Integrity - Service - Excellence

FRTR Platform for Future Collaboration

FRTR 25 Years in Review
Agency Round Table Discussion
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Restoration Challenges: Post 2021

Groundwater remediation at a small number of sites will dominate post-2021 costs

- 31 sites: ~50% of total cost to complete (CTC)
- 60 sites: ~70% of total CTC

Most are high risk/complexity sites

- Large dilute contaminant plumes that degrade slowly (e.g. EDB, TCE)
- Proximity to base boundaries or urban infrastructure increases migration risk and remediation cost
- Complex subsurface conditions impede contaminant treatment or removal (e.g. low or heterogeneous permeability, entrapped & residual NAPL)

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Key Research Needs

Complex Groundwater Sites

- Preferential migration pathways – Cost effective mapping at plume & remedial-system scales
- Enhanced back diffusion & treatment in low permeability, fractured and heterogeneous media
- Cost effective cleanup of large dilute plumes
- NAPL and deep vadose zone sources – preferential mass transfer, treatment or stabilization of risk drivers

Emerging Contaminants (e.g. PFCs)

- Understanding key data gaps – Potential for expanding plume footprints, risk drivers and complex site characteristics

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Technology Development: Recent Dem/Val Projects

Complex Groundwater Sites

- DNAPL source zones: Enhanced mass transfer with chemical or biological treatment (JBLE, JBMDL)
- Dilute plumes: EDB bioremediation (Kirtland, MMR), cVOCs biogeochemical transformation (Edwards)
- Preferential migration pathways: Pending 2015 awards

Emerging Contaminants

- 1,4-D biodegradation (Vandenberg, AFP3,JBMDL)
- PFCs fate, transport & treatment (Ellsworth, JBLE, Barksdale, Cape Canaveral, Robbins, Beale)

Munitions Response Sites

- Soil washing & separation for metals recovery (pending)

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