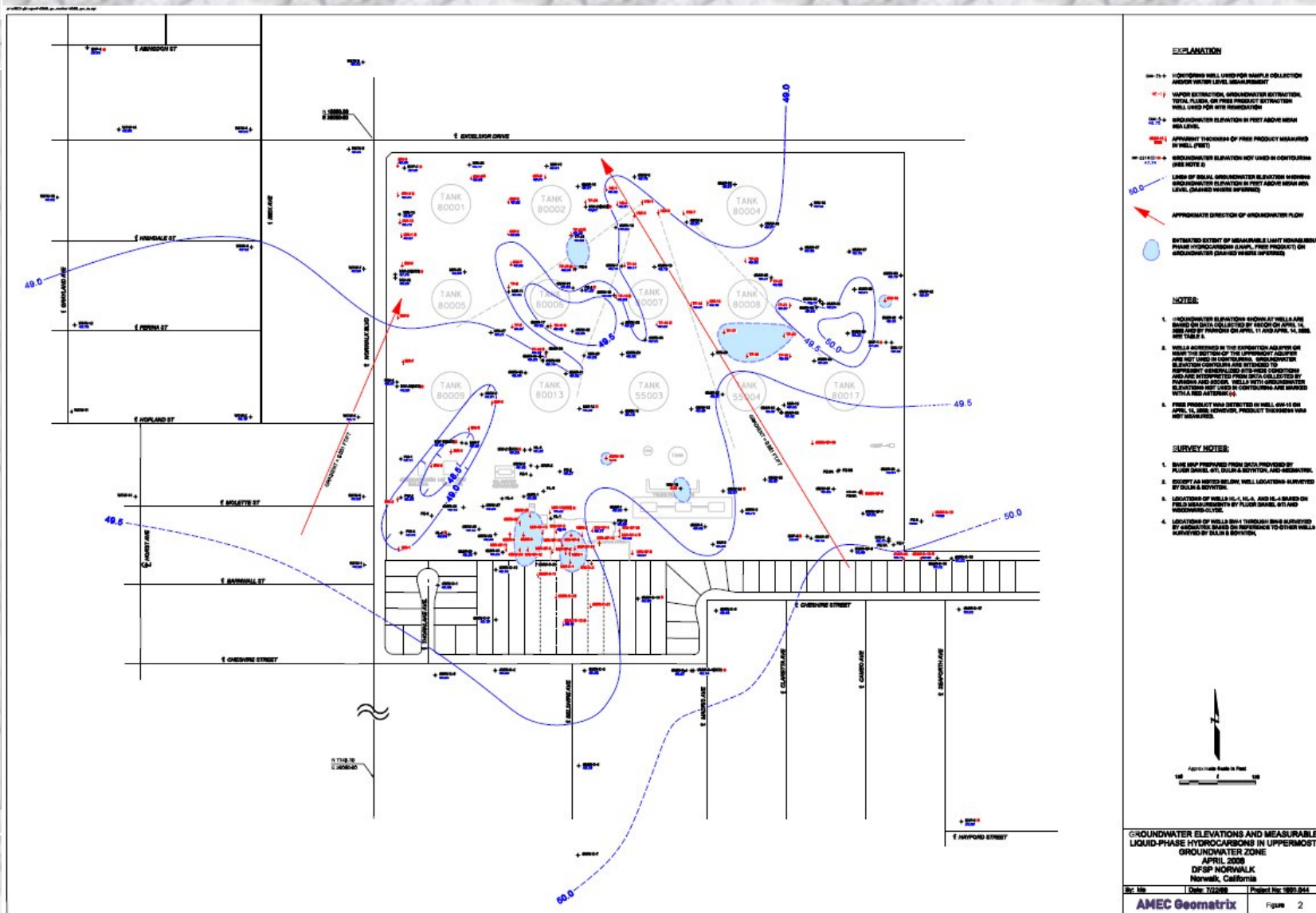
Planned Remediation Activities

- Continue weekly system inspections.
- Continue data collection for monitoring and evaluation of remediation systems.
- Continue adjustments to remediation wells to optimize remediation.
- Collect data to evaluate bioremediation.
- Shut down West Side Barrier system.

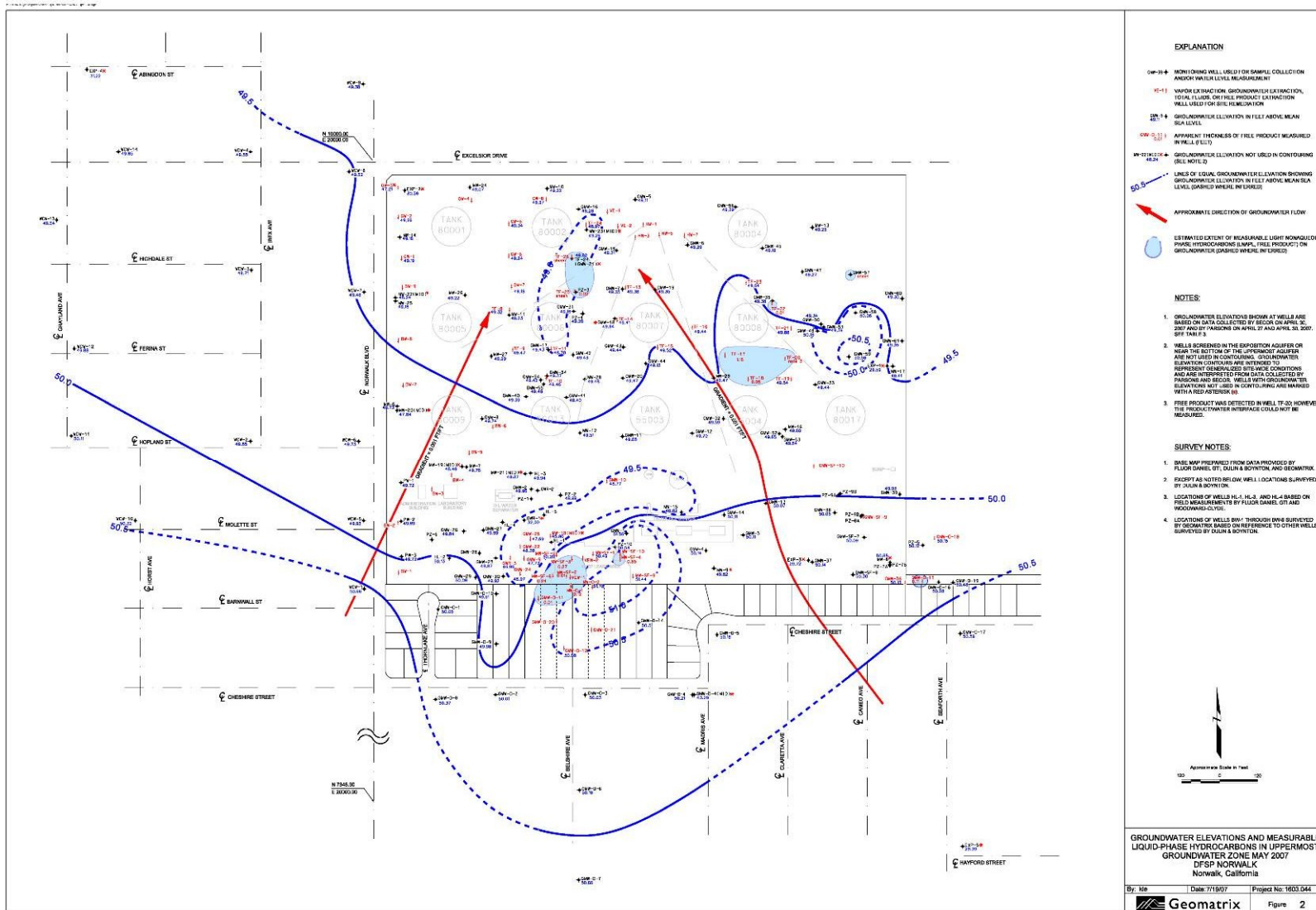
First Semi-Annual 2008 Groundwater Monitoring Event

- 114 wells sampled, including 5 Exposition wells.
- Groundwater elevations decreased by approximately 1.5 feet at the site since November 2007.
- No VOCs were detected in Exposition wells, except chloroform, bromodichloromethane, and dibromochloromethane at low concentrations in EXP-4.
- Free product was detected in MW-15 (truck rack area) and GMW-10. Free product was not detected in the intermediate block valve or southeastern areas.

