U.S. DEPARTMENT OF ENERGY | Savannah River Site

Featured Site: DOE- Savannah River

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SRS: A Long Term Asset

Rich History

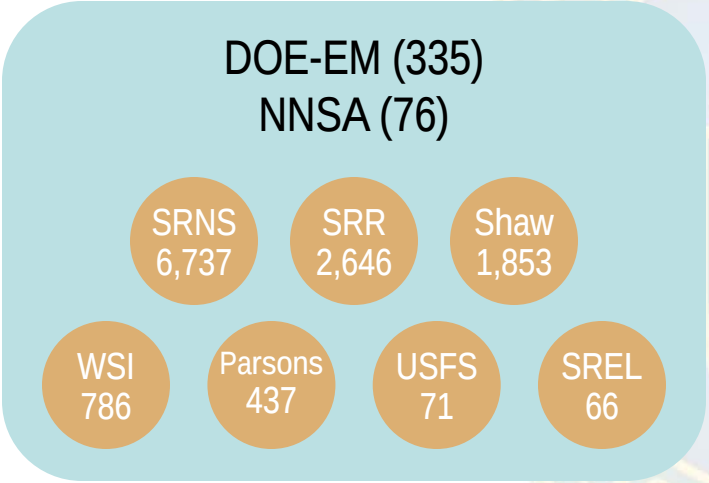
- Established in 1950 to support national defense missions
  - Produced tritium (only U.S. source) and weapons-grade plutonium
  - Over 38,000 workers at peak
  - Site covers 198,000 acres (310 square miles)

Today

- Multi-program Site with national missions: DOE-Environmental Management (EM) and National Nuclear Security Administration (NNSA)
- EM cleanup and risk reduction mission is top priority
- Making measurable progress in cleanup of legacy waste contamination, reduction of stored legacy waste, and closure of defense-related nuclear reactors
- Highly skilled federal and contractor workforce >13,000
- Focused Federal oversight and stewardship

Skilled Workforce

DOE: Savannah River Operations Office
NNSA: Savannah River Site Office
U.S. Forest Service
U.S. Nuclear Regulatory Commission
U.S. Army Corps of Engineers



Contractors:

- Savannah River Nuclear Solutions: Site Management & Operations and Savannah River National Laboratory (EM National Laboratory)
- Savannah River Remediation: Liquid Waste Operations
- Parsons: Salt Waste Processing Facility construction and operations
- Wackenhut: Security
- Shaw AREVA: Mixed Oxide Fuel Fabrication Facility construction and operations
- University of Georgia: Savannah River Ecology Laboratory

SRS Budget in Millions (FY10)

EM Operations and Cleanup	976
• Liquid Waste, Tank Farms and Vitrification	
• Solid Waste, TRU, Mixed, LLW	
• Pu and HEU processing (supports NNSA)	
• SRNL (supports NNSA)	
• Surplus Pu storage (supports NNSA)	
• Spent Fuel Storage (supports NNSA)	
EM Projects	234
• Salt Waste Processing Facility	
EM Security	132
Federal Program Direction	53
EM Total	$1,342

NNSA Operations	281
• Defense Programs	
NNSA Projects	678
• Mixed Oxide Fuel Facility	
• Pit Disassembly & Conversion	
• Waste Solidification Building	
NNSA Security	16
Federal Program Direction	6
NNSA Total	$ 981

SRS ARRA funding $1.6 billion

SRS Total: ~$2.4 billion

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

SRS EM Mission

Safely and efficiently clean up environmental legacy…Reduce risk…Protect public health and environment

Where We Started

800+ contaminated facilities, soils and groundwater

M Area "before"

Excess nuclear materials

37 million gallons radioactive liquid tank waste

Ongoing Missions

EM Cleanup
Science Leadership
Innovative Technology
National Security
Nuclear Nonproliferation
Homeland Security
Energy Independence
Defense Programs

The Future

M Area "after"

EM cleanup complete

Energy initiatives at SRS

Demonstrations of renewable and alternative energy solutions

Research and Development of technologies for global nuclear nonproliferation

Technologies for life cycle of used nuclear fuel

…Transform SRS for the future

Getting the job done

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

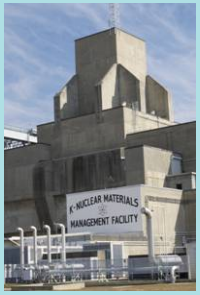
Cleanup solutions that resolve the nuclear waste legacy

