Setting the Success Standard for our Nation

Service ● Safety ● Security ● Stewardship ● Stakeholders ● Sustainability

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Waste Management Symposia 2015
U.S. DOE Featured Site
Savannah River Site Overview
March 17, 2015

Savannah River Site






Serving our Nation Six Decades Strong

- Six towns and 6,000 patriots relocated in early 1950s
- Established on 198,334 acres, or 310 square miles
- 4th largest DOE site in the U.S.
- Providing over 6 decades of knowledge, technology and integrated solutions for most pressing national needs
- Pioneering development and deployment of nuclear technologies at scales never before imagined
- Standing as core of our Nation's nuclear deterrent, past to present


SC patriots relocated to build Site (1951)


R Reactor in 1951


Defense Waste Processing Facility Startup


Waste Tank Construction


H Canyon in 1952

Building the Legacy

Earth Moved
39 million cubic yards
(a wall 10 feet high and 6 feet wide from Atlanta to Portland)

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

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

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

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

Process Steel
All the 304L and 316L stainless steel available in the U.S. from 1951-1953

Railroads
63 miles of permanent new track

Blueprints
2 million

Lumber
85 million board feet
(enough for 15,000 homes)

SRS FIRSTS

- ✓ Produced radioactive fuel (Pu-238) world's first "atomic battery" used in a space satellite launch (1961)
- ✓ Advanced particle physics with the proof of neutrino (1956)
- ✓ Provided first real quantities of californium for research and medical applications
- ✓ Birthplace of modern science of ecology
- ✓ Designed and built the largest radioactive waste vitrification facility in the world
- ✓ Designated first National Environmental Research Park (1972)
- ✓ Discovered natural habitat of bacterium causing Legionnaires' Disease
- ✓ Pioneered use of microbes in environmental cleanup and expanded use in land mine detection
- ✓ Applied horizontal well technology to environmental cleanup/monitoring

Early Production Years

Produce and recover nuclear materials

- Tritium
- Pu-238
- Pu-239
- Special Isotopes
- Uranium Recovery

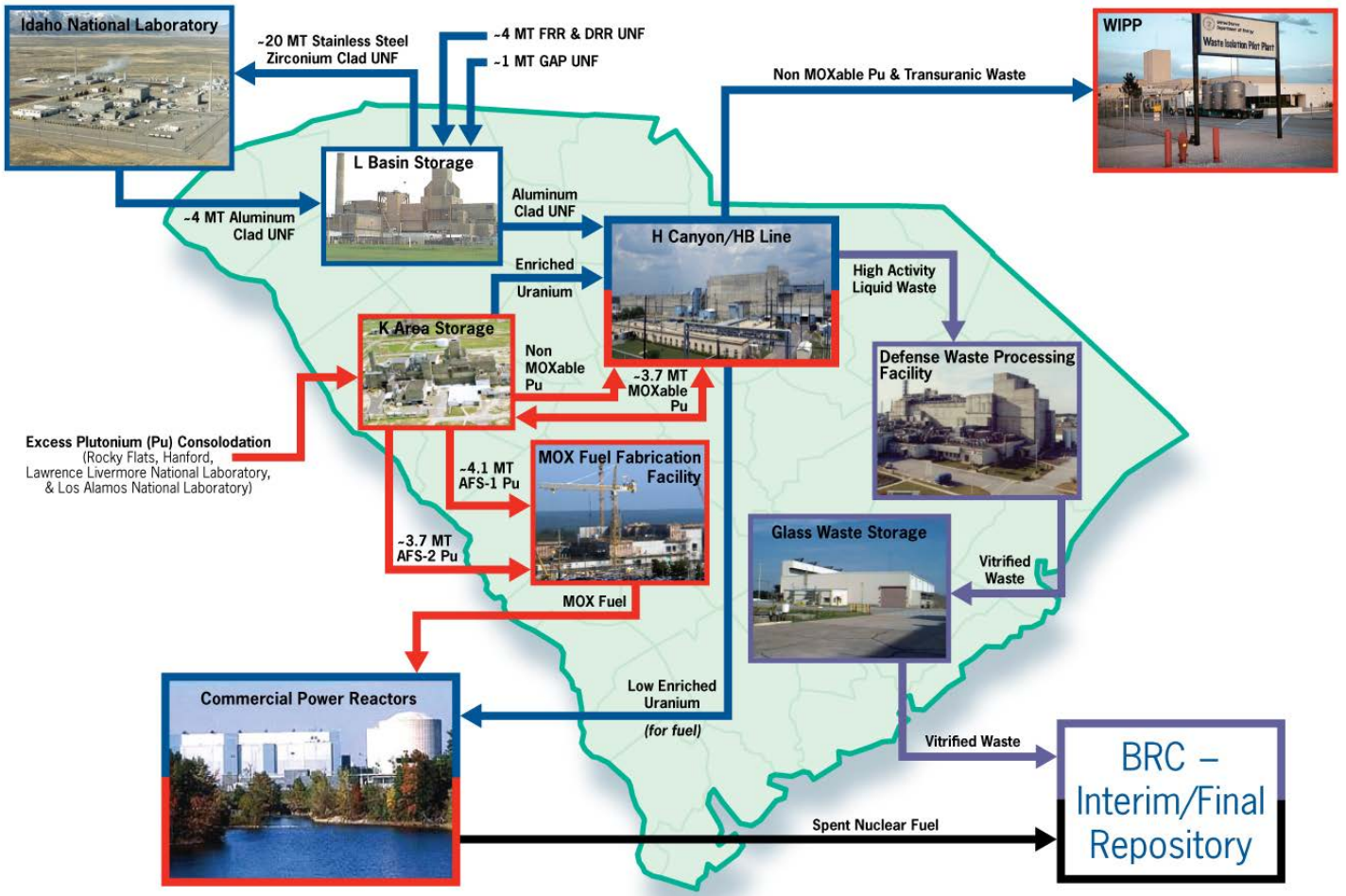
- Early Years
  - Five reactors
    - Two chemical separations plants
    - Heavy water extraction plant
    - Nuclear fuel and target fabrication facility
    - Waste management facilities
    - Laboratory/Analytical facilities
- Produced 36 metric tons of Plutonium (Pu) from 1953-1988