Groundwater Elevations and Liquid-Phase Hydrocarbons April 2008



Groundwater Elevations and Liquid-Phase Hydrocarbons April 2007



EXPLANATION

- OW-39-4 SHOWING WELL USED FOR SAMPLE COLLECTION AND/OR WATER LEVEL MEASUREMENT
- W-11 VAPOR EXTRACTION, GROUNDWATER EXTRACTION, TOTAL FLUXES, OR FUEL PRODUCT EXTRACTION WELL USED FOR SITE REMEDIATION
- 50.0 GROUNDWATER ELEVATION IN FEET ABOVE MEAN SEA LEVEL
- OW-2-31-3 APPARENT THICKNESS OF FUEL PRODUCT MEASURED IN WELL (FEET)
- W-22-21-2-6-24 GROUNDWATER ELEVATION NOT USED IN CONTOURING (SEE NOTE 2)
- 50.5 LINES OF EQUAL GROUNDWATER ELEVATION SHOWING GROUNDWATER ELEVATION IN FEET ABOVE MEAN SEA LEVEL (DASHED WHERE IN LURDS)
- APPROXIMATE DIRECTION OF GROUNDWATER FLOW
- ESTIMATED EXTENT OF MEASURABLE LIGHT NONAQUEOUS PHASE HYDROCARBONS (LNAPL), FUEL PRODUCTS ON GROUNDWATER (DASHED WHERE IN LURDS)

NOTES:

1. GROUNDWATER ELEVATIONS SHOWN AT WELLS ARE BASED ON DATA COLLECTED BY RECORD ON APRIL 20, 2007 AND BY PARSONS ON APRIL 27 AND APRIL 28, 2007. SEE TABLE 8.
2. WELLS SCREENED IN THE EXPOSITION AQUIFER OR AQUIFER SYSTEM OR THE UPPERMOST AQUIFER ARE NOT USED IN CONTOURING. GROUNDWATER ELEVATION CONTOURS ARE INTERPOLATED TO REPRESENT GENERALIZED SITE-WIDE CONDITIONS AND ARE INTERFERED FROM DATA COLLECTED BY PARSONS AND RECORD. WELLS WITH GROUNDWATER ELEVATIONS NOT USED IN CONTOURING ARE MARKED WITH A RED PITCHFORK (H).
3. FUEL PRODUCT WAS DETECTED IN WELL T-30; HOWEVER, THE PRODUCT-WATER INTERFACE COULD NOT BE MEASURED.

SURVEY NOTES:

1. BASE MAP PREPARED FROM DATA PROVIDED BY FLUOR DANIEL, ET AL. IN BOSTON AND GEOMATRIX.
2. EXCEPT AS NOTED BELOW, WELL LOCATIONS SURVEYED BY DAVID B. BRYAN.
3. LOCATIONS OF WELLS H-1, H-2, AND H-3 BASED ON FIELD MEASUREMENTS BY FLUOR DANIEL, ET AL. AND WOODWARD-CLYDE.
4. LOCATIONS OF WELLS B-11 THROUGH B-16 SURVEYED BY GEOMATRIX BASED ON REFERENCE TO OTHER WELLS SURVEYED BY DAVID B. BRYAN.

GROUNDWATER ELEVATIONS AND MEASURABLE LIQUID-PHASE HYDROCARBONS IN UPPERMOST GROUNDWATER ZONE MAY 2007
DFSP NORWALK
Norwalk, California

First Semi-Annual 2008 Groundwater Monitoring Event

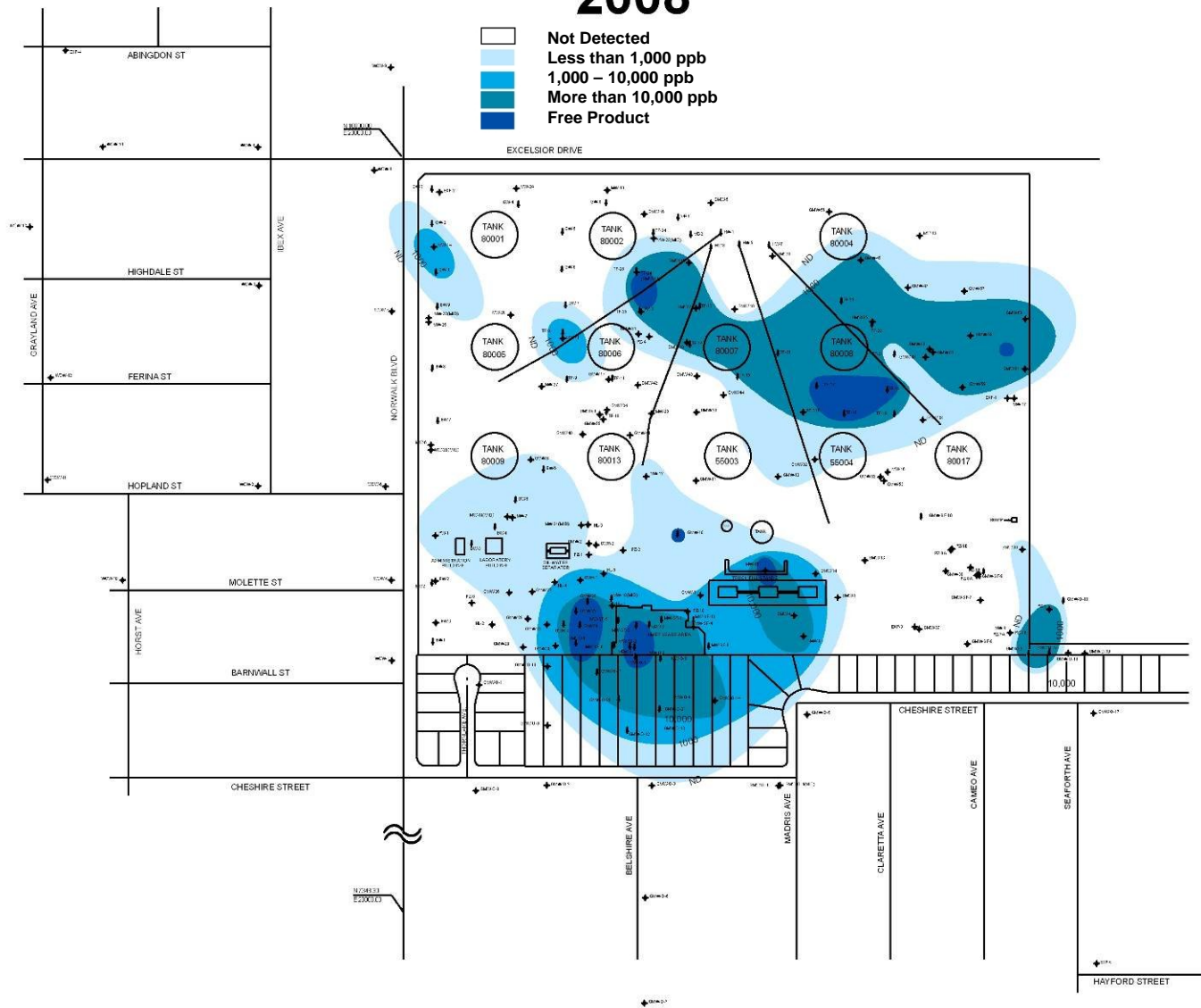
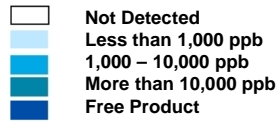
- In general, the lateral extents of TPH, benzene, MTBE, and 1,2-DCA in the south-central area remain similar to those interpreted during recent monitoring events.
- The lateral off-site extent of the south-central benzene plume appears to have decreased.
- Detected concentrations of 1,2-DCA were below the conservative risk-based clean up goal for 1,2-DCA (70 $\mu\text{g/L}$).

First Semi-Annual 2008 Groundwater Monitoring Event

- With the exceptions of MTBE in MW-SF-1 in the south-central area and PZ-5 in the southeastern area, the detected concentrations of MTBE were below the conservative risk-based cleanup goal for MTBE (40 $\mu\text{g/L}$).
- Based on 1,2-DCA and MTBE concentrations that have remained consistently below the risk-based cleanup goals in along the West Side Barrier and in off-site wells west of the site, pumping of the three currently-active West Side Barrier wells will be discontinued.

