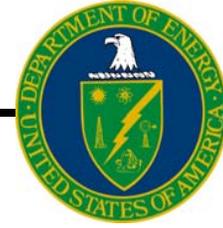


SAVANNAH RIVER NATIONAL LABORATORY

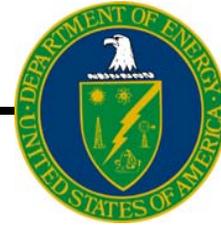
Robert Edwards
Acting Assistant Manager for
Nuclear Material Stabilization Project



Mission

- As EM's Corporate Laboratory, provide technical expertise and technology solutions to meet DOE needs
- Provide technological support & assistance to the DOE and other Federal Agencies to meet National, Homeland Security, and Energy Security and future SRS missions
- Provide the R&D vital to the nation, and stimulate the region's technology-based economy through partnerships and collaborations with universities, industry, and other federal agencies



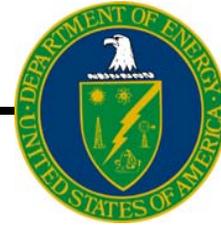


Background

Total staff - 881

- Research staff – 675 (38% of research staff with advanced degrees)
 - Chemists
 - Mechanical Engineers
 - Chemical Engineers
 - Metallurgical Engineers
 - Electrical Engineers
 - Nuclear Engineers
 - Physicists
 - Biological Scientists
 - Math/Computer Scientists
 - Statisticians

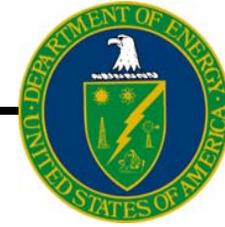




Background

A-Area (Technical Area)

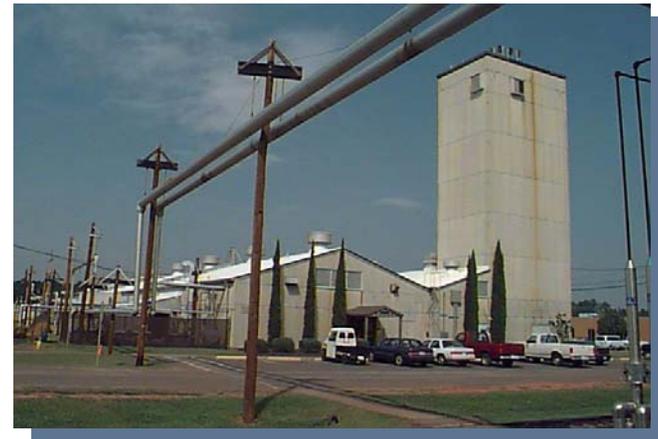
- 70 laboratories, office and storage facilities
- 643,000 sq. ft. includes 118,000 sq. ft. of radiological controlled space
- Complex facility system with hazard categories that includes Category II nuclear facility

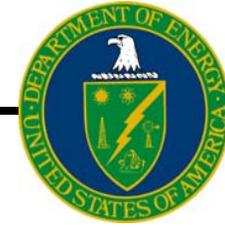


Background

Lower A-Area

- Engineering, electronics and materials fabrication shops, metallographic facilities

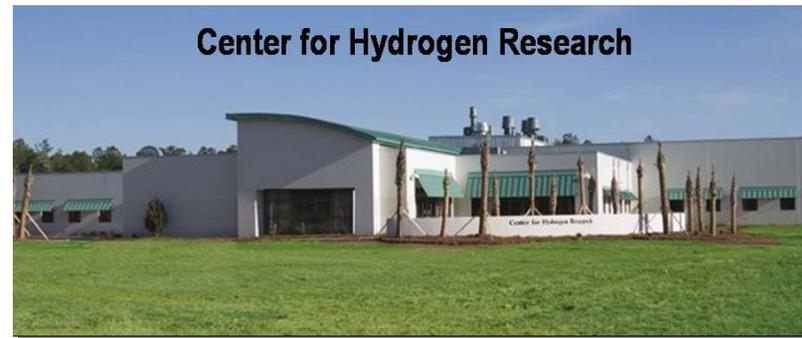


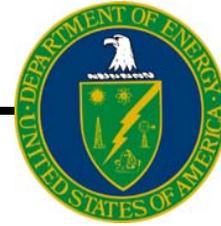


Background

Savannah River Research
Campus (leased from
Aiken County)

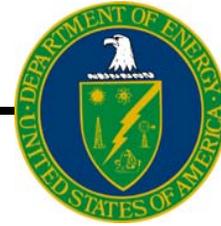
- Aiken County Technology Laboratory
- Hydrogen Technology Research Laboratory at the Center for Hydrogen Research





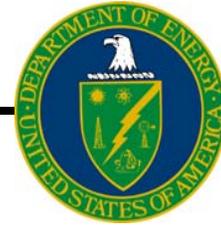
SRNL Core Competencies

- Chemical and radiochemical processing
- Environmental science and technology
- Analytical chemistry
- Engineering specialty systems
- Materials science
- Sensor development
- Hydrogen and tritium science and technology
- Computational science and modeling



Contract End State

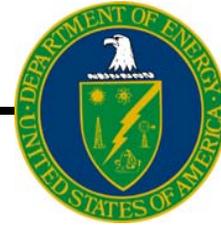
- Firmly established as the EM Corporate Laboratory and pre-eminent center for research, development and deployment of technologies
- Efficiencies increased due to diversification of customer base and funding sources
- Core competencies enhanced



