Old Roosevelt Field Contaminated Groundwater Superfund Site

Public Meeting

September 11, 2007

7:00 PM

Garden City, New York

Old Roosevelt Field Contaminated Groundwater Superfund Site

Agenda

- Introduction
- Site Description and Background
- Geologic and Hydrogeologic Setting
- Remedial Investigation
- Feasibility Study
- Proposed Remedy
- Village of Garden City Water Department
- Questions and Answers

Old Roosevelt Field Contaminated Groundwater Superfund Site

Introduction

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)

- Toxic waste disposal disasters prompted passage of CERCLA by Congress in 1980
- Provides federal funds (Superfund) for cleanup of hazardous waste sites and to respond to emergencies involving hazardous substances
- Empowers EPA to compel responsible parties to pay for or conduct necessary response actions

Old Roosevelt Field Contaminated Groundwater Superfund Site

Introduction

CERCLA (Superfund) Remedial Process:

- Site Discovery and Ranking
- Site Placed on National Priorities List (NPL)
- Remedial Investigation/Feasibility Study (RI/FS)
- Record of Decision
- Remedial Design
- Remedial Action

Old Roosevelt Field Contaminated Groundwater Superfund Site

Site Description and Background

- Bordered by Old Country Road to north and Clinton Road to west
- Site includes Roosevelt Field Mall, Garden City Plaza office complex, Hazelhurst Park
- Pembrook Basin and Nassau County Stormwater Basin #124 are located south of the site
- Garden City Supply Wells #10 and #11 are located south of the site

Old Roosevelt Field Contaminated Groundwater Superfund Site

Site Description and Background

Aviation Activities from 1911 - 1951:

- Flight schools
- Aircraft sales and service
- Flight tests
- U.S. military use during WW1 and WW2:
  - Airplane engine mechanics training
  - Airplane and parts shipping/receiving, refueling
  - Aircraft repair and maintenance
- Commercial airport

Old Roosevelt Field Contaminated Groundwater Superfund Site

Site Description and Background

Old Roosevelt Field Contaminated Groundwater Superfund Site

Site Description and Background

- 1940s – 1951: Chlorinated solvents, such as trichloroethene (TCE) and tetrachloroethylene (PCE), typically used for aircraft manufacturing, maintenance, and repair
- 1960 – 1985: Cooling water wells pumped contaminated groundwater from deep aquifer and discharged contaminated water to shallow aquifer via recharge basins, distilling wells
- Disposal amounts and routes are undocumented

Old Roosevelt Field Contaminated Groundwater Superfund Site

Site Description and Background

Previous Investigations/Actions:

- Garden City Public Supply Wells #10 and #11
  - Put into service in 1953
  - Routine sampling began in late 1970s; PCE and TCE contamination has been documented since this time
  - Air strippers added to supply wells in 1987

