

Feasibility Study Addendum for the North Indian Bend Superfund Site





North Indian Bend Wash Superfund Site

Managed By
US EPA
&
Arizona Department of
Environmental Quality

Participating Companies

- Motorola
- Siemens
- SmithKline Beecham
- Other involved parties
 - ◆ City of Scottsdale
 - ◆ SRP

FSA Objectives

- The FSA is designed to:
 - ◆ review the history of investigation, monitoring & cleanup efforts at the site;
 - ◆ evaluate the effectiveness of these efforts; and
 - ◆ analyze additional efforts, if any, that may be necessary.

FSA Conclusions:

- Enhanced Remedy will:
 - ◆ achieve capture & containment
 - ◆ effectively remove the TCE
- Many wells will be restored within 30 years.
- Treated water will meet drinking water standards for beneficial uses.

Extensive groundwater testing since 1981



- 150 monitoring wells
- 7,500 groundwater samples

Positive Results

■ Groundwater:

- ◆ 12 billion gallons treated
- ◆ 17,500 pounds of TCE removed

■ Soil:

- ◆ Effectively eliminated impacts to groundwater

Purpose of the FSA

- Summarize cleanup efforts to date
- Present analysis of alternative cleanup options

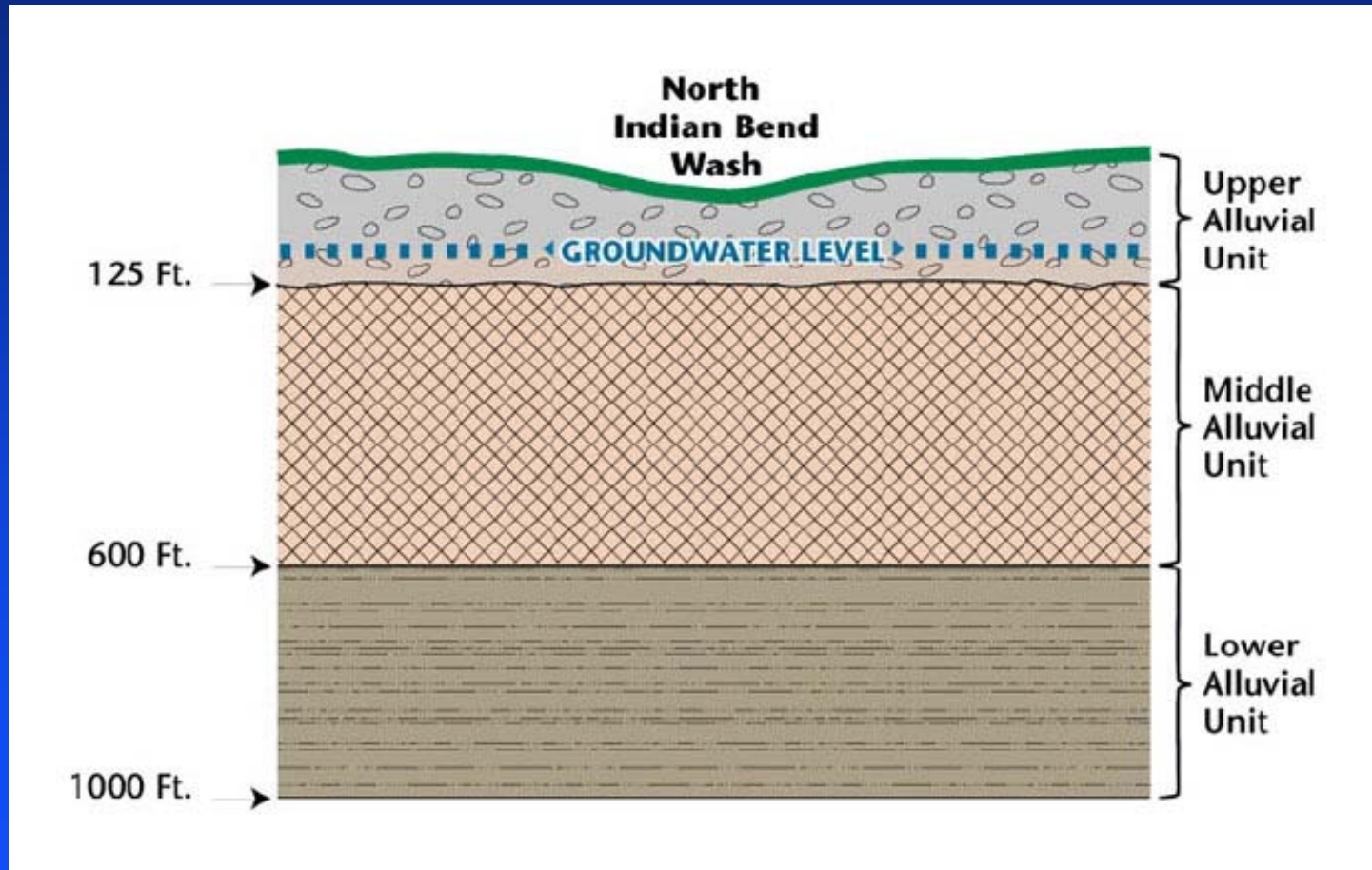
Groundwater is a source of drinking water in Scottsdale