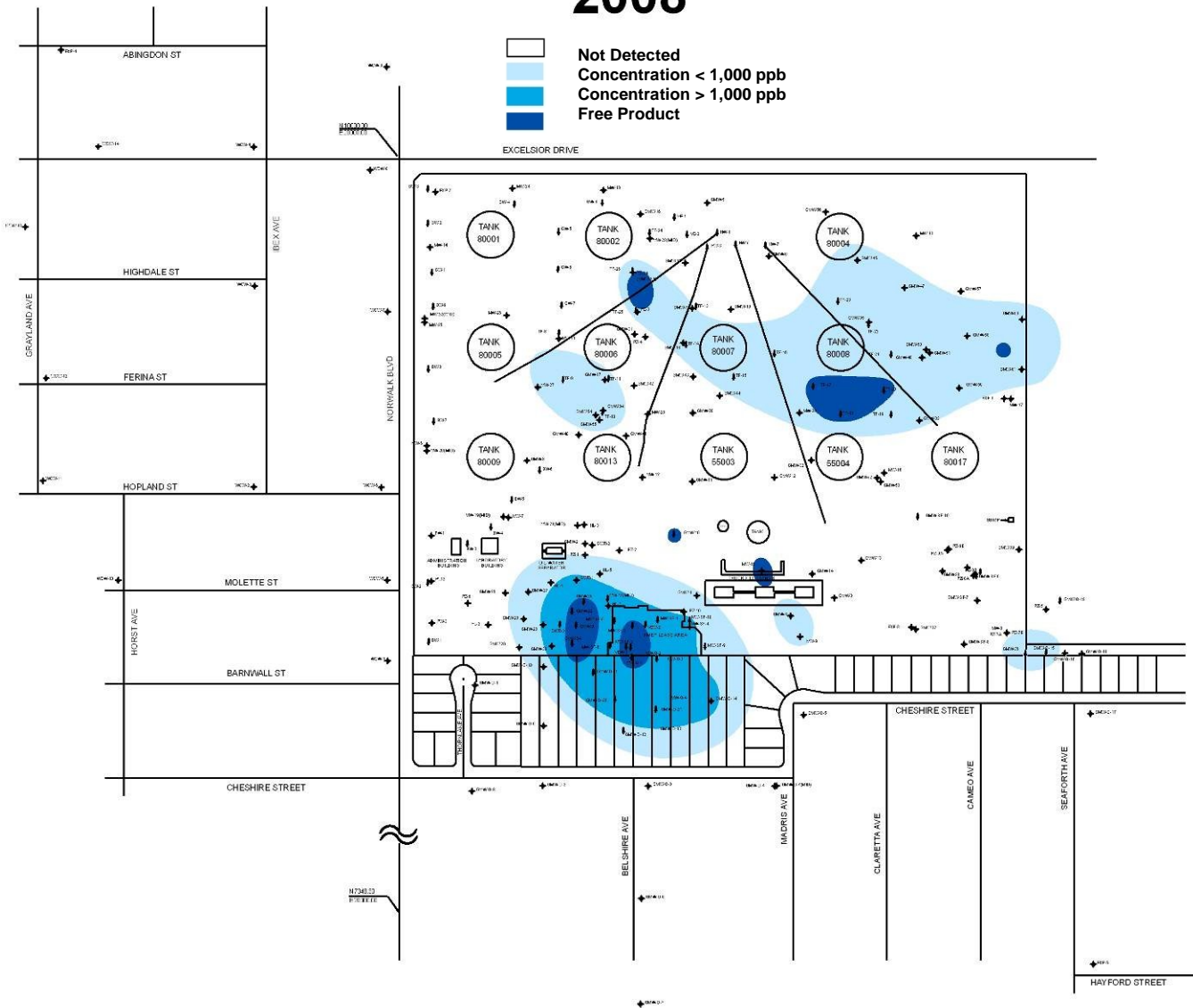
TPH

2008



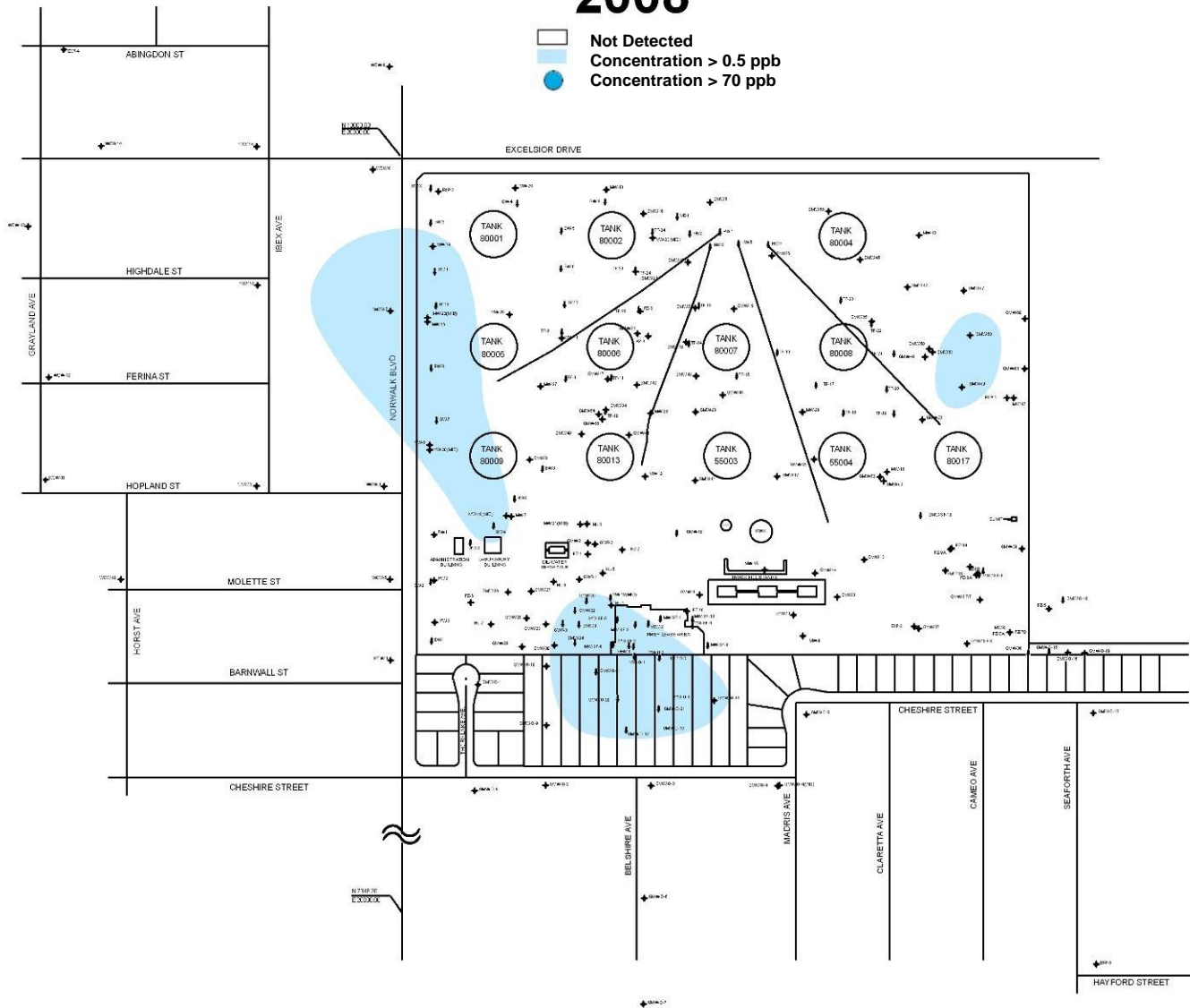
Benzene

2008



1,2-DCA

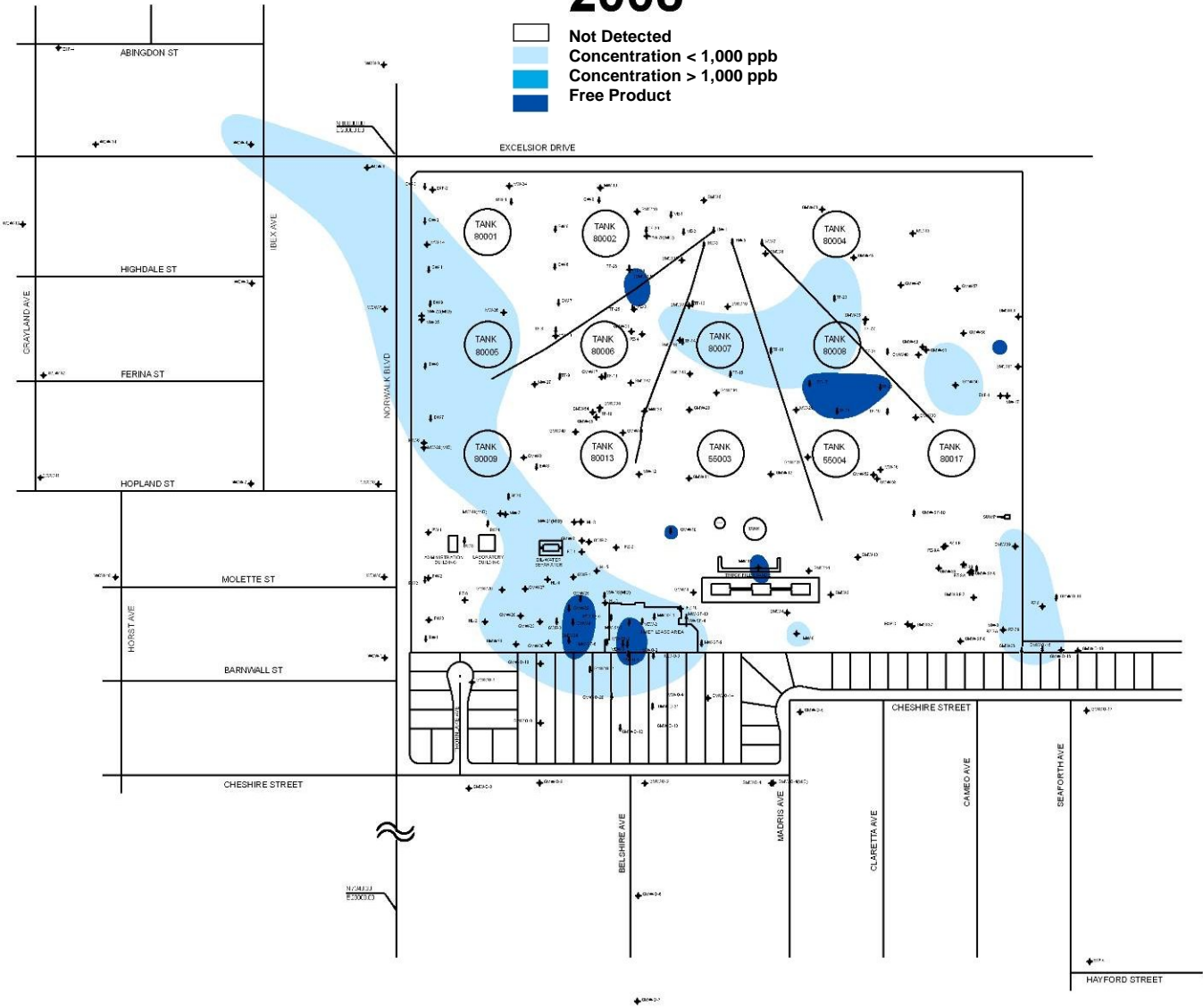
2008



