



We Put Science To Work

Savannah River National Lab Overview

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HyS Electrolyzer Workshop and Information Exchange

Savannah River National Laboratory

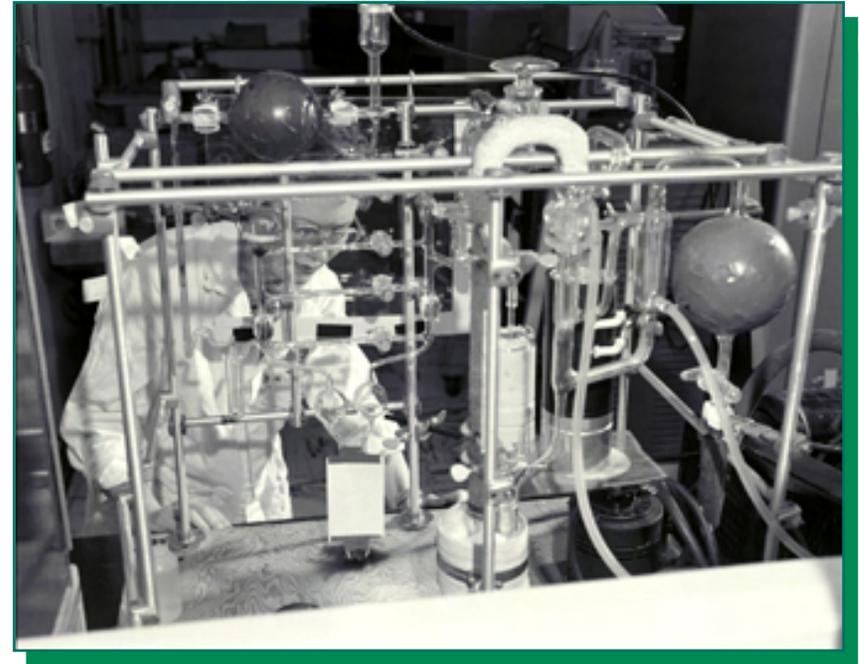
Savannah River Site

- DOE EM/NNSA
- Currently managed by SRNS
- ~310 sq. miles
- ~9000 employees



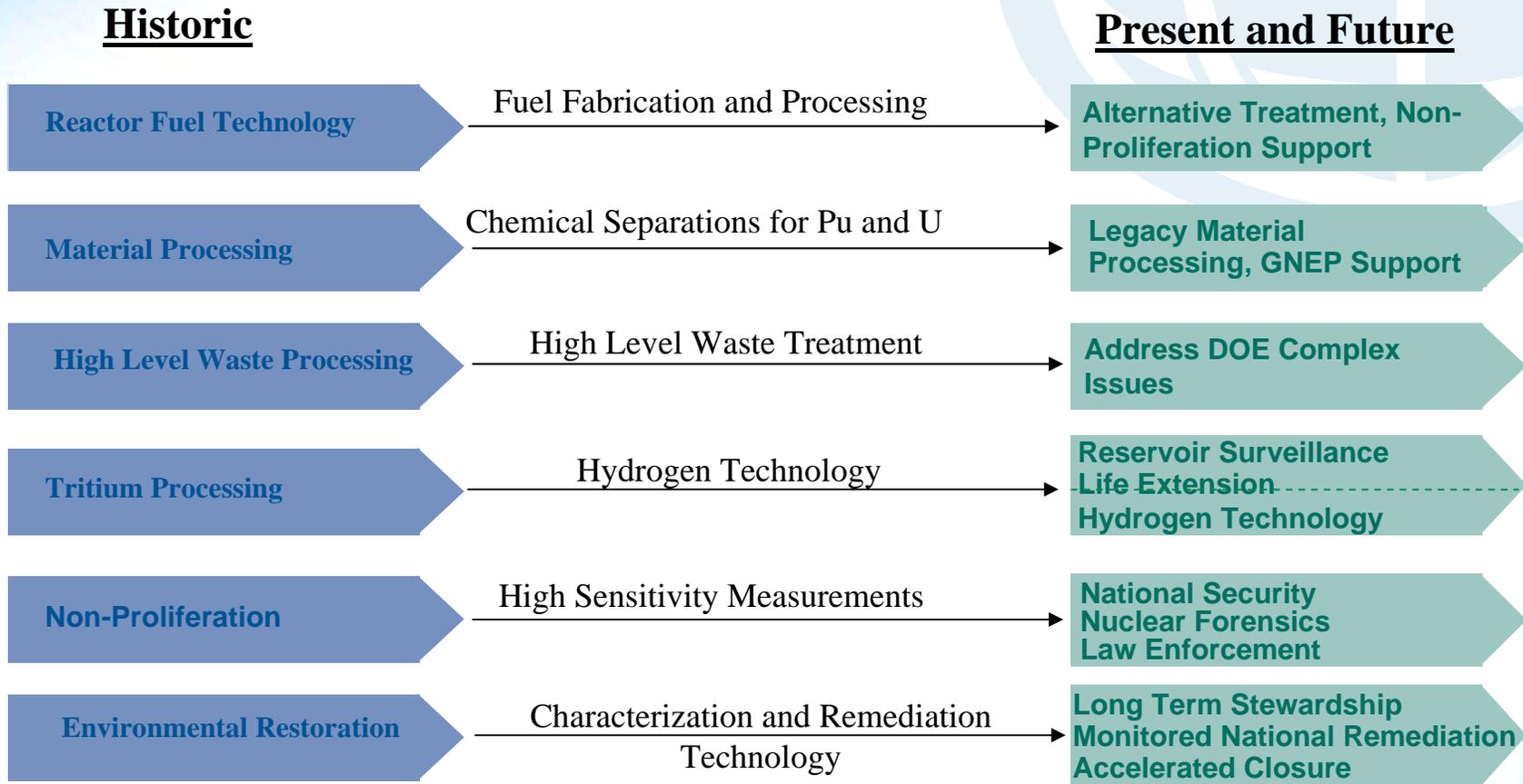
Early Days of the Laboratory

- **Began operation in 1953**
- **Original mission:**
 - Reactor research
