Savannah River Remediation

We do the right thing.

System Plan Revision 17 Inputs and Assumptions

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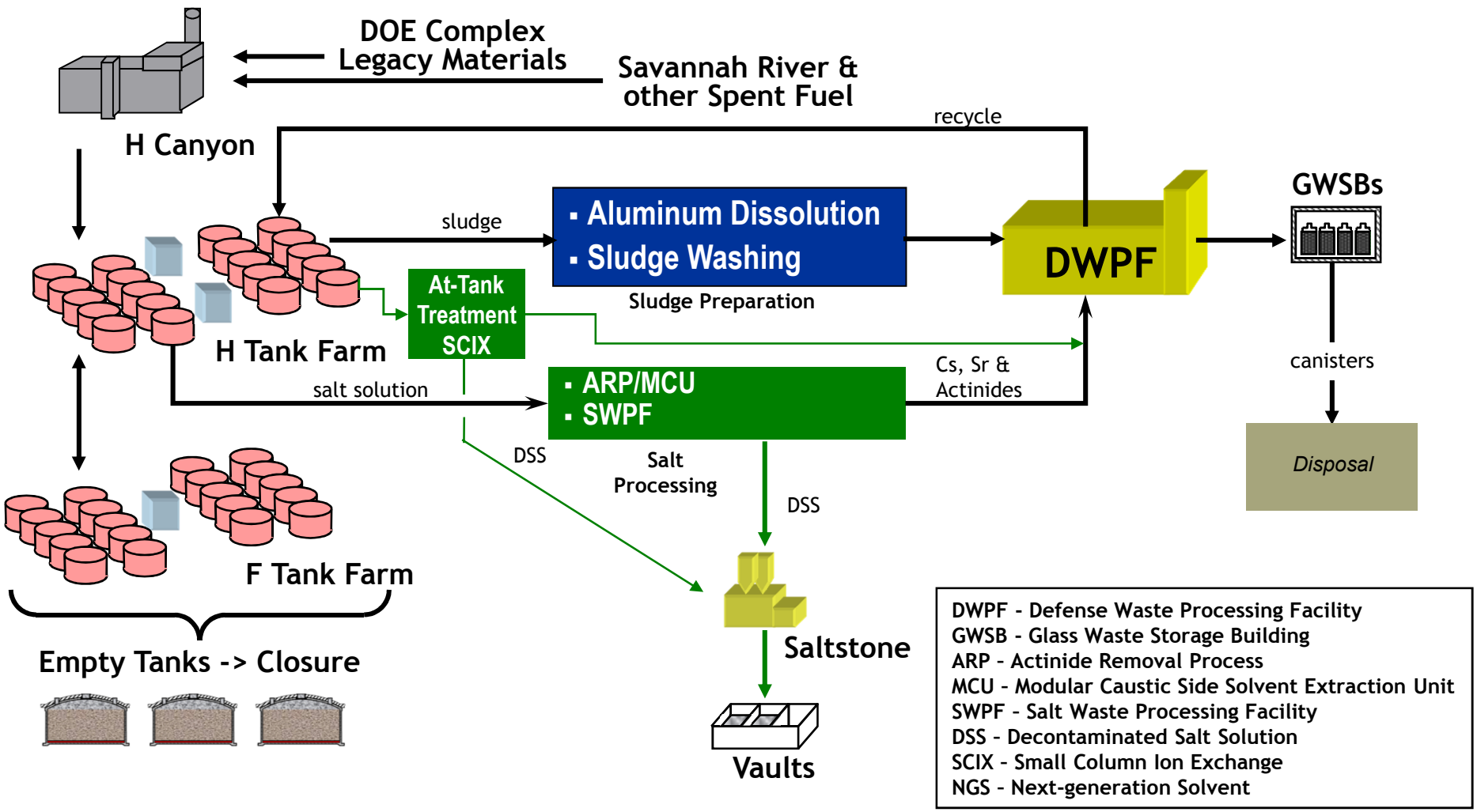
Agenda

- Liquid Waste Process Overview
- System Planning Overview
  - Purpose
  - Process
- System Plan Rev. 17 Assumptions
- Summary

Liquid Waste System



DWPF - Defense Waste Processing Facility
GWSB - Glass Waste Storage Building
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
NGS - Next-generation Solvent