- 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

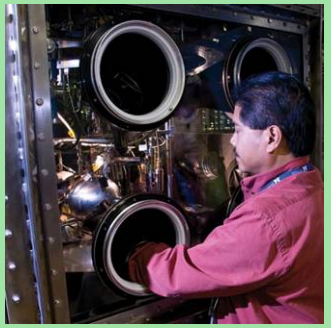
H Canyon



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

American Recovery and Reinvestment Act

More Opportunities for Success: Jobs, Economic Stimulation, Accelerated Cleanup

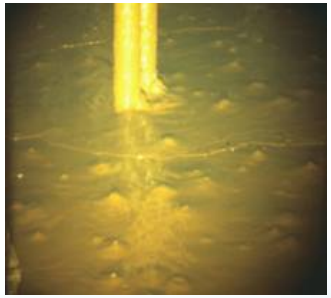
- Over 3500 jobs saved or created
- Over $459M contracts awarded (62% - small business / 36% local)
- Accelerated DOE goals of footprint reduction and disposition of legacy transuranic (TRU) waste.
  - More than 260 buildings (more than 2.5 million square feet) demolished
  - 75% EM footprint reduction achieved by September 2012
  - 81 TRU waste shipments to Waste Isolation Pilot Project in New Mexico
  - P and R area Completions: Cleanup P Reactor Disassembly Basin water evaporation, placement of 117,570 cubic yards of grout in P Reactor, installation of 21 P Area Operable Unit remediation wells, and removal of stacks and gantry cranes from P and R reactors.