Cold War ending meant a completely different philosophy and approach to the nuclear arsenal.

Stellar Safety and Security Record

- ✓ Protection of workers, public and environment is core objective
- ✓ World-premier nuclear safety experts
- ✓ Savannah River National Laboratory is industry leader for safety (National Safety Council)
- ✓ One of safest industrial complexes in the world (top 5 percent)
- ✓ One of the safest sites in the DOE Complex

Nuclear Materials (NM) Integration: National and International Reach



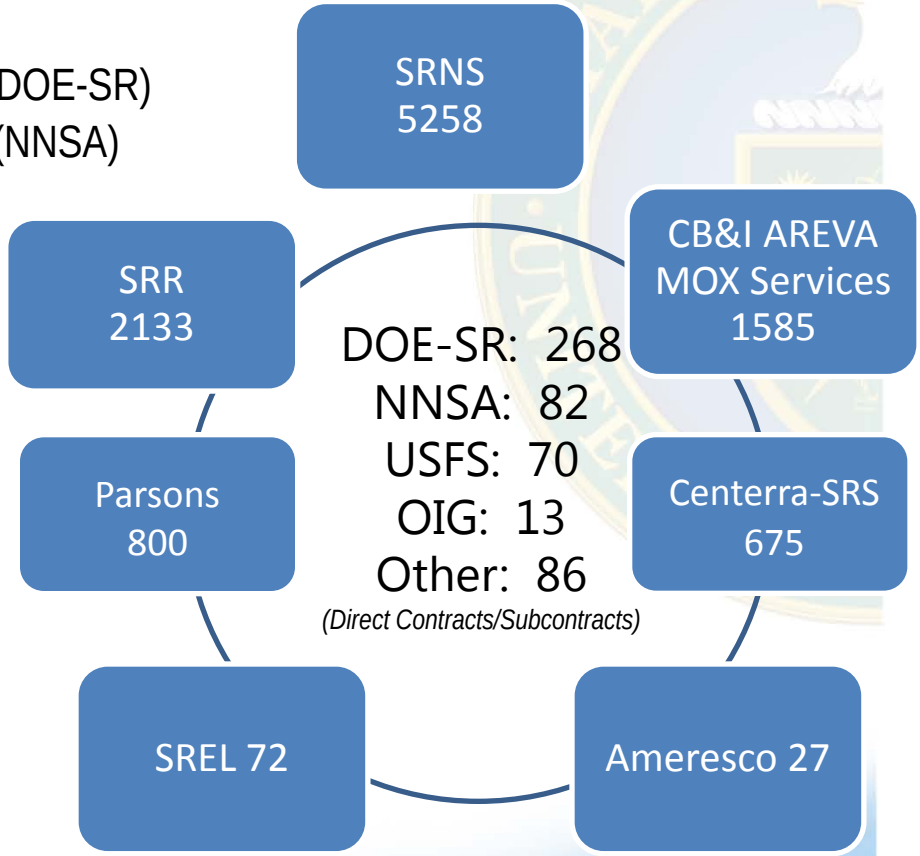
SRS Team: Partners in Progress

Federal Agencies

- DOE Savannah River Operations Office (DOE-SR)
- National Nuclear Security Administration (NNSA)
- U.S. Forest Service (USFS)
- Office of Inspector General (OIG)

