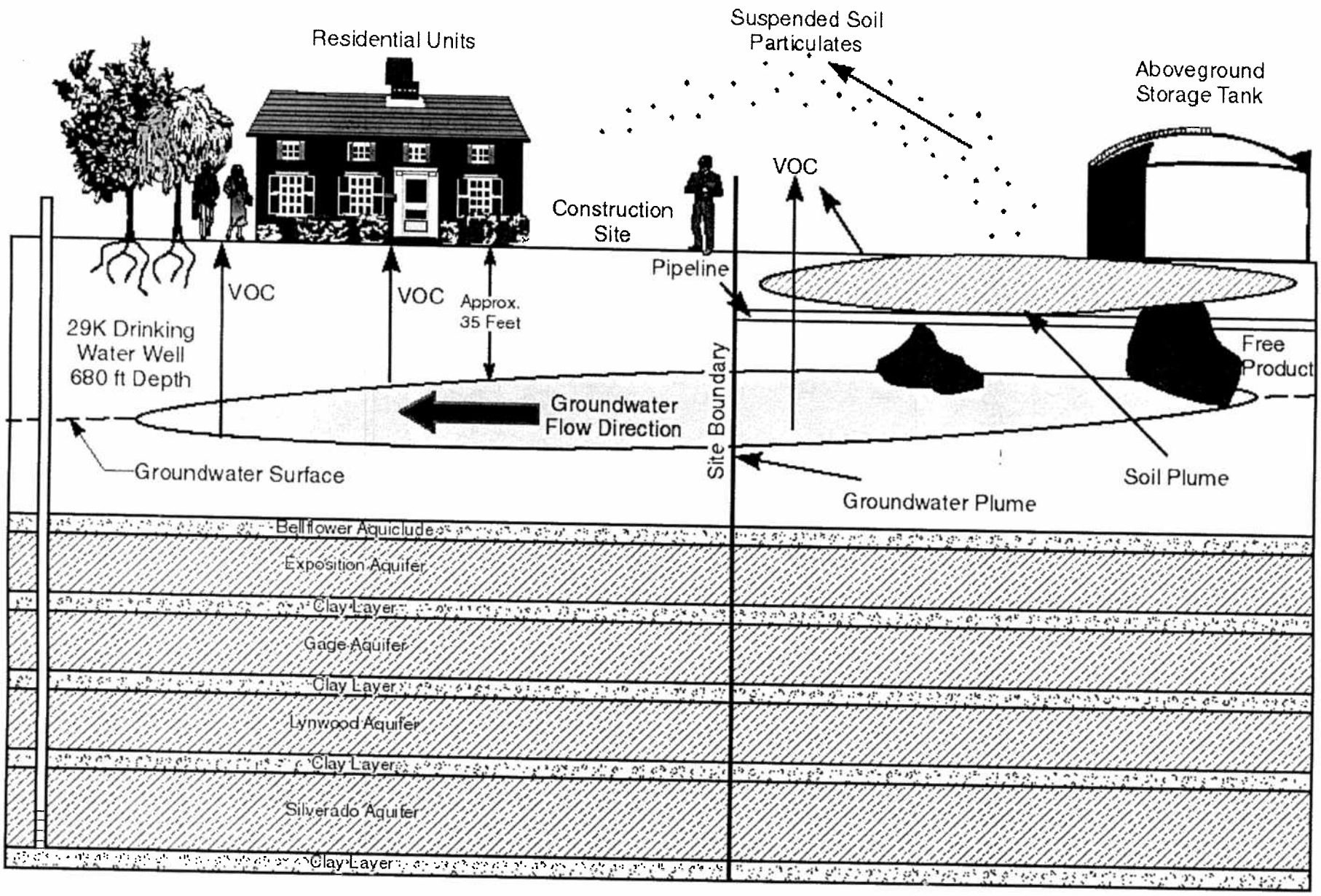
Implementation of the Workplan for Risk-Based Corrective Action