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

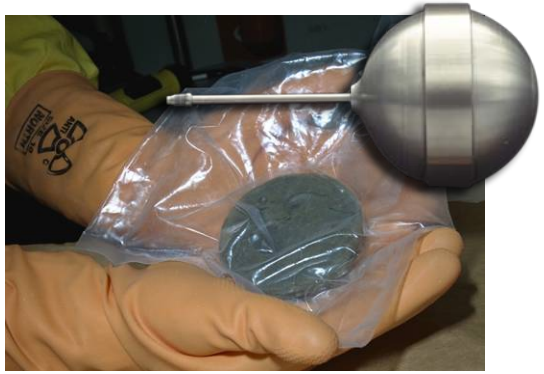
Interim Storage of Canisters

- 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

NNSA Programs

Defense Programs, National Security, Nuclear Nonproliferation

Mid-Cold War



Tritium Complex Today

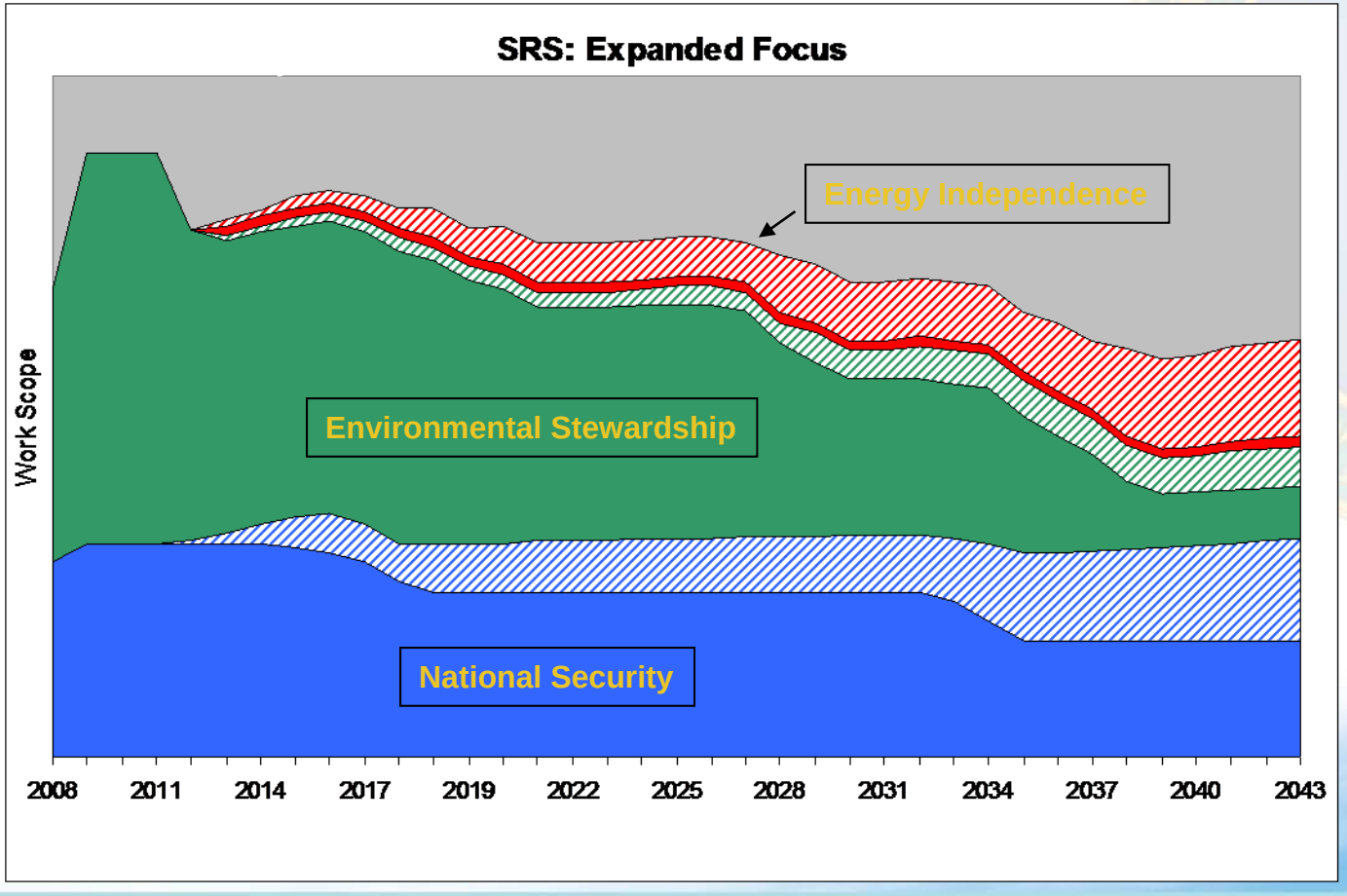
MOX Complex Future

- SRS Tritium facilities have long been recognized as the nation's center of excellence for tritium, executing missions by extracting new tritium from irradiated target rods, delivering Limited Life Component Exchange products and Gas Transfer System Surveillance data, and recovering helium-3.

- The Mixed Oxide Fuel Fabrication Facility, coupled with the Waste Solidification Building and the Pit Disassembly and Conversion Project, will convert plutonium metal from nuclear weapons and other sources into mixed oxide fuel for commercial nuclear reactors well into the future.

Future Missions

Furthering National Security, Energy Independence, and Environmental Stewardship



Future Missions

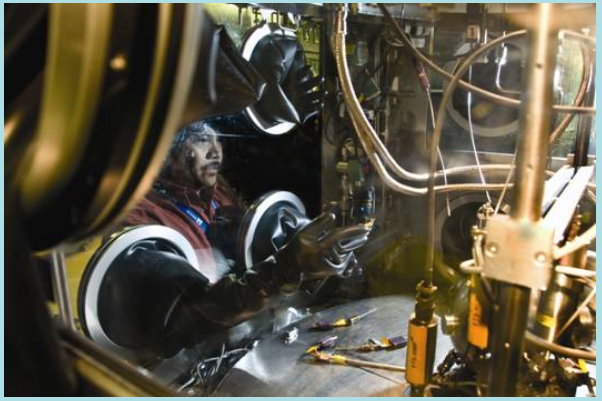
Furthering National Security, Energy Independence, and Environmental Stewardship

H Canyon

- One-of-a-kind facility
- Nation's only capability for scale-up testing of new processes without major new construction
- Potential demonstration facility for technology development

Tritium

- Recovering tritium to maintain our Nation's defense
- Continue the capture of helium-3, critical to the deployment of nuclear material detectors