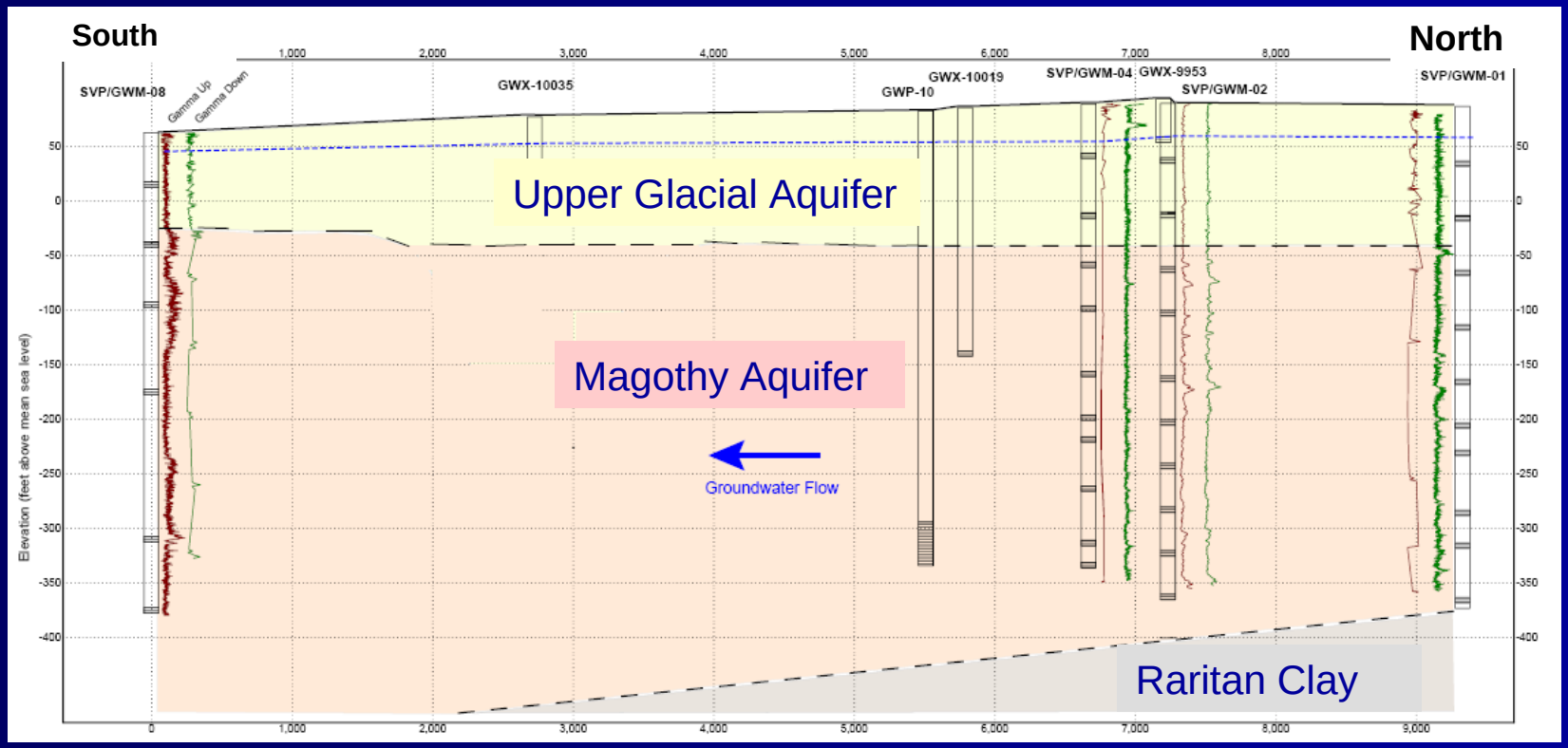
- Previous groundwater investigations conducted by:

  - Nassau County Department of Health in 1986, and

  - US Geological Survey in 1989

Old Roosevelt Field Contaminated Groundwater Superfund Site

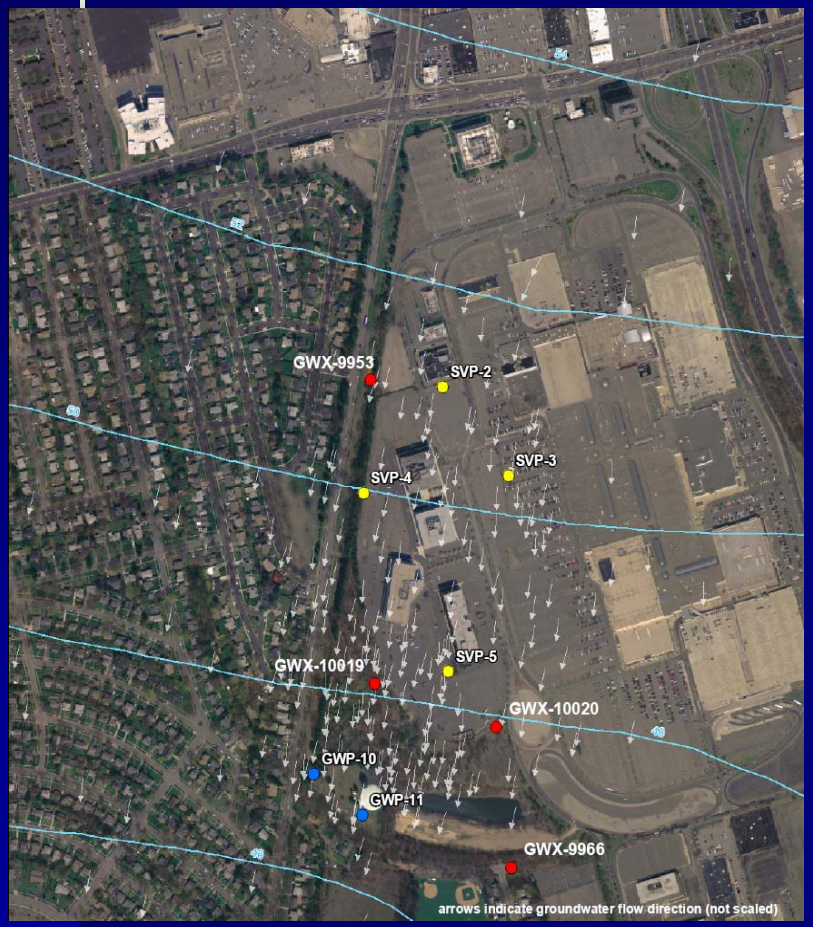
Geologic and Hydrogeologic Setting



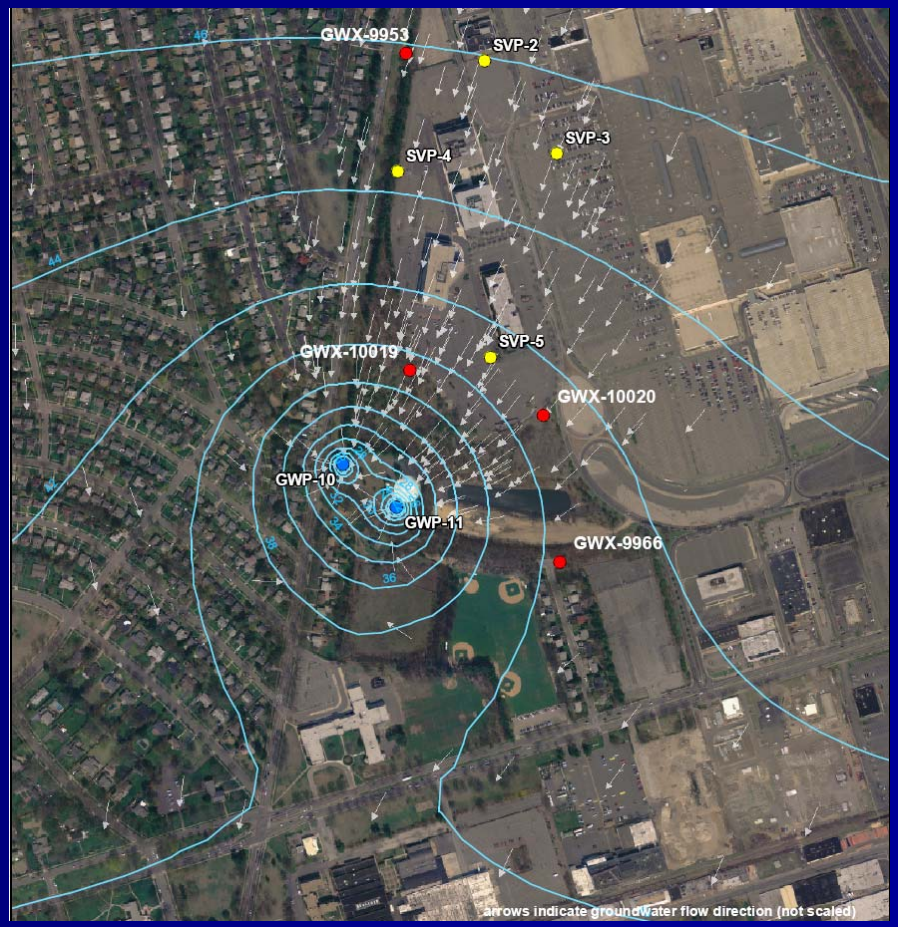
Geologic/Hydrogeologic Cross Section of Site Area

Old Roosevelt Field Contaminated Groundwater Superfund Site

Geologic and Hydrogeologic Setting



Upper Glacial Aquifer Groundwater Flow



Magothy Aquifer Groundwater Flow

Old Roosevelt Field Contaminated Groundwater Superfund Site

Remedial Investigation

Purpose of Remedial Investigation

- Groundwater Investigation conducted to determine the current nature and extent of groundwater contamination
- Source Area Soil Gas Investigation conducted to determine if shallow contaminant sources remain in areas of the former hangars

