

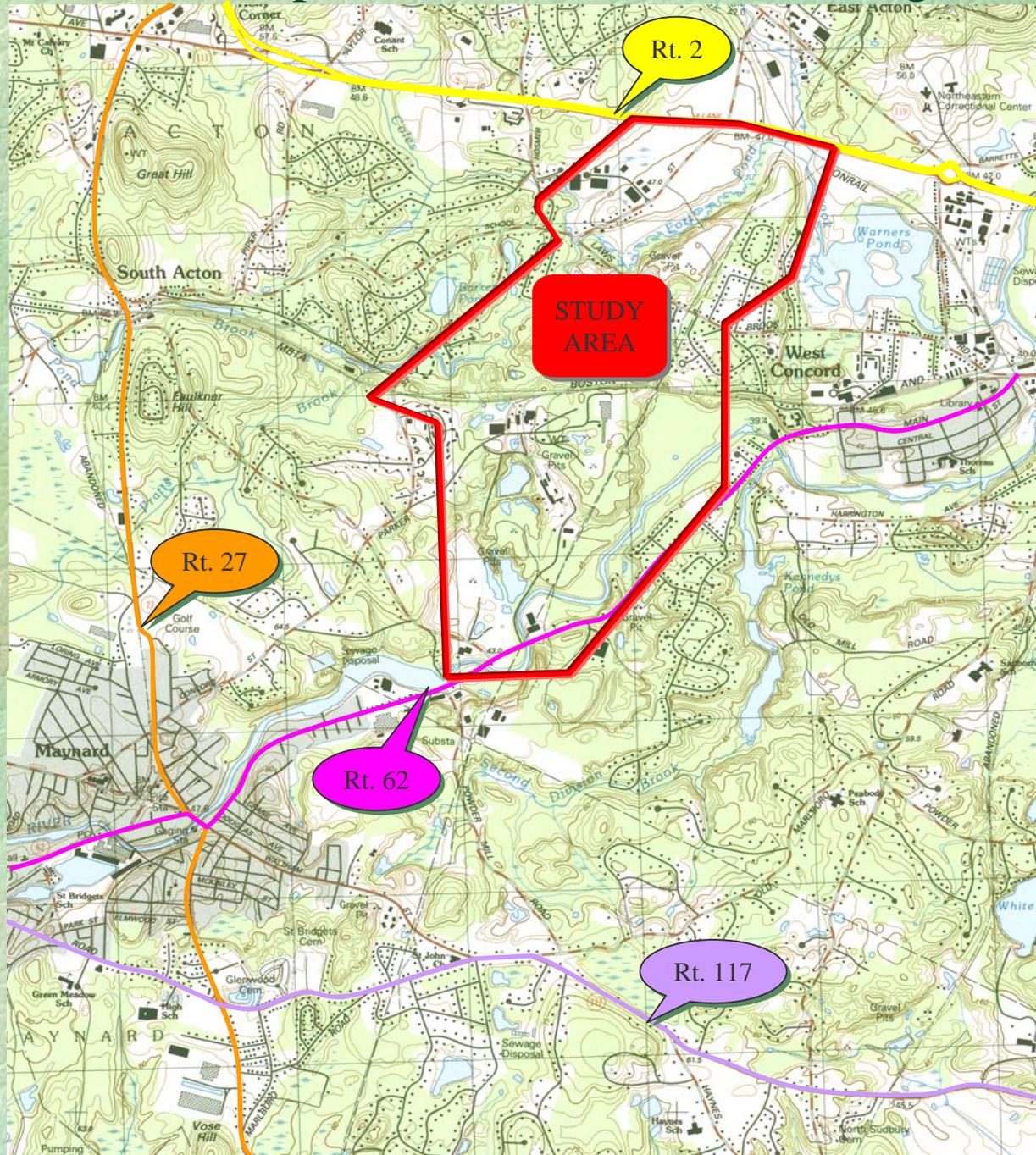
Public Information Meeting EPA's Proposed Cleanup Plan