System Plan Purpose

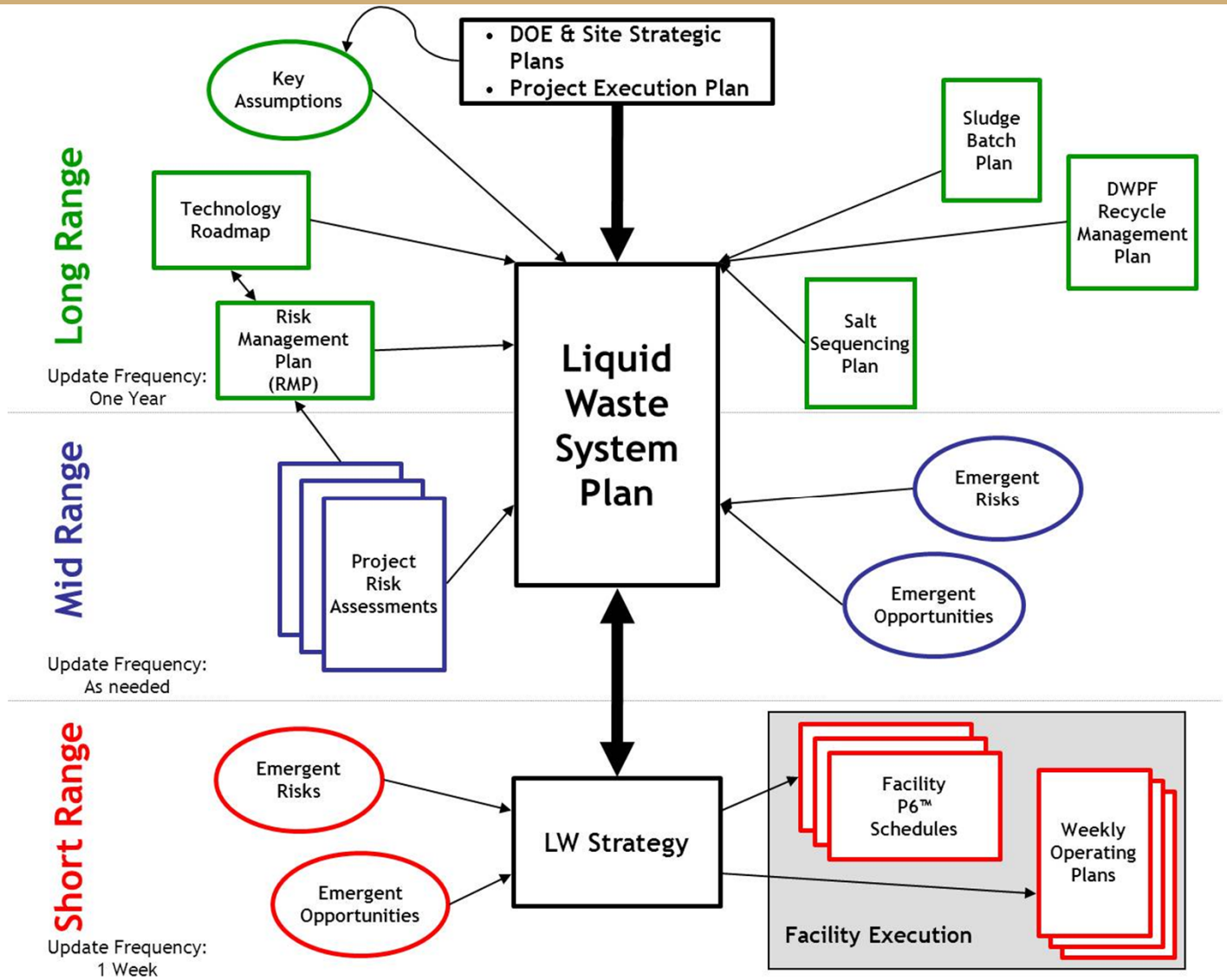
- Plan documents current operating strategy of the SRS Liquid Waste System:
  - Receipt, Storage, Treatment and Disposal of Radioactive Waste
  - Closure of Waste Tanks and Processing Facilities
  - Process simulation performed with modeling software

- Liquid Waste System Plan issued annually with DOE-SR Reviews and Approval
  - Revision 16 approved by DOE-SR December 6, 2010
  - Revision 17 is currently being developed
  - Revision 17 forecast to be approved in February 2012