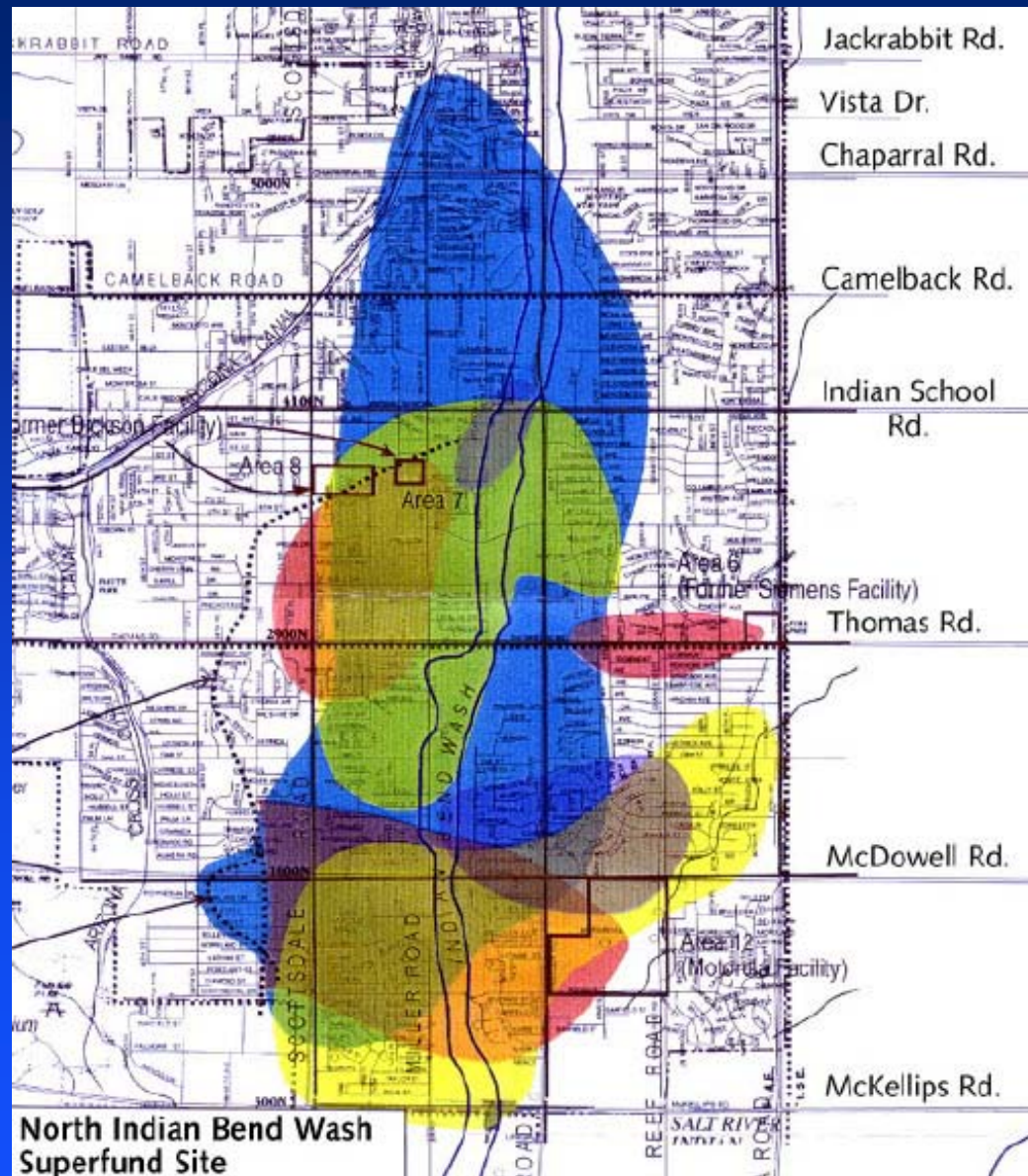
Businesses in the past used TCE
for degreasing purposes



Groundwater moves through three different levels or “aquifers”



EPA Map with TCE Concentrations



EPA Actions



- Consent Decree for OU-1: April 1992
 - ◆ Treat deeper groundwater in MAU & LAU
- Consent Decree for OU-2: August 1993
 - ◆ Address soils at source areas and UAU groundwater

Central Groundwater Treatment Facility (CGTF)



- Completed in 1994
- Owned & operated by City of Scottsdale
- Paid for by the Participating Companies

Treated water from the CGTF goes through rigorous testing before it is used as drinking water



Miller Road Treatment Facility (MRTF)



