INNOVATIVE DESIGN APPROACH FOR INTERIM MEASURES AT THE TAR CREEK SUPERFUND SITE

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Agenda

• Site Background
• Interim Measures Objectives
• Site Conceptual Model
• What is a Toolbox Design Approach?
• Identification of Site-Specific Design Areas (SSDAs)
• Application of Toolbox Tools
• Advantages and Success Criteria for Toolbox Design Approach
Site Background

- Located in northeast Oklahoma
- Historical mining operations to recover lead and zinc ore
- Source material (chat) piles within Tar Creek and Lytle Creek watershed (OU4)
- Source material within close proximity of creeks are of most concerns
- Approximately 40M CY of source material over 3600 acres
Interim Measures Objectives

• Defined in ROD
  • IM “installed to control near-stream source materials in order to help prevent contamination from migrating to surface water.”

• Why are IMs needed?
  • Will take decades to implement permanent remedy
  • IMs geared for mitigating bulk contaminant migration
What is a Toolbox Design Approach?

- “Tools” are features that can be implemented alone or in combination
- Design Drawings (Sections & Details) Prepared with Generic Layouts or Variety of Possible Layouts
- Site-Specific Drawings Prepared to Depict Detailed Site Conditions and be Paired with Tool Box Drawings
Site-Specific Design Areas (SSDAs)

- Ten SSDAs identified for site investigation/recon, involving proper team members
  - Installation of 13 Geotechnical borings
  - 4 to 6 hours per site
  - Photo documentation with GPS coordinates
  - Inspection of riparian vegetation, delineation of proposed work areas, proposed tool locations
- Surface water modeling determined flood elevations
List of IM Tools

- Primary Tools
  - Excavation
  - Stabilized Cover
- Secondary Tools
  - Berm/Upland Sedimentation Basin
  - Creek Excavation/Sediment Trap
  - Wetland Buffer
  - Stone Revetment
- Supporting Tool
  - Solider Pile & Lagging Wall

- Value Engineering Screening performed on tools
• Spreadsheet that guides tool selection based on site conditions at future IM candidate sites

The Matrix

• Example criteria:
  • Pile height & distance from creek for exposed source material
  • Reliability of site topography
  • Access to creek while minimizing riparian vegetation removal
  • Location of excavations relative to creek
  • Geotechnical site conditions
  • Floodwater elevation
## Summary of IMs for SSDAs

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<th>SSDA</th>
<th>Associated Major Pile(s)</th>
<th>Upland Excavation</th>
<th>Stabilized Cover</th>
<th>Berm/Upland Sedimentation Basin</th>
<th>Creek Excavation/Sediment Trap in Creek</th>
<th>Wetland Buffer</th>
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Advantages of Toolbox Design Approach

- Adaptable approach creating bid-ready designs implemented under various site conditions, sizes, and funding constraints (1 year duration for design of 9 sites)
- Minimizes time and cost of preparation of future designs (start at 60% phase)
- Works well for large “mega-sites” with long remediation durations
Criteria for Success of Toolbox Design Approach

• Be flexible and agile & get the right team members involved
• Be aware of scope creep
• Facilitate decision making, despite data gaps
• Frequent & precise communication....... but beware of iterative loop
Acknowledgements

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