

# ***Norwalk Tank Farm Update***

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

***April 24, 2003***

# Presentation Overview

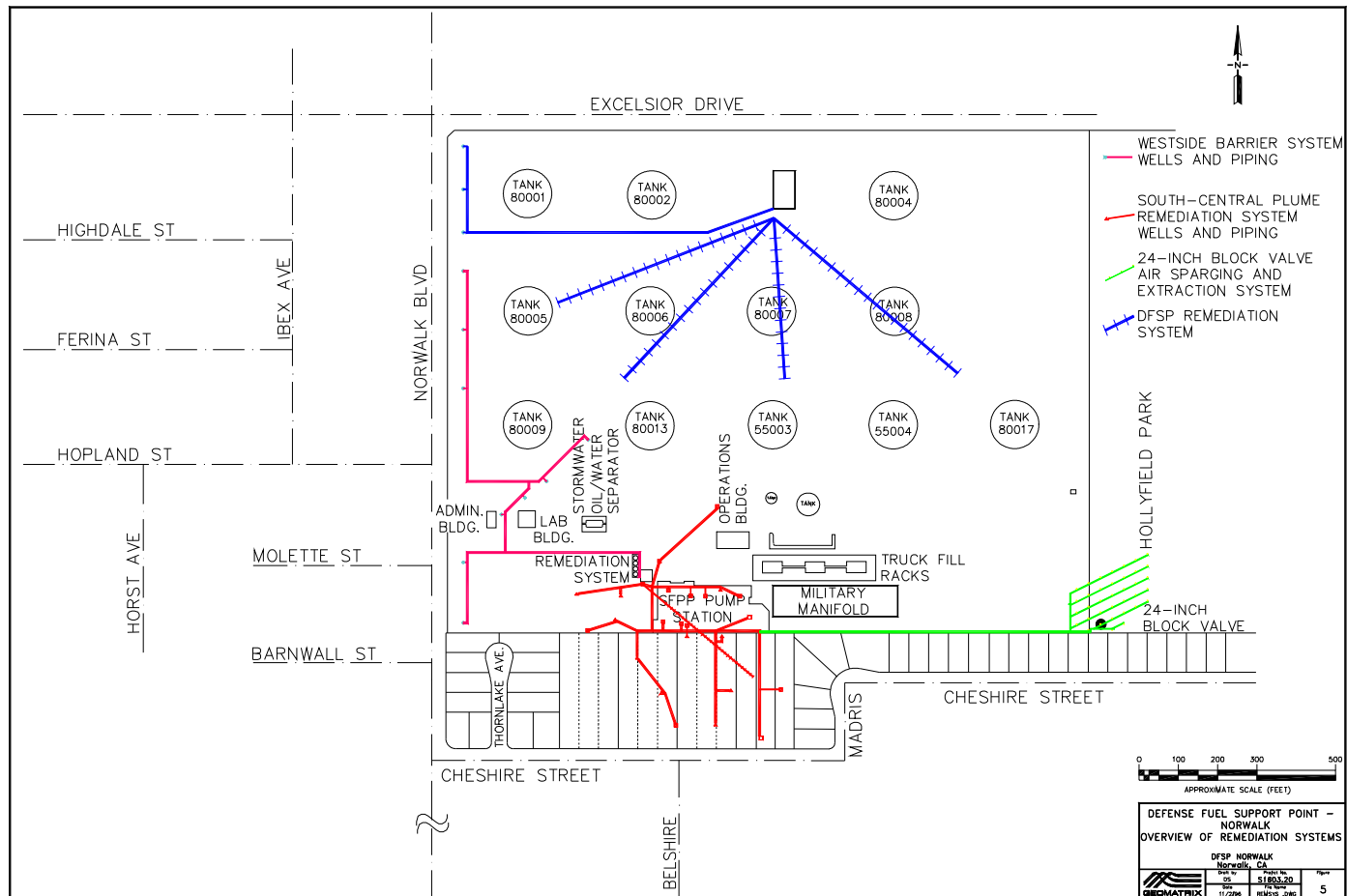
## Topics to be Covered

- RBCA Update
- Remediation Operations Update
- Sentry Event Update
- Intermediate 24-Inch Block Valve Area Update
- Groundwater Remediation System Expansion Update
- Phytoremediation Update