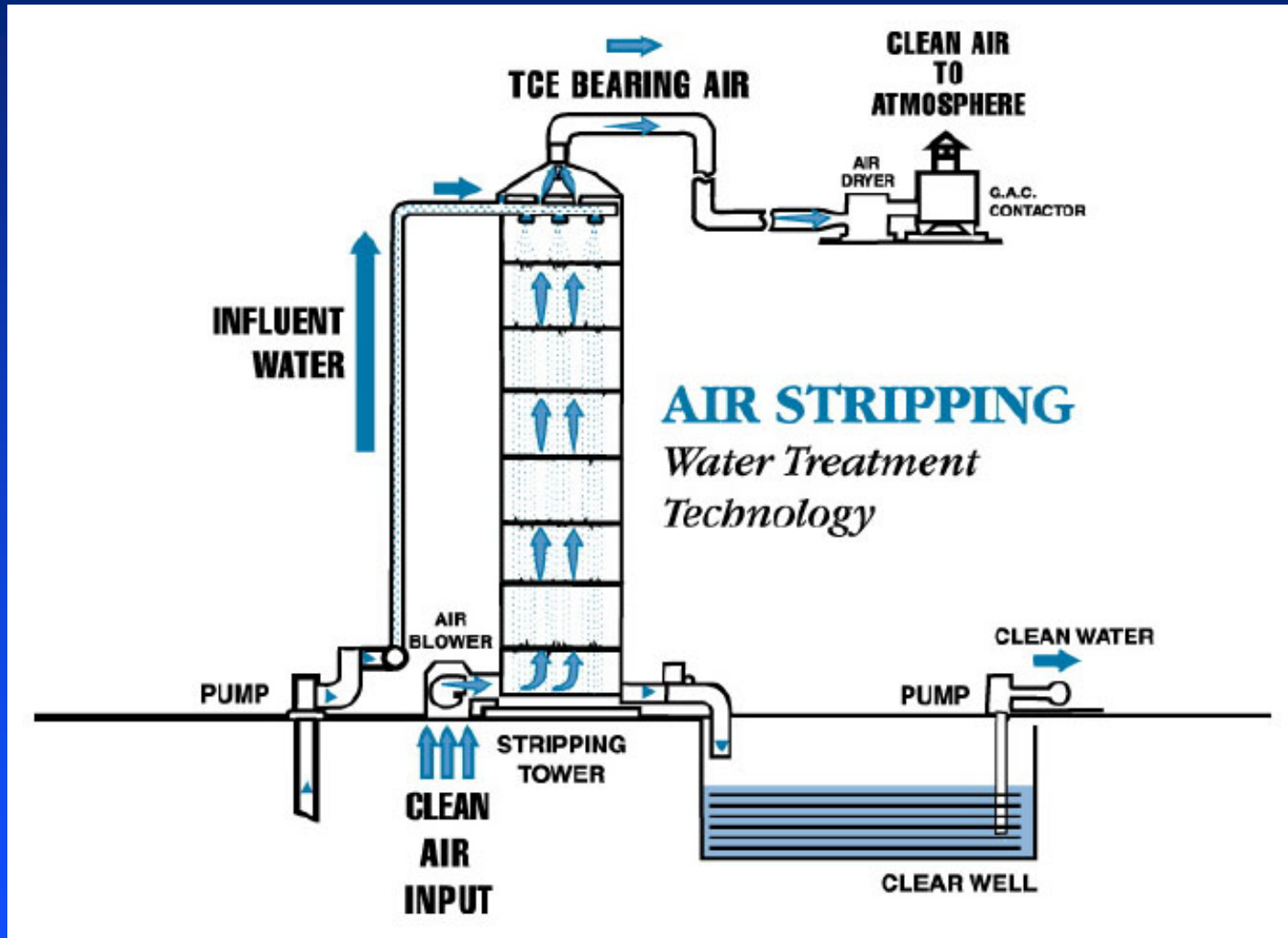
- Owned & operated by the Paradise Valley Water Company (PVWC)
- Operational in March 1997
- Paid for by the Participating Companies

Miller Road Treatment Facility



Located at McDonald Drive & Miller Road at
PVWC's southernmost well.