Contractors

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



SRS Workforce = 11,068
4th Quarter FY14

Today's Work for Neighbors and Nation

Environmental Management

Management, stabilization and disposition of nuclear materials

Management and disposition of solid, liquid and transuranic wastes

Spent fuel management

Excess facility demolition

Environmental remediation

National Nuclear Security Administration

Tritium operations and extraction

Recovering Helium-3

Nonproliferation support

Mixed Oxide Fuel Fabrication Facility

Uranium blending and shipping

Foreign fuel receipts

Stewardship: Continuing Cleanup Progress

SWPF: Stepping Up Risk Reduction at SRS

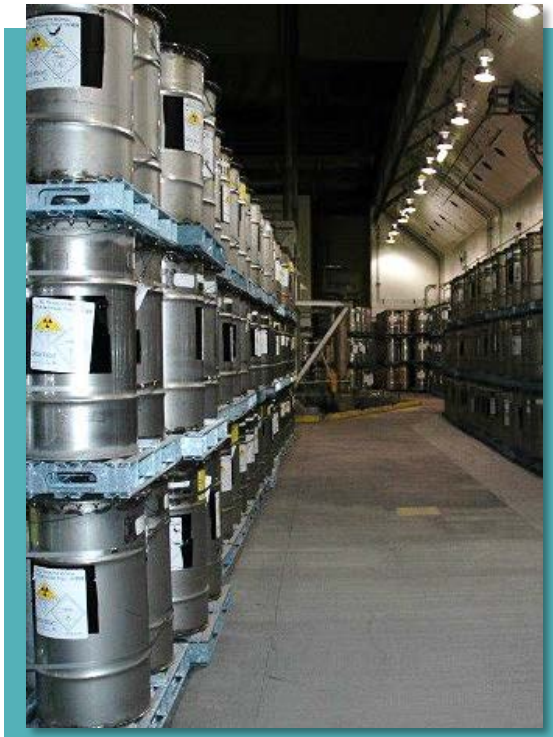
- ✓ Construction Completion Target Date: May 2016
- ✓ Commissioning Completion: 14%

Nuclear Materials Management: Applying Best Assets

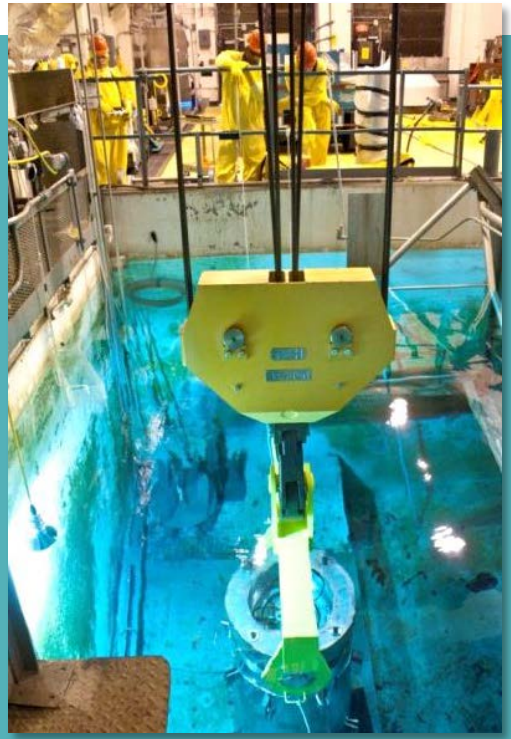
HB Line

H Canyon Nation's only hardened chemical separations facility

Meeting National Security and Nonproliferation Goals



K Area



L Basin

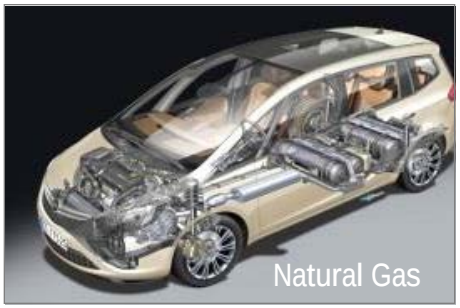
Tritium

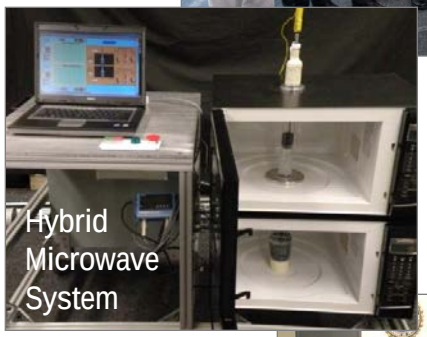
Tackling National Nuclear Materials Challenges

