We put science to work.™



# about Savannah River National Laboratory

U.S. DEPARTMENT OF ENERGY • SAVANNAH RIVER SITE • AIKEN • SC

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#### **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

#### **Contact Information**

SRNL Office of Communications 803.725.4396



### Integrated Capability: Waste Form Development, Qualification and Disposition

#### Outcomes

- Waste form property models and process control methodologies to be utilized in immobilization processes
- Qualification of waste forms for acceptance in final disposal location: Modeling, analysis, regulatory interface
- Waste Form Formulation: Glass formulation including frit selection for Defense Waste Processing Facility and grout formulation development in order to maximize waste throughput and operational flexibility
- Qualification of Product During Production: Glass variability studies to demonstrate model acceptability, glass sample analyses, grout testing
- Waste Form Qualification Strategy Development: Integrate process flexibility with regulatory compliance with technical bases
- Melter offgas and other process models to enable safe and efficient production

#### **Core Competencies Necessary to this Capability**

- Waste Form Qualification: Fundamental knowledge of methodologies for qualifying waste forms, demonstrated experience base in HLW sludge and salt processing, and integrated flowsheet testing and process control
- Materials Science and Engineering: Waste form chemistry and behavior including durability and performance, materials of construction in high temperature applications
- Immobilization Process Modeling: Understanding of chemical reactions and high temperature offgas systems, linkage of chemical processing to waste form production
- Radiochemical Analysis: People and equipment (contained instrumentation, gloveboxes, etc.) necessary to enable process development and validation

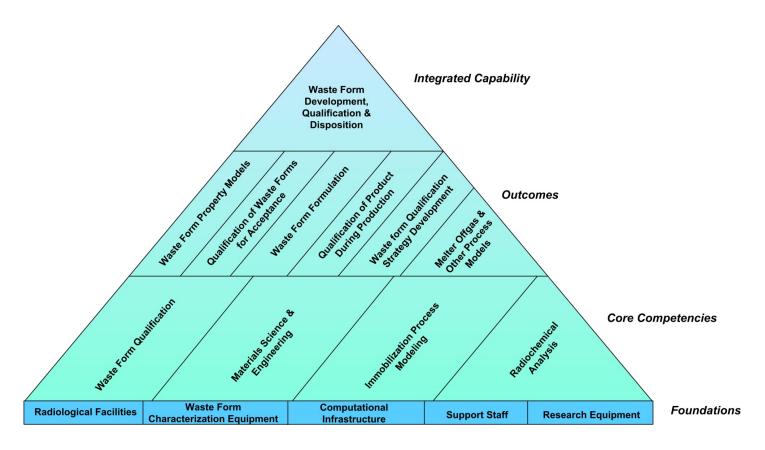




## Facts about Savannah River National Laboratory

#### Foundations of the Capability

- Radiological Facilities: Facilities to perform R&D including non-rad labs and shielded cells
- Waste Form Characterization Equipment
- Computational Infrastructure
- Support Staff (scientists, engineers, and technicians) for experimental design and setup
- · Research equipment including furnaces and process control instrumentation



Savannah River National Laboratory

The Savannah River Site and the Savannah River National Laboratory are owned by the U.S. Department of Energy, and are managed and operated by Savannah River Nuclear Solutions.