U.S. DEPARTMENT OF ENERGY

# CAB AGENCY UPDATE

# SAVANNAH RIVER SITE

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DOE-Savannah River Operations Office

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**Citizens Advisory Board**
July 23, 2013

U.S. DEPARTMENT OF ENERGY

# SRS Size Comparison



**Structural Steel**
27,000 tons (a train eight miles long)

**Reinforcing Steel**
118,000 tons ( a train 30 miles long)

**Roads**
230 miles of new roads (including South Carolina's first cloverleaf intersection)

**Concrete**
1.5 million cubic yards (a highway 6 inches thick and 20 feet wide from Atlanta to Philadelphia)

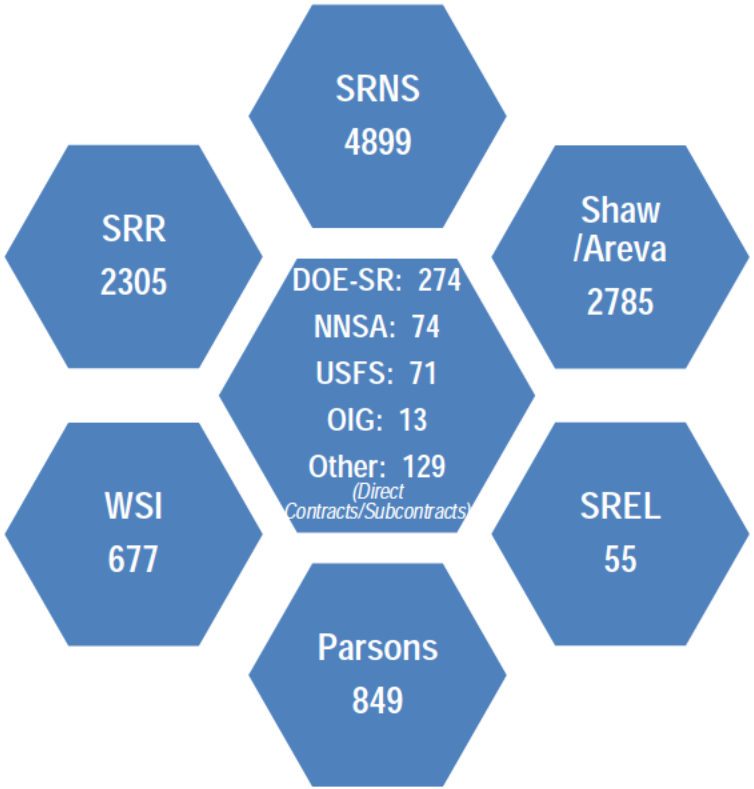
**Railroads**
63 miles of permanent new track1

# Integrated Workforce

- **U.S. Department of Energy -Savannah River Operations Office (DOE-SR)**
- **National Nuclear Security Administration (NNSA)**
  - Savannah River Field Office
  - Office of Site Engineering and Construction Management
- **U.S. Forest Service (USFS)**
- **Office of Inspector General (OIG)**

Contractors

- **Savannah River Nuclear Solutions (SRNS)**
  - Management & Operations
  - Savannah River National Laboratory
- **Savannah River Remediation (SRR)**
  - Liquid Waste Operations
- **Parsons (**Salt Waste Processing Facility)
- **Ameresco** (Biomass Cogeneration Plant)
- **WSI-SRS** (Security)
- **Shaw AREVA**:
  - Mixed Oxide Fuel Fabrication Facility (MOX)
- **University of Georgia**
  - Savannah River Ecology Laboratory (SREL)




