



U.S. DEPARTMENT OF
ENERGY



Life-cycle Liquid Waste Disposition System Plan Revision 17

Presentation to the Governor's Nuclear Advisory Council

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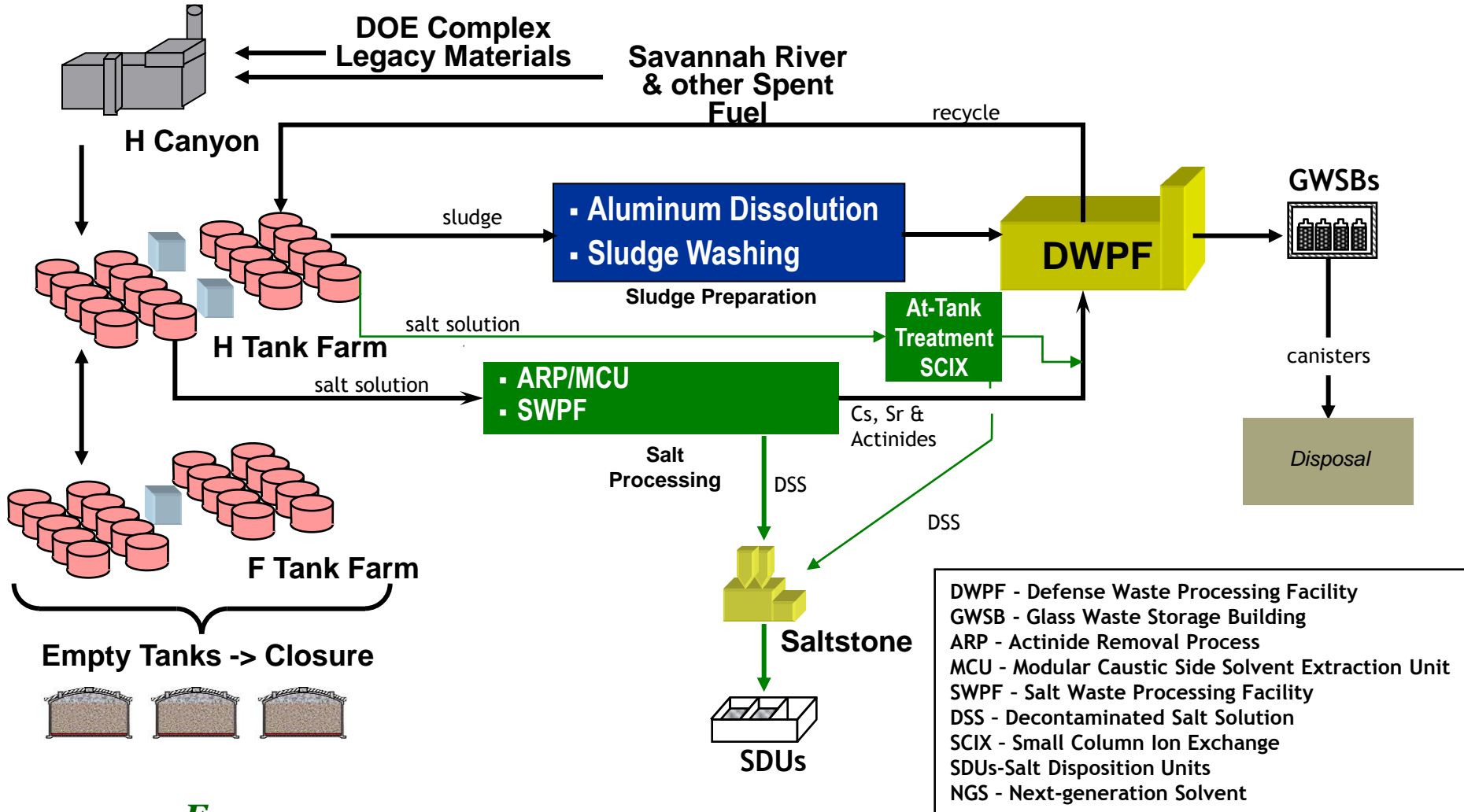


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Liquid Waste System



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Overview

Regulatory Framework

- *DOE Order 435.1, “Radioactive Waste Management”*
- **Federal Facility Agreement (FFA)**
 - Requires the 22 remaining old-style tanks to be operationally closed by the end of FY2022
- **Site Treatment Plan (STP)**
 - Requires *“removal of the backlogged and currently generated waste inventory by 2028”*
- *Tank Closure and waste disposition must meet Section 3116(a) of the Ronald W. Reagan National Defense Authorization Act for FY 2005*
- *Facilities operated under State-issued permits*



System Plan Targeted Results

System Plan Rev. 17 assumptions are aligned to meet the Federal Facility Agreement 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 (Actinide Removal Process/Modular Caustic Side Solvent Extraction Unit – ARP/MCU) to provide needed tank space and support Salt Waste Processing Facility (SWPF) Operations
- Provide feed to Salt Waste Processing Facility (SWPF) & Small Column 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 and annulus cleaning – chemical and mechanical
- Gain regulatory approval – Section 3116 and State

➤ **Support H-Canyon nuclear materials disposition operations**



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Inputs and Assumptions

- Changes are driven by:
 - Advances in Technology
 - Change in Sequencing
 - Acceleration Opportunities
 - Cost Savings Opportunities
 - Funding Adjustments



