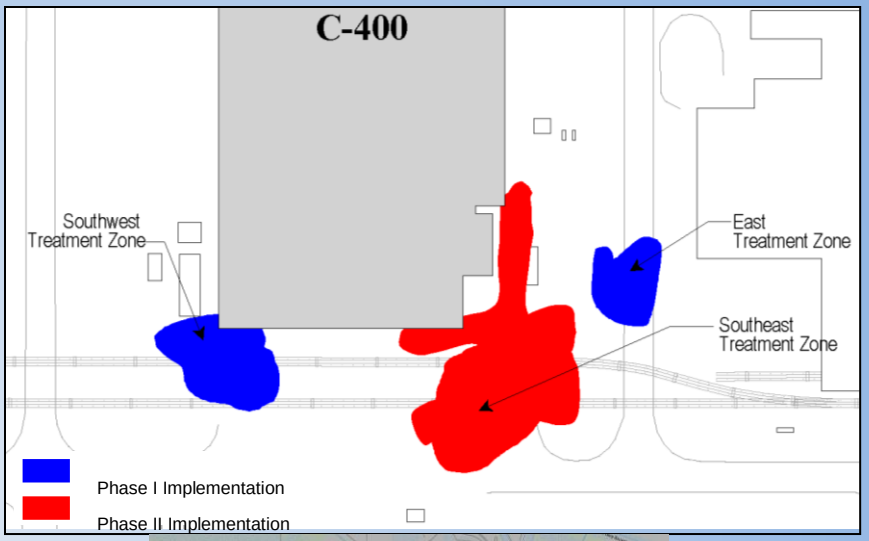
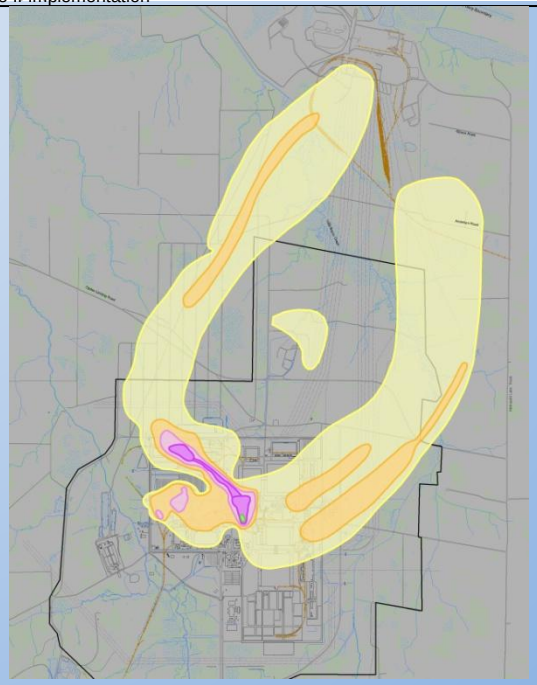
C-400 Status Update

- Phase I results
  - Attained cleanup objectives for UCRS in east and southwest treatment areas and upper RGA in southwest treatment area
  - Did not attain heating objectives in lower RGA
    - Key factors
      - » Groundwater flow velocity
      - » Low aquifer anisotropy and convective flow
- Phase II path forward
  - Split Phase II into:
    - IIa – UCRS / Upper RGA (20-60 ft bgs)
    - IIb – RGA (60-95 ft bgs)
  - Phase IIa to employ ERH in southeast treatment area
  - Phase IIb to employ alternate technology in RGA based on
    - Revised mass estimate for treatment zone
    - Hydrogelogic characteristics of RGA and contaminant distribution