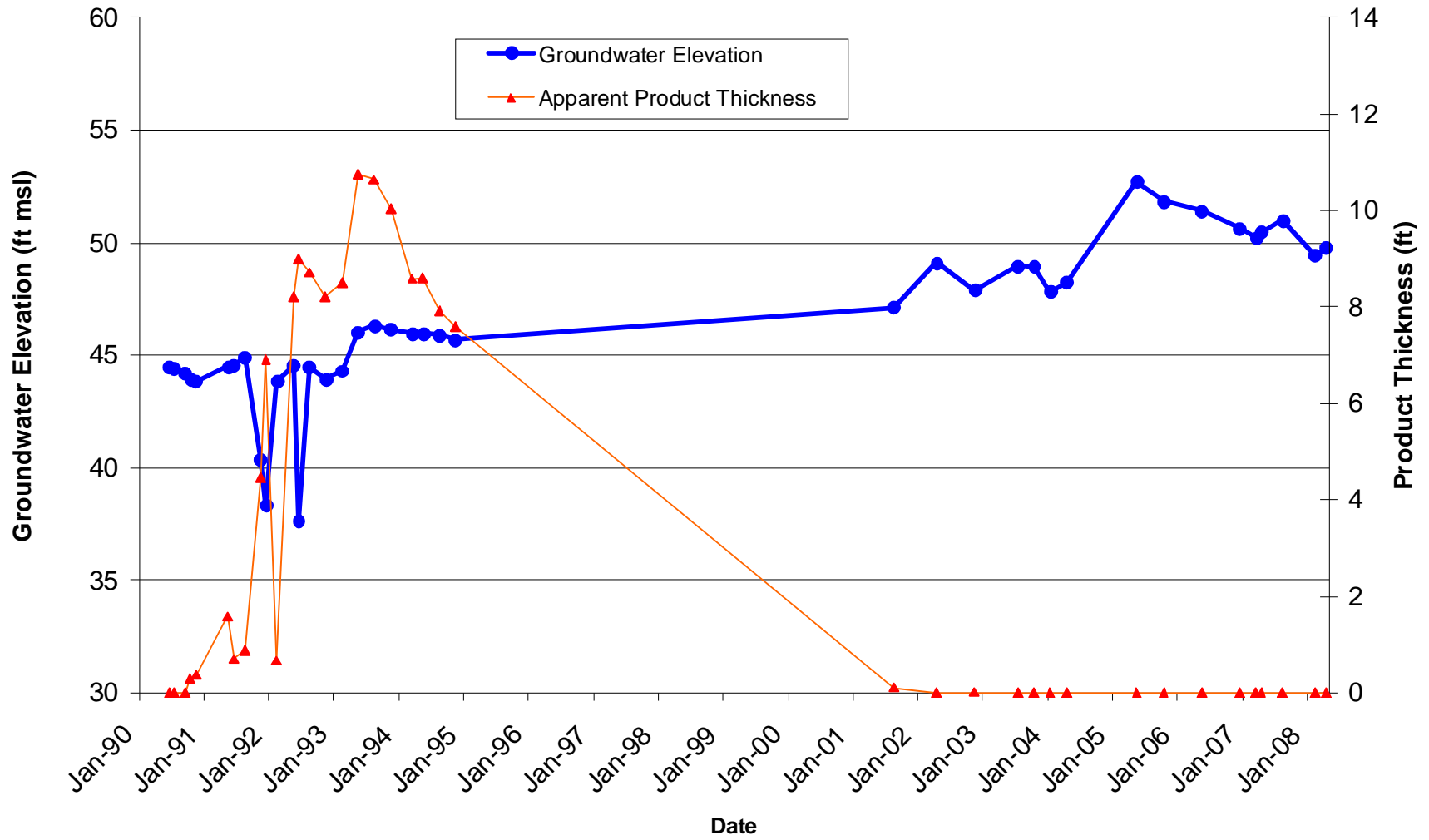
MTBE

2008

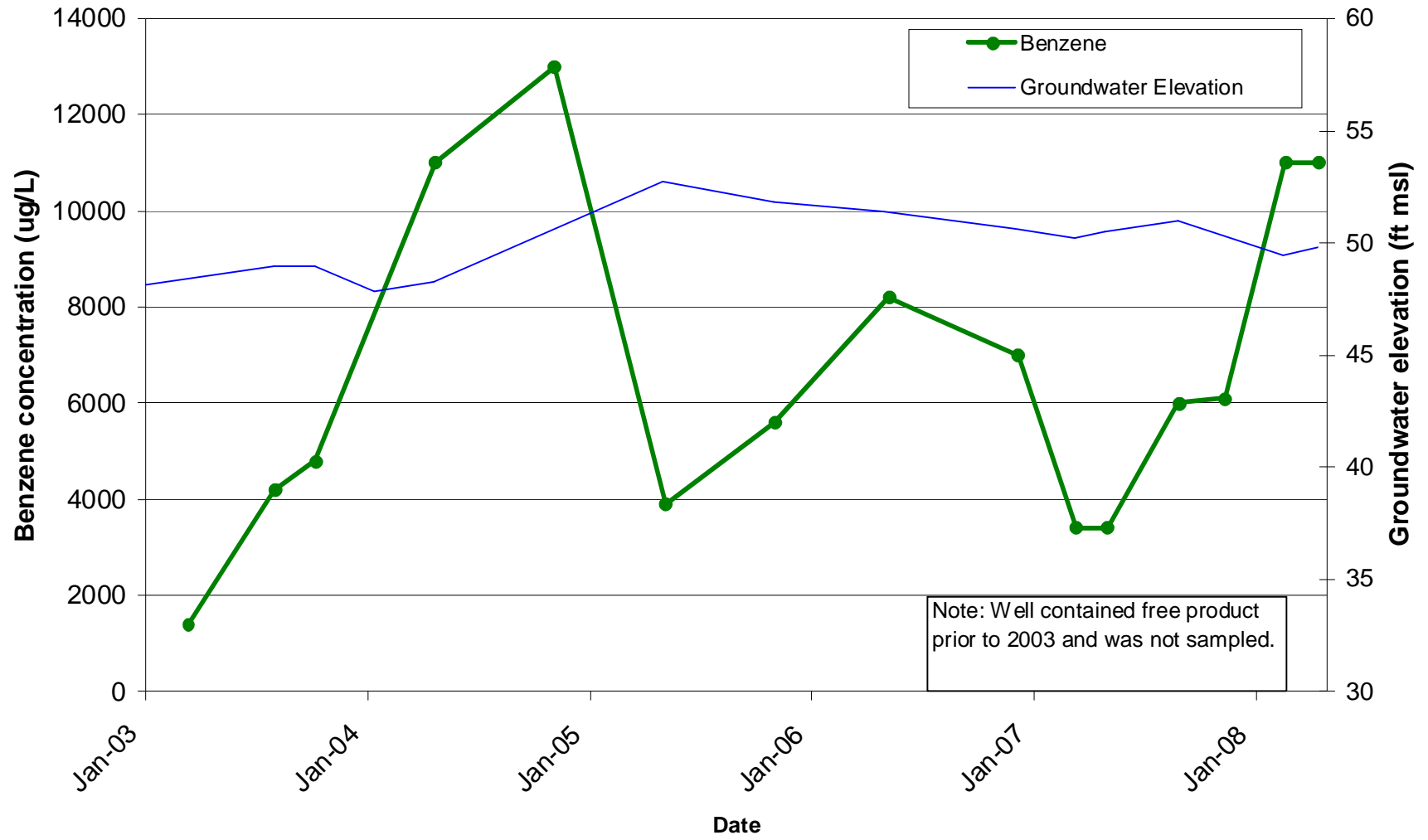
- Not Detected
- Concentration < 1,000 ppb
- Concentration > 1,000 ppb
- Free Product