Future Missions

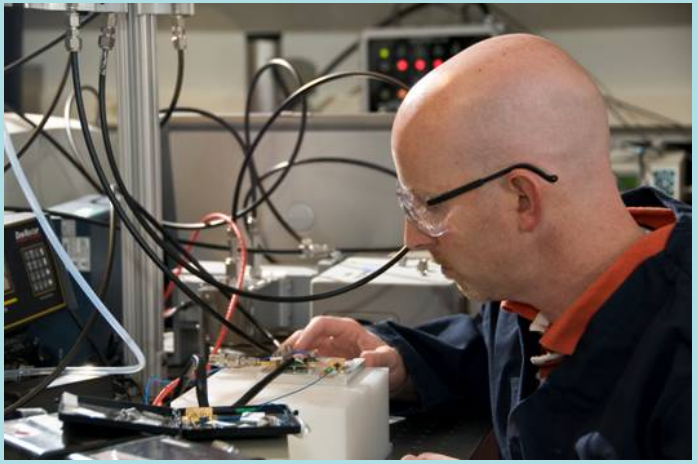
Furthering National Security, Energy Independence, and Environmental Stewardship

Homeland Security

- Research and technical support to Homeland Security, the FBI and other Federal agencies
- Training, testing and evaluating technology for Homeland Security (On-Dock Rail, pictured below)
- Expand SRNL critical expertise and technologies to solve critical national issues

Nuclear Non Proliferation

- Nuclear Forensics
- Training, Testing and Evaluation
- Signatures & Observables and Intelligence
- Securing Nuclear Materials Globally

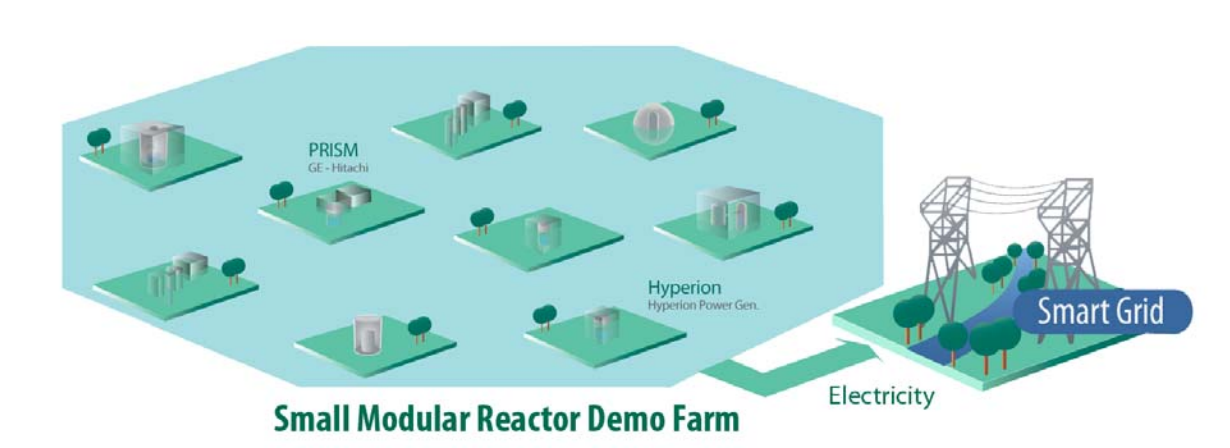


Future Missions

Furthering National Security and Energy Independence

Energy Independence

- Support efforts to develop sources of clean, secure energy
- Explore potential deployment of small modular reactors at SRS
- Explore potential of biofuel production at SRS
- Expand research for hydrogen fuel production
- Continue research on wind energy resources



Focused Priorities for the SRS Team

Superior performance…Raising the bar continually…Securing the future

- Execute All Work Safely
- Accelerate Cleanup and Reduce Risk
  - Solve critical cleanup challenges with smart solutions
  - Direct funding at greatest risk
  - Meet regulatory commitments
- Maintain Perspective
  - Disposition of nuclear materials and liquid waste remain high priority projects
  - Accelerate cleanup to open site for other uses
- Demonstrate Ability to Deliver
  - Meet cleanup commitments on time and within budget
  - Strong return on tax payers investment
  - Execute all work safely
  - Make remarkable reductions in risks
  - Cut lifecycle costs
  - Maintain successful collaborative partnerships with SRS communities
  - Secure new missions
- Maintaining Nuclear Security of the Country
  - Stockpile Stewardship
  - Non Proliferation
  - Tritium