Scope of Work

Nuclear Material Disposition

- Development of technologies to further minimize waste generation and reduce waste transferred to H-Area
- Understand radiolytic gas generation in plutonium-bearing materials
- Moisture measurement methods for plutonium-bearing materials
- Plutonium surveillance and validation of models for safe storage.
- Technical basis to model the corrosion tendencies of 3013 canisters stored in the K-Area complex



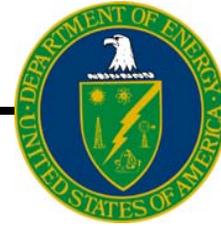
Scope of Work

Spent Nuclear Fuels Stabilization and Disposition

- Corrosion performance of aluminum/zirconium/stainless steel clad fuels
- Develop technical support for Spent Nuclear Fuel shipments and receipts

Solid Waste Stabilization and Disposition

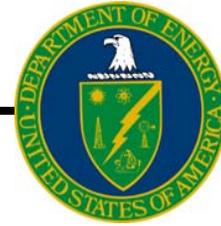
- Develop technology / know-how required for visual and remote inspection for; sorting, segregating, and repackaging of plutonium 239, and plutonium 238
- Provide for the treatment of high-activity Transuranic Waste for destruction of organic constituents



Scope of Work

Radioactive Liquid Tank Waste Stabilization and Disposition

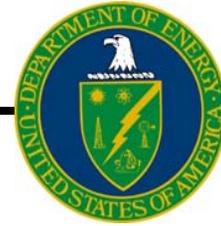
- Work in support of the Liquid Waste (LW) Program will be funded from the LW Contract
- Develop technologies to increase throughput, improve melter glass waste loading, and reduce total number of radioactive waste canisters
- Address impact of changing feed streams from canyon disposal and salt processing on Defense Waste Processing Facility process and throughput
- Characterize material for sludge batches
- Provide accelerated parallel technology paths for salt-cake and supernate sampling and characterization, dissolution and retrieval, faster filtration, removal of cesium, strontium and actinide, online analytical capabilities, and alternative waste removal technologies
- Improve bulk waste removal with more efficient mixing and chemical cleaning to minimize residual waste



Scope of Work

Soil and Water Remediation

- Provide innovative technologies for advancing risk reduction and improve regulatory processes
- Refine and expand application of natural remedial processes
- Develop innovative characterization and monitoring technologies/processes
- With knowledge gained from the Monitored Natural Attenuation (MNA) Enhanced Passive Remediation for Chlorinated Solvents project, develop and understand applications of the MNA to enhance passive remediation across the DOE Complex



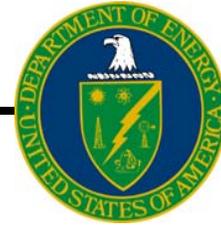
Scope of Work

Nuclear Facility Deactivation and Decommissioning

- Improve methods and equipment for characterizing contaminants in concrete to pre-determine an acceptable end state for concrete removal
- Improve contamination controls for plutonium 238 contamination.
- Develop technology alternatives for environmental assessments at SRS. Technology alternatives may be interactive, multimedia models that allow decision makers to quickly assess impacts due to contaminants releases.

Tritium for Defense

- Advance technology to support a cost effective infrastructure
- Develop improved tritium process



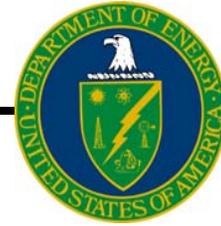
Scope of Work

Homeland Security

- Support Department of Homeland Security (DHS) export control and border protection activities
- Support training of DHS Federal Agents
- Enhance support of DHS nuclear training needs

Nuclear Forensics

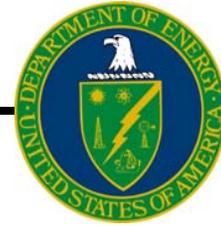
- Provide critical skills and support facilities for Federal Bureau of Investigation nuclear forensic analysis



Scope of Work

Defense Technologies

- Leverage SRNL expertise in sensors, coatings, and hydrogen technology for Department of Defense applications
- Provide rapid engineering responses to Combat Support Operations personnel to develop and deploy tools for U.S. ground forces



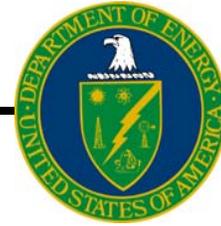
Scope of Work

Hydrogen Technology

- Develop strategic partnerships with industry, academia and other federal laboratories to promote hydrogen and fuel cell development programs
- Team with industry to develop comprehensive hydrogen capabilities

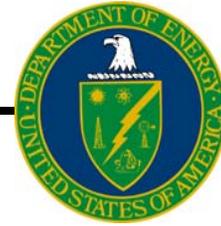
Nuclear Energy

- Support nuclear training and research
- Support nuclear education in South Carolina



Expectations

- Provide technical leadership for future site missions
- Provide world-class innovative performance in national defense and homeland security technologies, hydrogen technology and cleanup
- Increase effectiveness across the EM complex and operate as a severable work activity within the overall contract structure
- Integrate the capabilities of industry and academia into the work of the laboratory consistent with providing for long-term independent sustainability
- Develop SRNL to be a major center for technologies to advance the nuclear fuel cycle of the future, nuclear hydrogen initiative, and civilian hydrogen storage initiative



Key SRNL Challenges

- Implementation of Strategic Plan
- Fulfill SRNL's role as the EM Corporate Laboratory
- Maintain technical personnel and core competencies
- Increase business volume
- Address infrastructure and capital equipment needs
- Funding uncertainties