 - Chemical separations
 - Tritium/Hydrogen support
 - Environmental science and monitoring
- **Changing mission:**
 - End of Cold War in 80's focus on safe containment disposition/clean up/D&D
 - Response to 9/11 homeland security initiatives
 - Need for energy independence dual use of hydrogen technology



SRNL brought technological support to nation's cold war efforts

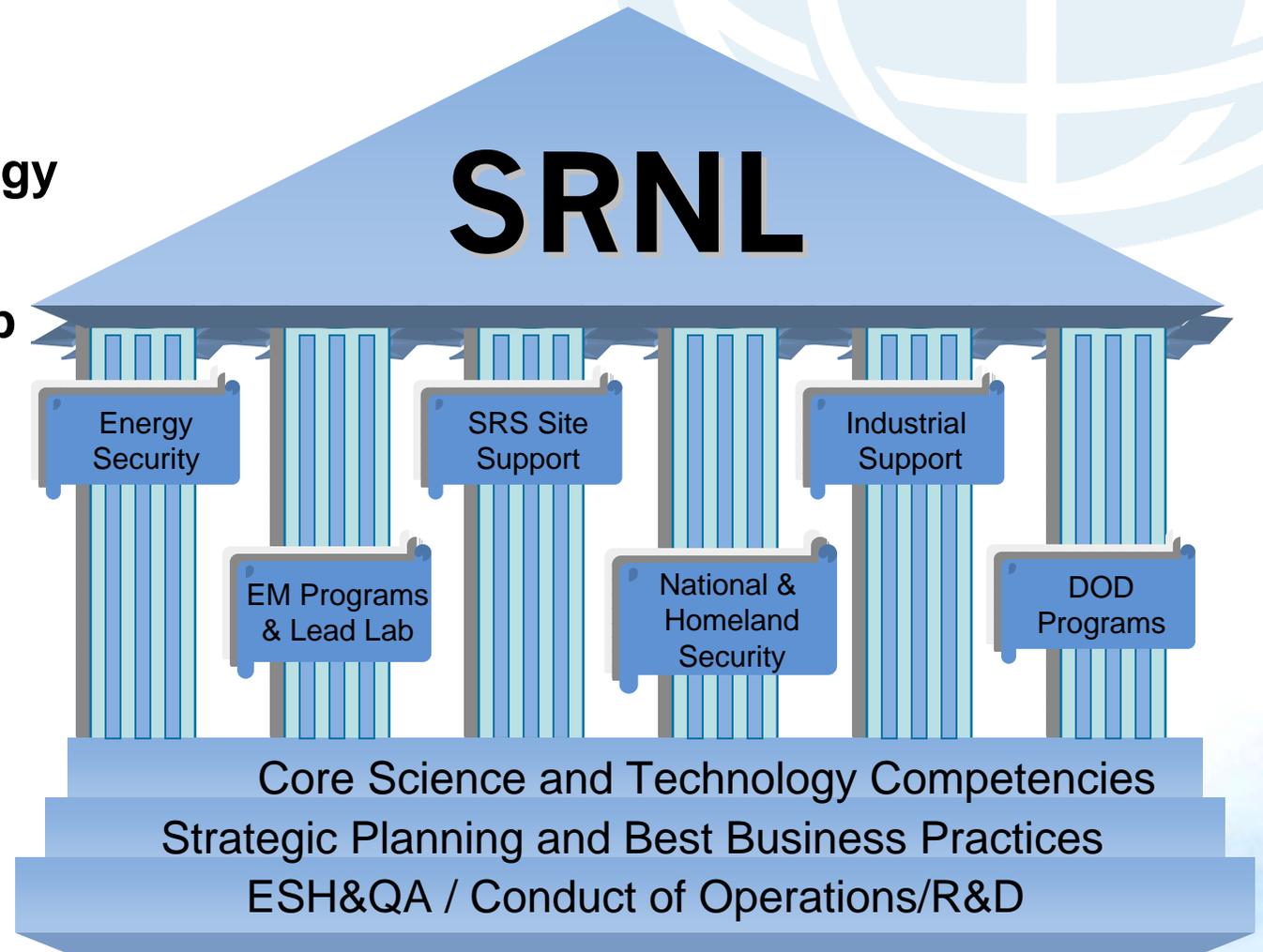
SRNL's Current Core Competencies Are Based On Historic Expertise



