U.S. DEPARTMENT OF ENERGY | Savannah River Site

European Featured Site: Sellafield

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EM Missions and Priorities

"Complete the safe cleanup of the environmental legacy brought about from five decades of nuclear weapons development, production, and Government-sponsored nuclear energy research."

- Activities to maintain a safe, secure, and compliant posture in the EM complex
- Radioactive tank waste stabilization, treatment, and disposal
- Used nuclear fuel storage, receipt, and disposition
- Special nuclear material consolidation, processing, and disposition
- High-priority groundwater remediation
- Transuranic and mixed/low-level waste disposition
- Soil and groundwater remediation
- Excess facilities deactivation and decommissioning (D&D)
- New missions

Getting the job done

Proven track record = sustained public confidence in SRS people and capabilities

Cleanup solutions that resolve the nuclear waste legacy

- Turning radioactive liquid waste to a solid, safe form for disposal since 1996 (just over 3000)
- Disposing of salt waste (1.2 million gal CY10)
- Emptying and closing radioactive waste tanks
- Completing disposal of solid waste (>30,000 drums of TRU waste dispositioned), over 50% total legacy TRU waste volume at SRS
- Protecting groundwater with state-of-the-art technologies developed at SRNL
- Single integrated cleanup of large contaminated areas, saving $$ and time
- Decommissioned 260 facilities, or over 2.5 million square feet
- Remediated 375 of 515 soil and groundwater waste units

Gateway for nationwide nuclear materials consolidation / ultimate disposition

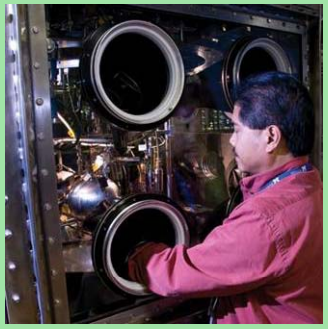
- Maintaining critical infrastructure and capabilities (H Canyon, K Area)
- Placing nuclear materials in a form for reuse or safe disposal
- Recycling uranium for commercial power production
- De-inventory and shutdown of other facilities to reduce cost and enhance security

H Canyon

K Area Complex

Continuing vital missions for national security and energy independence

- Converting plutonium to produce electricity
- Homeland security
- Biofuels production
- Center of excellence for hydrogen technology
- Recovering tritium to maintain our nation's defense



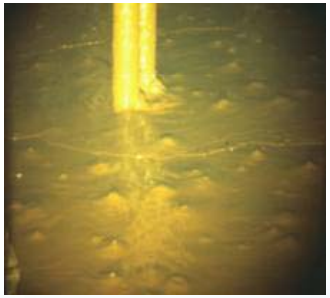
Tritium Facilities

Liquid Waste Operations

- LW contractor is Savannah River Remediation LLC (SRR)
- Contract focus:
  - Managing 37 million gallons of radioactive liquid tank waste to be treated and stabilized for final disposition
  - Emptying, cleaning and closing radioactive waste tanks
  - Operating major nuclear facilities to treat and dispose of waste
  - Interim salt waste processing system has dispositioned ~475,000 gallons this year
    - SRS is the only DOE site processing salt waste

Saltcake

Salt Supernate



Sludge

Safely Stored

Liquid Waste Facilities

Saltstone Production Facility

- Vast majority of waste volume from tanks – but few curies – are left in SC
- Those left in SC are disposed at the Saltstone Production Facility
  - –Safely stabilizes low-level radioactive liquid salt wastes
  - –Salt solution stabilized by mixing it with cement, fly ash and slag
  - –Resulting grout mixture is mechanically pumped into concrete disposal units, called Saltstone Disposal Facility
  - –Grout solidifies into non-hazardous low-radioactive waste form called "saltstone"

Defense Waste Processing Facility

- Little waste volume goes here, but almost all curies dispositioned at DWPF
- World's largest vitrification plant
- Over 3,000 canisters filled. DWPF has poured more than 11.7 million gallons of glassified waste
- Entire 37 million gallons of waste in the tanks awaiting disposition has about 340 million curies of radioactivity