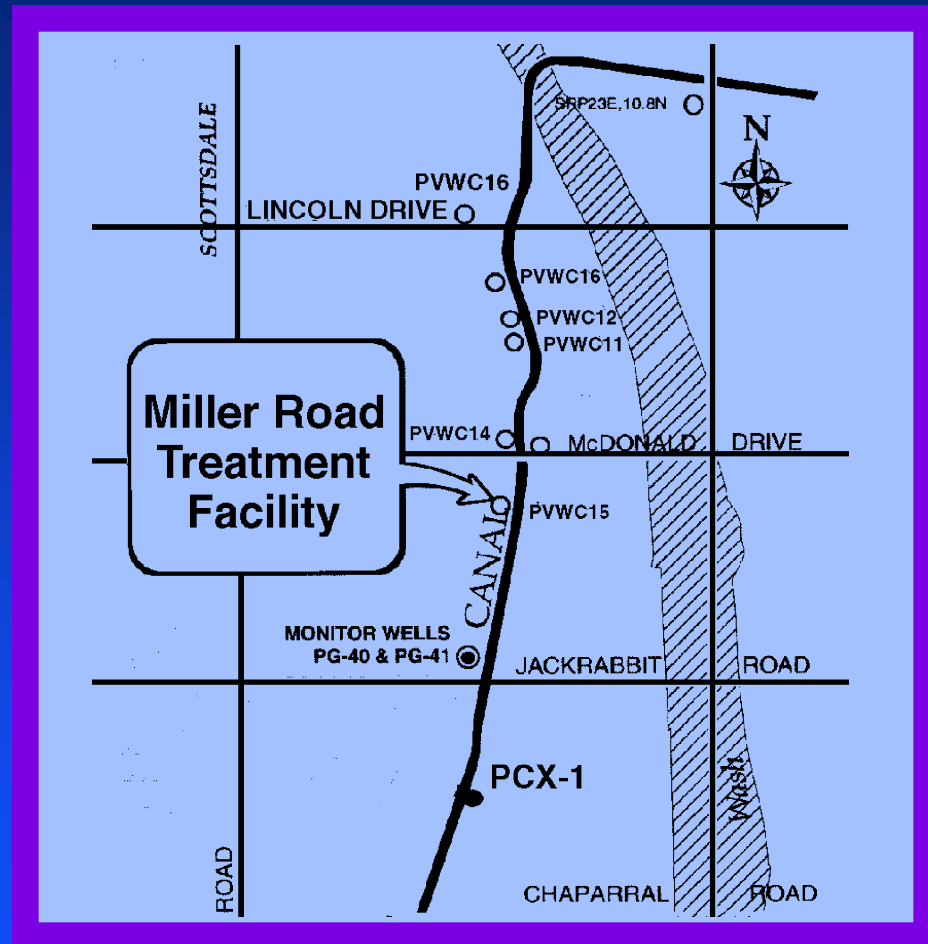
Air Stripping Technology



Carbon air filters remove TCE from the air



PCX-1 installed & connected to the MRTF

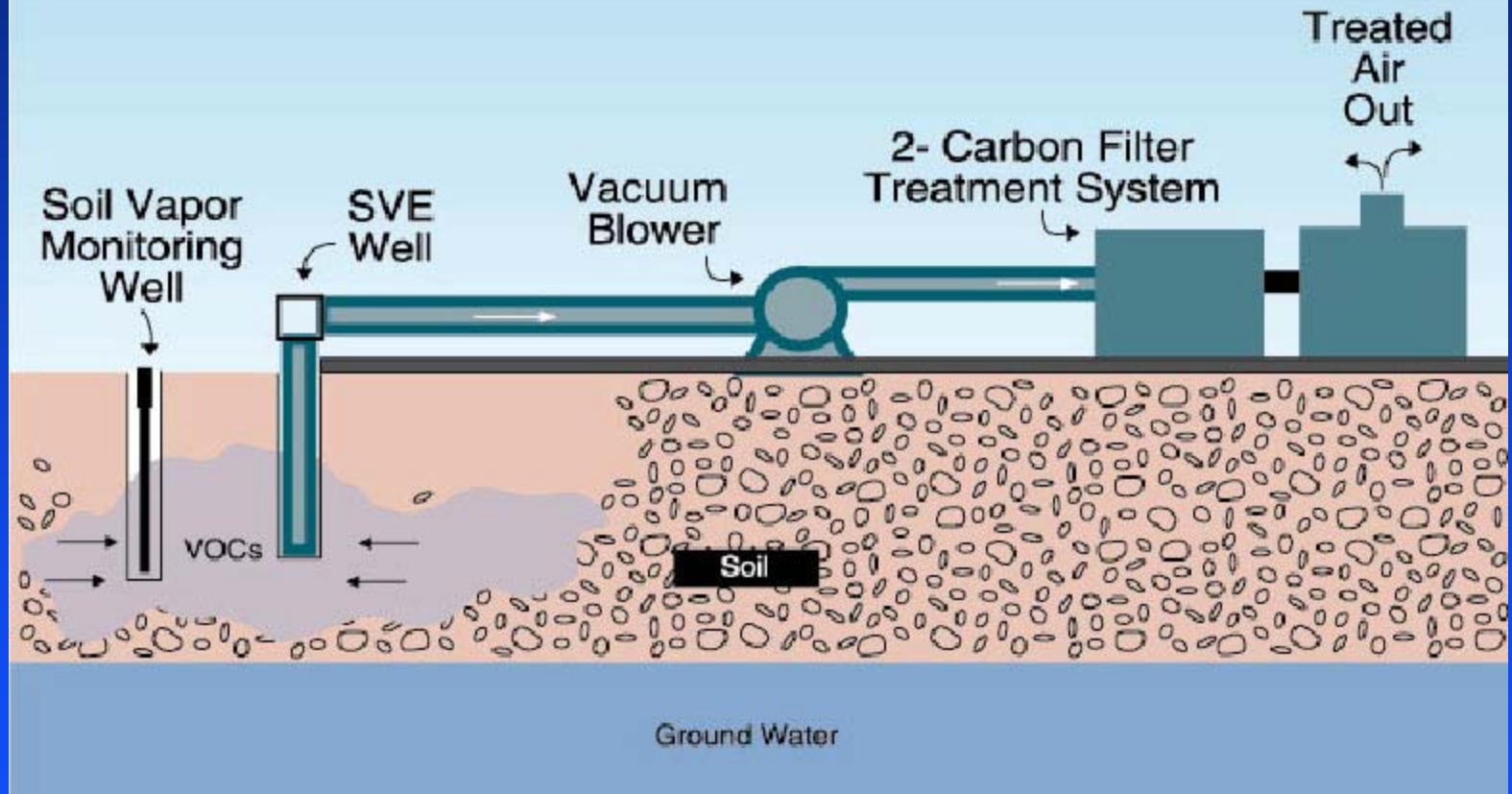