Old Roosevelt Field Contaminated Groundwater Superfund Site

Remedial Investigation

Groundwater Investigation Activities

- Groundwater screening
  - Discrete-depth samples at multi-port well locations
  - Results used to determine well port depths
- Multi-port well installation
  - 8 multi-port monitoring wells
  - 5 to 10 ports per well
- Multi-port well and existing well sampling
  - 8 multi-port monitoring wells (64 ports)
  - 10 existing wells, 2 supply wells

Old Roosevelt Field Contaminated Groundwater Superfund Site

Remedial Investigation

Groundwater Investigation: Multi-port and Existing Well Locations

Old Roosevelt Field Contaminated Groundwater Superfund Site

Remedial Investigation

Source Area Soil Gas Investigation Activities

- Soil Gas Screening
  - 158 screening locations
  - 2 sample depths per location: 15 feet and 35 feet bgs
- Soil Gas Sampling
  - 36 soil gas samples around perimeter of 2 Garden City Plaza office buildings, 100 Ring Road and Hazelhurst Park

Old Roosevelt Field Contaminated Groundwater Superfund Site

Remedial Investigation

Soil Gas Screening Locations

Soil Gas Sample Locations

Old Roosevelt Field Contaminated Groundwater Superfund Site

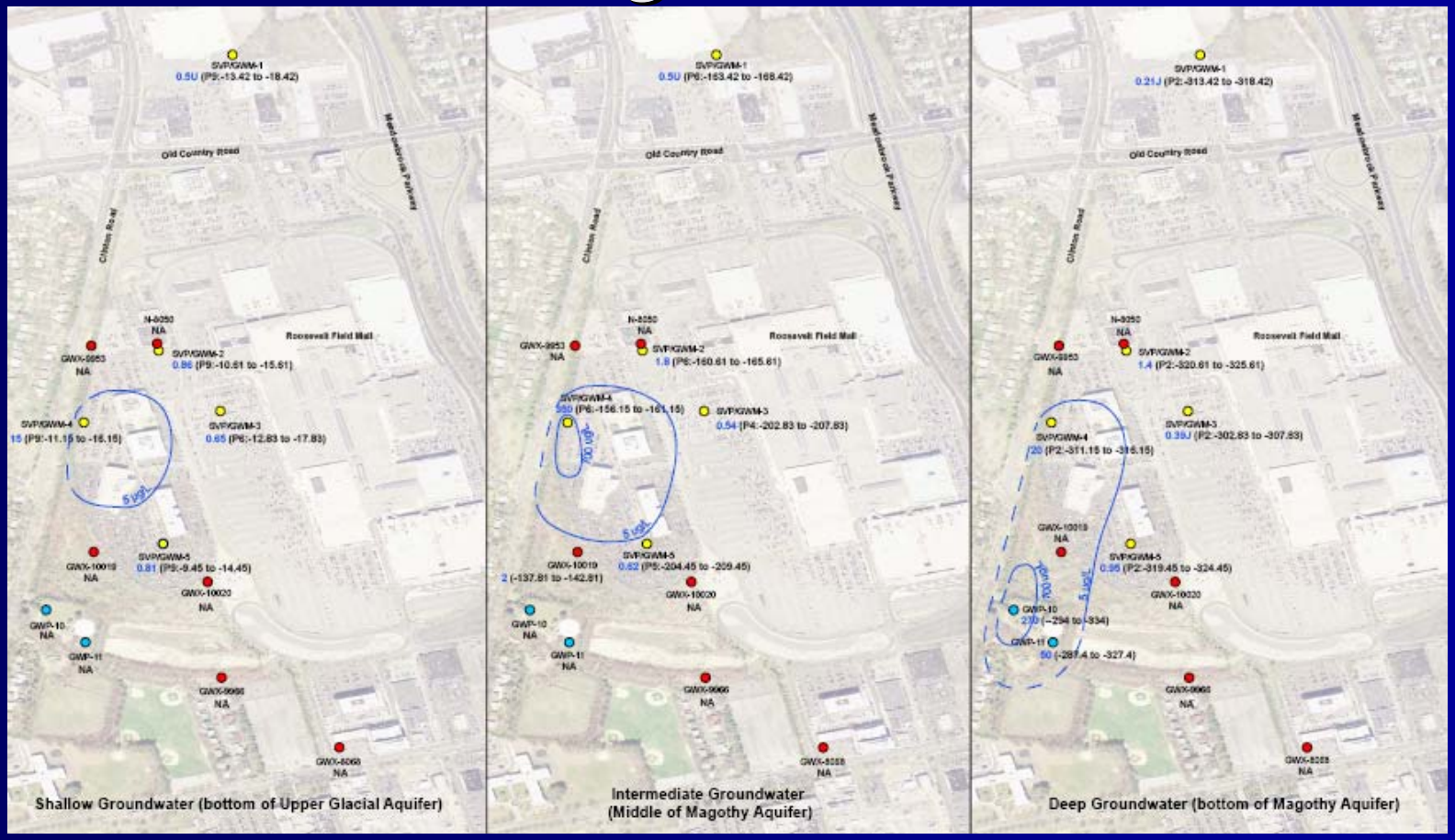
Remedial Investigation Results

Groundwater Results

- Multi-port well and existing well sampling results
  - PCE concentrations ranged from non-detect to 350 ug/L
  - TCE concentrations ranged from non-detect to 260 ug/L
  - Highest concentrations generally found in SVP/GWM-4 in the intermediate aquifer zone; area formerly used as a drain field/distilling well for subsurface disposal of contaminated cooling water.
- Summary of nature and extent of contamination

