Federal Remediation Technologies Roundtable

Where Does FRTR Go From Here?

Kent Glover, PhD

FRTR Steering Committee Chair and
Air Force Subject Matter Expert,
Remedial Systems

November 18, 2020

Remediation Technology 30 Years Ago

1990 Technologies for Site Characterization and Cleanup

- Adapted from related industries

Water Resources Investigations

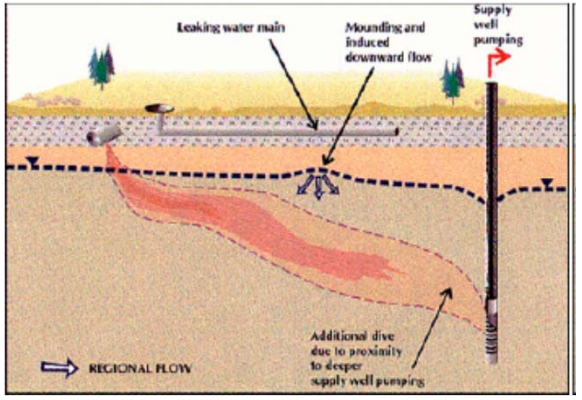
Water and Wastewater Treatment

- Often proved effective

  Identifying contaminant extent and receptors

  Controlling migration

  Reducing ongoing sources and hot spots



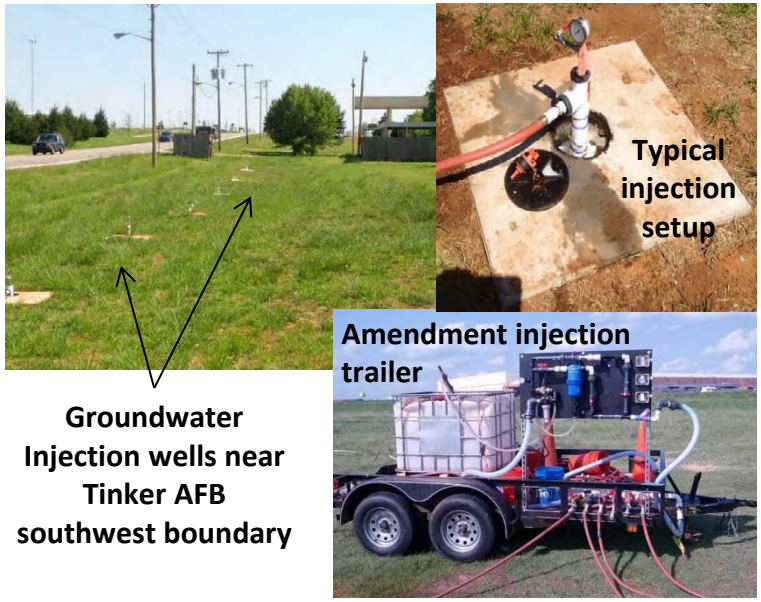
1990 Motivation for FRTR

- Challenges faced by Federal remediation agencies
  - Attaining cleanup goals in acceptable timeframes
  - Routine use of innovative technologies inhibited by lack of performance and cost data
  - Monitoring to demonstrate efficacy of remediation methods
- Federal agencies recognized value in collaboration to
  - Identify technology needs and priorities
  - Evaluate new characterization and treatment technologies
  - Advance innovative solutions to cleanup
  - Provide technology transfer

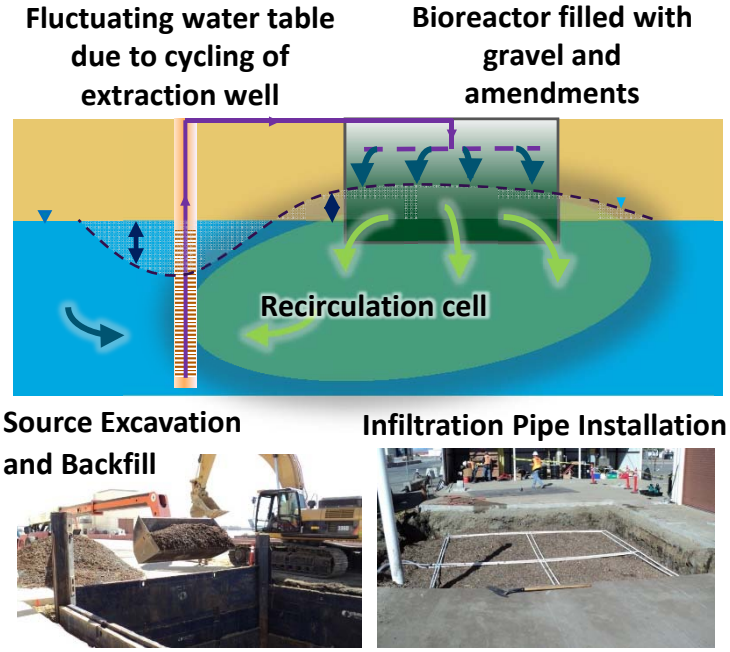
Today's World of Treatment Technology

- Increased use of in situ and destructive technologies for "traditional" contaminants (e.g., TCE, benzene, chromium)