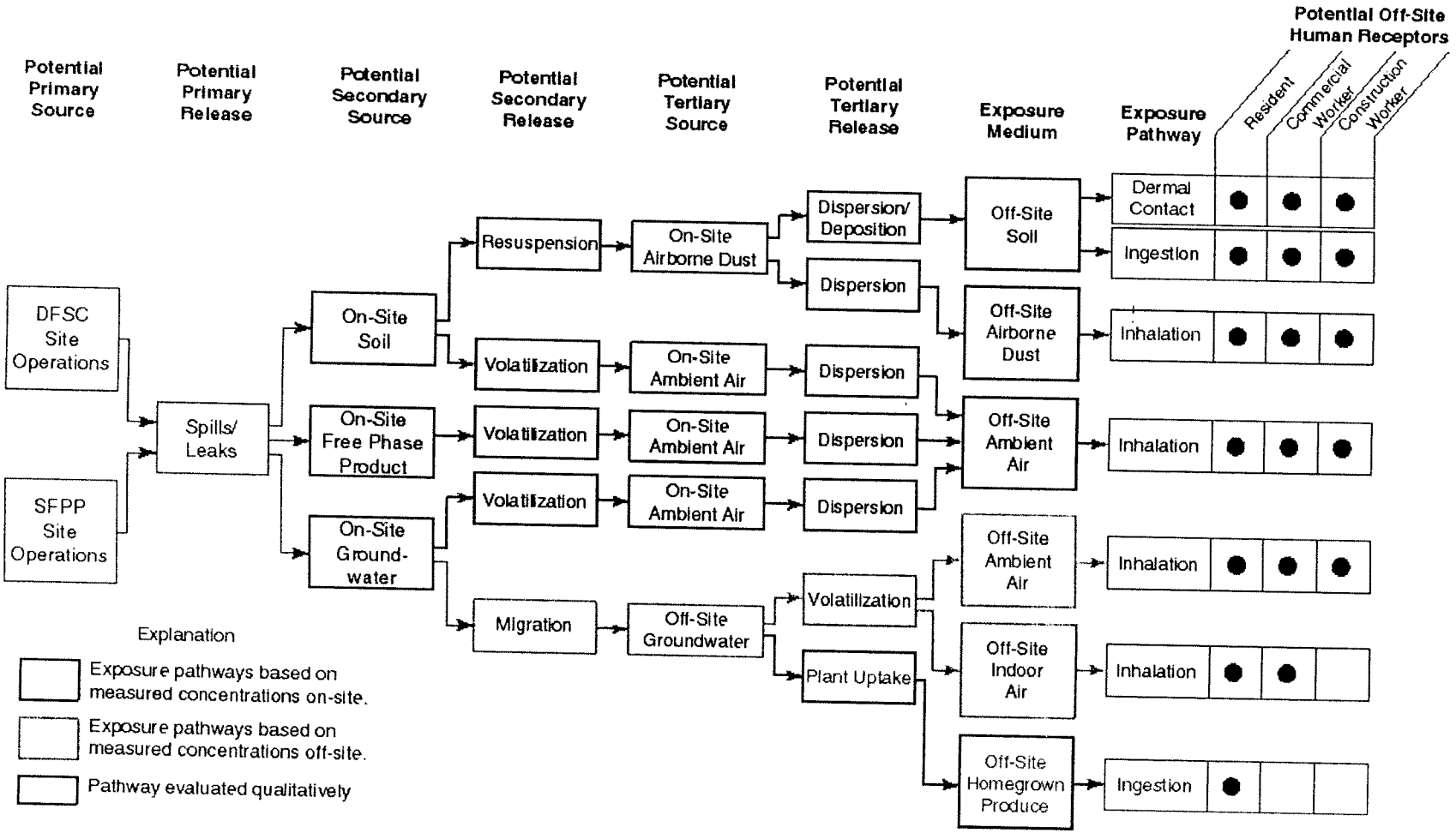
Risk Assessment Activities

Goals of RBCA Process

- Develop Risk-Based Cleanup Levels for 1,2-DCA, Benzene and MTBE plumes
  - Consider risk from chemicals in soil, groundwater and free product on-site (at the Tank Farm)
  - Consider risk from chemicals in groundwater off-site


