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

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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

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<thead>
<tr>
<th>Past</th>
<th>Present</th>
<th>Future</th>
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<tbody>
<tr>
<td>Validated through experience</td>
<td>Strengthened with new tools and approaches</td>
<td>Anticipating next generation needs for complex-wide challenges</td>
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Salt and Sludge Batch Planning

- 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
Waste Feed and Waste Form Qualification

- 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, CRESP, 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
SRNL Technical Advisory Role at Hanford

- 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