# RBCA 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 RWQCB 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
  
- 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

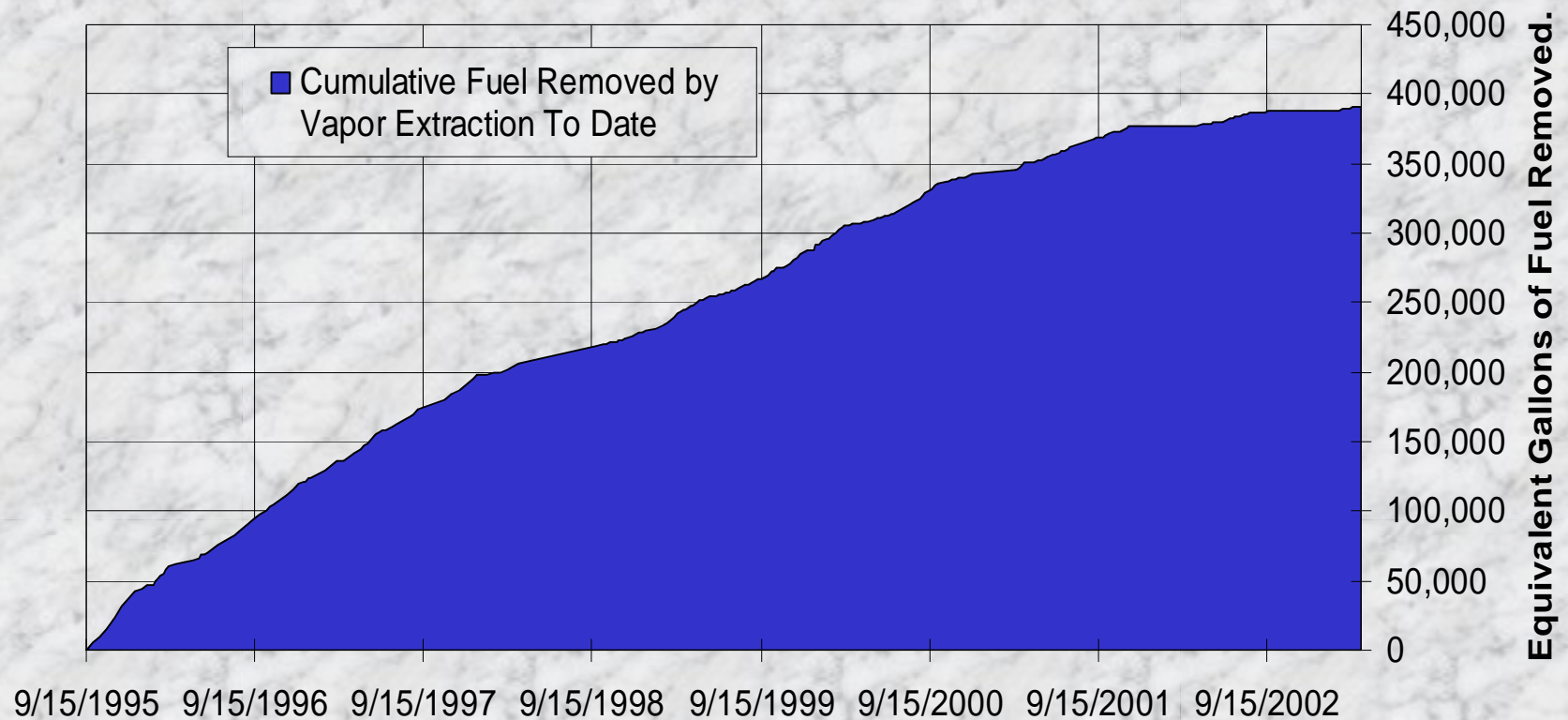
- 16 onsite and 7 offsite vapor extraction wells in the South-Central Plume area.
- 2 vapor extraction wells in the 24-inch Valve area.