... Are the Bases of World Class Applied Science Capabilities

Strategic Vision

- Nation's Premier Applied Science/Technology Laboratory
- Multi-Program Lab with Diversified Funding Sources

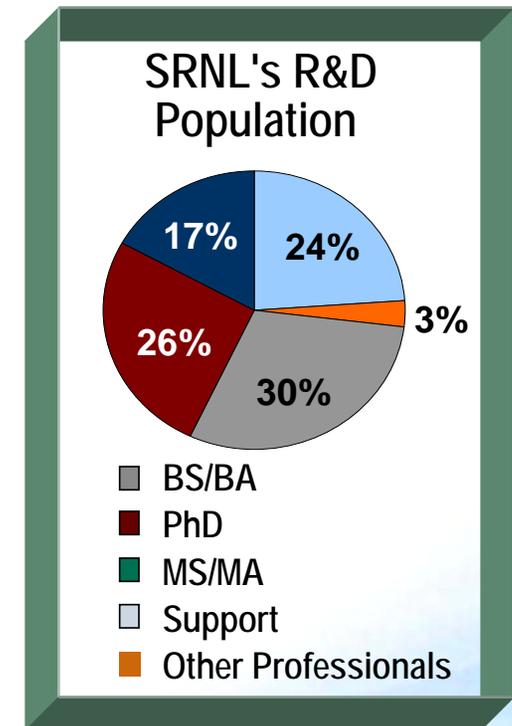


SRNL Today – Staffing Statistics



SRNL continues to put science to work for the nation

- Total staff – 932
- Research staff – 731
- 26 percent with PhDs
- Wide range of disciplines
 - Chemists
 - Mech Eng
 - Chem Eng
 - Elec Eng
 - Met Eng
 - Nuc Eng
 - Other Eng
 - Physicists
 - Bio Sci
 - Math/Comp Sci



SRNL Physical Facilities

Full Range of Capabilities Supporting SRS Missions – 600K sq. ft. total

Nonproliferation Mass Spectrometer



20,000 sq. ft.

High Level Cells



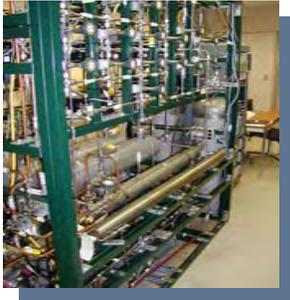
10,000 sq. ft.

Gloveboxes



10,000 sq. ft.

Metal Hydride Labs



15,000 sq. ft.

Bioremediation Labs



25,000 sq. ft.

Measurement Systems



35,000 sq. ft.