to intercept leading edge of the TCE plume

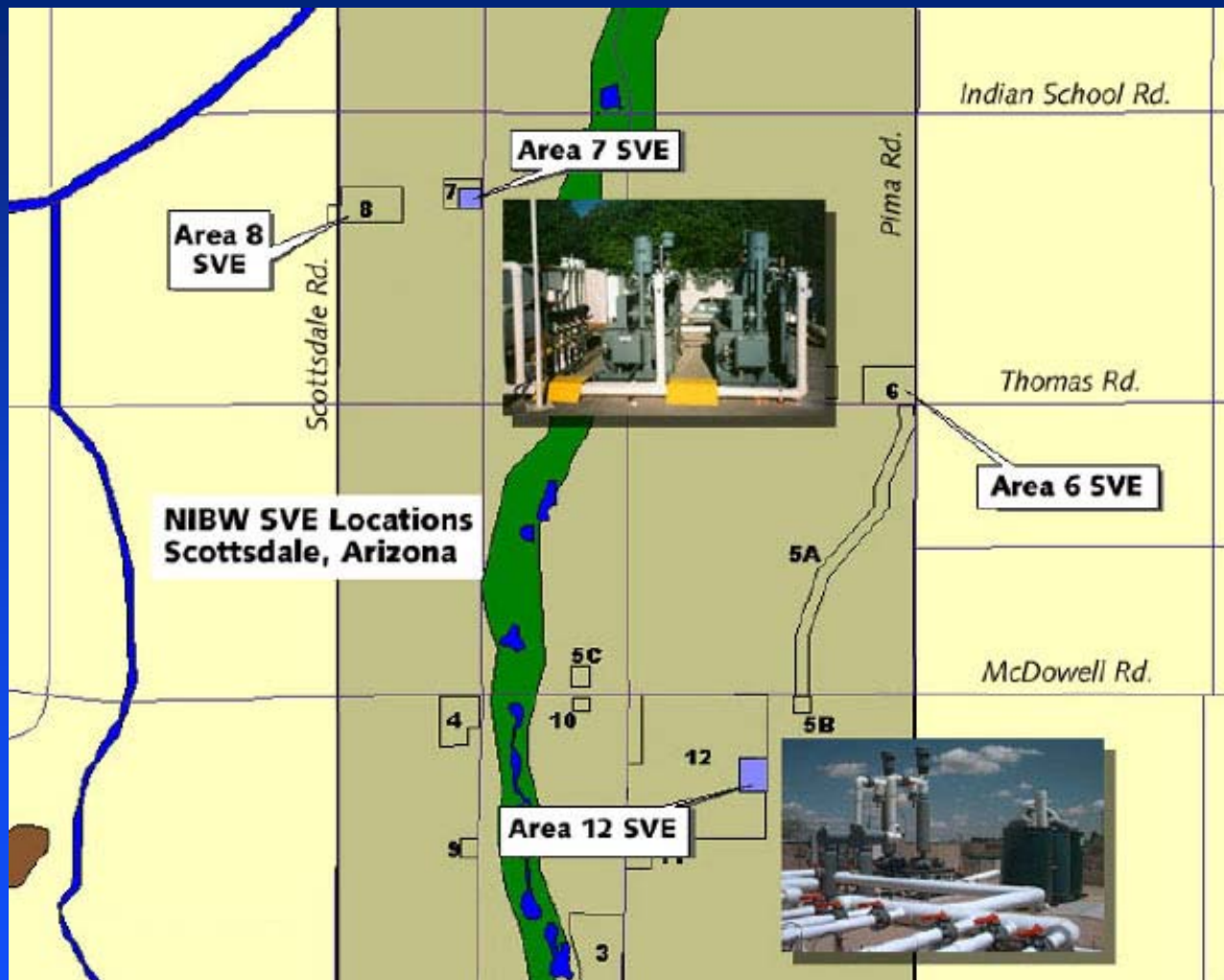
2nd Consent Decree

- issued in August 1993
- requires soil vapor extraction (SVE)