# Soil Vapor Extraction System Operations Summary

- 2,140 gallons equivalent of fuel removed from soil and destroyed by thermal oxidation since January 2003 RAB meeting.
- 390,590 gallons equivalent of fuel removed from soil and destroyed by thermal oxidation since September 1995.
- The soil vapor extraction system was shut down during mid-January to February 2003 while conducting the tracer test.

# Soil Vapor Extraction System Operations Summary

Cumulative Fuel Removed by Vapor Extraction To Date



# Groundwater/Product Extraction System

- 8 groundwater extraction wells in West-Side Barrier Area
- 6 groundwater/product extraction wells in South-Central Plume Area
- 5 groundwater/product extraction wells in Southeastern 24-Inch Block Valve Area

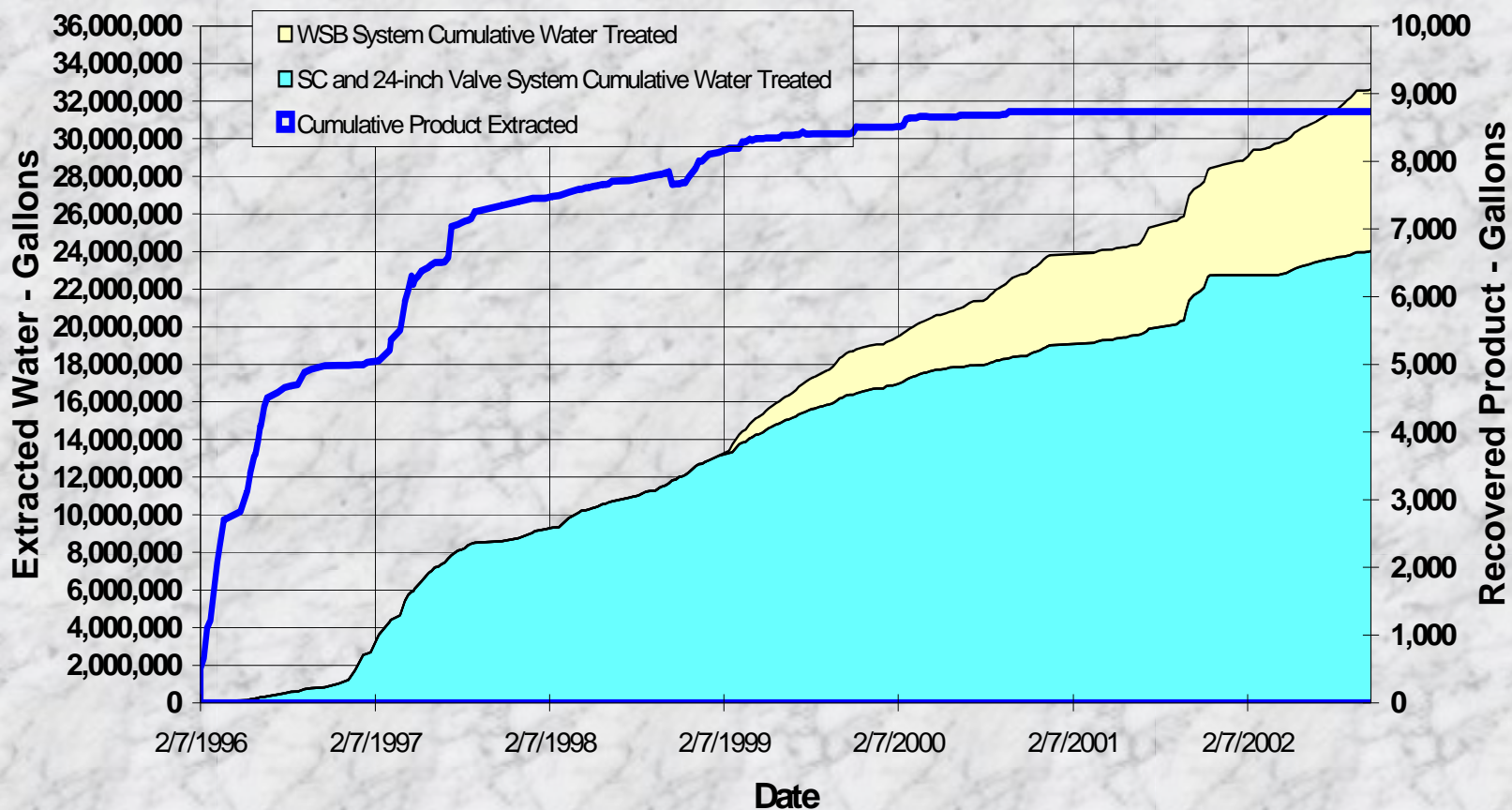


# Groundwater/Product Extraction System Operations Summary

- Total groundwater extracted since January 2003 RAB meeting:
  - South-Central Plume area, 121,100 gallons
  - 24-inch Valve area, 43,560 gallons
  - West-Side Barrier area, 1.1 million gallons
  - Approximately 10 gallons product removed
- Total groundwater extracted since September 1995:
  - South-Central Plume/24-inch Valve areas, 24.3 million gallons
  - West-Side Barrier area, 10 million gallons
  - Total groundwater extracted, more than 34.3 million gallons
  - 8,745 gallons free product removed
- The groundwater/product extraction system was shut down during mid-January to February 2003 while conducting the tracer test. 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