Remote Systems/Instruments

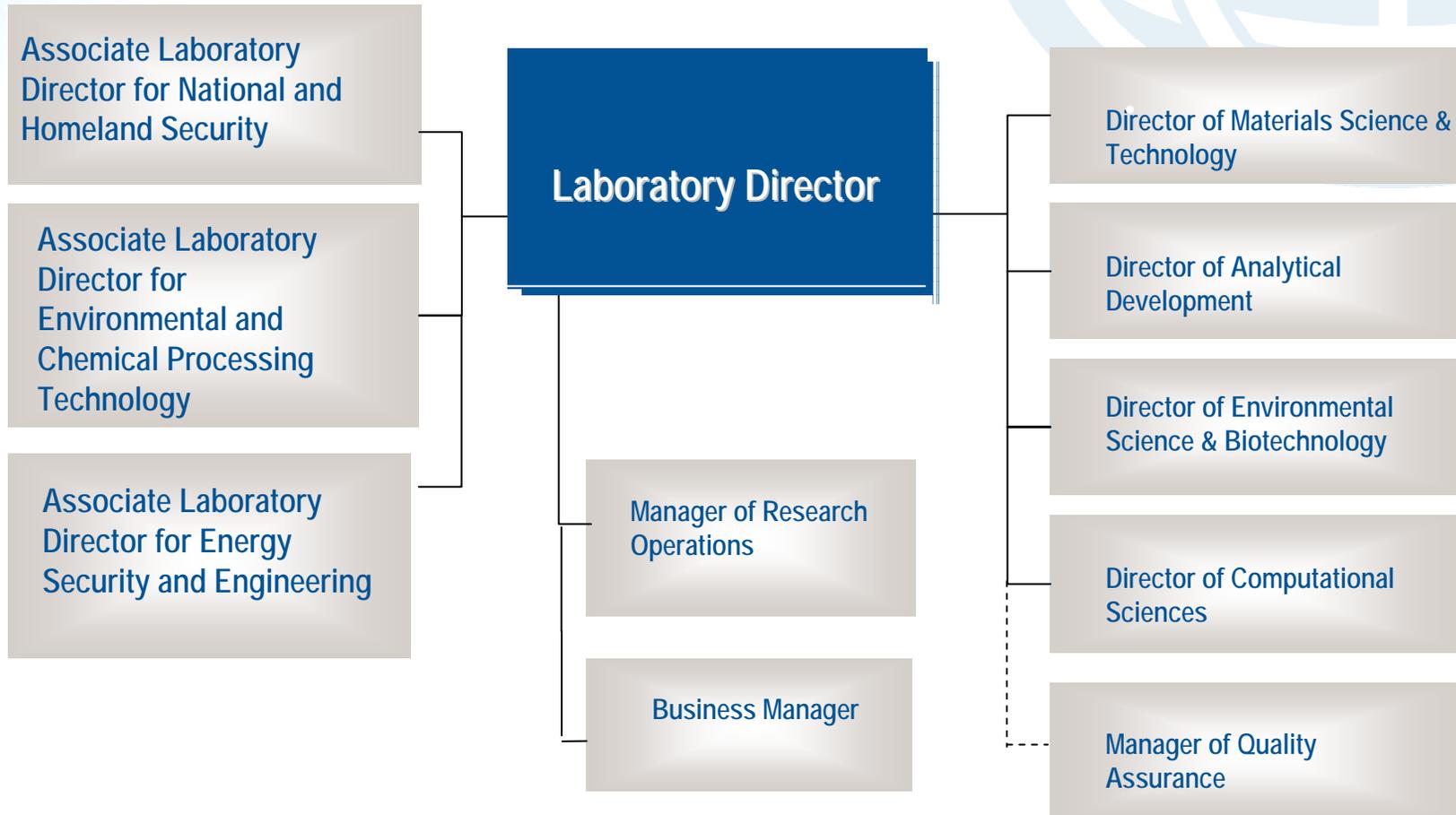


77,000 sq. ft.