W. R. Grace (Acton Plant) Superfund Site
Operable Unit 3 (OU-3)
Acton, MA
July 19, 2005

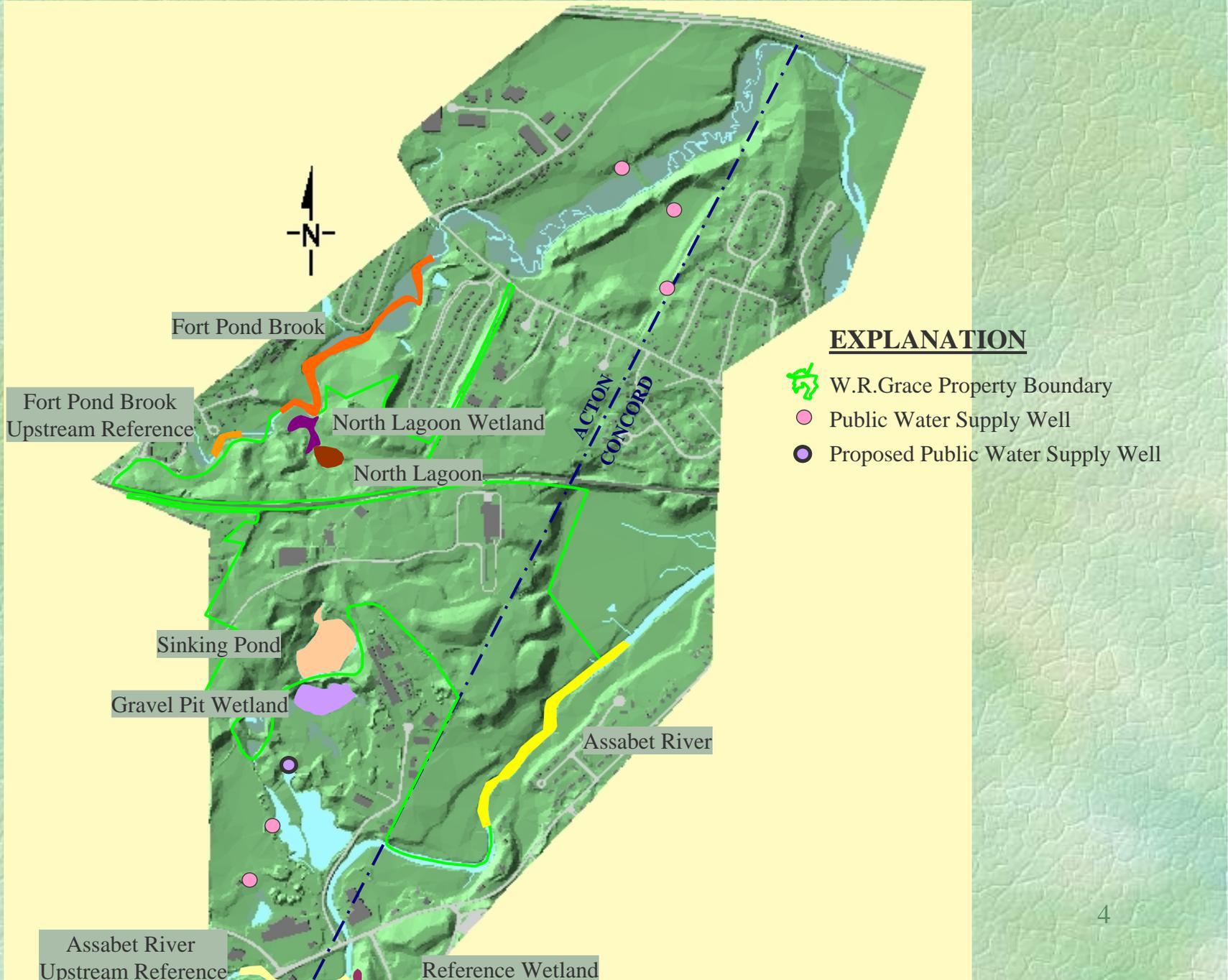
Agenda

- ☛ Welcome and Introductions
 - Angela Bonarrigo, USEPA
- ☛ Site Status and EPA's Proposed Plan
 - Derrick Golden, USEPA
- ☛ Remedial Investigation and Risk Assessments
 - Derrick Golden, USEPA
- ☛ Feasibility Study Overview
 - Derrick Golden, USEPA
- ☛ Feasibility Study Evaluation
 - Jack Guswa, GeoTrans
- ☛ EPA's Proposed Plan
 - Derrick Golden, USEPA
- ☛ Questions & Answers

W. R. Grace Superfund Site and Surrounding Areas



W. R. Grace Superfund Site and Surrounding Areas



Cleanup Progress at the W.R. Grace Site

☞ Aquifer Restoration System (ARS)

Since the ARS began operation, more than 4.1 billion gallons of water have been treated, removing over 6,100 pounds of total VOCs from groundwater

☞ 1989 Record of Decision for soil and sludge

Between 1994 and 1997, more than 173,000 cubic yards of contaminated soil and sludge were excavated and capped on-site

☞ Over 20 years of groundwater monitoring data has been collected, evaluated, and incorporated into the Remedial Investigation and groundwater flow model

☞ Ongoing treatment by the Acton Water District provides the Town of Acton with water that meets the Safe Drinking Water Act standards

Discover New Site



SUPERFUND

From Discovery to Cleanup

Include Site on NPL if Appropriate



Evaluate Site



Long-term Cleanup

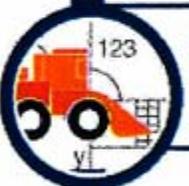
Brownfields Program

State Led Cleanup

Identify Those Responsible for Pollution



Study Type & Extent of Contamination - Evaluate Options



Short-term actions may be taken to eliminate immediate public health or environmental threats.

Propose Cleanup Plan



Future Use



Maintain/ Monitor Site



Choose Cleanup Plan



Clean Up Site



Develop Engineering Designs



EPA's Proposed Cleanup Plan: Sinking Pond

- Cleanup of approximately 6,800 tons of contaminated soil and sediment to address unacceptable risks
 - ☛ Redesign of pond inlet to reduce flow, turbidity and erosion
 - ☛ Planting of wetland vegetation along the pond bank to prevent erosion
 - ☛ Institutional controls, long-term maintenance and monitoring
 - ☛ Estimated cost: \$6 million

EPA's Proposed Cleanup Plan: North Lagoon Wetland

- ☛ Cleanup of approximately 2,400 tons of contaminated soil and sediment to address unacceptable risks
- ☛ Wetland restoration, replacement and enlargement, as necessary
- ☛ Institutional controls, long-term maintenance and monitoring
- ☛ Estimated Cost: \$3.4 million

EPA's Proposed Cleanup Plan: Groundwater

☛ Construction of an approximately 200 gallon per minute on-site groundwater treatment plant; treatment components include:

- air stripping
- carbon adsorption
- metals precipitation
- discharge to Sinking Pond

☛ Extraction and treatment of groundwater in the southeast and southwest landfill areas

EPA's Proposed Cleanup Plan: Groundwater, cont'd.