Old Roosevelt Field Contaminated Groundwater Superfund Site

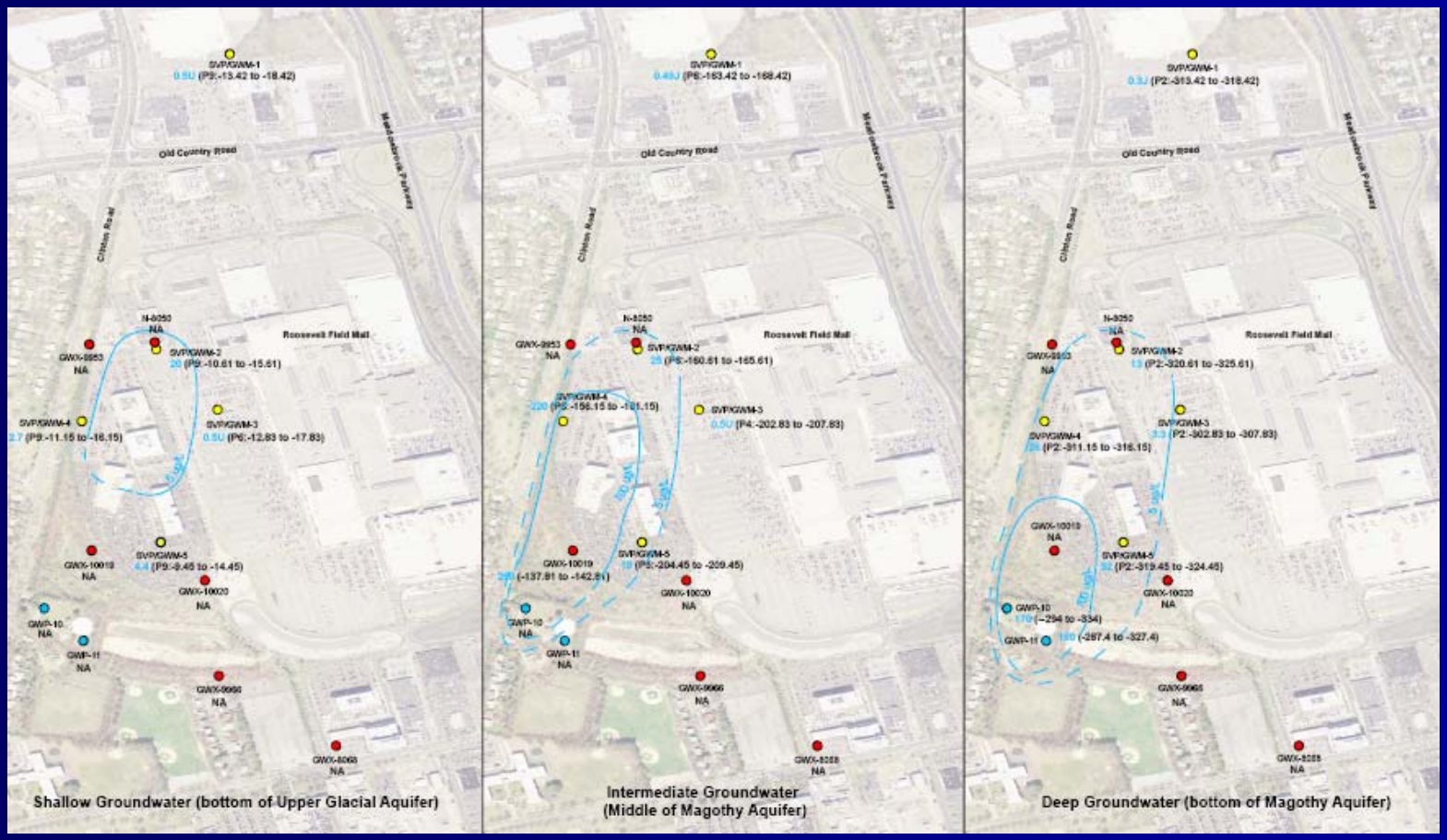
Remedial Investigation Results



PCE Contours Above the MCL (5 ug/L)

Old Roosevelt Field Contaminated Groundwater Superfund Site

Remedial Investigation Results



TCE Contours Above the MCL (5 ug/L)

Old Roosevelt Field Contaminated Groundwater Superfund Site

Remedial Investigation Results

Soil Gas Results

- Soil gas screening results
  - 5 of the 158 locations exceeded screening criteria at 15 feet
  - 7 of the 158 locations exceeded screening criteria at 35 feet
- Soil gas sampling results
- Summary of nature and extent of contamination

Old Roosevelt Field Contaminated Groundwater Superfund Site

Remedial Investigation Results

Soil Gas Screening Results – 15 feet bgs

Soil Gas Screening Results – 35 feet bgs

Old Roosevelt Field Contaminated Groundwater Superfund Site

Remedial Investigation

Groundwater Conclusions

- Site-related groundwater contaminants: PCE, TCE and related compounds.
- Plume core is located near SVP/GWM-4, 250 to 310 feet bgs. This area was formerly used as a drain field/distilling well for subsurface disposal of contaminated cooling water.
- The natural southerly flow of groundwater and contaminants is interrupted by large scale pumping at the two Garden City supply wells; this situation has limited the migration of the plume further south.
- VOC contamination is shallower south of the Garden City supply wells, and is likely related to contaminant sources located south of the Roosevelt Field site.

Old Roosevelt Field Contaminated Groundwater Superfund Site

Remedial Investigation

Source Area Conclusions

- Little evidence of residual sources