MW-SF-1 Hydrograph

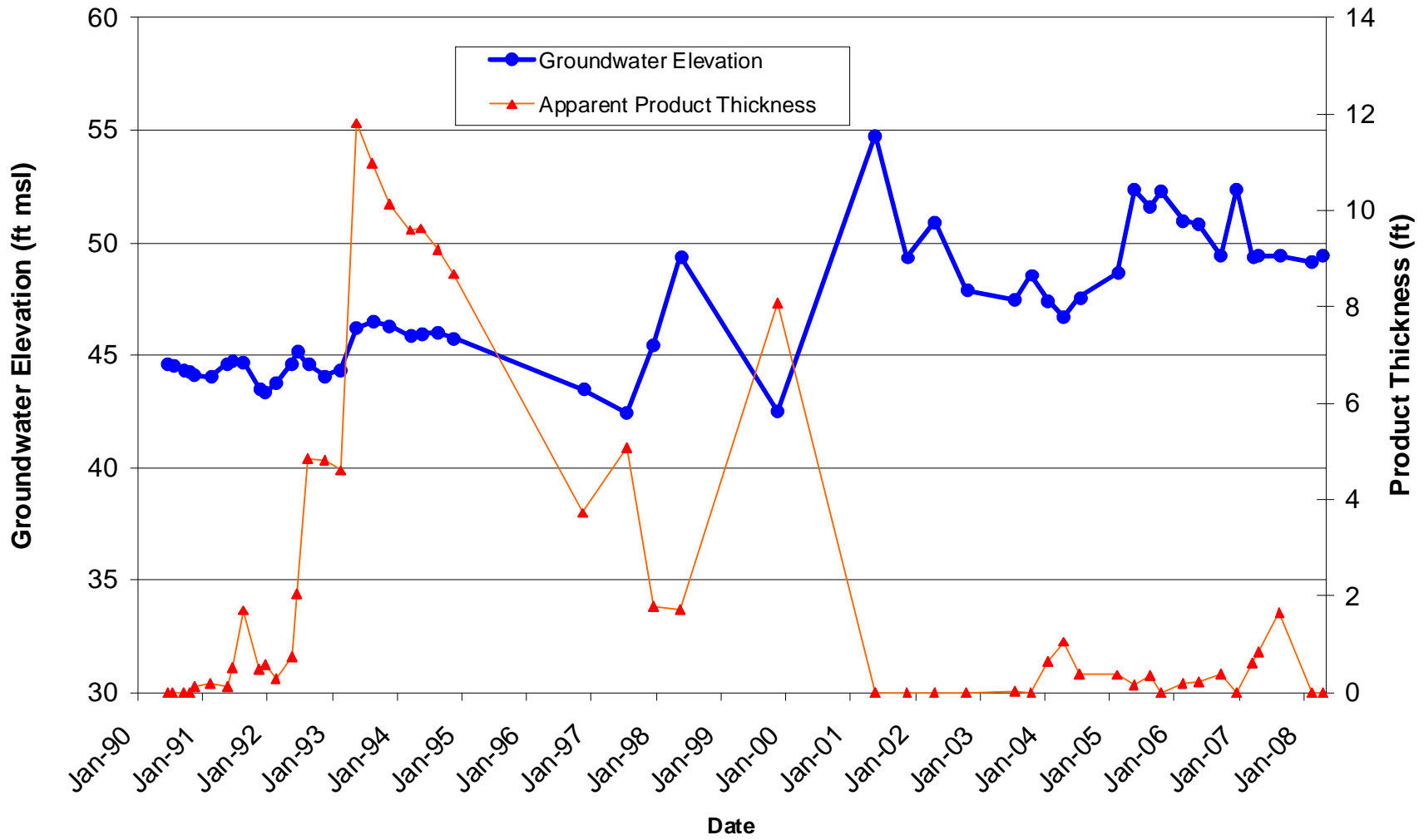


MW-SF-1 Benzene vs. Time

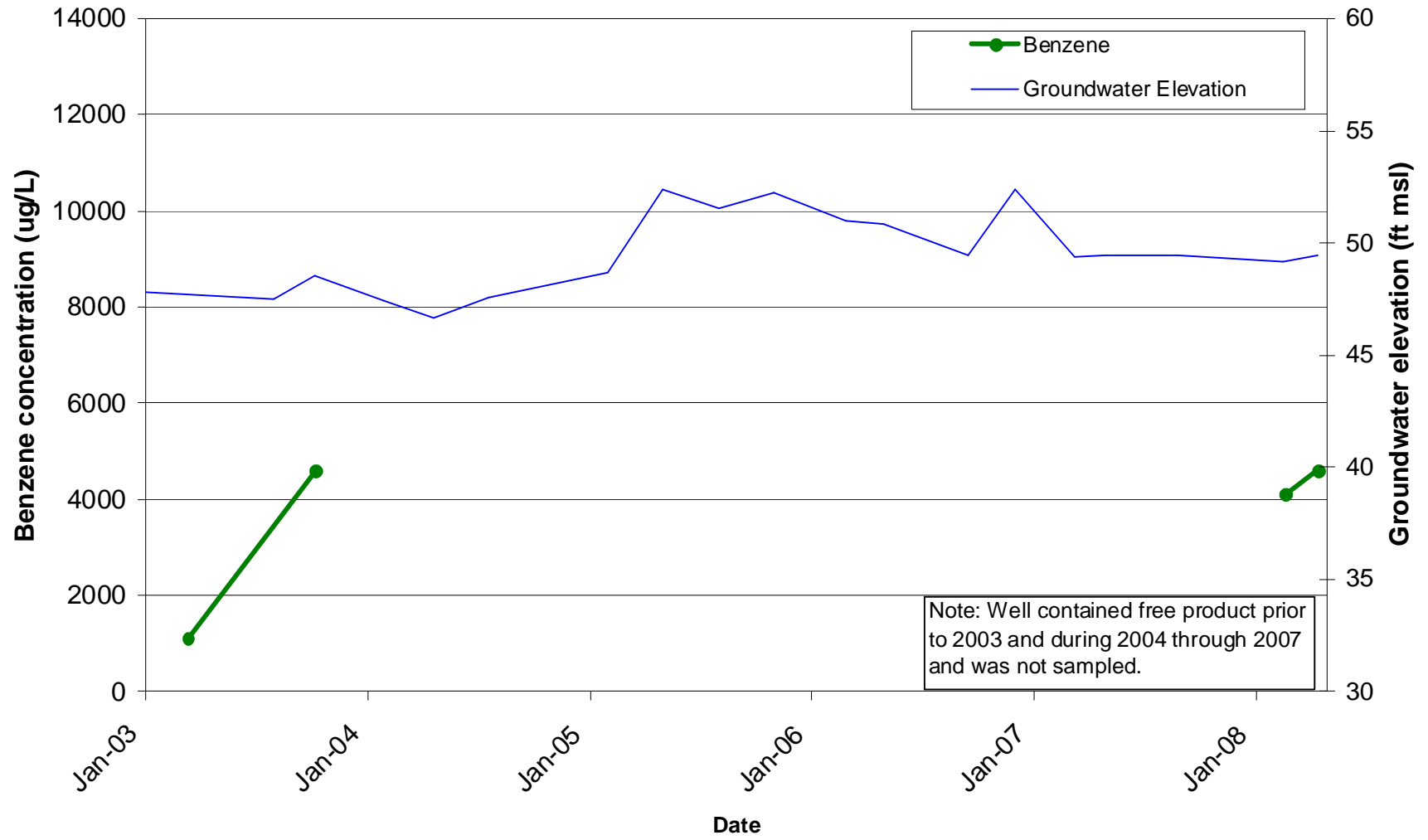


Note: Well contained free product prior to 2003 and was not sampled.

