



**Savannah River
National Laboratory™**

OPERATED BY SAVANNAH RIVER NUCLEAR SOLUTIONS

We put science to work.™

UK and USA Partnering Across the Pond

Technology Sharing

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Savannah River National Laboratory

Waste Management Symposia 2015

Panel 110

March 19, 2015

SRNL at a Glance

- ~ 832 Staff
- ~ \$214M (FY15 projected)
- ~ 300 Discrete Work Activities

Multi-Program Laboratory

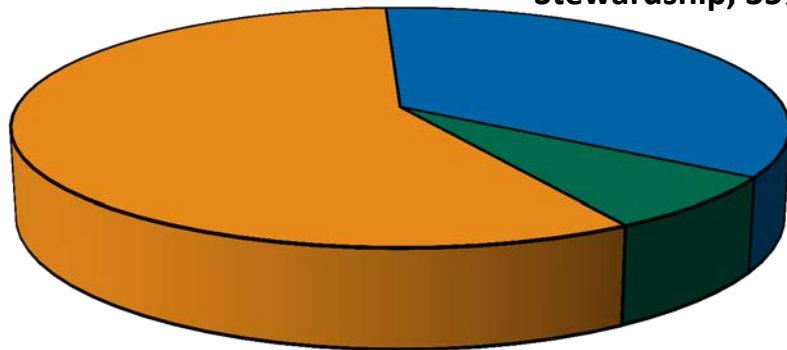
> 65% of funding from non-SRS customers

Core Nuclear Capabilities

- Environmental Remediation and Risk Reduction
- Nuclear Materials Processing and Disposition
- Nuclear Detection, Characterization and Assessments
- Gas Processing, Storage and Transfer Systems

Safest National Laboratory

Environmental Stewardship, 35%



National Security, 58%

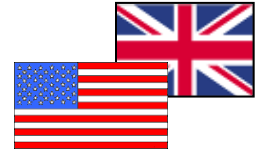
Clean Energy, 7%

SRNL FY14 Execution

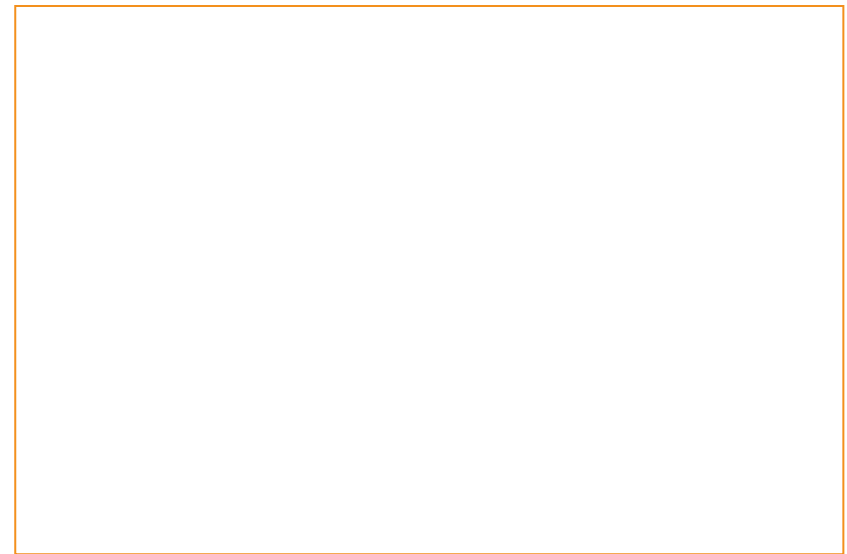


Technical Collaboration – A Strong History

- The UK shares similar waste cleanup and fuel cycle challenges with the USA
 - Both technical and programmatic with the USA



- There has been a long history of processing and waste management collaborations
 - Waste retrieval and characterization
 - Waste form development and disposal
 - Plutonium processing and disposition
 - Fuel processing
- Collaboration is the key to ***INNOVATION***



(NDA and DOE/SRS Participants in Plutonium Management Information Exchange Workshop – UK, Oct. 2013)



Waste Forms – Example of Collaboration

- **Technical collaborations have been strong in the area of waste forms**
 - Completed several technical exchanges (site visits and sharing of technical reports and information)
 - *Glass chemistry*
 - *Thermal treatment technologies*
 - *Glass corrosion*
 - *Technology selection processes*
 - *Technology readiness assessments*
 - Sulfur solubility models for high level waste glasses
 - Fundamental understanding of nuclear waste glass corrosion
 - Student exchanges related to waste glass formulation, processing, and chemical durability topics



Advisory Roles

- **DISTINCTIVE (Decommissioning, Immobilisation and Storage solutions for Nuclear Waste Inventories)** is a consortium of 10 UK universities performing research to support nuclear waste cleanup activities in the UK
- **SRNL and PNNL representatives are members of the International Advisory Group for DISTINCTIVE**
 - Allows DOE unique access to research approaches, information and data regarding the projects
 - International Advisory Group can help set the direction of the research to address world-wide needs in these areas including needs in the US.

1ST ANNUAL MEETING

DISTINCTIVE
Decommissioning, Immobilisation and Storage solutions for Nuclear Waste Inventories

We invite you to join us at the 1st Annual Meeting of the DISTINCTIVE University Consortium.

Come and engage with a growing research and development community concerned with nuclear waste and decommissioning issues in the UK. The meeting will bring together academics, researchers and industrial stakeholders from across the UK's civil nuclear sector. Keynote presentations will also be given by two internationally leading speakers. As such, the event will provide an invaluable opportunity to promote collaboration and to foster knowledge exchange.

By attending you will gain an overview of the programme and the advances made within its first year.

15TH—16TH
APRIL 2015

MILLENNIUM GALLERY
& MERCURE ST PAUL'S
HOTEL AND SPA,
SHEFFIELD

Research Councils UK
Energy
For a Low Carbon Future

TUCL
The University of Cardiff
UNIVERSITY OF LEEDS
UNIVERSITY OF BIRMINGHAM
Strathclyde University
LANCASTER
UNIVERSITY OF BRISTOL
MANCHESTER
Loughborough University
Imperial College London



SRNL and NNL: Building off of Technical Strengths

- NNL visits to SRNL in 2012 and 2014
 - Learning each others capabilities
- Partnering on proposals to EM International Program
 - NNL waste retrieval technology (Cryograb)
 - Waste glass formulation
- DOE-SR/SRNL visit to UK (Sept. 2014)
 - SRNL and NNL agreed to pursue collaboration in key technical areas of mutual interest:
 - *Enterprise modeling - technical basis for cleanup*
 - *Robotics/autonomous devices for characterization and cleanup in difficult environments*
 - *Characterization and disposition approaches for "orphaned" nuclear materials*



Collaboration in the Future

- **Networking**

- Sharing of ideas to promote innovation
- New opportunities and knowledge transfer for the next generation of engineers and scientists
- Potential exchange of personnel to foster this teaming
 - *SRNL has successfully hosted personnel from AWE in the past*

- **Focus on areas of complementary capabilities**

- Build off of capabilities, don't compete

- **Pursue next steps with NNL**

- Formalize partnership through joint non-disclosure agreement
- Establish integrated technical teams to define the benefits and opportunities