



U.S. DEPARTMENT OF
ENERGY

OFFICE OF
**ENVIRONMENTAL
MANAGEMENT**

Overview of Spent Nuclear Fuel and Tank Waste Program at the Savannah River Site

Nuclear Waste Technical Review Board Meeting

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U.S. DEPARTMENT OF
ENERGY

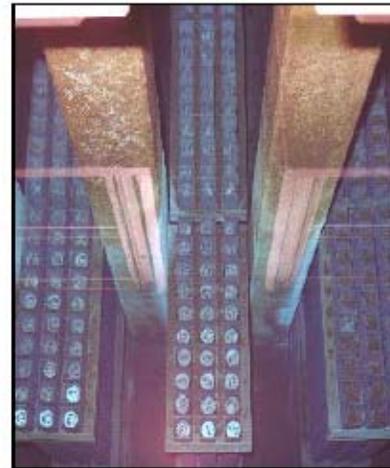
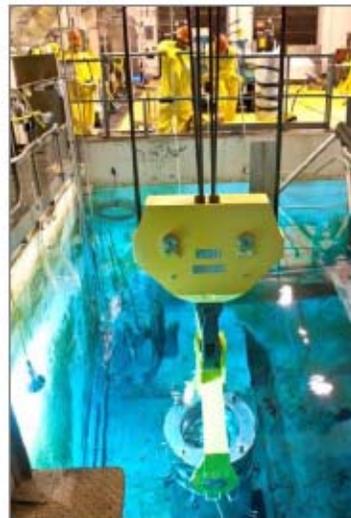
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Outline

- Savannah River Site (SRS) Spent Nuclear Fuel (SNF) Program
- SNF Corporate Board
- SRS Tank Waste Program
- Tank Waste Corporate Board
- Summary

Spent Nuclear Fuel Program

- SRS SNF Mission:
 - The Office of Environmental Management receives SNF from Domestic Research Reactors (from many different government and university research reactors) and Foreign Research Reactors (from a number of foreign countries) at SRS
 - L-Area Complex safely and securely stores this SNF, as well as legacy fuel from the Site's production reactors, pending disposition, and to support the Department's non-proliferation objectives



Fiscal Year 2014

- Continued receipt of Research Reactor SNF
- Continued preparation for receipt of Canadian Target Residues and SNF - project initial receipts in 2015
- Signed a Statement of Intent (April 1, 2014) with German Government on possibility of receipt and disposition of German pebble bed research reactor fuel containing U.S. - Origin Highly Enriched Uranium
 - Issued a Notice of Intent (May 29, 2014) to prepare an Environmental Assessment
- Completed dissolution of the Sodium Reactor Experiment Fuel (potentially vulnerable to long-term wet storage)
- Began processing of aluminum-clad SNF

SNF Management Challenges

- Deteriorating infrastructure and fiscal challenges to fund necessary improvements
 - Efforts are underway to evaluate and determine how to improve progress on deferred maintenance of SRS nuclear materials facilities to support mission
- Integration of liquid waste system to support SNF processing
- Uncertainty regarding long-term storage and disposition options

Complex-wide coordination of SNF by establishing Spent Nuclear Fuel Corporate Board (SNFCB) in 2014

- Co-chaired by Offices of Environmental Management and Nuclear Energy
 - Office of Science, Naval Reactors, and Global Threat Reduction
 - DOE field sites that manage DOE SNF
- Scheduled kick-off meeting in November 2014, in Idaho Falls
 - Identify issues that would benefit from SNFCB involvement
 - Promote SNF activities as “one DOE”
 - Establish working relationships with other cross-cutting organizations, such as Tank Waste Corporate Board

SNF Corporate Board - Goals

Spent Nuclear Fuel Corporate Board Goals are to:

- Promote integration and issue resolution across the DOE complex
 - Strategic planning and policy development
 - Cost-effective implementation of decisions
 - Consistency across the DOE complex
 - Efficient knowledge exchange