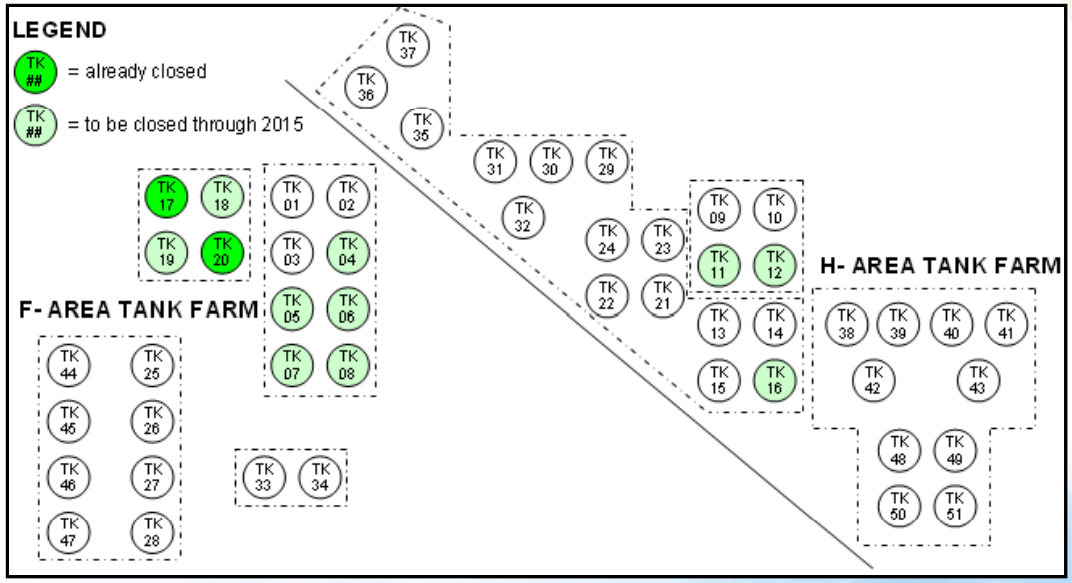
Interim Storage of Canisters

- DWPF Glass Waste Storage Buildings
  - *–- GWSB 1 contains 2,244 canisters*
  - *–- GWSB 2 currently contains 800 canisters (capacity for 2,340)*
- Underground reinforced concrete vaults
- Seismically qualified
- Designed for safe interim storage

2015 Cleanup Vision

Building on the ARRA momentum

- ✓ **Reduce Savannah River tank waste treatment mission by up to 6 years and $3.2Billion in life-cycle costs:**
  - ✓ Rotary Microfiltration and Small Column Ion Exchange fabrication, installation and operations,
  - ✓ ARP/MCU equipment/process life extension and extended operations with next generation extractant,
  - ✓ Salt Waste Processing Facility (SWPF) performance enhancement,
  - ✓ Saltstone enhancements



2015 Cleanup Vision cont.

✓ Continue construction of Salt Waste Processing Facility:

Complete SWPF CD-4. Currently negotiating with regulators to set startup completion milestone at end of October 2015. Project current early finish is September 2013

✓ Disposition 100% of Legacy TRU waste by end of CY2012:

Continue transuranic (TRU) waste retrieval, treating for disposal, and shipping TRU waste to the Waste Isolation Pilot Plant. Disposition of legacy TRU waste is about 70% complete (about 9,800 m3 retrieved of about 14,000 m3). The Savannah River Site is on track to complete retrieval and disposal of 100% of this waste by end of FY2013

✓ Initiate activities in H-Canyon/HB-Line to establish the Savannah River Site as the center for Advanced Fuel Cycle unit operations testing/demonstration:

- ✓ Commence modifications to H-Canyon to demonstrate proof-of-concept or pilot-scale operations while retaining current capabilities
- ✓ Used Nuclear Fuel processing not precluded

✓ Shrink the active footprint by 90%:

Complete clean-up of 90% of the Savannah River Site's 310 square miles (279 square miles). Work includes remediation of waste units and D&D of excess facilities. Continue to expedite remediation through the use of early and removal actions