SRNL Fast Facts

> Located at the U.S. Department of Energy's Savannah River Site near Aiken, South Carolina

> Operated by Savannah River Nuclear Solutions

> “National Laboratory” for DOE Office of Environmental Management

Applied research, development and deployment of practical, high-value and cost-effective nuclear materials management and technology solutions in the areas of national security, clean energy and environmental stewardship

> Supporting customers at SRS, DOE and other federal agencies nationally and internationally

Integrated Capability: Nuclear Materials Process Design, Development and Demonstration

Outcomes

• Process Flowsheet Development: Simulation, modeling and testing (Defense Waste Processing Facility, Saltstone, ARP/MCU, H Canyon/HB Line, etc.)
• Process Flowsheet Validation: Bench-scale, real-materials testing through pilot-scale testing
• Process Feed Characterization and Qualification
• Product/End state validation and confirmation for regulators and stakeholders
• Equipment and instrumentation development and testing
• Process Improvement and Troubleshooting: Modeling, analysis, process testing capabilities

Core Competencies necessary to this capability

• Actinide Chemistry: Foundation for design, development and deployment of nuclear materials processing at the Savannah River Site (SRS)
• Radiation Chemistry: Fundamental understanding of chemical processes and behavior in radiological environment
• Chemical Engineering of Processing Operations: Requires fundamental understanding of chemical behavior, kinetics, equipment performance, etc. Requires in-depth knowledge and experience with Environmental Management processes and expertise in separations chemistry
• Materials Science and Engineering: Wasteforms, corrosion, erosion, materials of construction
• Radiochemical Analysis: People and equipment (contained instrumentation, gloveboxes, etc.) necessary to enable process development and validation
• Simulation and Modeling
• Remote Systems and Instrumentation: Sampling, equipment modifications, etc.

Contact Information
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Foundations of the capability

- Radiological Facilities: Shielded cells, gloveboxes, radiohods, etc.
- Nuclear Material Handling Capabilities: People and equipment (gloveboxes, high level cells, etc.) necessary to enable process development and validation with actual radiological materials
- Equipment Design and Fabrication Capabilities
- Computational Infrastructure