**SRS Workforce = 12, 131**

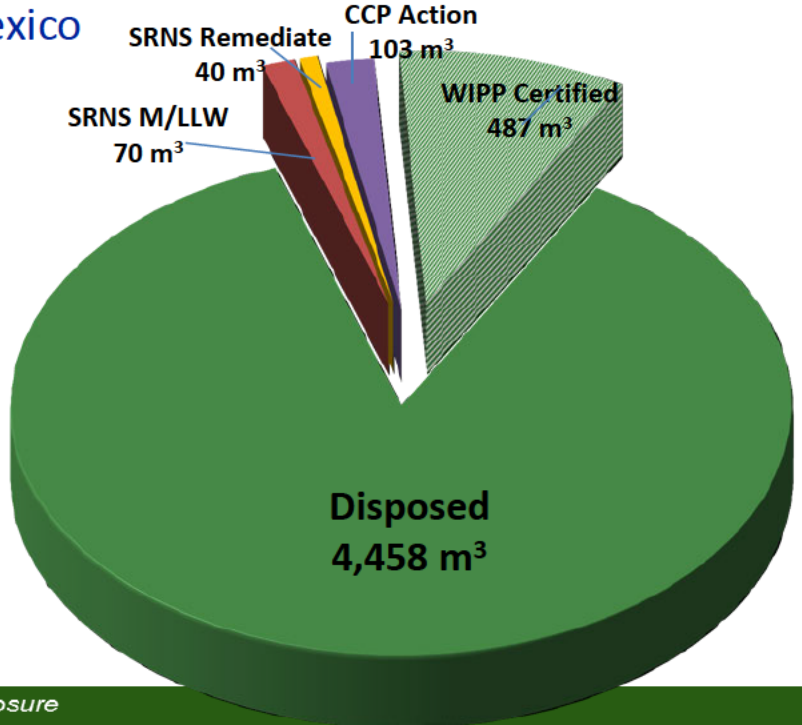
*-March 2013*

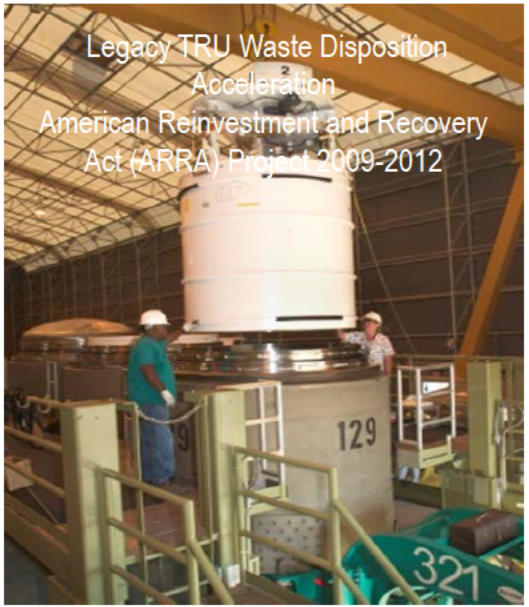
# SRS Accomplishments

*Risk Reduction Breakthroughs*

## Transuranic Waste Disposition

- Continue disposition of 12,000 cubic meters legacy transuranic (TRU) waste (1.2 million curies)
- Completed 1,536 TRU waste shipments to Waste Isolation Pilot Plant (WIPP), New Mexico





## Tank Closures

- Closed 2 waste tanks under current regulatory regime in 2012, three months ahead of schedule Federal Facilities Agreement (FFA) commitment
  - Outstanding collaboration and integration with SC Department of Health and Environmental Control, Environmental Protection Agency Region IV, and Nuclear Regulatory Commission
  - Full compliance with FY 2005 NDAA Section 3116 process for Secretarial Waste Determinations
- Another 15 radioactive waste tanks in stages of being emptied and prepared for closure