Injection Well Biobarrier



Source Zone Reactor



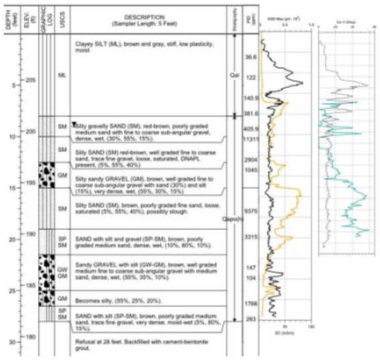
- Optimization and performance monitoring requirements have driven needs for refined conceptual site models

Today's World of Characterization Technology

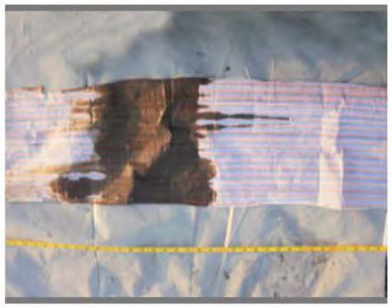
- What we learned
  - Contaminant fate and treatment are controlled by physical and biogeochemical processes at centimeter to meter scales
  - Examples: Preferential pathways, Back diffusion, Sorption, NAPL distribution, Chemical and biological reactions
- Many advances in characterization technology

  Matching measurement and process scales

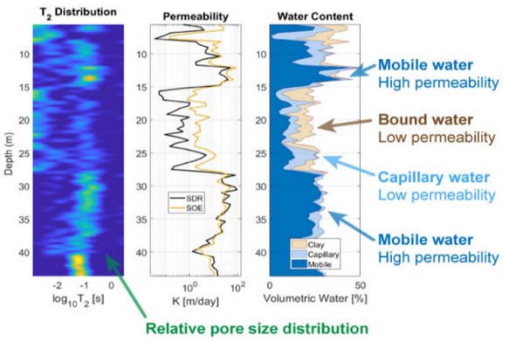
MIP-HPT-EC Profiling and Sequence Stratigraphy



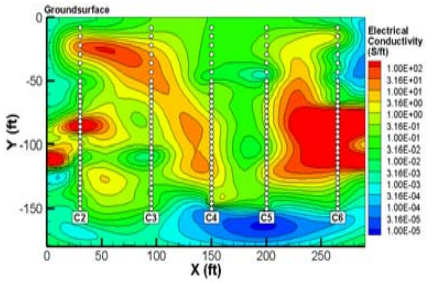
FLUTe NAPL Liner



Nuclear Magnetic Resonance



Electrical Resistivity Tomography



Work Remains for Current FRTR Initiatives

FRTR will continue to focus on today's technology needs

- Improving conceptual site models and optimizing remediation
- Site characterization and treatment of emerging contaminants such as per– and poly-fluorinated substances (PFAS)
- Advances in site characterization and remediation technologies for heavy metals and radionuclides in soil, sediments, and water, including those used at mine sites
- Mutual understanding of subsurface modeling and visualization capabilities and limitations
- Innovative methods to collect monitoring data and its analyses to assess the efficacy of remediation technologies and decisions
- Web-based strategies for improving technology transfer

Summarized in new FRTR Fact Sheet
"30 Years of Advancing Interagency Cooperation and Technology Innovation"

But Where are We Going?

- FRTR has benefited member agencies
  - The interagency forum for collaboration and technology transfer
  - Contributed to success advancing innovative technologies and solutions for widespread use in site cleanups
- BUT……. Remediation challenges continue to evolve
  - Emerging contaminants require new ways to characterize fate, understand health risks and attain effective treatment
  - Changes in site conditions due to local environmental and climatic change require new ways to ensure resiliency of remedies
- As we recall a 30-year legacy of successful interagency collaboration, FRTR will need to evolve
  - Refresh our dialog of shared technology challenges and priorities
  - Translate these requirements into specific collaborative initiatives to advance technical innovation and improve technology transfer

Refreshing the Dialog: FRTR 2021

- Preparations for the FRTR Spring Meeting start tomorrow
  - FRTR Steering Committee will engage agency senior leadership and technical experts to assist in setting future priorities
  - Discussions will be conducted face-to-face when possible
- Spring meeting will emphasize panel discussions and workgroups
  - Fewer presentations in the traditional FRTR format
  - Perspectives provided by senior leadership will be important

Spring Meeting Goal

- **Identify and prioritize current and emerging technical challenges to environmental cleanup shared by member agencies**
- **Refine current FRTR initiatives and identify new initiatives to improve collaboration, and advance technical innovation and technology transfer**

Stakeholder Input

- Who?

  Agency employees and other stakeholders in Federal agency remediation technology

- Why?

  Work day-to-day addressing technology challenges

  Your input is critical and encouraged

- How?

  Through normal agency channels

  Contact FRTR Steering Committee members

  Feedback through link for this webinar

Suggested Ideas and Possible Topics

Download from today's webinar

Available at www.frtr.gov

FRTR Vision for Spring 2021

Enhance understanding among senior leadership and remediation professionals of current and emerging technical challenges to environmental cleanup shared by FRTR member agencies

Translate shared technical challenges into collaborative FRTR initiatives that advance technical innovation and enhance technology transfer

See you at the FRTR 2021 Spring Meeting