Residential Units
Suspended Soil Particulates
Aboveground Storage Tank
VOC
Construction Site
Pipeline
VOC
VOC
Approx. 35 Feet
29K Drinking Water Well 680 ft Depth
Free Product
Groundwater Flow Direction
Site Boundary
Groundwater Surface
Soil Plume
Groundwater Plume
Bellflower Aquiclude
Exposition Aquifer
Clay Layer
Gage Aquifer
Clay Layer
Lynwood Aquifer
Clay Layer
Silverado Aquifer
Clay Layer

Site Conceptual Model



RBCA Process for Off-Site Receptors

Summary of Site Information

- Database Contains Data Since 1986
  - Over 800 Soil Samples
  - Over 1000 Groundwater Samples
- Free Product Analyses

Chemicals of Potential Concern

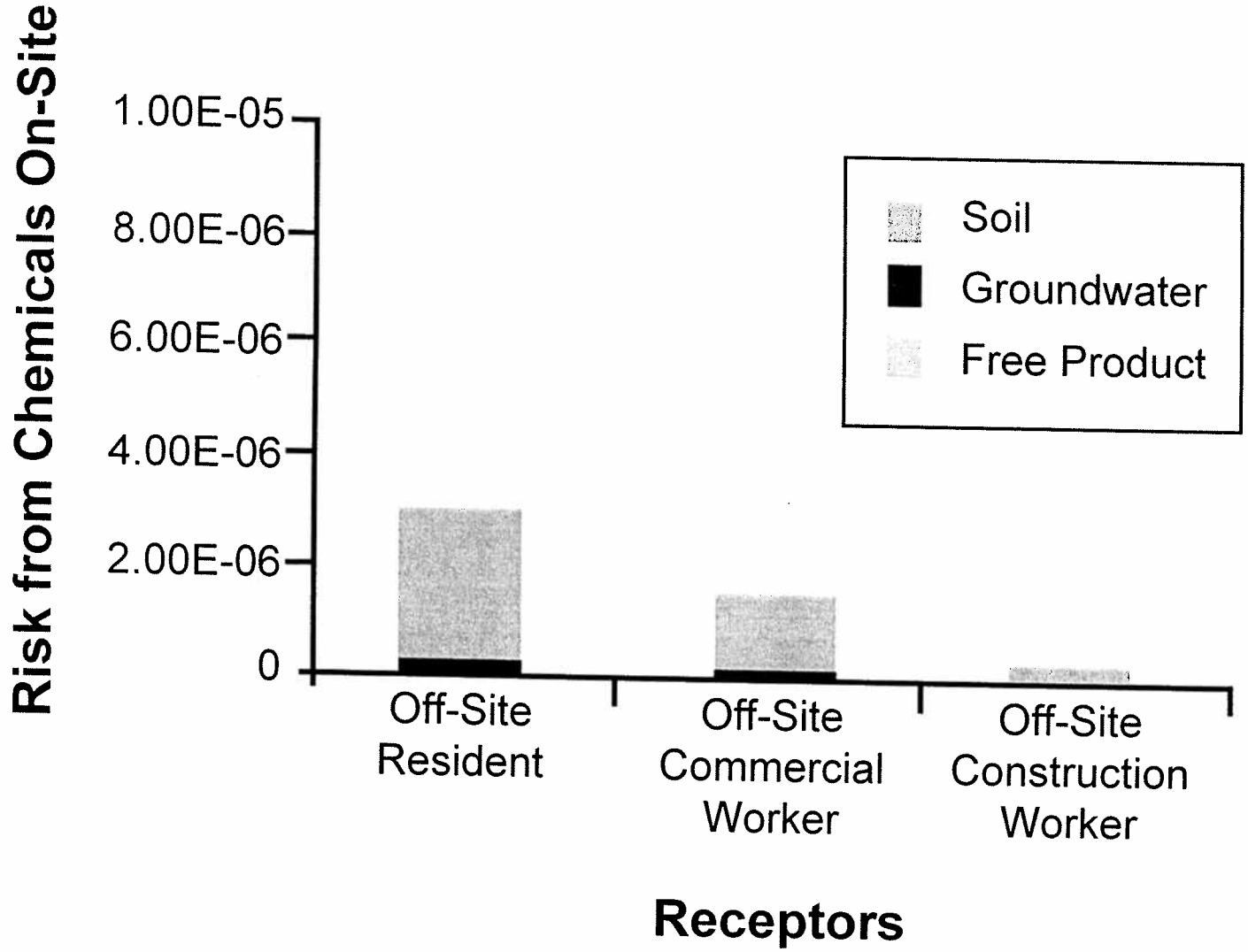
Non-volatile chemicals:

- Lead

Volatile chemicals:

- Petroleum-related chemicals (e.g. Benzene, MTBE, 1,2-DCA)
- Chlorinated solvents (e,g, Trichloroethene, 1,1,2,2-Tetrachloroethane)

Summary of Risk to Off-Site Receptors from Chemicals at the Tank Farm



Summary of Off-Site Groundwater Cleanup Levels

	Cal-EPA MCLs (mg/l)	Cleanup Level (mg/l)	Cleanup Level (mg/l)
Benzene	**0.001**	**0.005**	**0.022**
MTBE	**0.005***	**0.04**	**0.28**
1,2-DCA	**0.0005**	**0.07**	**0.52**
Risk from Chemicals Off-Site		**$1x10^{-6}$**	**$7x10^{-6}$**
Risk from Chemicals On-Site		**$3x10^{-6}$**	**$3x10^{-6}$**
Total Risk		**$4x10^{-6}$**	**$1x10^{-5}$**

MCL – Maximum contaminant limit for drinking water sources

* – Proposed secondary MCL based on taste and odor

Norwalk Tank Farm Update

Presented to the Norwalk Tank Farm Restoration Advisory Board

October 29, 1998

Presentation Overview

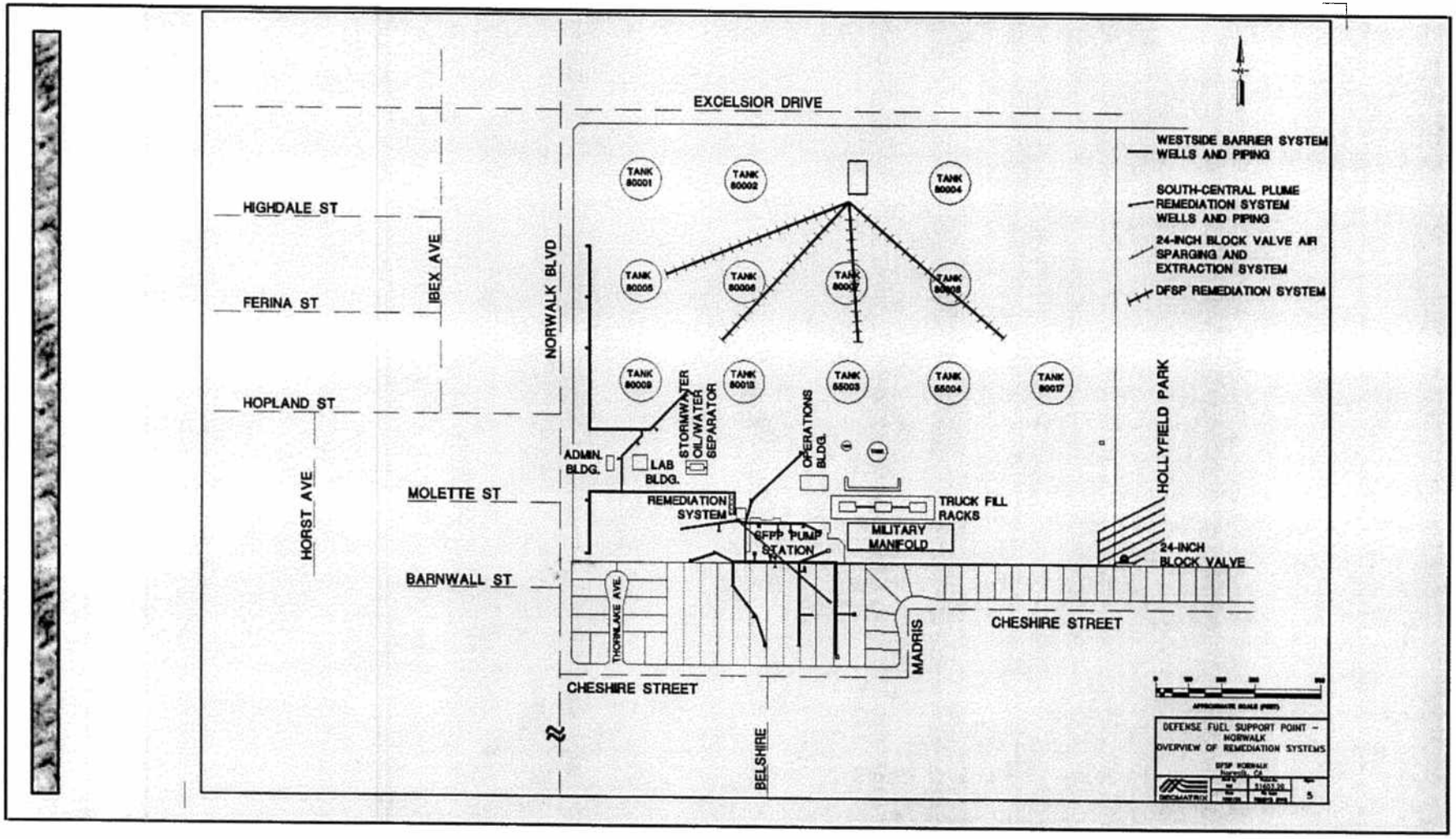
Topics to be Covered

- Remediation Operations Update
- Pilot Testing of Product Removal

SUMMARY OF REMEDIATION PROGRESS

- System placed in operation September 15, 1995
- System has operated 16,900 hours since startup