# SRS Accomplishments

*Consistent Record of Risk Reductions*

## Liquid Waste Disposition

**DWPF vitrified radioactive tank waste canister production**

*FY13 to date:*

**118 canisters**

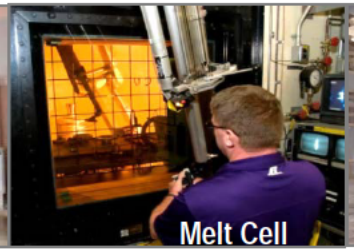
*Since 1996 startup:*

**3,644 canisters**

**48% of sludge waste inventory immobilized**

**Defense Waste Processing Facility (DWPF)**

Canister Production



Melt Cell

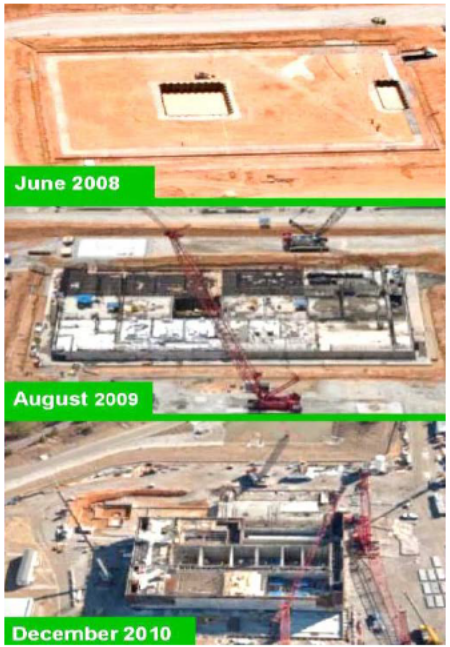
Canister Transporter

# SRS Accomplishments

*Critical Cleanup Components*

## Salt Waste Processing Facility

- Achieved 72% construction completion of Salt Waste Processing Facility (SWPF)




| SWPF Stats | |
|---|---|
| Area | ~140,000 ft² |
| Basemat | 8 ft. thick |
| Concrete | ~40,000 yd³ |
| Pipe | ~23 miles |
| Rebar | ~4,600 tons |
| Actuated Valves | ~1,000 |
| Manual Valves | ~3,000 |
| Instruments | ~1,500 |
| Tanks | 85 |
| Pumps | 116 |


Record production milestone 771,500 gallons salt waste solutions processed through **interim salt disposition facilities**: Actinide Removal Process (ARP)/ Modular Caustic Side Solvent Extraction Unit (MCU)


***3.5Mgal total since 2008 startup**

# SRS Accomplishments

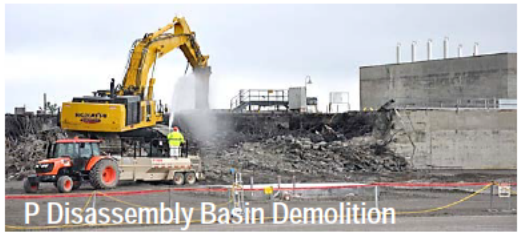
*Environmental Cleanup Strategies at Work*

## Soil, Groundwater and Associated Facilities

- Completed deactivation and decommissioning of 284 Site facilities (industrial and nuclear)
- Remediated and closed 399 of 515 waste units in compliance with FFA
- Met over 3,100 FFA & RCRA Permit commitments on or ahead of schedule

## American Reinvestment and Recovery Act Footprint Reduction 2009-12

- Decommissioned 14 radioactively contaminated facilities (incl. 3 nuclear reactors) and 16 industrial facilities contaminated with hazardous materials
- Treated over 6.5 million gallons of radioactive and contaminated water
- Disposed of over 52,000 cubic yds. of debris and 90,000 cubic yds. of soils