System Plan Rev 17 Inputs and Assumptions

➤ ARP/MCU

- The ARP and MCU facilities will shutdown prior to the startup of SWPF allowing for SWPF tie-ins

➤ SCIX

- Rescheduled based on funding to September 2018

➤ SWPF

- Start-up October 2014
- Processing rates increased through implementation of next generation solvent



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System Plan Rev 17 Inputs and Assumptions

- **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**



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Results

Key Milestone	Revision 16	Rev. 17	FFA/STP Commitment
Date when all Type I, II, and IV tanks are closed	2018	2022	2022
DWPF processing complete	2024	2026	2028
Salt Processing Complete	2024	2025	2028
Total number of canisters produced	7,557	7,580	N/A
–Salt only canisters produced	0	0	N/A
Additional Canister Storage Need	December 2015	December 2016	N/A
Initiate SWPF Processing	July 2014	October 2014	N/A
–Salt Solution Processed via DDA only	2.8 Mgal	2.8 Mgal	N/A
–Salt Solution Processed via ARP/MCU	6 Mgal	5.2 Mgal	N/A
–Salt Solution Processed via SCIX	27Mgal	16 Mgal	N/A
–Salt Solution Processed via SWPF	61Mgal	78 Mgal	N/A
–Total Salt Solution Processed	97 Mgal	102 Mgal	N/A
Total number of Saltstone Disposal Units	42	12*	N/A

* Higher capacity “Mega” SDUs

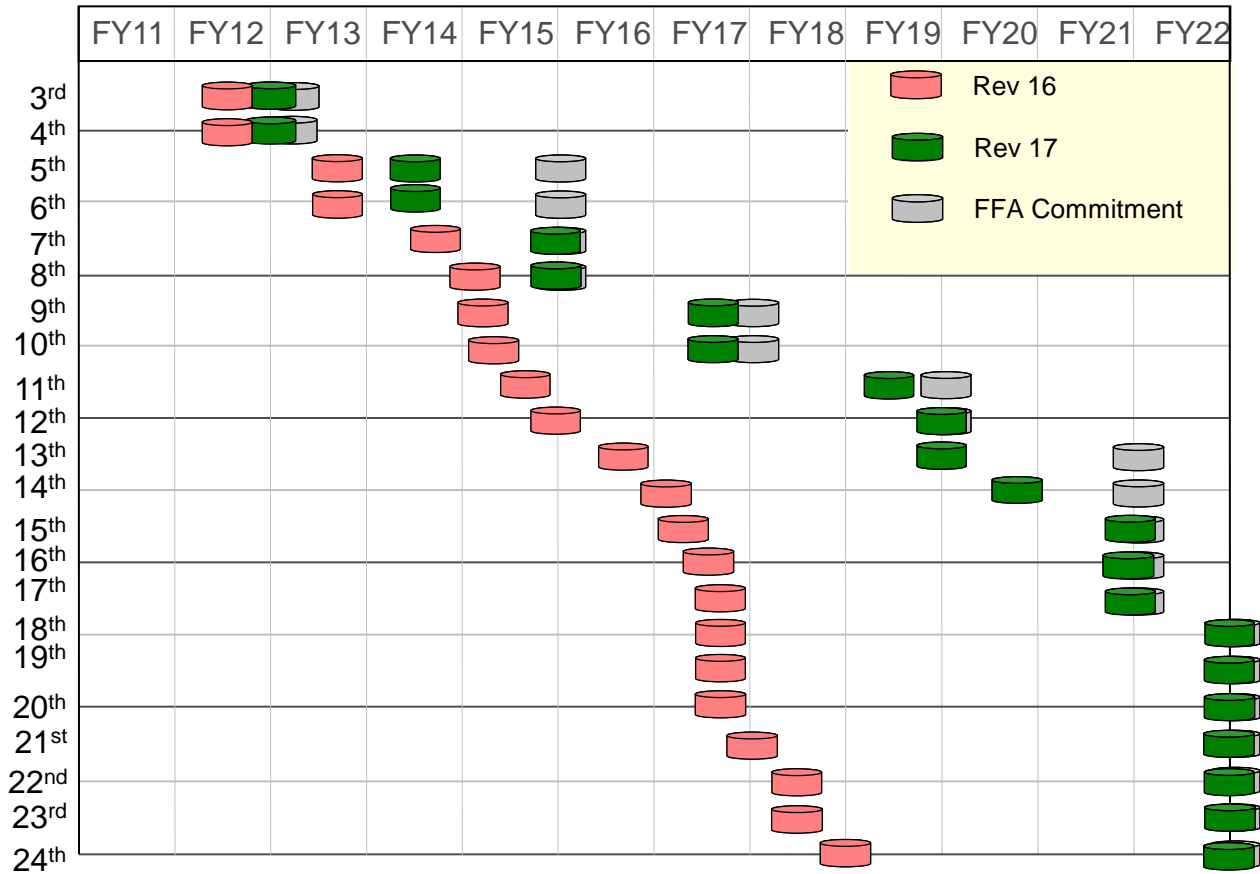


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Closure Summary



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Summary

- **The System Plan documents current operating strategy of the SRS Liquid Waste System**
- **System Plan Revision 17 assumptions are aligned to meet the FFA commitments for waste removal and tank closure and the STP commitment for completion of waste processing**
- **System Plan Revision 17 forecasts compliance with FFA and STP commitments**



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