Producted Extracted and Water Treated Summary



# Sentry Event Update

- Sentry Event performed during January 28-29, 2003.
- Gauged 22 wells and sampled 21.
- Concentrations of MTBE decreased in the southeastern part of the site.
- Concentrations of COCs increase in GMW-O-14 but remain within historical limits for that well.
- Resampled six wells during January 15-16, 2003 in response to questionable detections.
  - TPHfp not detected in resampled wells; TPHfp detected in GMW-O-2, GMW-O-3, GMW-O-5, PW-2, PW-3 during October 2002 monitoring event considered to be anomalous.
  - 1,2-DCA and MTBE not detected in resampled well GMW-O-8; 1,2-DCA and MTBE detected in this well during October 2002 monitoring event considered to be anomalous.

# Intermediate 24-Inch Block Valve Area Update

- Gauged and sampled monitoring wells in the vicinity of the intermediate 24-inch block valve in March 2003.
  - No free product detected.
  - Chemical concentrations were within historical ranges and did not show an increasing trend.
- Submitted work plan for site assessment to RWQCB on March 31, 2003.
- Work plan approved by RWQCB on April 4, 2003.
- Performed site assessment activities April 10-11, 2003.
  - Drilled six direct push borings to assess vertical and lateral extent of release.
  - Installed one monitoring well hydraulically downgradient of intermediate 24-inch block valve.
- Site assessment report due to RWQCB May 30, 2003.