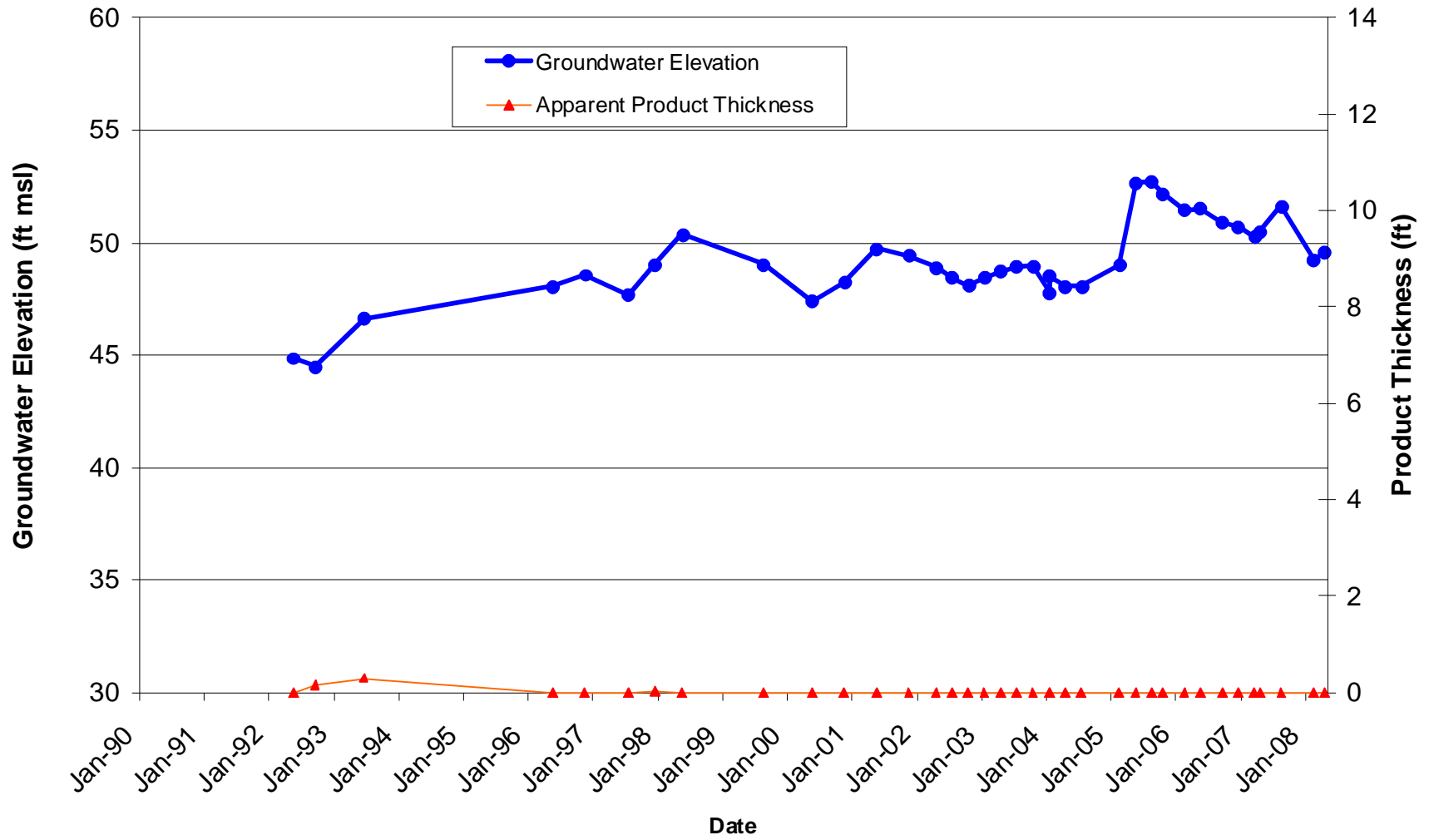
MW-SF-4 Hydrograph



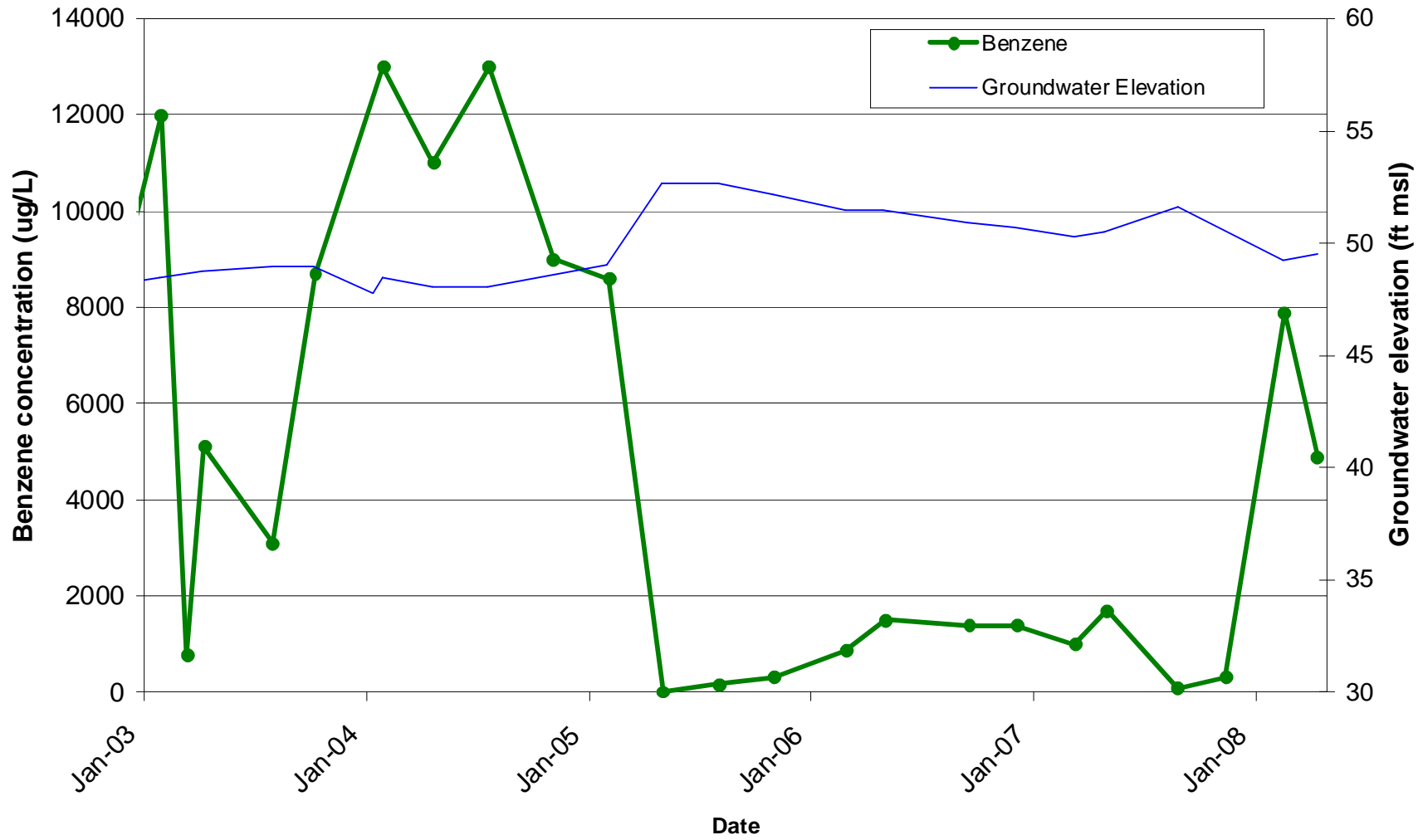
MW-SF-4 Benzene vs. Time



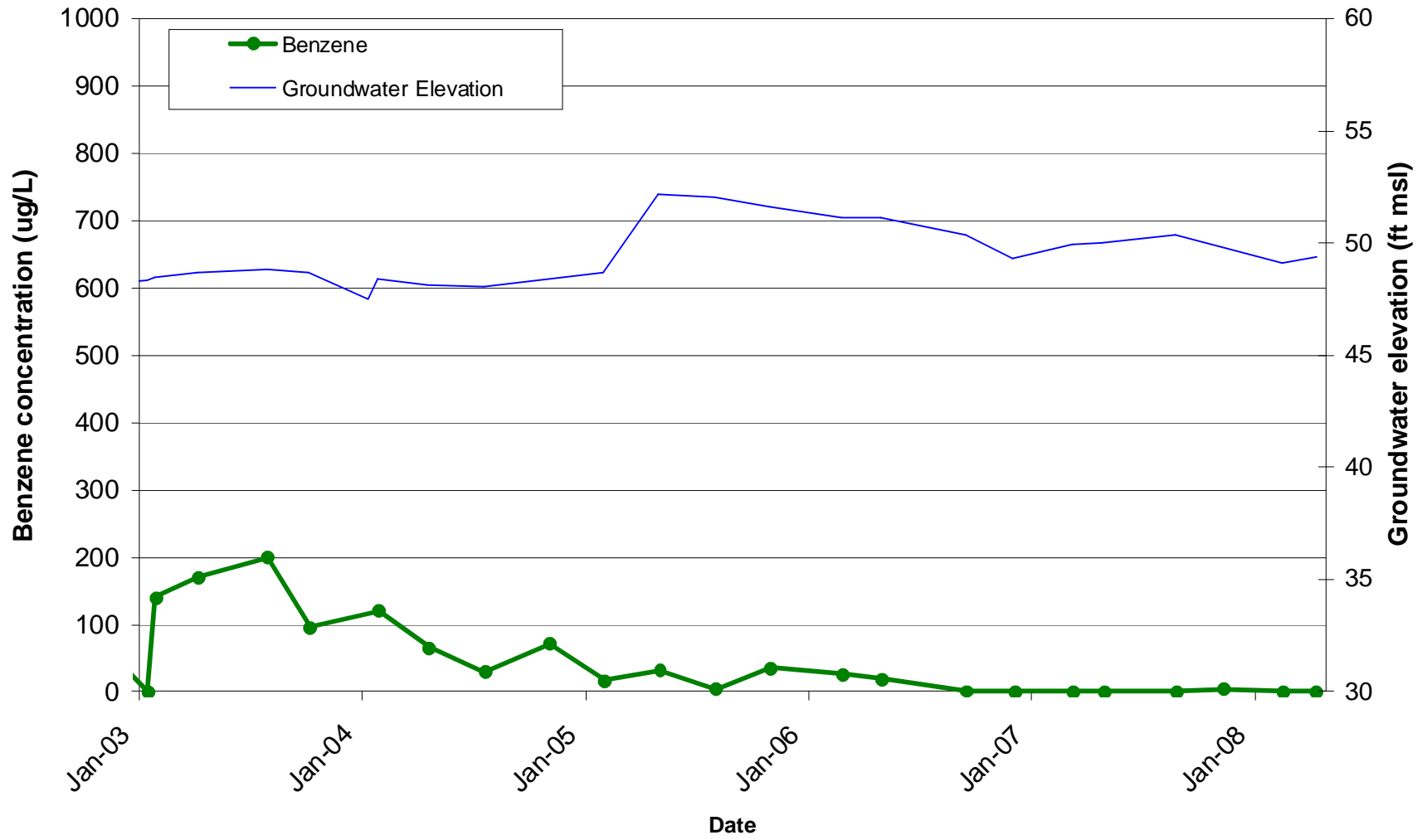
GMW-O-14 Hydrograph



GMW-O-14 Benzene vs. Time



GMW-O-3 Benzene vs. Time



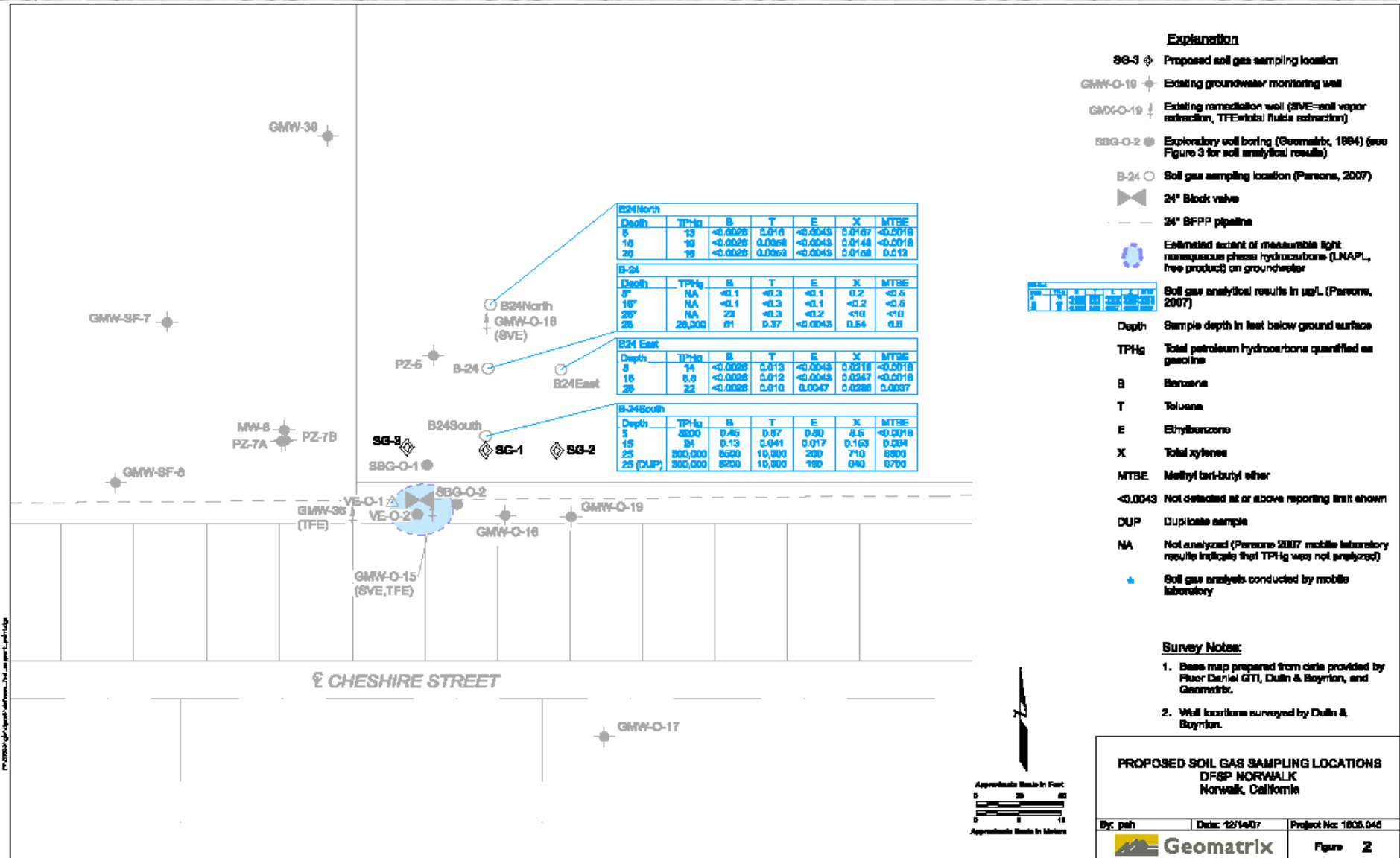
Additional Assessment Updates (Southeastern 24-Inch Block Valve Area)

- **Soil Gas Sampling/Surface Emission Testing Objectives:**
 - Further assess the presence of volatile fuel constituents in soil gas
 - Evaluate potential surface emissions of volatile fuel constituents if indicated by results of soil gas survey

Additional Assessment Updates (Southeastern 24-Inch Block Valve Area)