Soil Vapor Extraction (SVE) System



Area 6 - NW corner of Pima & Thomas Roads



Area 7- located near 75th Street & 2nd Street



Area 8 - north of Osborn Road, west of Civic Center Boulevard



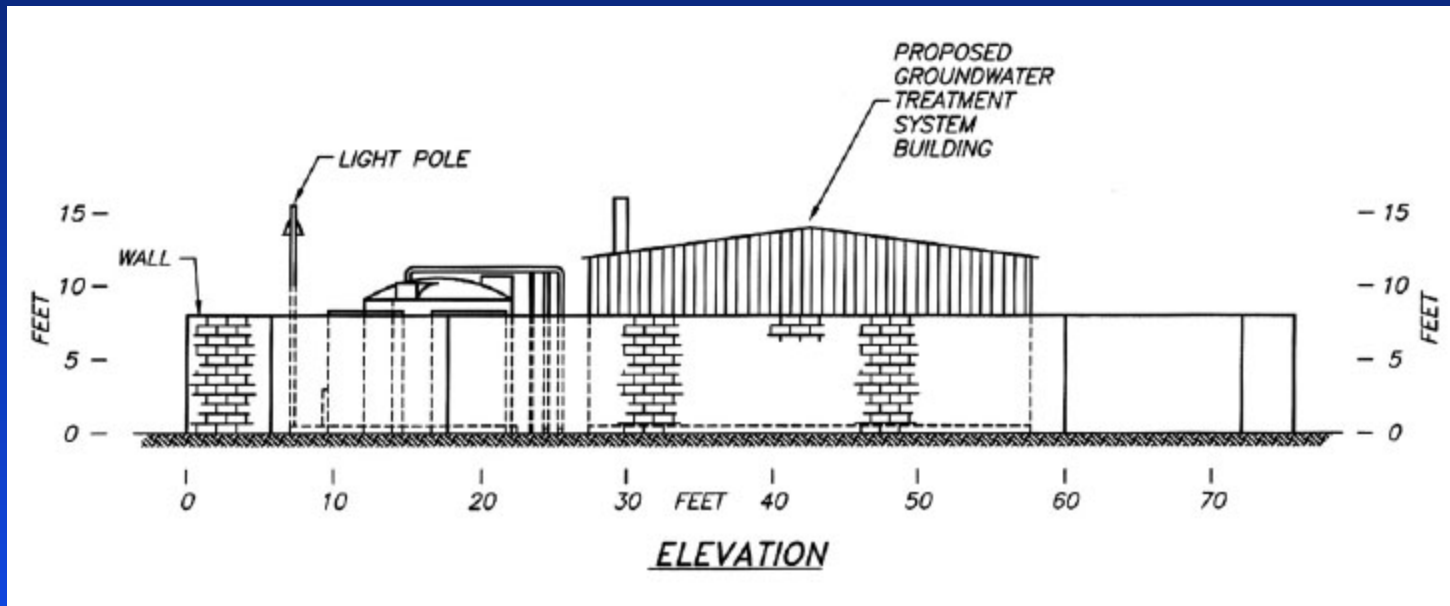
SVE
activities
completed in
1997

Area 12 - Located at McDowell & Hayden Roads



SVE began
in December
1996

Area 7 - Located at 75th Street and 2nd Street



- Small unit was in place to treat UAU
- Larger unit to treat MAU now under construction

Area 12 - began operations in February 1999



Groundwater & Soil Treatment Have Been Effective

- Central Groundwater Treatment Facility
- Miller Road Treatment Facility
- PCX-1 Extraction Well
- New City of Scottsdale well
 - ◆ 75A
- Groundwater Source Control at Areas 7 & 12
- Soil treatment at
 - ◆ Area 6
 - ◆ Area 7
 - ◆ Area 8
 - ◆ Area 12