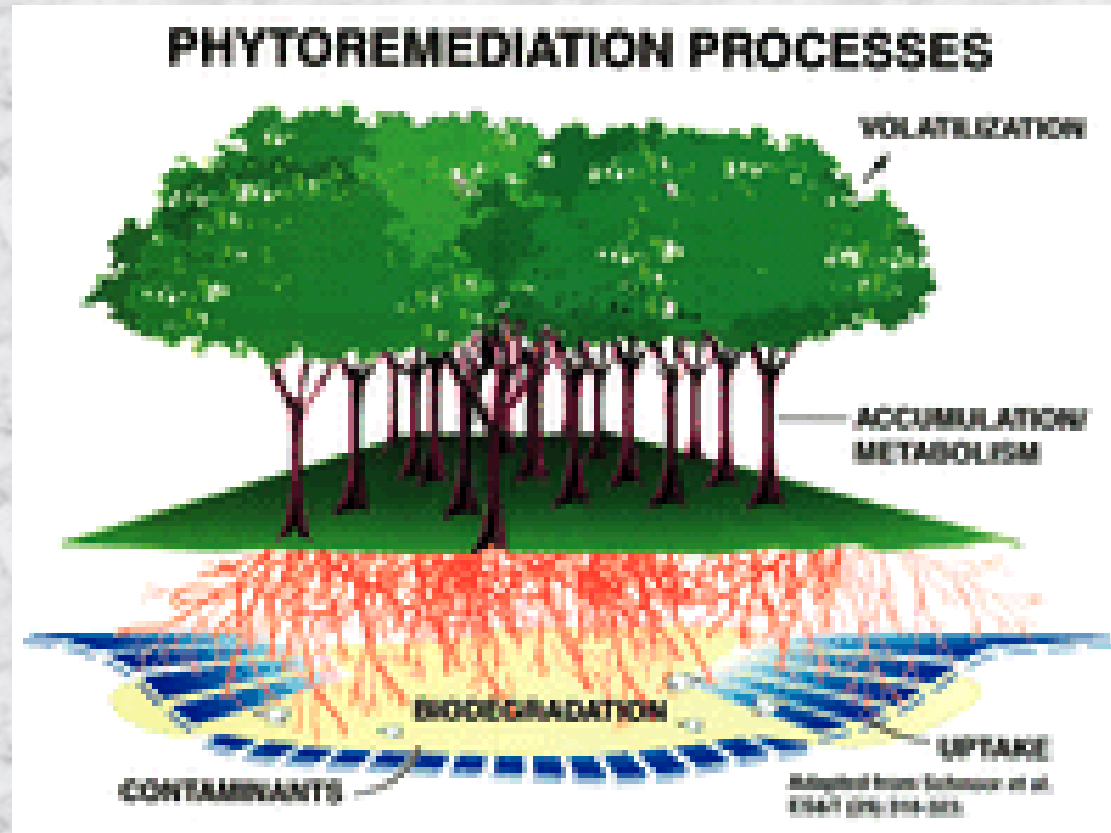
# Groundwater Remediation System Expansion Update

- Submitted work plan for Remediation System Expansion in the 24-inch block valve area on January 23, 2003.
- Submitted work plan addendum on February 20, 2003.
- Work plan approved by RWQCB on March 6, 2003.
- Performed well installation and groundwater remediation system expansion activities during March 31 through April 18, 2003.
  - Installed three piezometer clusters.
  - Installed two groundwater extraction wells and connected them to existing groundwater remediation system.
  - Installed total fluids pumps into new wells GMW-SF-9 and GMW-SF-10 and existing well GMW-36.
- Submitted well completion report to RWQCB on April 21, 2003.
- Will monitor newly installed wells and piezometers in May 2003.

# Phytoremediation Update

- 80 Lombardy Poplar trees (*Populus nigra italica*) planted July 1999.
  - 56 Poplar Trees planted in the Western plot
  - 24 Poplar Trees planted in the Eastern plot.
- Automated irrigation system installed to water trees until they became self-sufficient.
- Depth of roots estimated to be at groundwater (approx. 26-28 feet bgs).
- Monitor wells in vicinity of trees.
  - Evaluate hydraulic capture.
  - Evaluate enhanced biodegradation.
- Monitor groundwater usage by trees based on age, canopy cover, and evapotranspiration rate.

# The Phytoremediation Process



# Phytoremediation Areas

