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SRNL is a DOE National Laboratory
operated by Savannah River Nuclear Solutions.

Facts

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

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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

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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