- EPA conducted additional sampling at select locations to confirm that soil vapors were not indicative of a current contaminant source

Old Roosevelt Field Contaminated Groundwater Superfund Site

EPA Soil and Soil Vapor Sampling Event/Results

Soil Vapor Sampling

- Soil Vapor activities conducted in April and June 2007:
  - One round of subslab vapor samples and one round of subslab vapor/indoor air samples in commercial buildings west of mall
  - Residential subslab vapor samples west of Clinton Road

- Results:
  - Round 1 subslab TCE results ranged from 3.9 – 51 ug/m^3; all results exceeded screening criteria
  - Round 1 subslab PCE results ranged from x-x; none exceeded screening criteria
  - No indoor air samples exceeded the New York State Department of Health indoor air criteria for TCE or PCE
  - TCE and PCE were also detected in a background subslab sample

Old Roosevelt Field Contaminated Groundwater Superfund Site

EPA Soil and Soil Vapor Sampling Event/Results

Soil Sampling

- Soil Sampling in July 2007
- 41 subsurface soil samples
- No VOCs detected
- No residual source areas were identified

Old Roosevelt Field Contaminated Groundwater Superfund Site

Human Health Risk Assessment

- There are no current exposures to contaminated groundwater
- Groundwater risks are evaluated under potential *future* conditions for site workers and residents in absence of any controls
- Goal is protection of human health under *reasonable maximum exposures* for cancer and non-cancer health effects
- Exposure Route: Ingestion, inhalation and dermal contact with site groundwater
- Risk from potential future exposure to TCE and PCE exceeds EPA guidelines