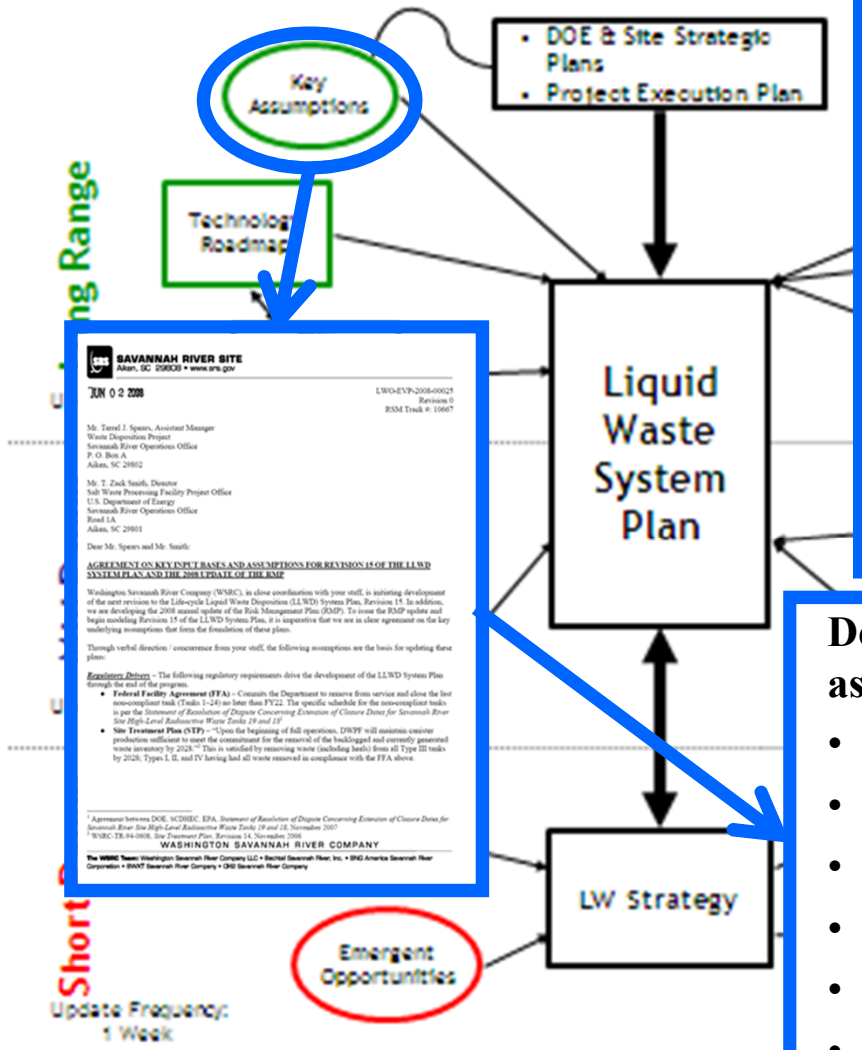
System Plan Targeted Results

- **Process salt waste**
  - Operate Interim Salt Processing (ARP/MCU) to provide needed tank space and support SWPF Operations
  - Provide feed to SWPF
  - Start up and operate SWPF
- **Reduce lifecycle cost and schedule for sludge processing**
  - Improve 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 stabilization operations**

System Planning Process



Key Technical Assumptions



Actual Operating Performance (September 30, 2011)

- 2 Tanks Closed (17 & 20)
- 4 Tanks Cleaned (5, 6, 18 & 19)
- 15 Tanks in Closure Process
- 3251 canisters of waste vitrified
- Waste Loading in glass increased from 28 wt% to 36 wt%
- 4.85 Mgal of Salt Solution treated (DDA & ISDP)
- Demonstrated 8 gpm feed rate to ARP/MCU
- Over 9 Mgal of Saltstone grout produced

Documents jointly developed key inputs and assumptions for plan development such as:

- SWPF startup date
- SWPF processing rate
- Frequency of DWPF melter replacement
- Schedule duration for Tank Closure documentation
- DWPF canister waste loading and production rate
- ARP/MCU processing rate

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
- Small Column Ion Exchange (SCIX)
  - Rescheduled based on funding
- Salt Waste Processing Facility (SWPF)
  - Start-up October 2014
  - Processing rates increased through implementation of next generation solvent

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
- Tank Farms will support waste receipts from H-Canyon

Summary

- The System Plan documents current operating strategy of the SRS Liquid Waste System
- Inputs and Assumptions are based on operating experience and facility design including planned improvements
- Inputs and Assumptions change as a result of technology improvements, cost-savings initiatives, funding constraints, etc.
- 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