



U.S. DEPARTMENT OF  
**ENERGY**

OFFICE OF  
**ENVIRONMENTAL  
MANAGEMENT**

# SRNL – Applying Lessons Learned to the Hanford Waste Treatment and Immobilization Plant

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**Savannah River  
National Laboratory™**

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# SRNL is EM's National Laboratory

- Decades of experience supporting the missions of the Savannah River Site
- SRNL provides innovation that reduces cleanup cost, schedule and risk across the Complex
- SRNL continues to provide the technical continuity needed for long-term cleanup success
- Engagement at Hanford is a key initiative for SRNL
  - Share lessons learned and provide technical leadership
  - Perform technology development activities



Past

Validated through experience

Present

Strengthened with new tools and approaches

Future

Anticipating next generation needs for complex-wide challenges

- Assumptions and technical bases drive overall outcome
- Salt and Sludge Batch Planning technical exchange at Hanford – January 22-23, 2013
  - First exchange of several held recently engaging contractors, DOE, SRNL and other laboratories
  - Joint SRNL/SRR presentations on SRS processes for salt batch planning
    - *Presentations also given on development and deployment of alternative salt processing technologies*
  - Hanford contractor presentations on waste batch/campaign planning approach
  - Identified topics for follow on technology exchanges
- DOE Office of River Protection visits to SRS over past 2 years to tour facilities and obtain briefings



- Strategy development key to successful operations
- Waste Feed Qualification Technology Exchange Meeting – May 7-9, 2013 at SRS
  - *Inform the Hanford One System Integrated Project Team of the waste feed acceptance and qualification processes implemented at the SRS*
  - *SRR and SRNL presentations on sampling and analyses protocols for DWPF feed and wasteform qualification activities*
  - *Discussed gaps in Hanford's technologies and technical approach based on the preliminary assessment*
- SRNL designing, building, and certifying lab-scale testing equipment to perform waste feed qualification for the WTP
- Waste Form Development and Qualification
  - *SRNL supporting expansion of glass composition region through application of lessons learned on DWPF processing and applying similar assessment strategies to ensure acceptable glass waste form production*
- WTP personnel visited SRS just last week



- Cementitious Waste Forms
  - July 24 and July 25, 2013 Technical Exchange at Hanford (SRNL, SRR, WRPS, PNNL, VSL, CRESO, LANL, and DOE site representatives)
- Supporting baseline and alternative technology development for Hanford Tank Waste Mission
  - Pulse Jet Mixer vessel testing for high-solids waste processing
    - *Providing mixing, simulant development, sampling, instrumentation, and chemical processing expertise*
  - Radionuclide and troublesome component removal technology development to minimize total processing volumes and recycle to the Tank Farm
    - *Tc, radionuclide, and halide/sulfate removal*
  - Perform vapor space corrosion studies to update the Hanford Double Shell control program
  - Design build and test a slurry pipe loop to determine total wear rate for piping to support the design basis



- Embedded positions in DOE-ORP, WTP, and WRPS
  - Supports integration and knowledge transfer between sites
  - Working technical issue resolution for the WTP HLW and Pretreatment facilities
    - *Assignment within DOE-ORP to the WTP Senior Technical Authority to return HLW and Pretreatment facilities to engineering, procurement, and construction status*
  - Programmatic leadership role in the Chief Technology Office of WRPS and on the Tank Waste Integrated Disposition Flowsheet team through the One System organization
    - *Bringing institutional knowledge gained from technology development performed at SRS*
    - *Utilizing SRS experience with System Planning to assess and integrate processing flowsheets*
- Leadership of Technical Assessment teams
- Support Start-up and Commissioning