Old Roosevelt Field Contaminated Groundwater Superfund Site

Feasibility Study

Purpose:

- Establish remedial action objectives
- Develop remedial alternatives to meet the remedial action objectives

Old Roosevelt Field Contaminated Groundwater Superfund Site

Feasibility Study

Remedial Action Objectives:

- Prevent or minimize potential, current, and future human exposures including inhalation, ingestion and dermal contact with VOC-contaminated groundwater that exceeds the MCLs
- Minimize the potential for off-site migration of groundwater with VOC contaminant concentrations greater than MCLs
- Restore groundwater to beneficial use levels within a reasonable time frame, as specified in the National Contingency Plan (NCP)
- Mitigate site-related vapor migrating into the commercial buildings, if necessary

Old Roosevelt Field Contaminated Groundwater Superfund Site

Feasibility Study

Chemical	Groundwater Maximum Contaminant Level
PCE	5 ug/L
TCE	5 ug/L
1,1-Dichloroethene	5 ug/L
Cis-1,2-Dichloroethene	5 ug/L

Old Roosevelt Field Contaminated Groundwater Superfund Site

Feasibility Study

Remedial Alternatives Selection Criteria

- Overall Protection of Human Health and Environment
- Compliance with Applicable or Relevant and Appropriate Requirements (ARARs)
- Long-term Effectiveness and Permanence
- Reduction of Toxicity, Mobility or Volume
- Short-term Effectiveness
- Implementability
- Cost
- State Acceptance
- Community Acceptance

Old Roosevelt Field Contaminated Groundwater Superfund Site

Feasibility Study Alternatives

Alternative 1: No Action

- No action is taken to prevent exposure to contamination at the Site
- Baseline for comparison to other alternatives

Old Roosevelt Field Contaminated Groundwater Superfund Site

Feasibility Study Alternatives

Alternative 2: Monitoring and Institutional Controls

- Long-term monitoring to track the migration of contaminants over time and ensure attainment of MCLs
- Institutional controls to restrict future use of site and groundwater
- Site Management Plan
- Five year review

Old Roosevelt Field Contaminated Groundwater Superfund Site

Feasibility Study Alternatives

Alternative 3: Groundwater Extraction and Ex-situ Treatment (Pump and Treat)

- Pre-design investigation to include at least 3 new multi-port monitoring wells and groundwater modeling
- Installation of extraction well(s) and treatment system with discharge to recharge basin
- Evaluation of wellhead treatment at 2 Garden City Supply wells
- Institutional controls to restrict future use of site and groundwater
- Site Management Plan
- Long-term monitoring
- Five year review
- Continued monitoring for vapor intrusion

Old Roosevelt Field Contaminated Groundwater Superfund Site

Feasibility Study Alternatives

Alternative 3: Groundwater Extraction and Ex-situ Treatment (Pump and Treat)

- Contingency plan would be implemented in the event that Garden City supply wells #10 and #11 pumping rates are reduced or are permanently taken out of service
- Contingency plan would include installation of new well(s) in the vicinity of the Garden City wells, and an ex-situ treatment system

Old Roosevelt Field Contaminated Groundwater Superfund Site

Feasibility Study Cost Summary

Alternative	Capital Cost	Annual O&M	Total Present Worth
1	$ 0	$ 0	$ 0
2	$ 300,000	$150,000/ $110,000*	$2,290,000
3	$ 6,240,000**	$850,000/ $790,000***	$13,160,000

* Includes long-term monitoring costs only. The monitoring program would be reduced after 25 years.
** If the contingency plan is necessary, the capital costs would increase by $5,660,000.
*** The monitoring program would be reduced after 25 years.

Old Roosevelt Field Contaminated Groundwater Superfund Site

Proposed Remedy

Alternative 3: Groundwater Extraction and Ex-situ Treatment (Pump and Treat)

- Pre-design investigation to include at least 3 new multi-port monitoring wells and groundwater modeling
- Installation of extraction well(s) and treatment system with discharge to recharge basin
- Evaluation of wellhead treatment at 2 Garden City Supply wells
- Institutional controls to restrict future use of site and groundwater
- Site Management Plan
- Long-term monitoring
- Five year review
- Continued monitoring for vapor intrusion