Highly Radioactive
 Large Quantity SNM
 High Sensitivity
 Gaseous Tritium
 Environmental Remediation
 Analytical/Metallurgical Labs
 Instruments/Mock-up Labs



SRNL Organization



SRNL's Laboratory Directorates



National and Homeland Security

- Tritium Technology
- Plutonium Technology
- Homeland Security Support
- Non-Proliferation Technology
- National Law Enforcement



Energy Security & Engineering

- Hydrogen Storage Technology
- Alternative/Renewable Energy Research
- Robotic, Remote & Specialty Equipment
- Instrumentation
- Packaging

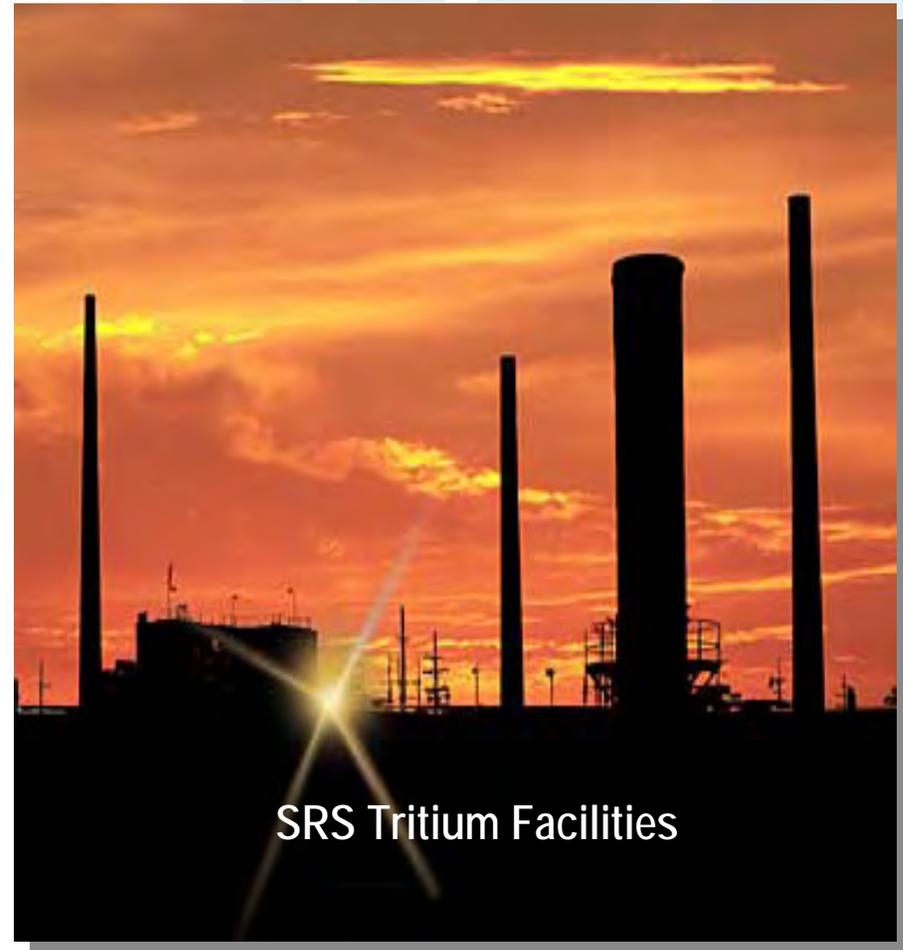


Environmental and Chemical Process Technology

- EM Corporate Laboratory
- Materials Stabilization and Disposition
- Cleanup Technologies

National and Homeland Security SRNL Defense Programs

- Tritium Process Development
- Reservoir Processing Development
- Gas Transfer System Surveillance
- GTS Life Storage Program
- Tritium Materials Performance R&D
- Engineered Equipment
- Analysis and Inspection Technology
- Shipping Package Development and Certification
- Pit Manufacturing Technology Development
- Cyber Security



SRS Tritium Facilities

National and Homeland Security



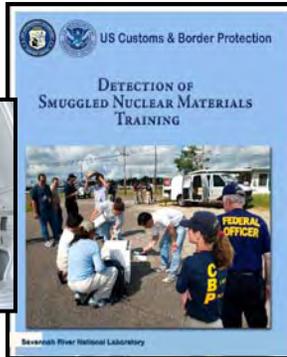
National Security



Contaminated Post-blast Debris



Hands-free latent fingerprint visualization



Interdiction and Investigation Training



Background Radiation Survey Program



World Financial Center II, 9/13/01

Broad range of technology and training to support Law Enforcement and Nuclear Materials Interdiction Needs

