Preliminary Results

February 21, 2012

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Project Integration and Planning
Savannah River Remediation
PURPOSE

- To fulfill Savannah River Site Citizens Advisory Board 2012 Waste Management Committee Work Plan topic
Agenda

- Liquid Waste Process Overview
- System Plan Rev. 17 Status
- System Plan Rev. 17 Preliminary Results
- Summary
Liquid Waste System

- DOE Complex Legacy Materials
- Savannah River & other Spent Fuel
- Saltstone
- DWPF - Defense Waste Processing Facility
- GWSBs - Glass Waste Storage Buildings
- ARP - Actinide Removal Process
- MCU - Modular Caustic Side Solvent Extraction Unit
- SWPF - Salt Waste Processing Facility
- DSS - Decontaminated Salt Solution
- SCIX - Small Column Ion Exchange
- SDUs - Salt Disposition Units
- NGS - Next-generation Solvent

- Aluminum Dissolution
- Sludge Washing
- Sludge Preparation
- At-Tank Treatment SCIX
- Cs, Sr & Actinides
- Salt Processing
- DSS
- DSS
- Saltstone
- SDUs

- H Tank Farm
- F Tank Farm
- H Canyon
- Empty Tanks -> Closure

- Aluminum Dissolution
- Sludge Washing
- ARP/MCU
- SWPF
- DSS
- Salt Solution
- Sludge
• Approved by SRR
• DOE Review in progress
• Forecast DOE Approval end of February 2012
• System Plan Rev. 17 assumptions are aligned to meet the Federal Facility Agreements for waste removal and tank closure commitments and the Site Treatment Plan commitment for completion of waste processing

• Process salt waste
  - Operate Interim Salt Processing (ARP/MCU) to provide needed tank space and support Salt Waste Processing Facility (SWPF) Operations
  - Provide feed to SWPF & Small Colum Ion Exchange (SCIX)
  - Start up and operate SWPF & SCIX

• Reduce lifecycle cost and schedule for sludge processing
  - Optimize Defense Waste Processing Facility (DWPF) processing efficiency (waste loading, process improvement, etc.)
  - Deploy technology for reducing sludge mass - aluminum removal

• Close tanks
  - Deploy technologies for tank cleaning - chemical, mechanical and annulus
  - Gain regulatory approval - Section 3116 and State

• Support H-Canyon nuclear materials disposition operations
• Changes are driven by:
  - Advances in Technology
  - Change in Sequencing
  - Acceleration Opportunities
  - Cost Savings Opportunities
  - Funding Adjustments
• **ARP/MCU**  
  - The ARP and MCU facilities will shutdown prior to the startup of SWPF allowing for SWPF tie-ins

• **Small Column Ion Exchange (SCIX)**  
  - Rescheduled based on funding to September 2018

• **Salt Waste Processing Facility (SWPF)**  
  - Start-up October 2014  
  - Processing rates increased through implementation of next generation solvent
• Saltstone Processing Facility
  - Processing supports ARP/MCU operations and is increased with SWPF startup

• DWPF will implement productivity enhancements during the SWPF tie-in outage
  - Modifications support increased influents from SWPF acceleration

• DWPF melter replacement occurs during the SWPF tie-in outage and then every 6 years

• Tank Farms will support waste receipts from H-Canyon
## Results

**Key Milestone**

<table>
<thead>
<tr>
<th>Key Milestone</th>
<th>Revision 16</th>
<th>Rev. 17</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date when all Type I, II, and IV tanks are closed</td>
<td>FY18</td>
<td>FY22</td>
</tr>
<tr>
<td>DWPF processing complete</td>
<td>2024</td>
<td>2026</td>
</tr>
<tr>
<td>Salt Processing Complete</td>
<td>2024</td>
<td>2025</td>
</tr>
<tr>
<td>Total number of canisters produced</td>
<td>7,557</td>
<td>7,580</td>
</tr>
<tr>
<td>– Salt only canisters produced</td>
<td>0</td>
<td>0</td>
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<tr>
<td>Additional Canister Storage Need</td>
<td>FY16</td>
<td>FY17</td>
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<tr>
<td>Initiate SWPF Processing</td>
<td>July 2014</td>
<td>October 2014</td>
</tr>
<tr>
<td>– Salt Solution Processed via DDA only</td>
<td>2.8 Mgal</td>
<td>2.8 Mgal</td>
</tr>
<tr>
<td>– Salt Solution Processed via ARP/MCU</td>
<td>6 Mgal</td>
<td>5.2 Mgal</td>
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<tr>
<td>– Salt Solution Processed via SCIX</td>
<td>27 Mgal</td>
<td>16 Mgal</td>
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<tr>
<td>– Salt Solution Processed via SWPF</td>
<td>61 Mgal</td>
<td>78 Mgal</td>
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<tr>
<td>– Total Salt Solution Processed</td>
<td>97 Mgal</td>
<td>102 Mgal</td>
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<tr>
<td>Total number of Saltstone Disposal Units</td>
<td>42</td>
<td>12*</td>
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* Higher capacity “Mega” SDUs
• The System Plan documents current operating strategy of the SRS Liquid Waste System
• System Plan Rev. 17 assumptions are aligned to meet the Federal Facility Agreements (FFA) for waste removal and tank closure commitments and the Site Treatment Plan (STP) commitment for completion of waste processing
• System Plan Revision 17 forecasts compliance with FFA and STP commitments