Map of Current Remediation Systems



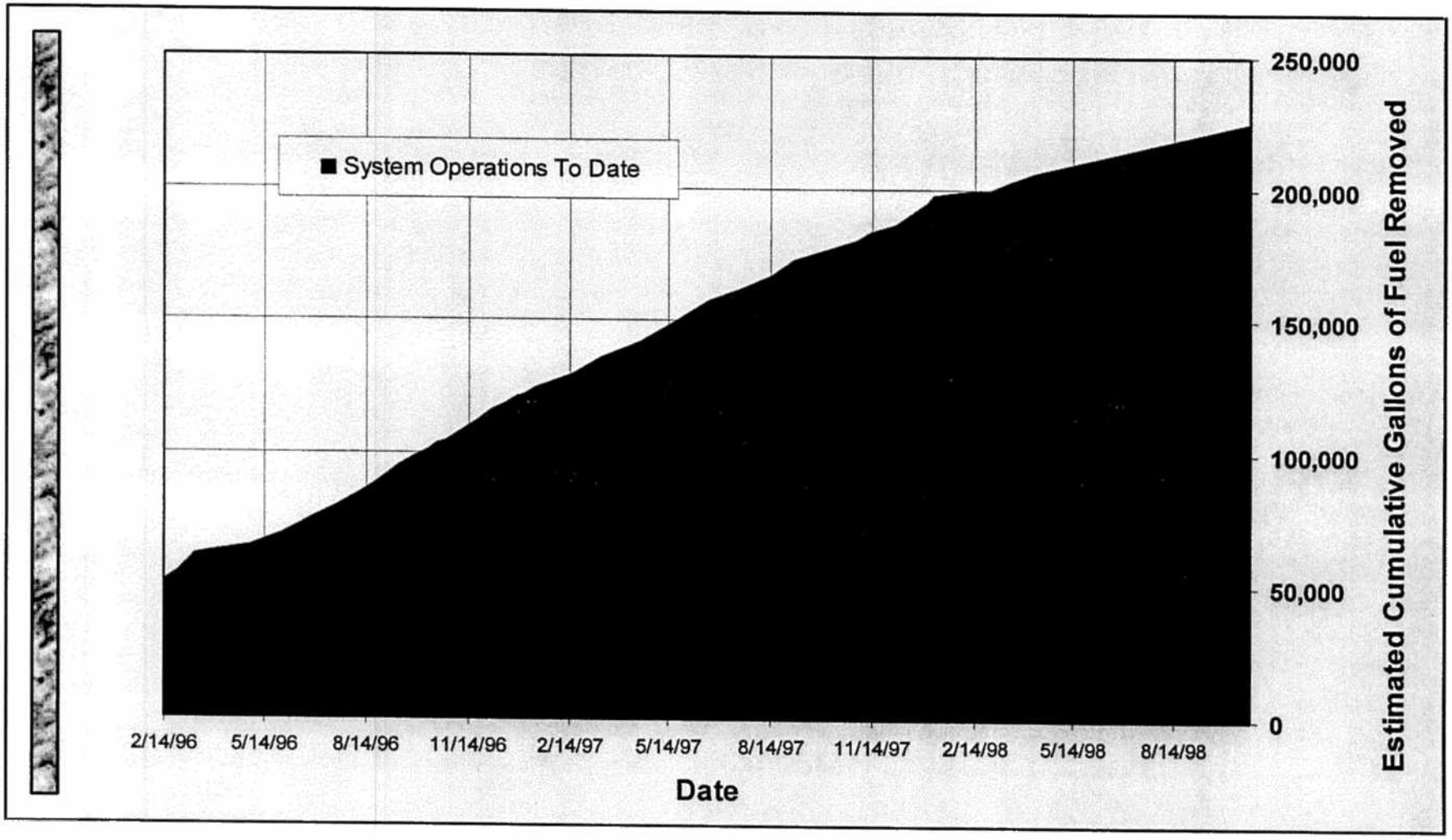
Soil Vapor Extraction System Operations Summary

- 25 Vapor extraction wells online and in use (3 additional)
- Approximately 230,000 gallons equivalent of fuel removed from soil and destroyed
- Approximately 9,500 gallons total of fuel removed and since July RAB meeting