**SRS now 85% "clean"**

The majority of SRS now meets industrial cleanup standards

# SRS Accomplishments

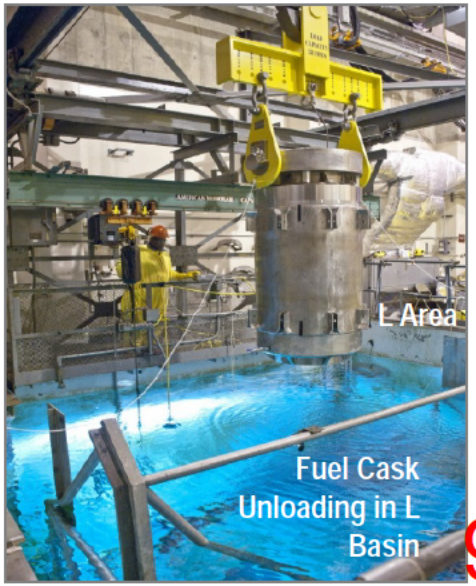
*Assets Applied and Results Delivered*

## Nuclear Materials Disposition

- Continued processing of vulnerable fuels through H-Canyon
- Completed last shipment of Low Enriched Uranium to Tennessee Valley Authority to meet fuel source contract commitments (enough to power all SC homes for 10 years)
- Down-blended and shipped non-Moxable plutonium to WIPP
- Developed Deactivation Plan for 235-F (Pu-238 production facility)
- Contract signed for receipt and processing/uranium recovery of Canadian liquids


HB-Line Glovebox


H Canyon / HB-Line


L Area

Fuel Cask Unloading in L Basin

# SRS Accomplishments

*Nuclear Knowledge for the Nation*

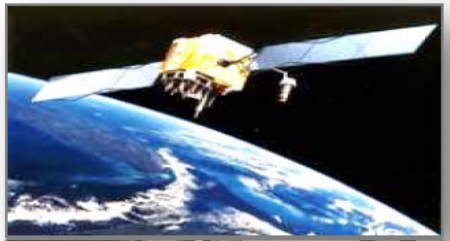
## Clean Energy Systems

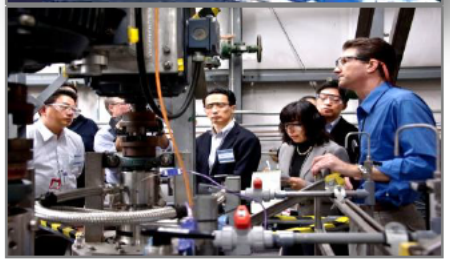
- Completed 1st year operations of Biomass Cogeneration Facility
  - Reducing greenhouse gas emissions by more than 100,000 tons a year
  - Cutting energy costs with steam from renewable energy sources

## Savannah River National Laboratory

- SRNL technical expertise, innovative technologies and applications deployed throughout the world
  - Nuclear Fuels Cycle Research & Development
  - Space Exploration
  - Hydrogen Production & Storage
  - Radiochemical Processing
  - Environmental Risk Reduction
  - Tritium Technology
  - National Security Threat Reduction
  - 10 U.S. patents in 2013

SRNL™





# FY 14 Planned Accomplishments

## Waste Disposition and Risk Reduction

- Continue closure activities for Tanks 5 and 6
  - Grouting scheduled to start August 2013
- Continue construction of the Salt Waste Processing Facility
- Process 1 million gallons of salt tank waste
- Produce 100 canisters at Defense Waste Processing Facility
- Continue disposition of Site's contact-handled legacy TRU waste (only 600 cubic meters remaining to be shipped)
- Meet all regulatory commitments

# FY 14 Planned Accomplishments

## Nuclear Materials Disposition

### Storage Facilities

- Continue safe receipt and storage of Foreign Research Reactor and Domestic Research Reactor used (spent) nuclear fuels (L Area)
- Continue safe receipt and storage of non-pit plutonium materials (K Area)
- Continue 235-F Facility Risk Reduction scope to meet Implementation Plan for DNFSB Recommendation 2012-1

### H-Canyon

- Complete processing of vulnerable used nuclear fuel
- Continue preparations for the receipt of Canadian liquid HEU
- Continue shipment of non-Moxable plutonium to WIPP
- Continue partnership with NNSA to use H-Canyon and HB-Line to provide 3.7 metric tons of plutonium oxide through 2017
- Continue receipt of Global Threat Reduction Initiative plutonium from foreign countries

# A Focused Savannah River Site Team

## ✓ We Deliver

- Work collaboratively with regulators to meet commitments
- Execute all work safely

  Safety and Security begin with me.
- Make significant risk reductions
- SRS is investment worthy