C-400 Status Update

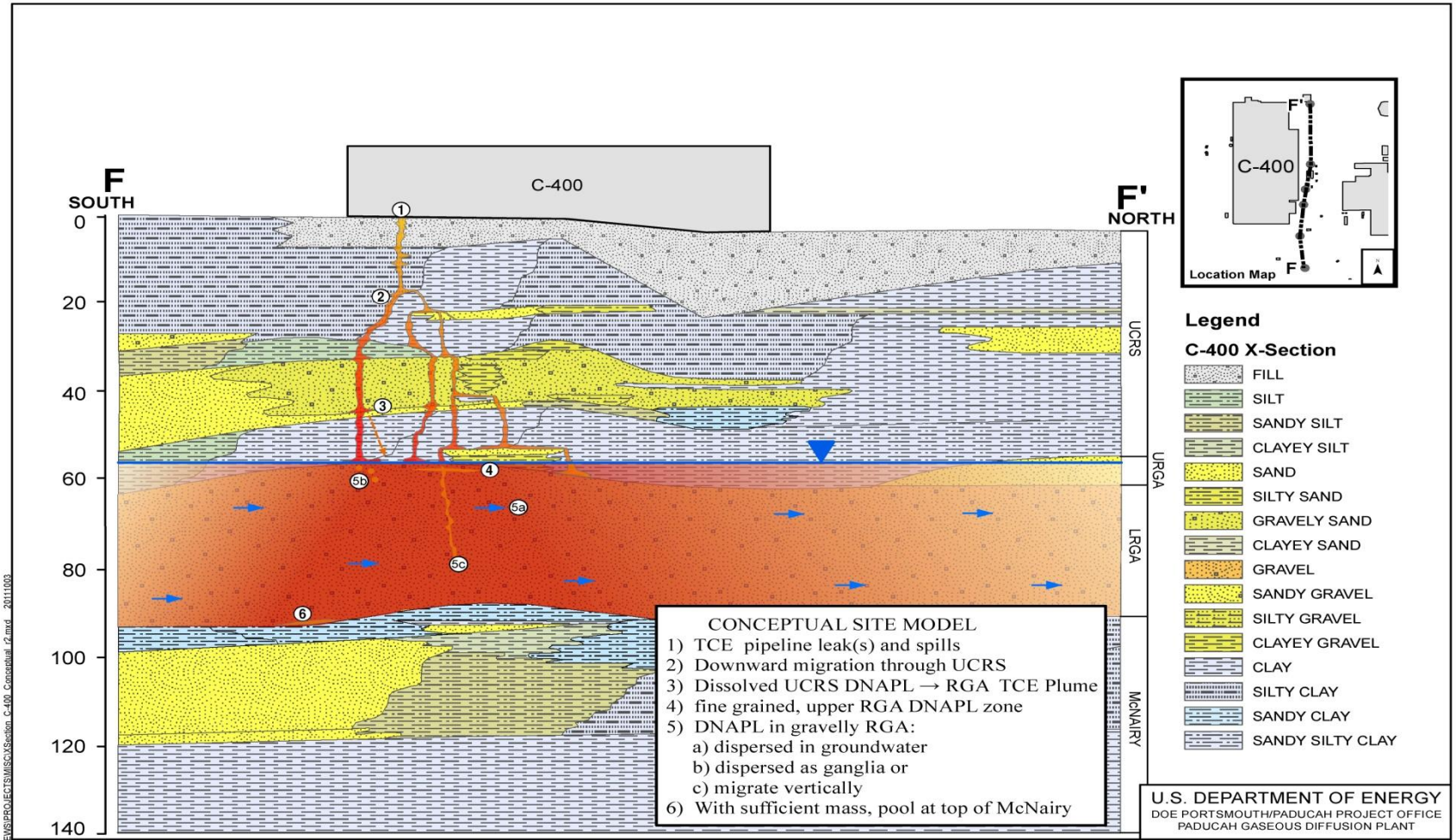