SNF Corporate Board - Objectives

SNF Corporate Board Objectives Include:

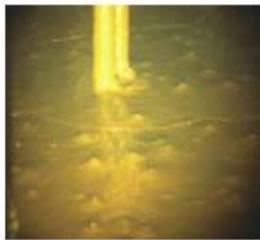
- Develop complex-wide policies for storage, retrieval, packaging, transportation, technology development, processing, and/or disposal
- Integrate and leverage DOE SNF management and disposition activities across the complex
- Work to develop waste acceptance criteria for a future repository
- Support non-proliferation goals
- Interface with National Transuranic Waste Board, Tank Waste Corporate Board, and other Department entities
- Oversee complex-wide database of DOE's SNF

Tank Waste Program

The SRS Tank Waste Program Mission:



Salt Supernate



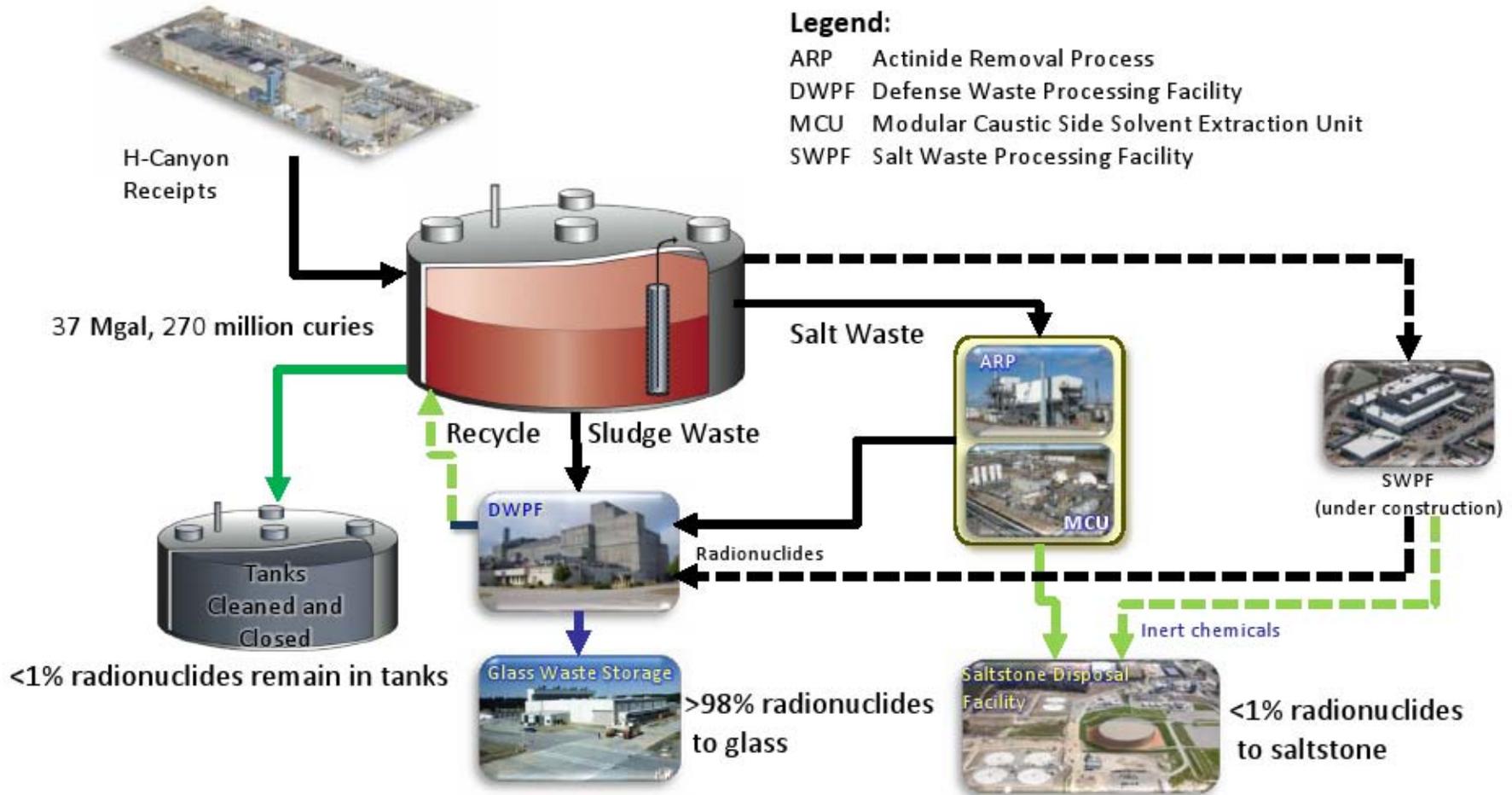
Sludge



Safely Stored

- Safely managing 37 million gallons of radioactive liquid tank waste to be treated and stabilized for final disposition
- Empty, clean, and close underground radioactive waste tanks
 - Of 51 tanks, 6 have been closed per regulatory standards and agreements
- Operate major nuclear facilities to treat and dispose of waste:
 - ARP/MCU – Waste is separated into high and low activity fractions
 - DWPF – High Activity fraction is vitrified for eventual geologic disposal
 - Saltstone Production Facility – Low activity fraction is grouted and disposed on site.

Key Liquid Waste Facilities



Fiscal Year 2014

- Produced 126 canisters of vitrified HLW
- Operated ARP/MCU to disposition 530,000 gallons of salt waste
- Continued closure activities on Tanks 12 and 16
- Continued construction of Saltstone Disposal Unit 6
- Continued infrastructure upgrades and modifications to support future SWPF start-up

Tank Waste Challenges

- Commissioning of SWPF – DOE has not commissioned and started up a major radioactive processing facility in years
- Ability of the tank waste processing system to provide sufficient salt feed to SWPF
 - SWPF will have the ability to process up to 9 million gallons of salt waste per year
 - Current planning capacity based on funding targets would only provide 3 to 4 million gallons of salt feed to SWPF for the first 3 years and not reach 9 million gallons until 2025