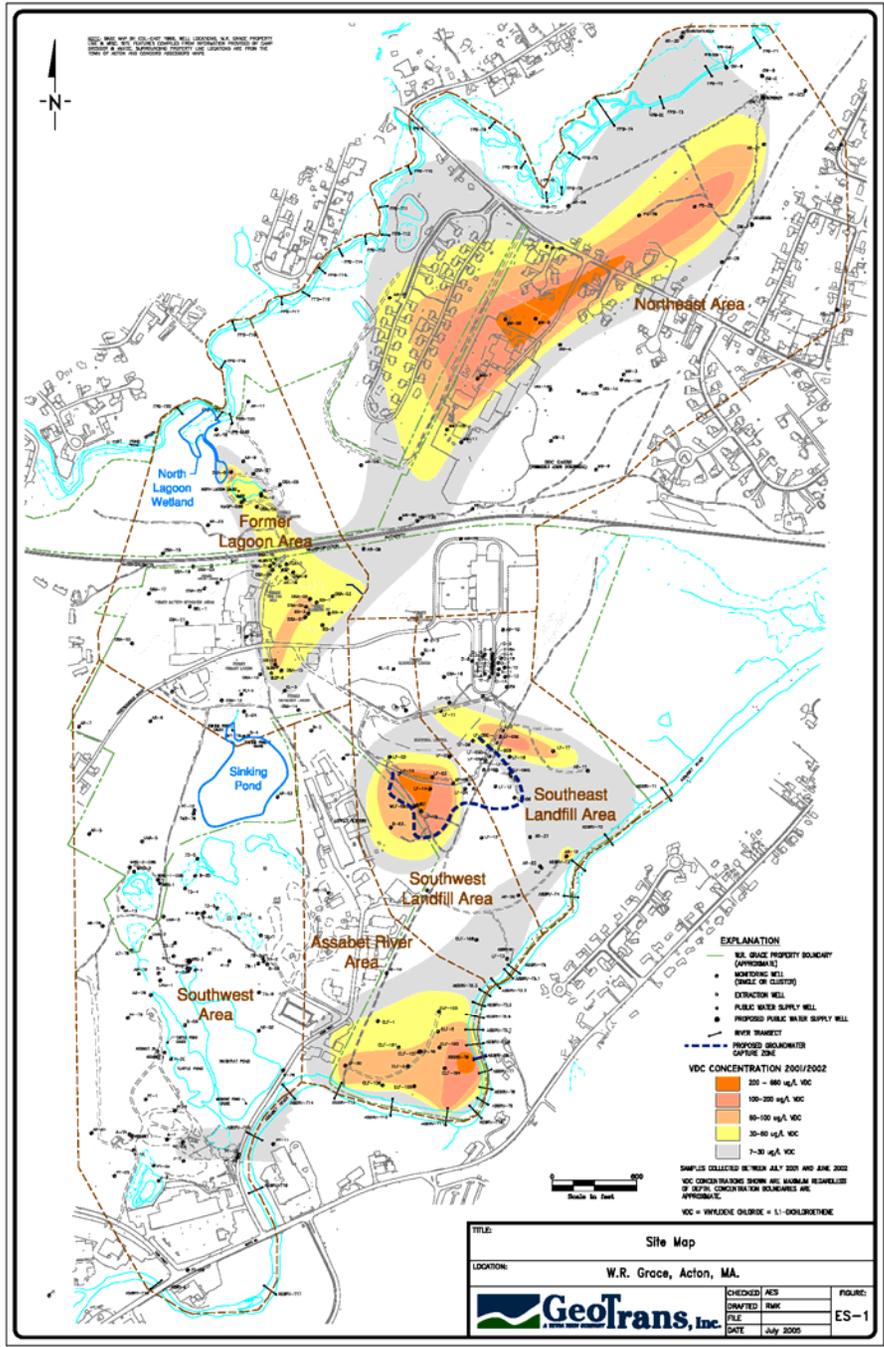
- ☛ Enhanced flushing/natural attenuation of plume areas not captured by the extraction system
- ☛ Institutional Controls (access restrictions, groundwater use restrictions)
- ☛ Long-term monitoring of all contaminated groundwater
- ☛ Estimated Cost: \$7.6 million

What are the Remedial Investigation and Risk Assessment?

- Identifies the type and extent of contamination on the site
- Identifies sensitive populations that may be affected by contamination on the site by preparation of
 - Public Health Risk Assessment
 - Baseline Ecological Risk Assessment

Remedial Investigation Highlights

- ☛ The primary contaminants in groundwater are: vinylidene chloride (VDC), vinyl chloride, benzene, arsenic and manganese
- ☛ The primary contaminants in sediment are: arsenic and manganese



Public Health Risk Assessment Conclusions

☞ Groundwater Exposure

- There is a potential future risk to people who drink or use untreated contaminated groundwater due to the presence of VOCs, arsenic and manganese in the groundwater

Public Health Risk Assessment Conclusions

☛ Sediment Exposure

- There is a unacceptable potential future risk to people who come into contact with arsenic-contaminated sediment while wading or swimming in Sinking Pond or the North Lagoon Wetland

Baseline Ecological Risk Assessment Conclusions

- ✿ Unacceptable risks were identified for benthic invertebrates and semi-aquatic wildlife due to surface water and sediment contamination in the North Lagoon Wetland and Sinking Pond

Feasibility Study - Introduction

- ☛ Identifies and evaluates potential remedial technologies
- ☛ Addresses areas of unacceptable risk identified in the Risk Assessments
- ☛ Identifies, screens, and compares remedial options
- ☛ Used by EPA to prepare the Proposed Cleanup Plan

Feasibility Study - Process

- ☛ Identifies relevant federal and state regulations (“ARARs”)
- ☛ Determines site-specific cleanup goals
- ☛ Identifies potential remediation technologies
- ☛ Screens appropriate technologies
- ☛ Assembles applicable cleanup technologies or various combinations of cleanup technologies
- ☛ Conducts a detailed evaluation of cleanup technologies
 - Compares to EPA’s nine criteria
 - Compares alternatives to one another

Nine Criteria for Remedy Selection

☞ Threshold Criteria:

- Overall Protection of Human Health and the Environment (“Protectiveness”)
- Compliance with ARARs

☞ Balancing Criteria:

- Long-term Effectiveness and Permanence
- Reduction in Toxicity, Mobility, and Volume
- Short-term Effectiveness
- Implementability
- Cost

Nine Criteria For Remedy Selection

☛ Modifying Criteria:

- State Acceptance
- Community Acceptance

☛ These are evaluated based on the public comment period

FS Evaluation

Various cleanup alternatives were reviewed to reduce unacceptable risks from contaminated groundwater, and from contaminated sediment in North Lagoon Wetlands and Sinking Pond

FS Evaluation - Sinking Pond Sediment

- ☛ Two remedial alternatives were carried through a detailed analysis:
- SP-SED-1 No Action (a Superfund requirement)
 - SP-SED-3 Active Remediation involving sediment excavation as well as covering/capping in selected portions of the pond

FS Evaluation - North Lagoon Wetland Sediment

☛ Two remedial alternatives were carried through a detailed analysis:

- NLW-SED-1 No Action (a Superfund requirement)
- NLW-SED-3 Active Remediation including excavation and covering/capping with wetland restoration