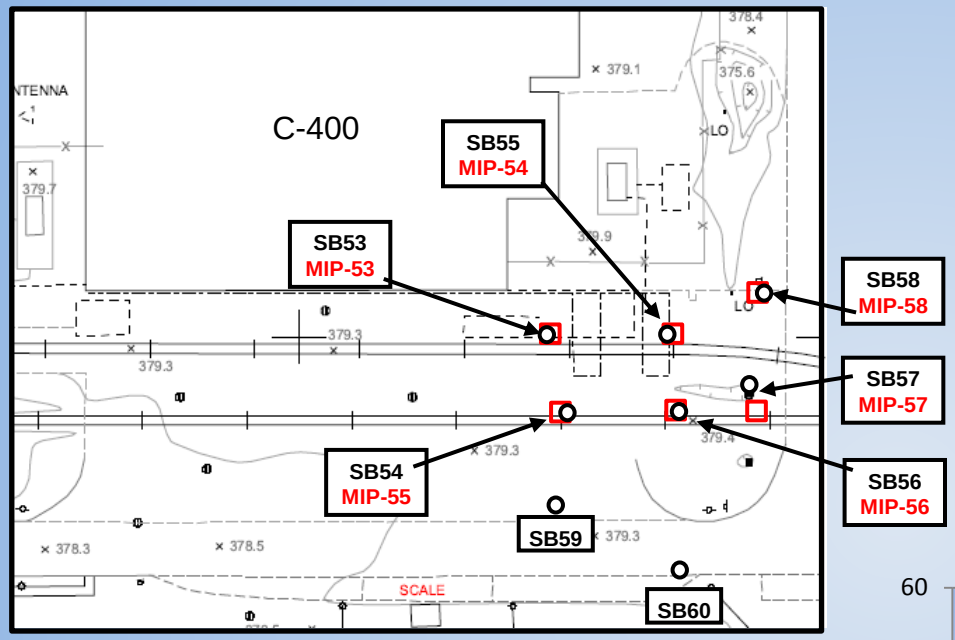
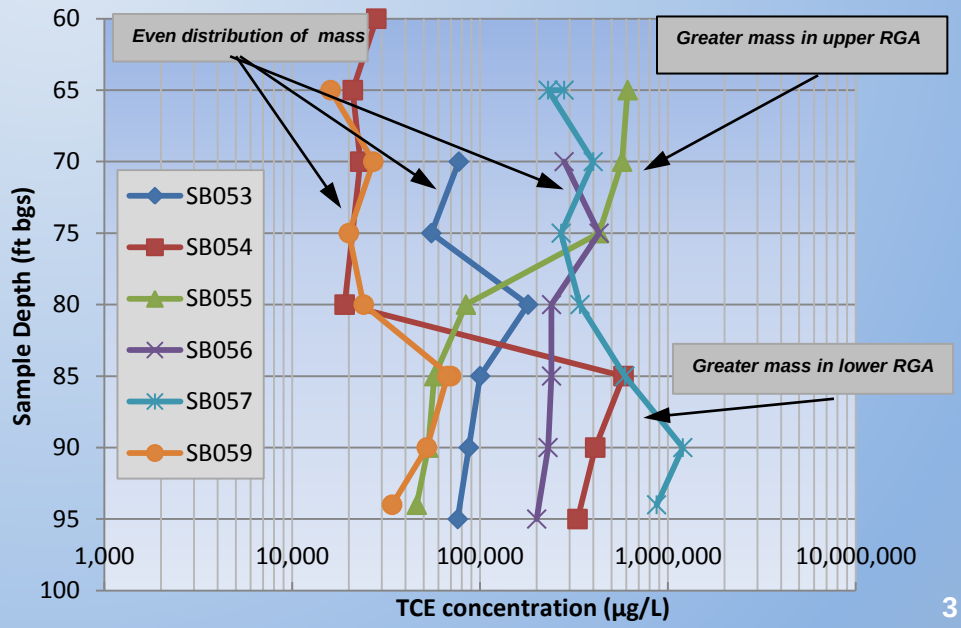