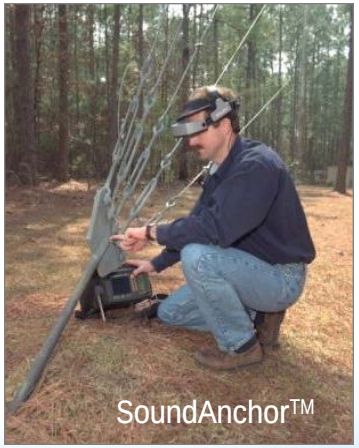
Challenges of Nuclear Materials Management		SRS Role in Nuclear Materials Management
Reliable nuclear deterrent	Tritium gas, used in nuclear weapons, must be periodically replenished due to decay	SRS prepares the nation's only tritium supply for the U.S. nuclear weapons program
Legacy nuclear materials	Cold War production left behind nuclear materials and waste products at SRS and across the country	SRS processes nuclear materials into valuable assets and stable waste forms
Global Nonproliferation	Proliferant nuclear materials exist worldwide under varying safety and security conditions	SRS secures nuclear materials to prevent international terrorism and proliferation
Commercial applications	Increasing dependence on foreign sources of radioactive isotopes	SRS produces valuable isotopes and material for commerce

At SRS, SRNL develops and deploys highly innovative approaches to address nuclear materials challenges

Savannah River National Laboratory: Nuclear Knowledge for the Nation





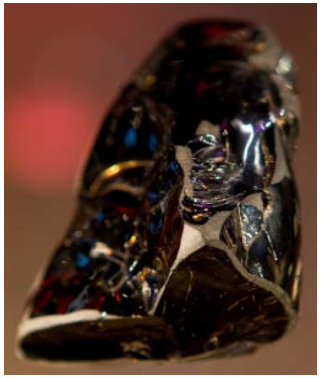


SRNL: Critical to DOE Success with Worldwide Reputation

Over $5 billion in EM life cycle savings

Strategic partner at other DOE sites

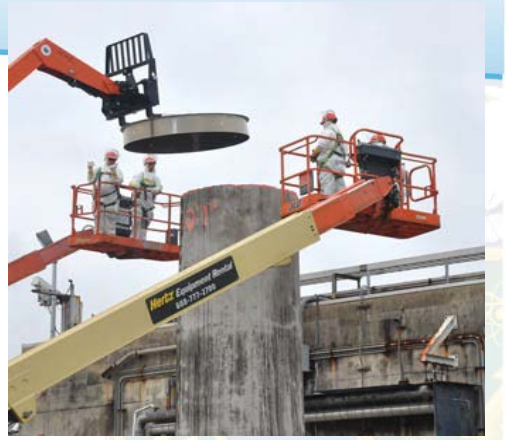
Fukushima support



Technical underpinning for SRS missions

Sustaining Missions Vital to our Nation and our Future

- Continuing to leverage strategic investments to successfully fulfill and grow missions of national importance
  - Leading **Environmental Management** priorities to safely and efficiently clean up the environmental legacy, reduce risk and protect our people, neighbors and environment
  - Teaming with **National Nuclear Security Administration** to enable national defense capabilities (MOX, H Canyon, Tritium)
  - Partnering with **Office of Nuclear Energy** goals to provide clean, reliable energy sources, reduce greenhouse gases, and enhance national security
  - Applying **SRNL science and technology** expertise for business and mission growth



Community and Collaborations


Information Pods connect community and SRS


DOE-SR and SRR Partner for Joint All Hands

Secretary Moniz and SC Congressional Delegation SRS Visit 2014


20 Years of Service for SRS CAB

SRS Sustainability:
Priorities • Partners • Proven Progress

Delivering for our Nation and our neighbors

- Maintain safety/security culture
- Assure solid funding for mission growth
- Recruit/train next generation nuclear
- Continue liquid waste and nuclear materials risk reduction
- Revitalize SRNL and advance 3rd-party financing opportunities

- Reduce deferred maintenance backlog and make critical infrastructure upgrades
- Continue Federal/Contractor partnering efforts
- Build on community, congressional, regulatory collaborations