FS Evaluation – Active Groundwater Technologies

- ☞ In-Situ Chemical Oxidation
- ☞ In-Situ Bio-augmentation
- ☞ Groundwater Extraction with Ex-situ Treatment and Surface Water Discharge
- ☞ Groundwater Extraction with Ex-situ Treatment and Groundwater Re-injection

Active Technology Screening

- ☛ In-situ methods were eliminated based on implementability issues, such as the number of wells that would be required to inject treatment chemicals into the aquifer

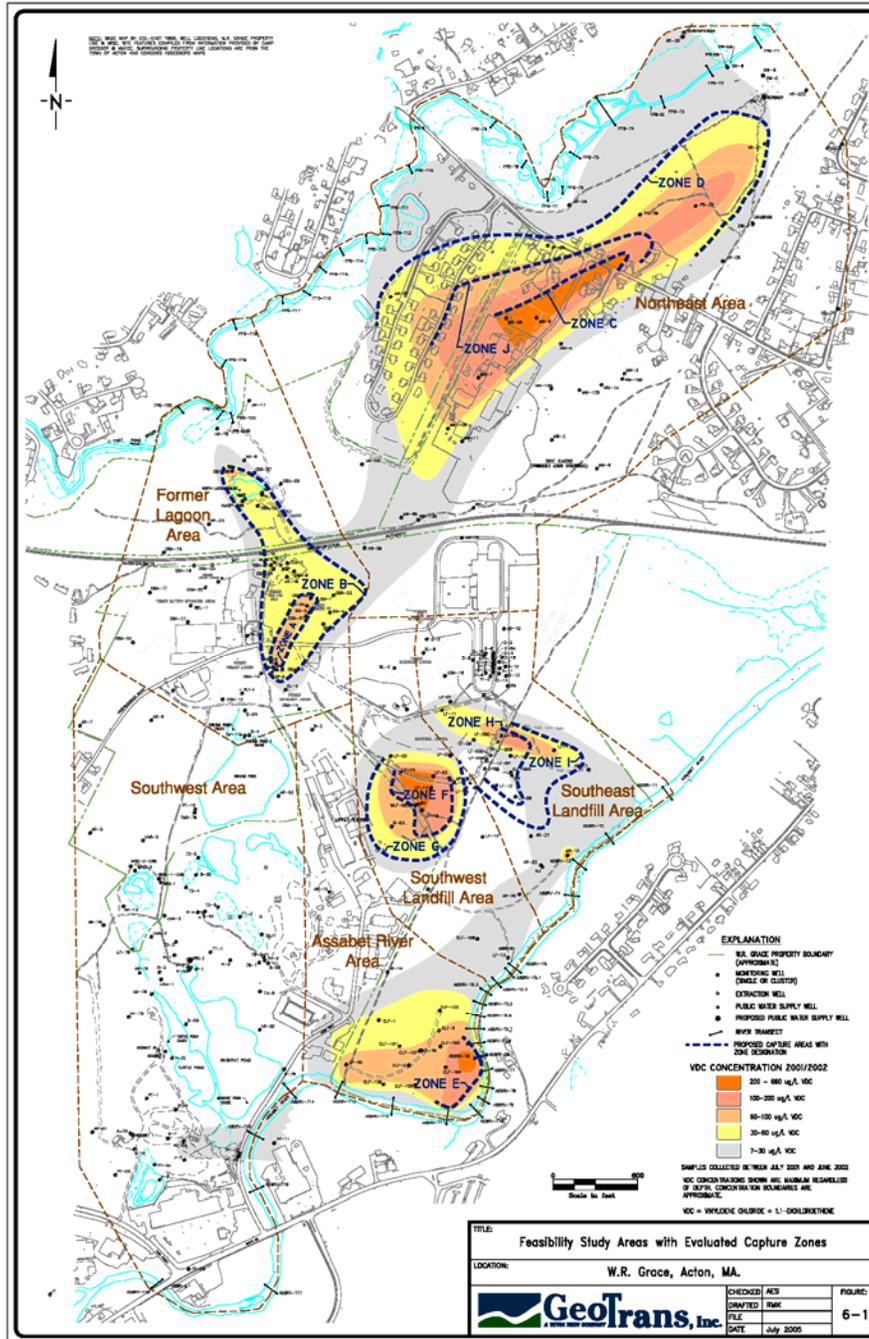
FS Evaluation - Groundwater

☛ Three comprehensive clean-up alternatives were carried through a detailed analysis:

- GW-1 No Action (a Superfund requirement)
- GW-2 Limited Action (natural attenuation processes with institutional controls)
- GW-3 Active Remediation (groundwater extraction/treatment from a reconfigured ARS along with Monitored Natural Attenuation and institutional controls)

Groundwater Plume Areas

- ☛ Several Alternative Extraction/Injection Pumping Scenarios were evaluated in detail for all areas of the Site that have contaminated groundwater
- ☛ To simplify the evaluation, the Site was divided into six geographic areas:
 - Northeast Area
 - Former Lagoon Area
 - Assabet River Area
 - Southwest Landfill Area
 - Southeast Landfill Area
 - Southwest Area