- Regulatory challenges:
 - We have partnered with SCDHEC to close 6 tanks to date, closing the last 2 (Tanks 5F and 6F) earlier than their commitment dates.
 - However, multiple enforceable agreement milestones regarding the emptying and closing of tanks are in jeopardy of being missed due to the delays associated with SWPF and funding reductions
- Uncertainty regarding long-term storage and disposition

Tank Waste Corporate Board

Established Tank Waste Corporate Board in 2013

- Team includes DOE, Contractor Managers, and technical experts from EM Headquarters, field sites, and national laboratories
 - Collaborative setting for technical investigation and information sharing
 - Functions as a senior coordinating group to formulate and coordinate implementation of an effective and efficient national Tank Waste program

Tank Waste Corporate Board (Cont.)

- The Board focuses on strategic planning; technology development; technology insertion points; tank closure plans; technical reviews to support project management; and strategies for ensuring disposal paths
- The Board serves as a liaison with the Office of Science, the Environmental Protection Agency, and the Nuclear Regulatory Commission for Tank Waste activities
- The Board emphasizes approaches for the preparation of performance assessments; technology and technical issue reviews; and working with other Offices in EM and DOE on a final disposition for treated HLW

- DOE endorsed key principles of BRC's recommendations (January 2013) – legislation needed for implementation
 - Pilot-scale interim storage facility, 2021
 - Consolidated interim storage facility, 2025
 - Geologic repository, 2048
- Process limited amount of aluminum-clad SNF at SRS
- Minimal impacts to DOE on near-term SNF/HLW management
 - Continue to manage safely
 - Comply with site-specific agreements
 - Continue to develop new, improved, and cost-effective technologies
- Prolonged storage must be anticipated