Transportation, Aging and Disposal Canister: Considerations for a High-Level Waste Repository

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Outline

- Canister-based concept for proposed Yucca Mountain Repository
- Preclosure considerations
- Postclosure considerations
- Summary

TAD Canister in the GROA

- Canister arrives in NRC-certified transportation casks
- Canister transferred to waste package or aging cask
- Aging cask placed on aging pad
- Waste package emplaced in drifts
- Permanent closure

Preclosure Considerations

- Preclosure Safety Analysis
  - Identify potential hazards, initiating events, event sequences and consequences
  - Identify whether TAD canister is important to safety
  - Identify measures to ensure availability (reliability)
- Potential Areas for Consideration
  - Handling and movement of canister
  - TAD canister in the aging system

Postclosure Considerations

- Postclosure Performance Assessment
  - Identifies features, events and processes and examines their effects
  - Will determine importance of TAD canister to waste isolation
- Potential Areas for Consideration
  - Effect on spent fuel dissolution
  - Effect on barrier capability of fuel cladding
  - Exclusion of criticality event

Summary

- For repository, importance of the TAD canister determined by preclosure safety analysis and postclosure performance assessment
- Drivers for TAD canister design specifications
  - Importance for repository handling and disposal
  - Requirements for transportation
  - Requirements for interim storage, possibly
- Integration of technical requirements under the different regulatory frameworks needed