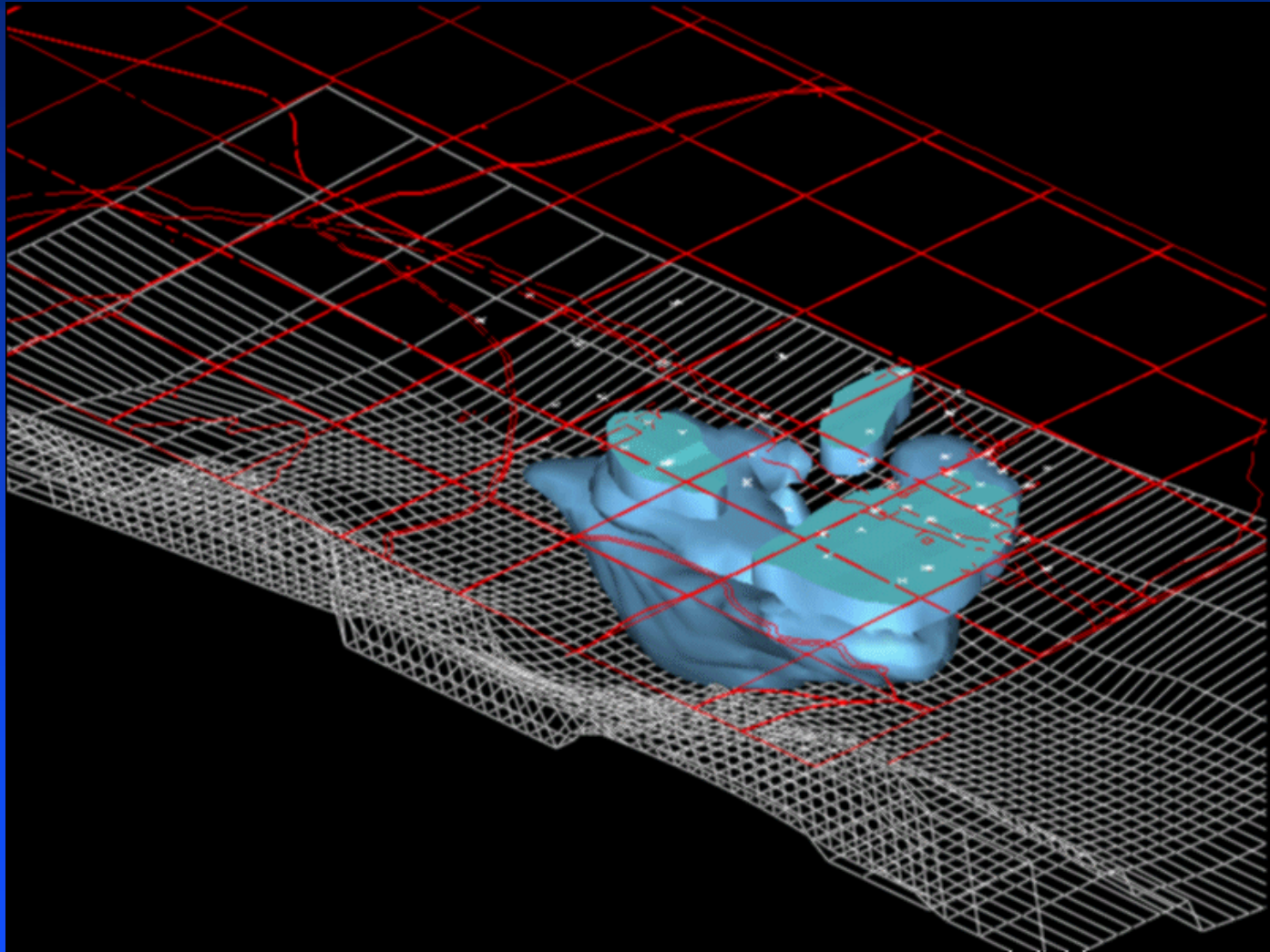
EPA & Participating Companies are now moving into the Final Remedy Phase



Extensive groundwater testing & monitoring



Computerized groundwater flow & transport model has been developed



Required Remedy- Alternative 1

- Central Groundwater Treatment Facility
- Soil Cleanup at Motorola
 - ◆ Area 12
- Soil Cleanup at Siemens
 - ◆ Area 7 & 8



Enhanced Remedy- Alternative 2

■ Required Cleanup Actions

- ◆ Scottsdale Central Groundwater Treatment Facility (CGTF)
- ◆ Soil Clean up at Area 7, 8 & 12

■ Cleanup Actions Conducted Voluntarily by the Participating Companies

- ◆ Miller Road Treatment Facility
- ◆ PCX-1 Extraction Well
- ◆ Another Scottsdale well (#6) connected to CGTF
- ◆ Groundwater Source Control at Areas 7 & 12
- ◆ Soil Cleanup at Area 6
- ◆ City of Scottsdale well 75A

Other alternatives that were modeled

3rd Alternative - Alternative 2 (Enhanced Remedy)
plus:

- One new MAU extraction well at Area 7
- One new LAU extraction well near the CGTF

4th Alternative - Alternative 2 (Enhanced Remedy)
plus:

- Two new MAU extraction wells at Area 7
- Increase rate of pumping at Area 12
- Three new LAU extraction wells