- **Soil Gas Sampling/Surface Emissions Testing Results:**
 - Three soil vapor sampling locations (SG-1, SG-2, and SG-3) were completed in southwestern portion of Holifield Park on July 8, 2008.
 - Soil gas samples were collected at 6 feet and 16 feet below ground surface at each location.
 - Results indicate principal chemicals of concern were not detected or were not detected above CHHSLs and additional sampling is not required.
- **Assessment report is due August 29, 2008.**

Soil Gas Sampling Locations



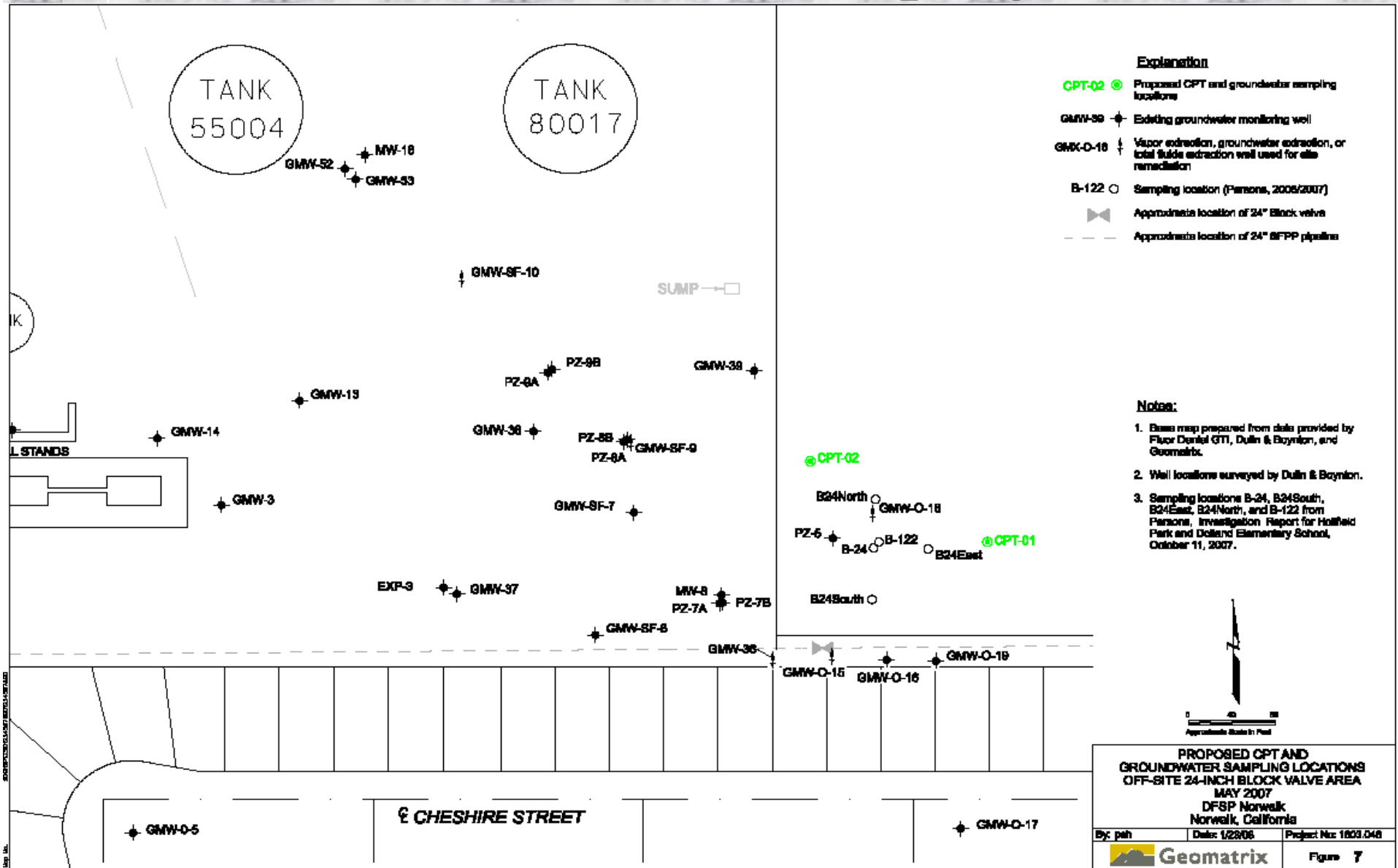
Additional Assessment Updates (Southeastern 24-Inch Block Valve Area)