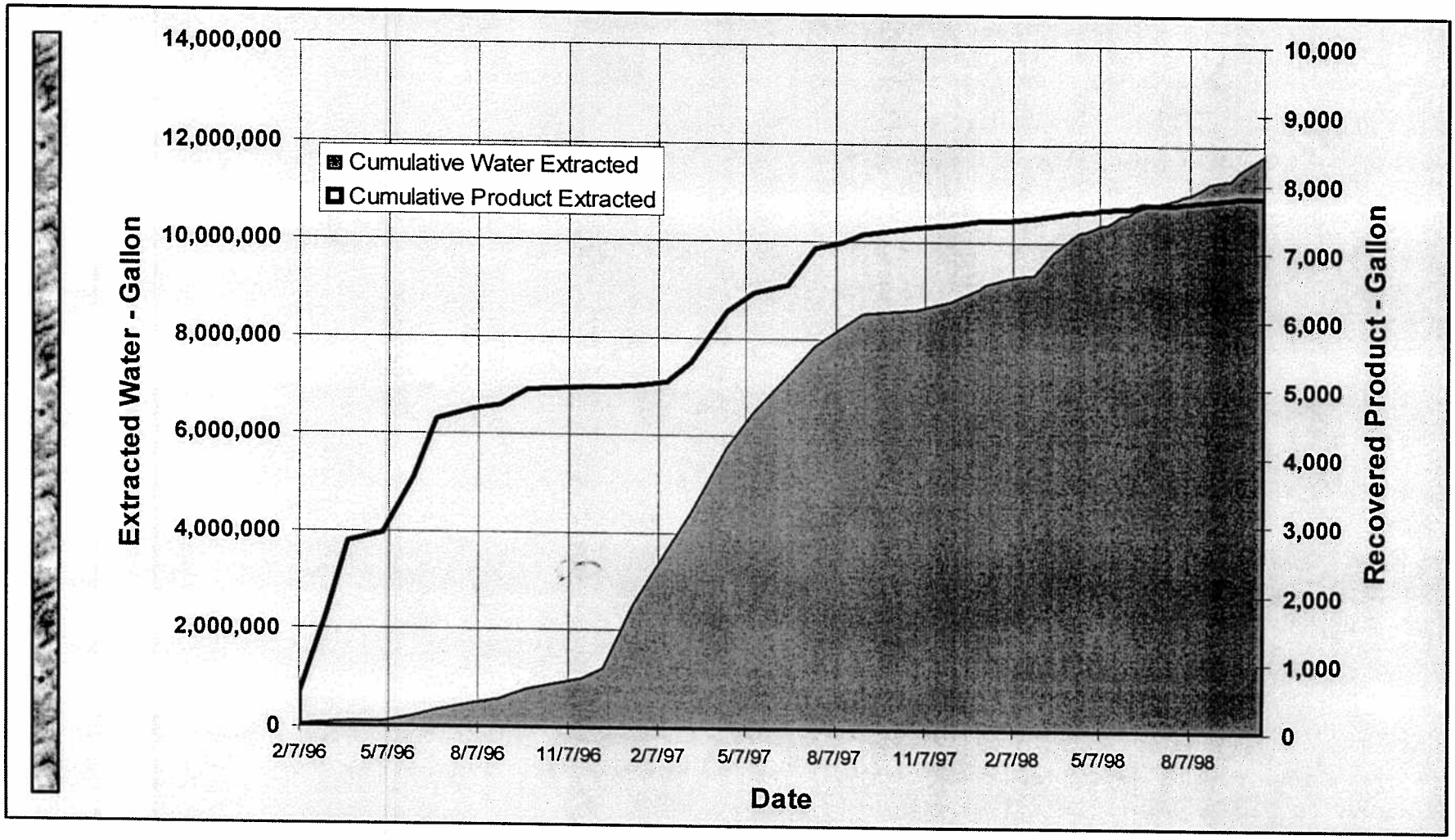
Product Recovery/West Side Barrier System Operations Summary

- 6 Product/groundwater extraction wells online in South/Central Plume area. Replaced 5 of the recovery wells with new wells
- 9 West Side Barrier wells operating
- Approximately 11.8 million gallons of water pumped and treated (0.9 million gallons since July RAB meeting)
- Approximately 7,800 gallons of liquid fuel recovered
- Approximately 100 gallons of liquid fuel recovered since July RAB meeting

DFSP NORWALK - SOUTH CENTRAL PLUME
SUMMARY OF VAPOR PHASE EXTRACTION OPERATIONS



DFSP NORWALK
SOUTH CENTRAL PLUME AND WEST SIDE BARRIER SYSTEM
SUMMARY OF GROUNDWATER AND
PRODUCT RECOVERY SYSTEM OPERATIONS



Groundwater Monitoring Update

- The semi-annual monitoring event for November 1998 will be completed the first 10 days of the month
- Kinder Morgan and DFSC have sampled the Sentry wells for quarterly monitoring

Enhancements to Remediation System

- Evaluation of Product Recovery Wells
  - Re-drill new extraction wells - Completed
  - Technology Evaluation of in-well product recovery - Pilot installed
- Treatment System Capacity Evaluation
  - Total flow (vapor and liquid) increased
  - Mobil system for product removal - pilot to begin in 3rd quarter continued in the 4th

Enhancements to Remediation System - continued

- Determine and Improve flow rate balances from extraction wells (west side barrier / south central plume)
- Evaluate In-situ bioremediation for BTEX constituents