Z-Area Saltstone Facility Update

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Status Update
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DOE-SR Liquid Waste System (as of 09/30/18)

**Operational Goals**
- Radionuclides to glass
- Chemicals to Saltstone
- Tanks cleaned and operationally closed

**Legend:**
- ARP: Actinide Removal Process
- BWRE: Bulk Waste Removal Efforts
- DWPF: Defense Waste Processing Facility
- MCU: Modular Caustic Side Solvent Extraction Unit
- TCCR: Tank Closure Cesium Removal
- SWPF: Salt Waste Processing Facility

**51 Tanks**
- 8 grouted & operationally closed
- 1.2 millions curies immobilized in grout
- 5 BWRE complete
- 67% empty or grouted (old style)
- 23% empty (new style)

**43 tanks**
- 35 Mgal
- 249 MCI

**Salt waste**
- 9.8 Mgal treated

**Sludge waste**
- 4.2 Mgal treated

**Radionuclides**
- Most radionuclides to glass

**Glass Waste Storage**
- Poured 4,173 cans of projected 8,170
- 61.1 million curies immobilized in glass

**Saltstone Disposal Facility**
- 28.0 Mgal grout dispositioned from 16 Mgal DSS containing 471 kCi

**<1% radionuclides to saltstone**

**<1% radionuclides remain in tanks**

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Saltstone Facility

Location of Saltstone at SRS

Saltstone Facility
Saltstone Facility

- The Saltstone facility takes Decontaminated Salt Solution (DSS) from either the Actinide Removal Process / Modular Caustic Unit, Salt Waste Processing Facility, or Tank Closure Cesium Removal, combines it with a cement mixture to create a grout that, when set, becomes a stable waste form for permanent disposal of this low level waste.
• Approximately 16 million gallons of DSS processed to date into entire SDF

• Approximately 385K gallons of DSS processed in FY2018

• Approximately 142K gallons of DSS processed in FY2019
Salt Solution: 16M gal Gallons Processed to Date
## Saltstone Disposal Units

<table>
<thead>
<tr>
<th>Disposal Cell</th>
<th>Volume/Capacity (gallons)</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vault 1</td>
<td>5.6M/10.9M</td>
<td>Out of Service</td>
</tr>
<tr>
<td>Vault 4</td>
<td>19.1M/20M</td>
<td>Out of Service</td>
</tr>
<tr>
<td>SDU 2 A/B</td>
<td>5.5M/5.6M</td>
<td>Full</td>
</tr>
<tr>
<td>SDU 3 A/B</td>
<td>700K/5.6M</td>
<td>Reserve Capacity</td>
</tr>
<tr>
<td>SDU 5 A/B</td>
<td>5.5M/5.6M</td>
<td>Full</td>
</tr>
<tr>
<td>SDU 6</td>
<td>0.8M/32.8M</td>
<td>Currently in Use</td>
</tr>
<tr>
<td>SDUs 7-12</td>
<td>0.0/192M</td>
<td>Future Construction</td>
</tr>
</tbody>
</table>
Saltstone Facility Upgrades

Needed to support Salt Waste Processing Facility:

- Dry feed upgrades to increase capacity/throughput of storage silos.
- Increased staffing levels to implement second shift operations this year and 24/7 operations in 2020.
- SDU expansion: addresses critical mission need for the treatment, storage, and disposal of DSS produced by the liquid waste system.
Update on Previous Projects

• Sedimentation Basin Expansion
  – Expanded basin capacity to prevent overflow and discharge to waters of the State.
    Completed in 2014.
  – New size accommodates 100-year storm event.
    • Full expansion capacity remains.

• Vault 4 Stabilization
  – Poured a “clean cap” in Vault 4 cells to minimize dose rates to workers.
  – Applied a coating to the roof of cells D, E, F, J, K, and L.
    • No evidence of rainwater intrusion since completion of project.
  – Replacement of degraded Vault 4 huts
Presentation Takeaways

- Intended to be informational to the CAB.
- Saltstone processing rate is trending up.
- Significant progress made to date (16M gal dispositioned).
- Disposal Unit capacity over 30M gal (grout).
- Ramping up to support upcoming SWPF operations.