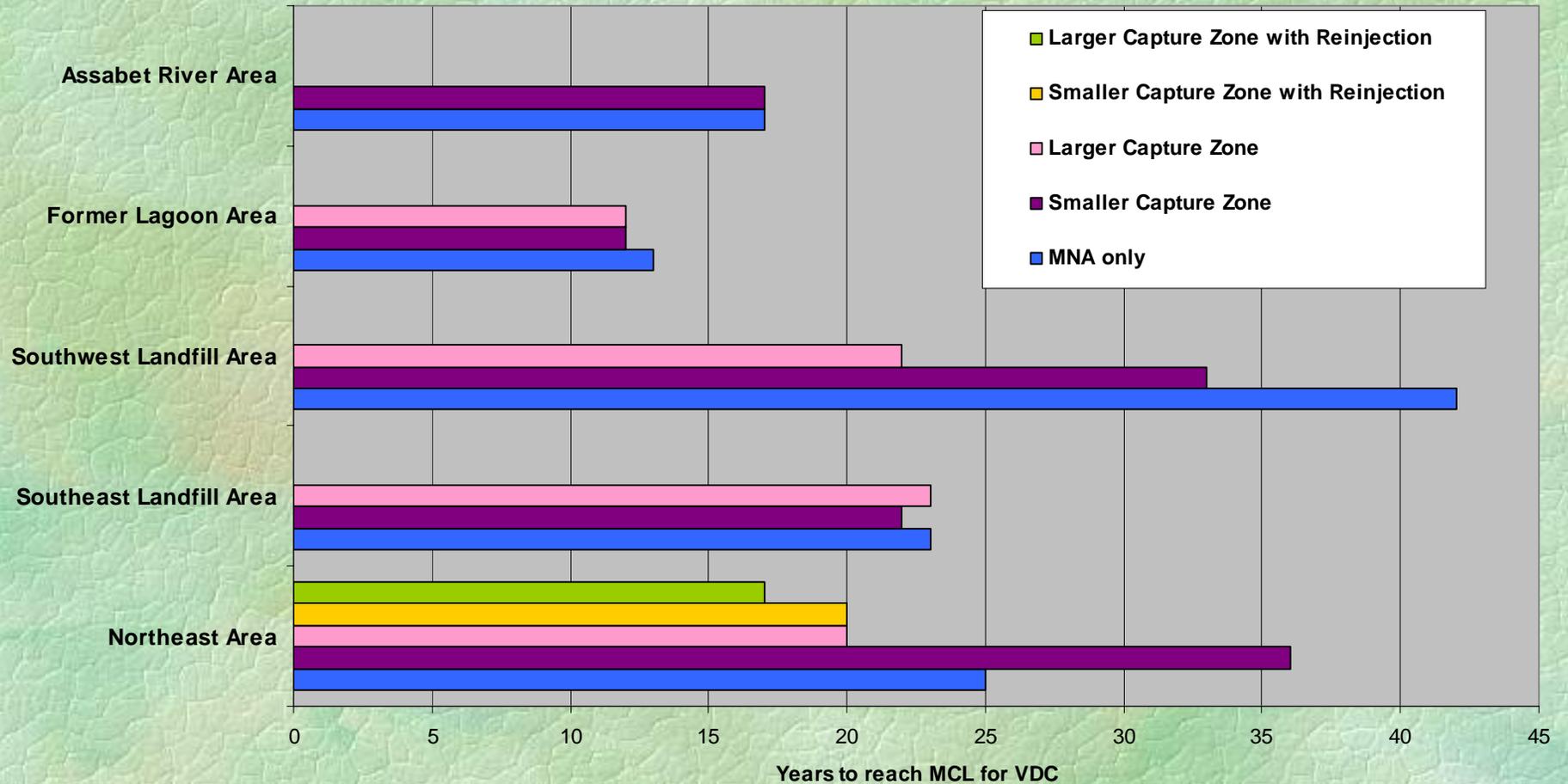


FS Evaluations

☛ Each scenario considered the following factors:

- Timeframe to reach MCLs for VOCs
- Community impacts
- Potential impacts to private property
- Potential impacts to Fort Pond Brook
- Adverse impacts to Town wells
- Implementability
- Total VOC mass to be removed
- Rate of VOC mass removal
- Ability of VOC plume to mobilize inorganics
- Cost