- **Groundwater Assessment Objectives:**
 - Delineate the lateral extent of dissolved fuel constituents
 - Delineate the vertical extent of dissolved fuel constituents
 - Confirm the depth and presence of the Bellflower aquitard

Additional Assessment Updates (Southeastern 24-Inch Block Valve Area)

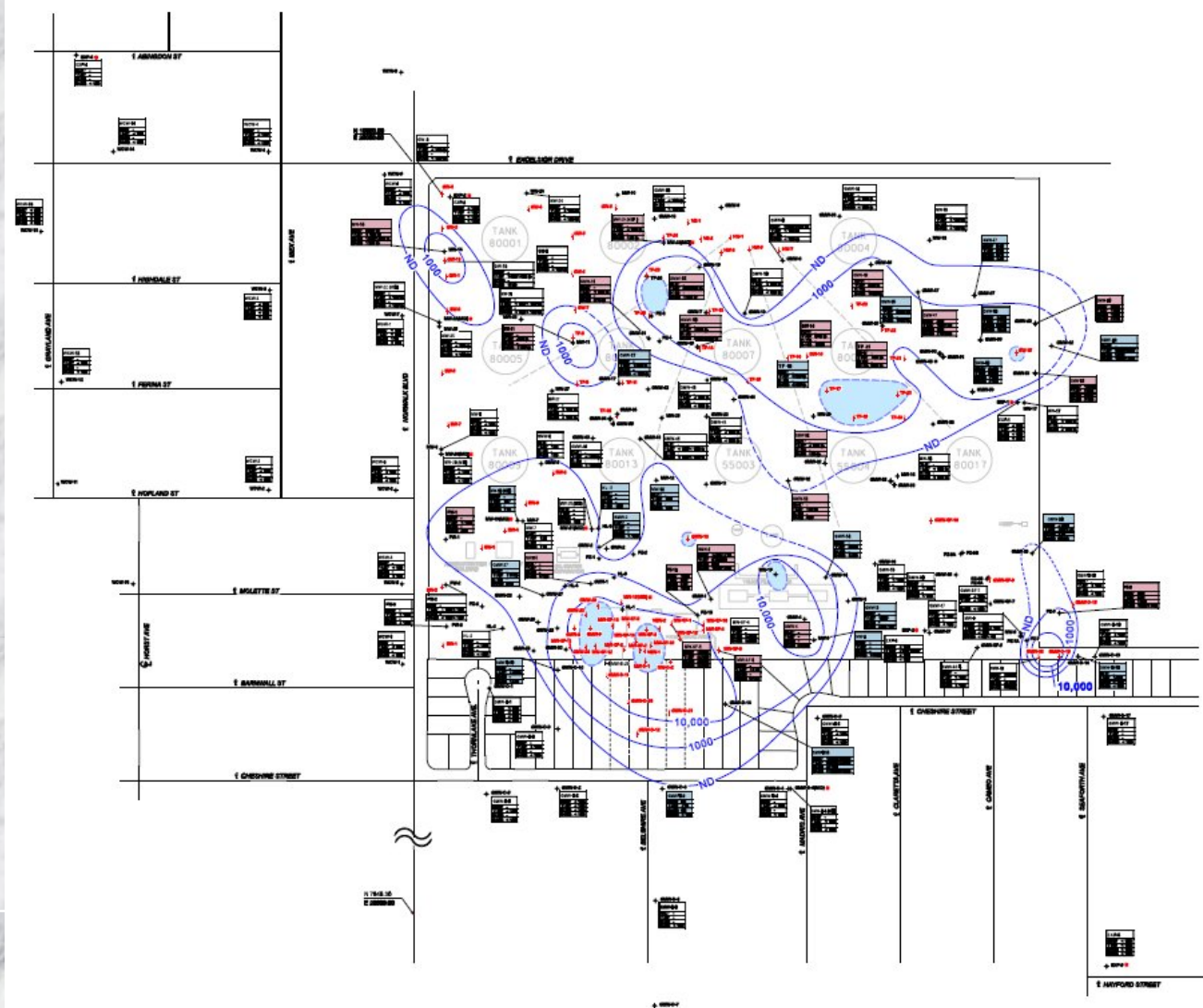
- **Groundwater Assessment:**
 - Cone Penetration Tests (CPT) were performed at two locations in the southwestern portion of Holifield Park on July 8, 2008. Three groundwater samples were collected from each test area (CPT-1 and CPT-2).
 - The Bellflower aquitard was encountered at each location at a depth of approximately 48 to feet below ground surface.
 - Assessment results will be summarized in a forthcoming report due August 29, 2008.

CPT and Groundwater Sampling Locations

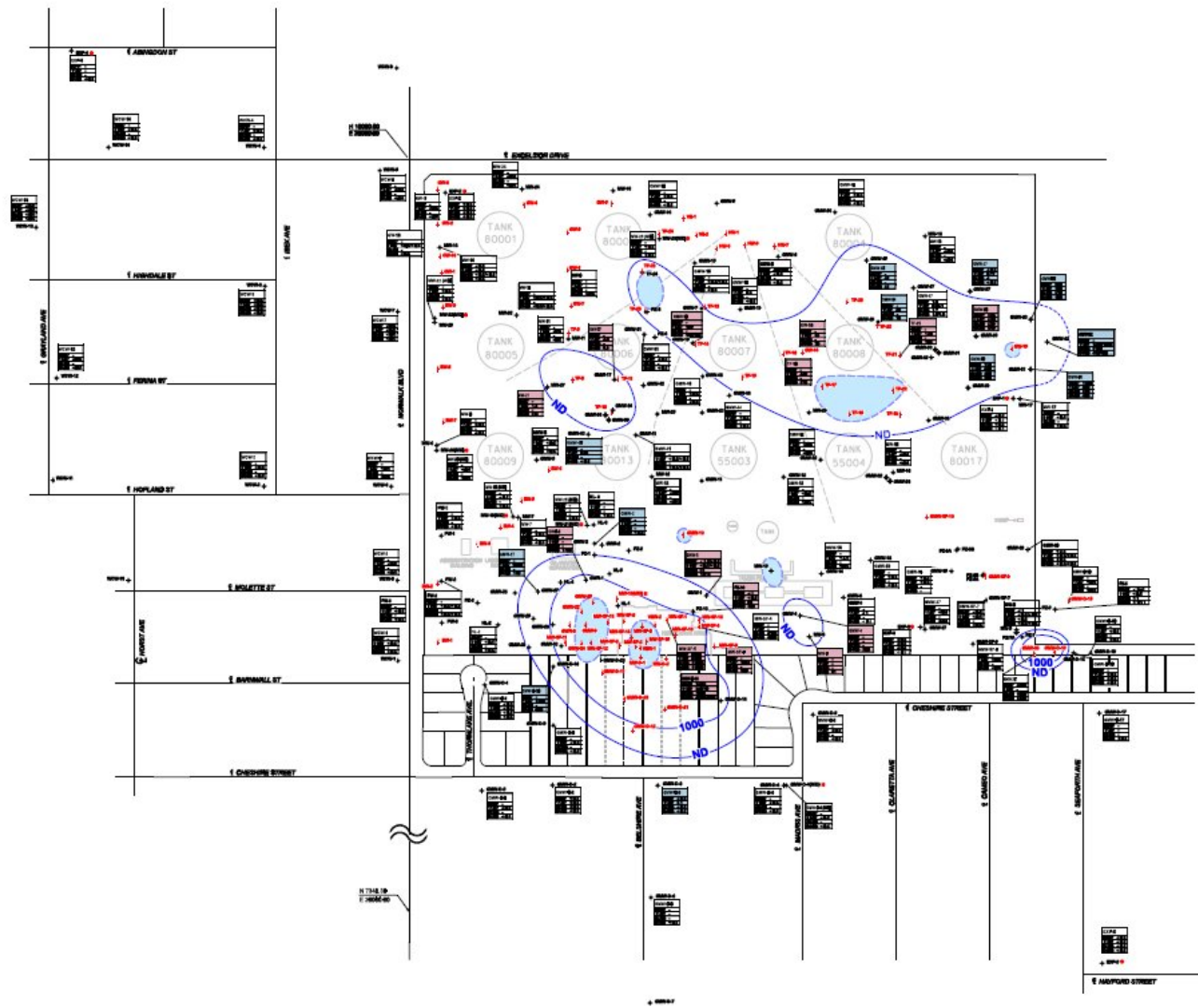




Total Petroleum Hydrocarbons In Uppermost Groundwater Zone April 2008



Benzene In Uppermost Groundwater Zone April 2008



Methyl tert-Butyl Ether In Uppermost Groundwater Zone April 2008