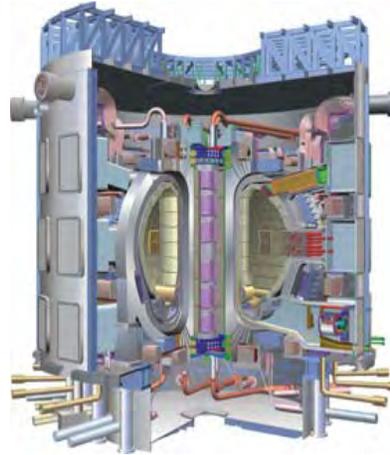
Energy Security and Engineering Directorate

Energy Programs

- Hydrogen Technology
- Renewable & Alternative Energy
- Nuclear

Engineering Programs

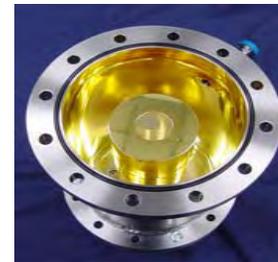
- Robotics, Remote & Specialty Equipment
- Instrumentation & Equipment Systems
- Packaging Technologies
- Material Sciences
- Computational Science & Modeling



The ITER Tokamak



Center for Hydrogen Research



Tritium Ion Chamber

Remote Pipe Crawler



DTRA Robotics

DOE/EM Corporate Laboratory

Unique technical capabilities applied to reduce technical uncertainties in order to assist sites in meeting cleanup requirements by providing applied research and development in the areas of:

Characterizing processing, and stabilizing high-level radioactive waste



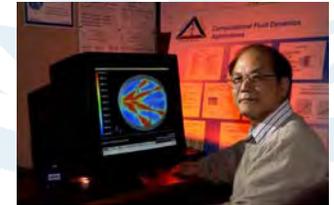
Characterizing and cleaning up groundwater and soil



Managing surveillance and packaging of nuclear material



Supporting waste stabilization through modeling and flowsheet development



Monitored Natural Attenuation



Closing high-level radioactive waste storage tanks



Managing, storing, and processing spent nuclear fuel

Processing, packaging and transporting, and disposing of legacy nuclear materials

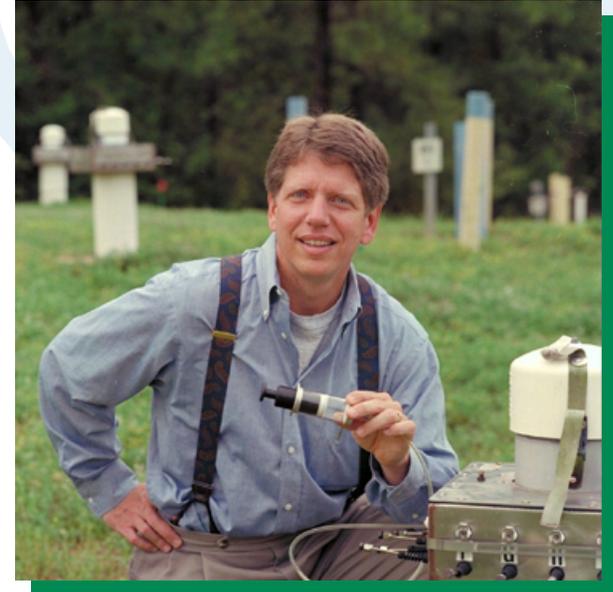


D&D of Nuclear Plants

Environmental Management – EM Designate Corporate Laboratory

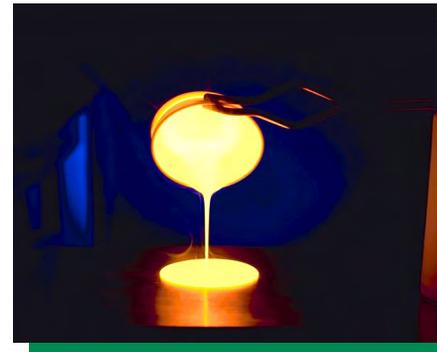
- Hazardous material disposition and storage
- Chemical processing technology
- Facility disposition technology
- Soil & groundwater projects

Deployed over 100 innovative technologies
At 400 locations to accelerate cleanup



SRNL applies innovative and cost-effective technology to environmental management

Defense Waste Processing Facility (DWPF)



SRNL: Putting Science to Work for the Nation

- National and Homeland Security
- Energy Security
- Environmental Management



SRNL: “Building on Strengths”
Safe, Agile, Innovative, Cost Effective