Model-Calculated Cleanup Timeframes



Northeast Area Ownership

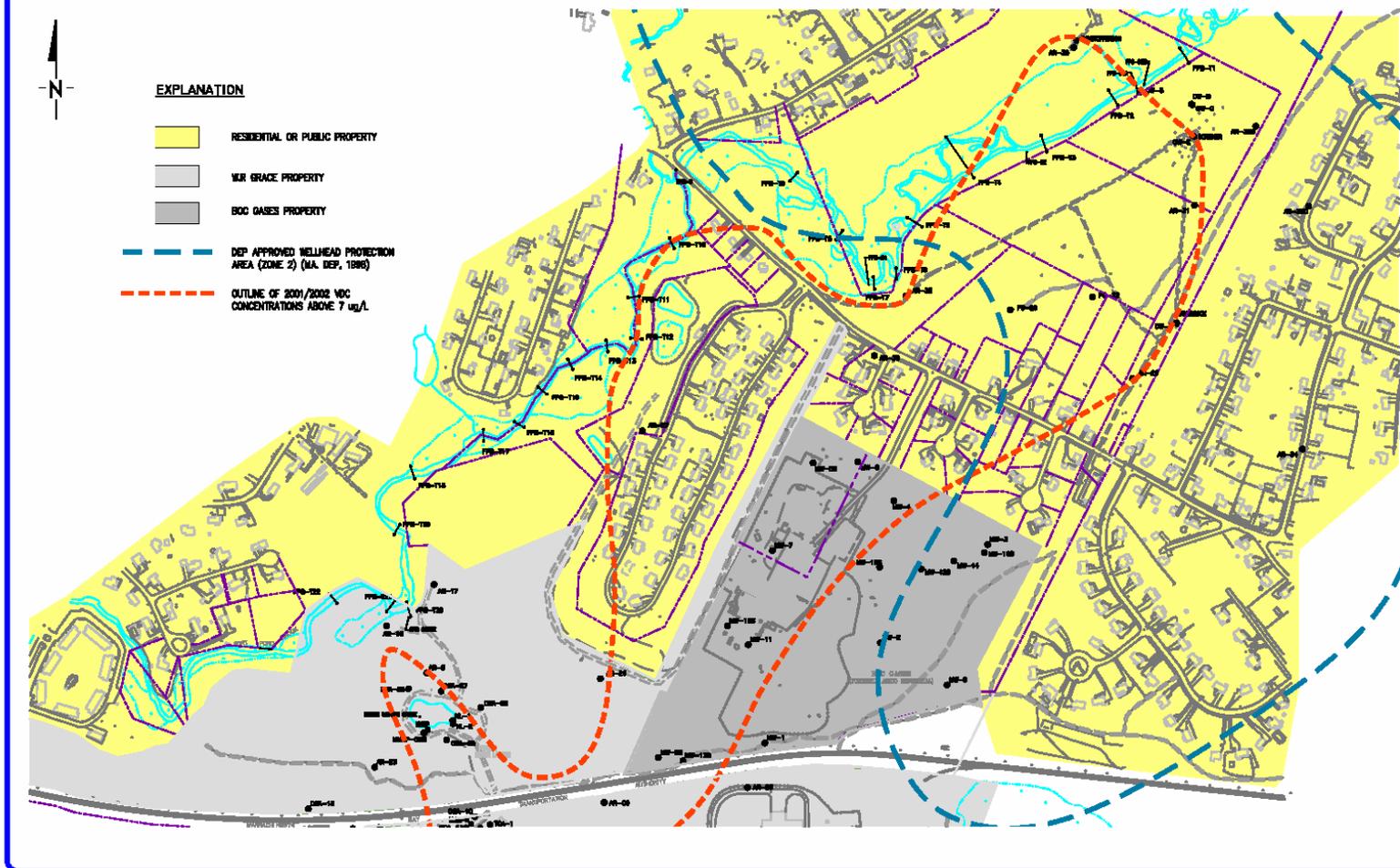
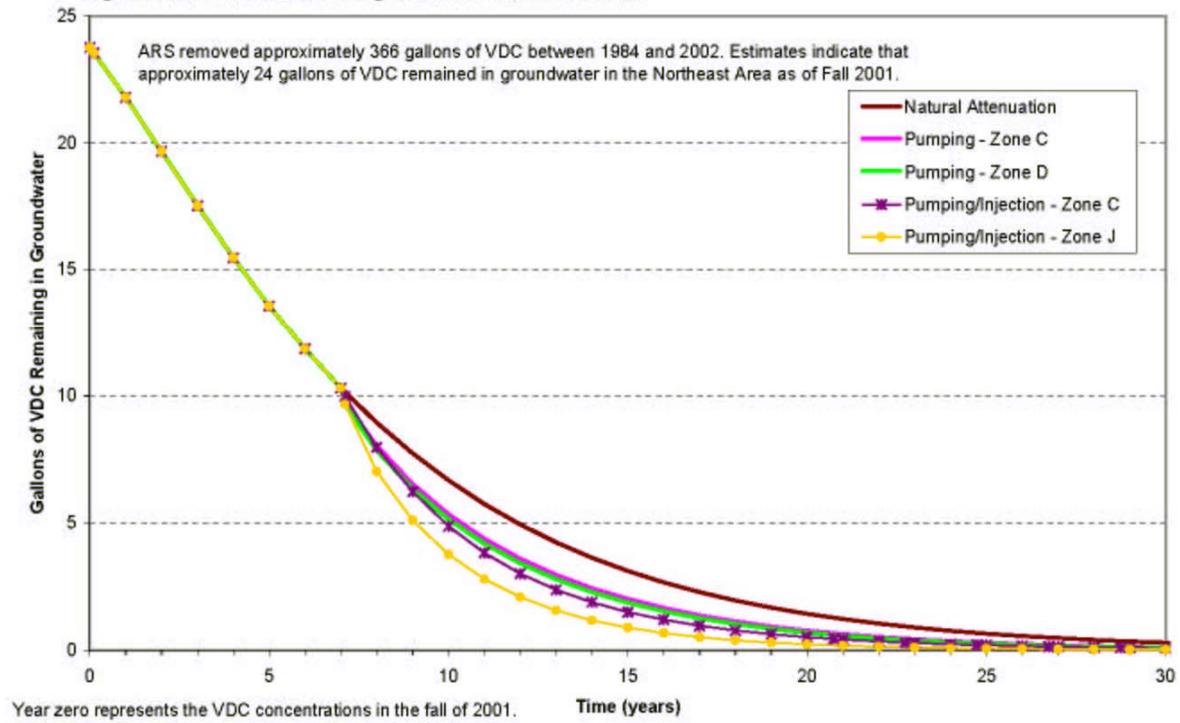
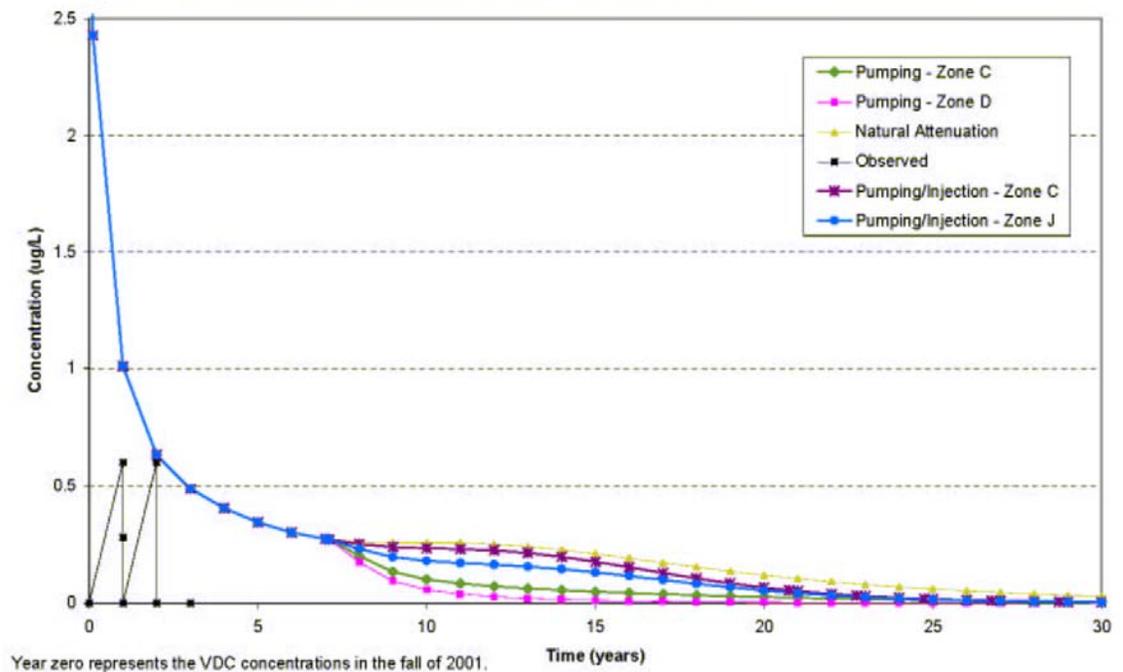


Figure 6-5. Volume of VDC Remaining In Groundwater, Northeast Area.



