Long-Term Remediation of the Moab UMTRA Project

Russell McCallister
Federal Cleanup Director
Moab UMTRA Project

Track 2.2
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Moab Site Background and History

• Moab mill constructed in 1956

• Site operated from 1962 to 1984; filed for bankruptcy in 1998

• Regulated by U.S. NRC

• Ownership of mills site transferred to U.S. DOE in 2001

Circa 1966
Moab Site Background and History

- Located about 3 miles northwest of Moab, Utah
- 480-acre site; 130 acres covered by uranium mill tailings pile
- Largest uranium mill tailings pile to be relocated in the world
- Toe of pile is 750 feet from west bank of Colorado River
Project Scope

• Relocate uranium mill tailings and other contaminated materials from Moab site to Crescent Junction for permanent disposal
  • Predominantly by rail

• Actively remediate groundwater at the Moab site

• Remediate properties in vicinity of Moab that exceed U.S. EPA standards
Current Status

• Currently shipping 144 containers per train, two trains per week

• Through July 2018, more than 9 million tons of mill tailings (~58 percent of total) has been shipped and disposed
Process Cycle in Moab
Moab Site Challenges

Debris removal

Low Colorado River level
Crescent Junction Disposal Site

- Cell is about 5,200 feet long by 2,400 feet wide
- Cell excavated in phases
- Tailings depth is 50 feet total, 25 feet below grade, 25 feet above
- 9-foot-thick, multi-layer cover
Process Cycle in Crescent Junction

1. [Image of lorries and cranes]
2. [Image of soil being dumped]
3. [Image of construction site]
4. [Image of site cleared]

1 2 3 4
Disposal Cell Composition

- Once the final grade for tailings material is met, interim cover is placed on portions of the cell.

- The cell’s cover consists of multiple layers of soil and rock.

- The rock for the biointrusion layer and the uppermost layer is being quarried to meet NRC specifications for durability, and is being hauled from Fremont Junction, Utah.
Crescent Junction Hurdles

- Expensive cover
- Rock sourced from more than 90 miles away
- Is there a better way to place materials?
Other Approaches?

- Identify causes that prevent covers from performing their best

- What are other sites using?
  - Vegetative
  - Hybrid

- Design/construction/materials successes