Presentation to the SRS Citizens Advisory Board

Alternative Storage of Vitrified Waste Canisters: Canister Interim Storage Project (CISP)

July 24, 2012

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Acronyms

- CISP – Canister Interim Storage Project
- CISC – Canister Interim Storage Container
- CISCC – Canister Interim Storage Container Carrier
- CTS – Canister Transfer Station
- DWPF – Defense Waste Processing Facility
- GWSB – Glass Waste Storage Building
- SCT- Shielded Canister Transporter
- SRS – Savannah River Site
Purpose

- Discuss storage of vitrified high level waste canisters produced by the Defense Waste Processing Facility (DWPF)
- Discuss the most promising storage alternative to a Glass Waste Storage Building
- To fulfill the Waste Management Committee 2012 Work Plan topic
Background

- Additional storage for vitrified high level waste canisters is needed by December 2016.

- A 3rd Glass Waste Storage Building (GWSB #3) has high upfront costs:
  
  Total Project Cost Range:
  
  $96 - $138 Million

- SRS pursuing a lower cost alternative - impacts to the public and environment are less than or equal to that of existing GWSBs.

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Alternatives Analysis

- Alternatives Analysis was conducted:
  - GWSB #3 with an option to increase capacity to 3,000 canisters
  - Above grade cask storage
  - Additional options

- Final Report issued January 17, 2012
  - “SRS Dry Cask” Alternative selected for further development
  - Based on commercial spent nuclear fuel dry storage concept
Alternatives Analysis – Up Front Cost Comparison

- Cask Options include: vertical or horizontal w/ shielding only, licensable, or NRC licensed
- Hanford Open Rack – underground open vault – cans stacked 2 high
- GWSB – underground concrete vault with individual canister supports
Alternatives Analysis – Life Cycle Comparison

Life Cycle Cost

- SRS Dry Cask
- Hanford Open Rack
- SRS Dry Cask - Licensable
- GWSB#3 Baseline
- SRS Dry Cask - Horizontal
- Modular GWSB
- Hanford Dry Cask
- West Valley Dry Cask - Licensed
SRS Storage Alternative - Development/Decision

- Titled: Canister Interim Storage Project (CISP)

- Conceptual Design Prepared - Feb – May 2012
  - Define scope and prepare conceptual design drawings (~5% of total design)
  - Perform risk assessment
  - Prepare a preliminary hazards assessment
  - Prepare schedule and cost estimates
  - Reduces risk by supporting more accurate cost estimates for all project scope
Canister Interim Storage Project

- Use existing Shielded Canister Transporter (SCT)
- Remove ~ 3000 lowest radiological dose canisters from GWSB #1 and #2
CISC - Canister Interim Storage Container

- Concrete-reinforced with 30” wall x 12’ diameter x 15.5’ high
- 106 tons empty; 126 tons w/7 canisters
- Safety: Preliminary analysis indicates mass, low center of gravity, and height-to-diameter ratio, CISC will not tip during high winds or a tornado and cannot be significantly damaged by missiles. Seismically safe configuration.
- Not licensed for shipment
CISP – Canister Transfer Station & Carrier

- Shielded Canister Transporter (SCT) will remove canister from GWSB and transport canister to Canister Transfer Station (CTS)
- SCT will place 7 canisters into the container in the CTS
- Carrier will move container to storage pad
Proposed CISP Site Plan

- Reinforced concrete pad 18” thick x 350’ x 350’ for 430 containers
- Canister Transfer Station (CTS)
Alternative Storage of Vitrified Waste - Conclusion

- DOE Reviewed Multiple Alternatives for Storage
  - Upfront costs of GWSB #3 are not supported by out year budget projections
  - Other safe storage options provide opportunity for improved cash flow and lower overall costs
  - Above ground storage option developed – Canister Interim Storage Project (CISP)

- Next step – Selection of Preferred Alternative

- Projected path forward:
  - FY 13 – Design Start
  - FY 14 – Long-Lead Procurement Start
  - FY 15 – Construction Start
  - FY 16 - Ready for Operations