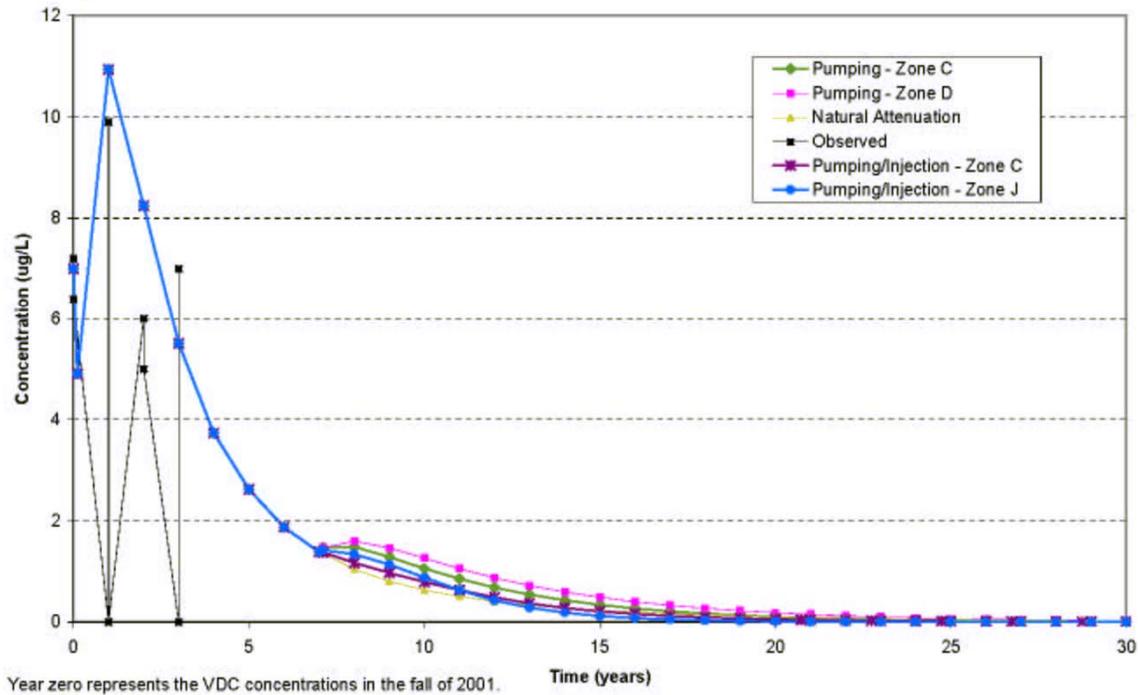
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Figure 6-2. VDC Concentrations in Christofferson Well for Remedial Alternatives.



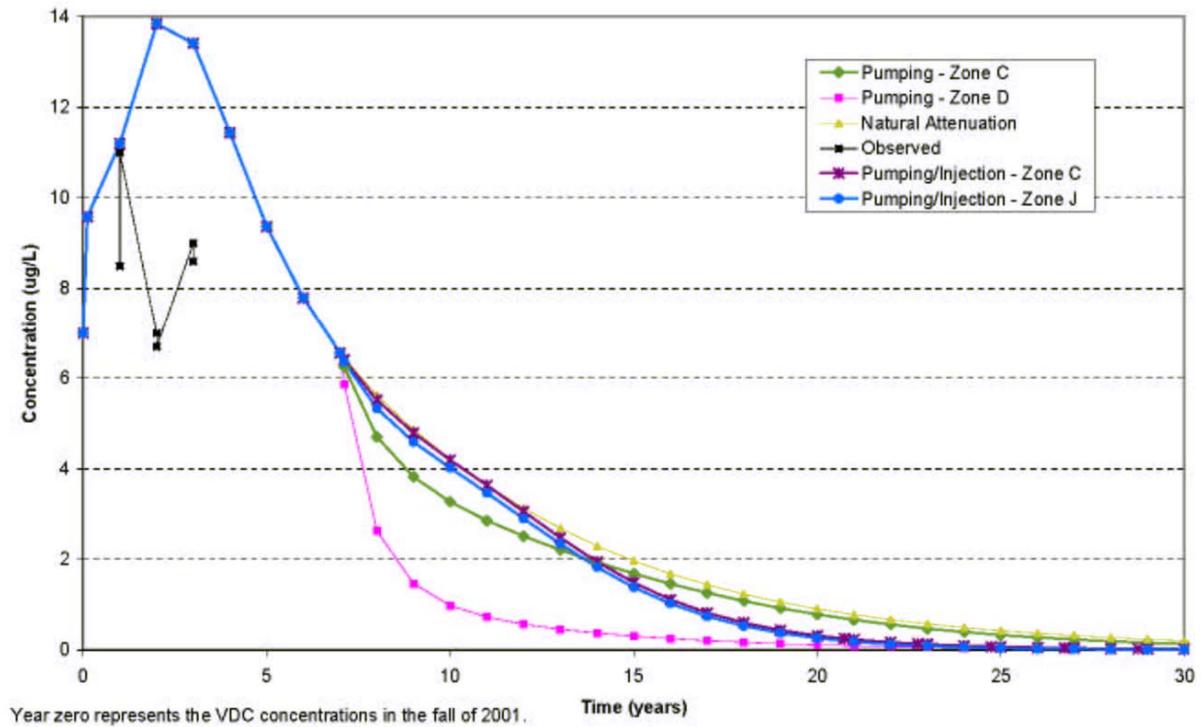
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Figure 6-3. VDC Concentrations in the Lawsbrook Well for Remedial Alternatives.



Year zero represents the VDC concentrations in the fall of 2001.

Figure 6-4. VDC Concentrations in the Scribner Well for Remedial Alternatives.