Figure A.4. C-400 Conceptual Site Model Cross-section View

C-400 Status Update





C-400 Status Update

Technologies Evaluated

Groundwater Extraction	Retained
Groundwater Recirculation	Retained
Air Sparging	Not Retained
Zero Valent Iron	Retained
Bioremediation	Not Retained
Soil Flushing	Retained
Electrical Resistance Heating	Retained
Steam Injection	Not Retained
Hot Air Injection	Not Retained
Hot Water Injection	Not Retained

C-400 Status Update

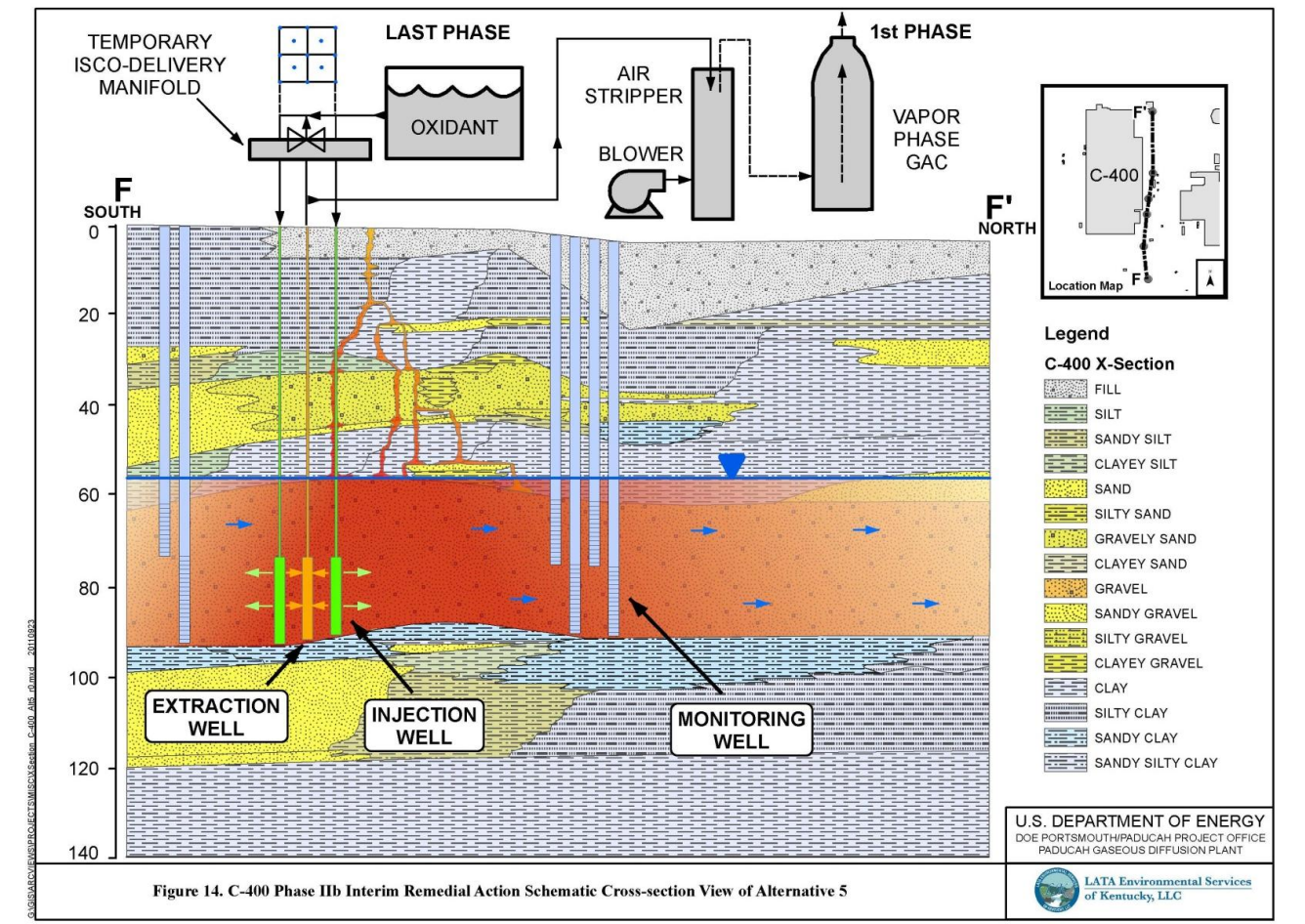


Figure 14. C-400 Phase IIb Interim Remedial Action Schematic Cross-section View of Alternative 5

Staged Groundwater Extraction and In Situ Chemical Treatment, e.g. Oxidation

C-400 Status Update

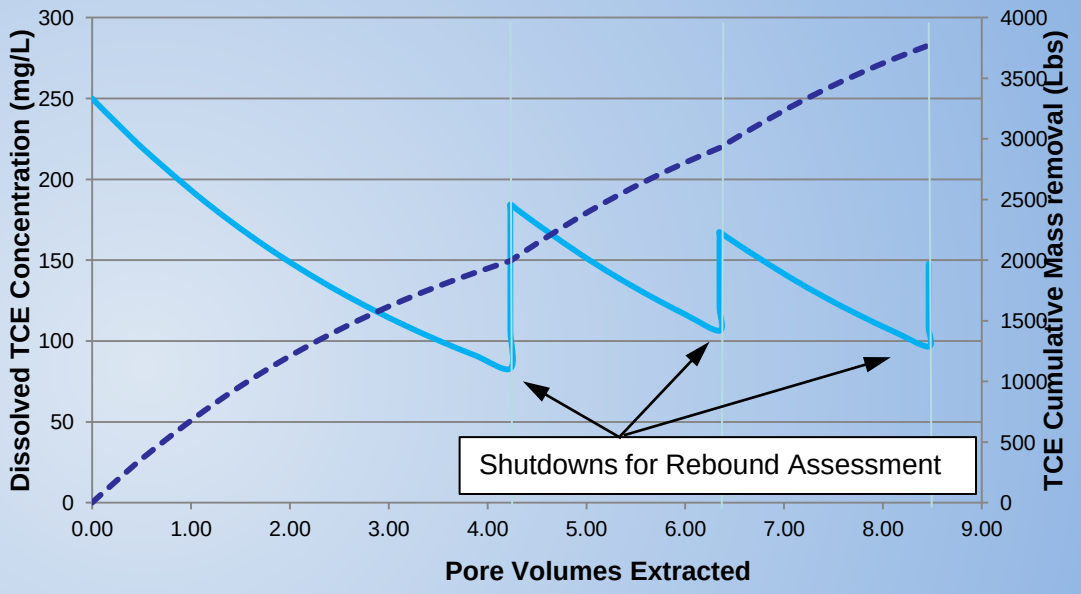
Staged groundwater extraction and *in situ* chemical treatment

- Cycled extraction and rebound assessment
- In situ chemical treatment, e.g., chemical oxidation

Advantages

- Application of multiple technologies
- Permeable nature of RGA is amenable to extraction and treatment agent delivery
- Rebound assessment allows focused delivery of treatment agent

Conceptual TCE Concentration and Mass Removal Trends from Pulsed Groundwater Extraction Approach



Key design factors

- Extraction rate – 80 gallons per minute
- TCE source mass/volume - 4,000 gallons
- TCE source mass distribution
- Aquifer oxidant demand
- Groundwater flow rate
- Treatment agent delivery method
- Timeframe for rebound and treatment agent reaction