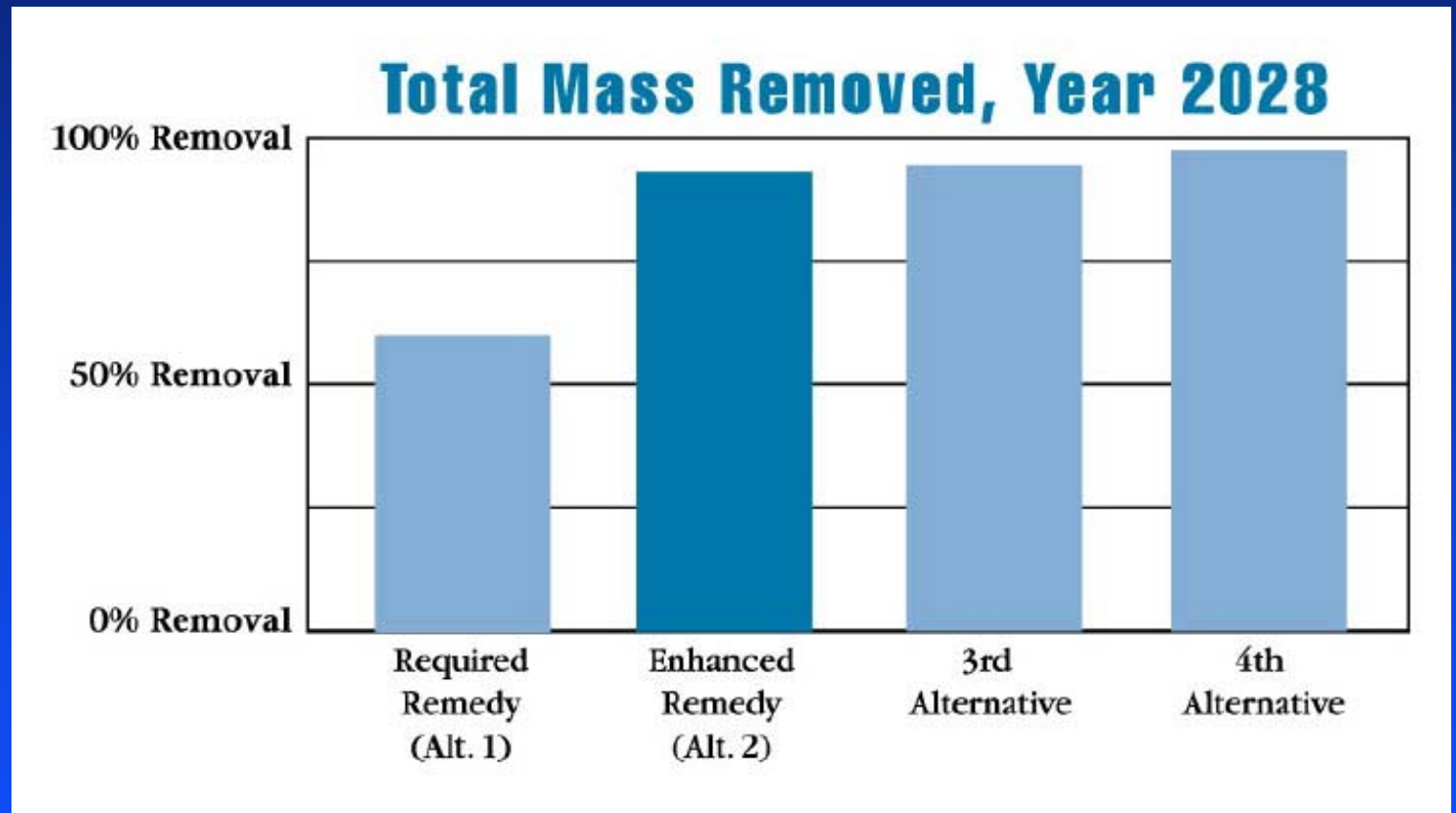
Review of Alternatives

- Developed through discussions with EPA
- Involved a systematic review of 14 possible cleanup actions
- Alternatives were evaluated using the National Contingency Plan (NCP) criteria

NCP Evaluation Criteria

- Protection of HH&E
- Compliance with ARARs
- Long-term effectiveness & performance
- Reduction of Toxicity, Mobility or Volume
- Short-term effectiveness
- Implementability
- Cost
- State Acceptance
- Community Acceptance

The Enhanced Remedy is Effective



FSA Findings

- Enhanced remedy is the recommended approach
- The other cleanup alternatives
 - ◆ Do not shorten the cleanup time
 - ◆ Do not remove significantly more VOC mass
 - ◆ Would be disruptive to the community

Traffic Disruption Problems Could Occur



Other problems that could occur

- Potential subsidence
- Effects on inorganic water quality
- Possible business disruption

Groundwater quality & groundwater resource management issues must both be considered



FSA Conclusions:

Enhanced Remedy will:

- Achieve capture & containment
- Effectively remove the TCE
- Restore many wells within 30 years
- Produce treated water which meets drinking water standards
- Cause influent concentrations of TCE to decline steadily over time

EPA is seeking public comment on the FSA

