SRS Spent Nuclear Fuel Management Alternatives

Presentation to the Nuclear Waste Technical Review Board

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Current Management Approach

- Continue Safe Wet Storage

- Process up to 1000 bundles and 200 High Flux Isotope Cores

- Continue Operations of L-Basin evaluated by SRNL for safe usage of L-Basin up to an additional 50 years
Processing in H-Canyon

• Successfully completed the Sodium Reactor Experiment Fuel Campaign in August 2014
  • 147 bundles of SRE and High Aluminum Fuels
  • No recovery of Uranium due to U-232

• Amended Record of Decision allows:
  • Processing up to 1000 bundles and 200 High Flux Isotope Cores
  • 15 bundles completed through October 20, 2014

• H-Canyon continued processing of the Aluminum Cladded Fuel in L-Basin is possible but no decision has been made to pursue this at this time

• H-Canyon cannot process the Stainless and Zircaloy cladded fuels stored in L-Basin (~ less than 10% of the inventory)
Idaho/SRS Fuel Exchange

• Exchange is currently suspended
  • Aluminum cladded fuel from Idaho would be shipped to SRS
  • Non-aluminum cladded fuel from SRS would be shipped to Idaho

• Repackaging of the Non-aluminum cladded fuel for transportation would be required at SRS
  • Majority of this fuel is known to be compromised (pitted/corroded)
  • Would require an isolation system for repackaging to ensure integrity of the basin water chemistry

• Transportation packaging would have to be identified to work at both locations
Dry Storage

• SRS lifecycle assumes dry storage
  • No decision on processing
  • It is the more costly option for capturing liability costs

• Dry Storage Study was conducted in 2012
  • Included information from both Hanford and Idaho
  • Direction was to include as much “commercially available” options as possible
  • Direction was also to assume the final configuration of the fuel was “road ready” (for shipment to a repository)

• Concerns regarding the drying of Aluminum Fuel need to be addressed:
  • How long to dry, how fast to dry to ensure no generation of hydrogen or hydrides
Dry Storage (continued)

- **Storage Pad**
  - Dry Storage Report envisioned the pad located in L-area
  - Another report is evaluating the use of a multi-use storage pad

- **Multi-use storage Pad**
  - Very preliminary study
  - Storage of both Vitrified Glass logs in concrete overpacks as well as dry fuel in concrete overpacks
  - Considers a Central location within the site
  - Major driver for multi-use pad is potentially reduced transportation costs and shared storage costs
  - Difficult to determine any cost savings due to the potential need for fuel drying in a different location from L-Area.
Summary

• Fuel is Safely Stored in L-Basin

• Some processing of Fuel is occurring in H-Canyon

• Alternatives to wet storage have been evaluated

• Departmental Decision needed on future direction of fuel storage versus processing