Alternative GW-3 Components

- Groundwater extraction with ex-situ treatment downgradient of landfill areas
- Monitored natural attenuation of remaining contaminated groundwater
- Institutional controls to prevent exposure to contaminated groundwater

EPA's Proposed Cleanup Plan

- Cleanup of contaminated sediment and soil posing an unacceptable risk to human health and/or the environment in Sinking Pond and the North Lagoon Wetlands
- Extraction and treatment of contaminated groundwater in southeast and southwest landfill areas on the Grace property

EPA's Proposed Cleanup Plan

- ☛ Construction of an approximately 200 gallon per minute groundwater treatment plant
- ☛ Treatment processes include:
 - Chemical precipitation to remove inorganics
 - Air stripping with off-gas treatment to remove VOCs
 - Treated water to be discharged to Sinking Pond
- ☛ Monitored natural attenuation and/or enhanced flushing of areas of groundwater contamination not captured by the extraction system

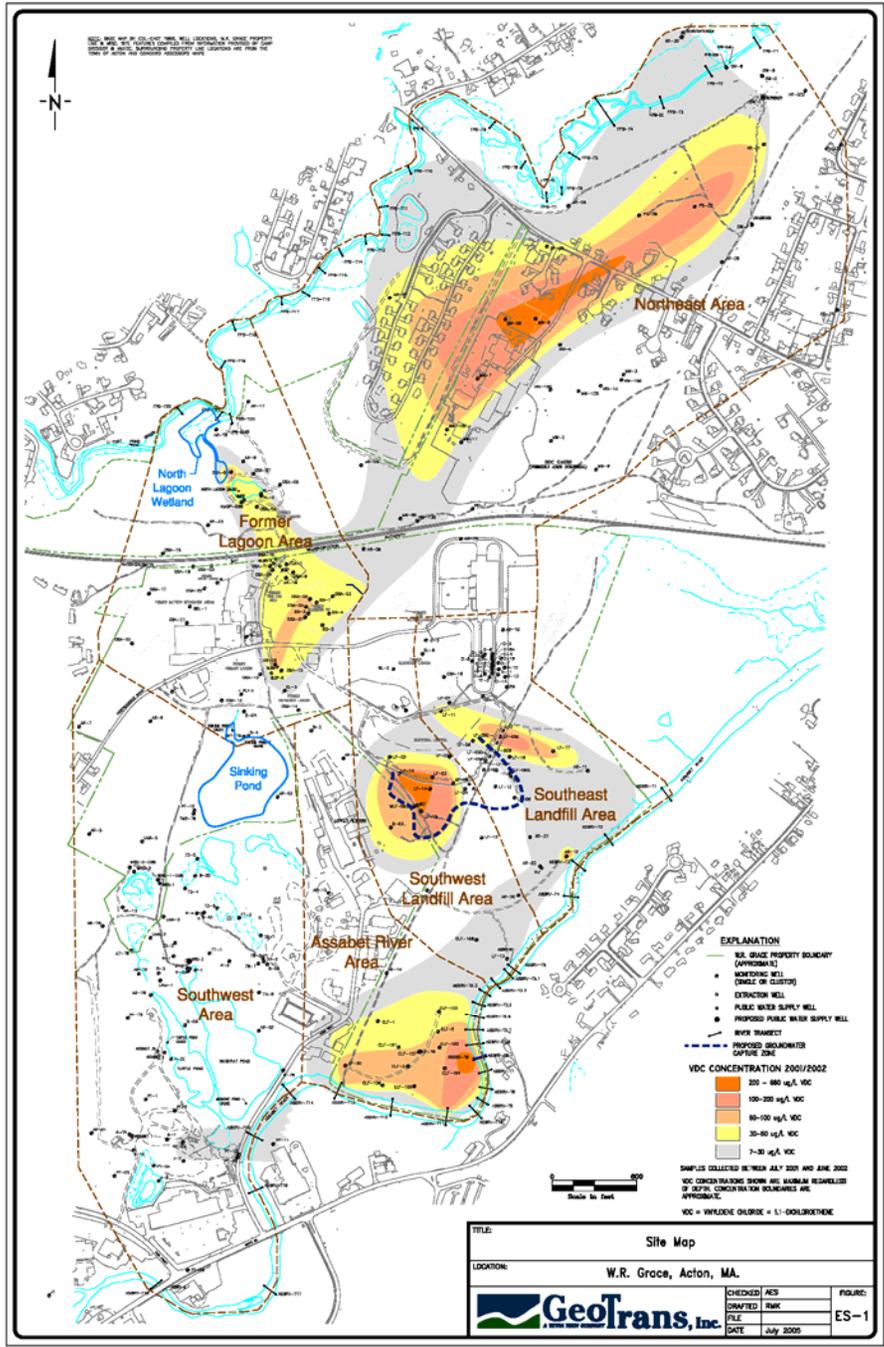
EPA's Proposed Cleanup Plan

- ☛ Institutional controls (deed restrictions and/or ordinances) to prevent unacceptable exposure to contaminated groundwater until cleanup levels are met and to protect against unacceptable future exposures to any waste left on-site
- ☛ Long-term monitoring of the groundwater, surface water, and sediment, and periodic five-year reviews of the remedy

EPA's Proposed Cleanup Plan

☛ The estimated total cost for this cleanup is \$16.9 million

- \$11.8 million construction costs
- \$5.1 million present value of operation, maintenance, and monitoring costs



Public Comment Period

- ☛ Public Comment Period ends August 9, 2005
 - Submit comments in writing by fax, email, or letter.
- ☛ Public Hearing August 4, 2005
 - Verbal comments will be transcribed
- ☛ EPA will respond in writing to comments in a “Responsiveness Summary” to accompany the Record of Decision (ROD) by the end of September 2005.

How to Comment

☞ Submit comments to:

Derrick Golden
EPA - New England, Region 1
1 Congress Street, Suite 1100 HBO
Boston, MA 02114-2023

Email or Fax by midnight 8/9/05 to:
golden.derrick@epa.gov

Fax: 617-918-0448 or 617-918-1291

☞ Provide Verbal Comments at Public Hearing at Acton Town Hall on August 4, 2005 at 7pm