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ARP/MCU Operating Performance Update

Presented to the SRS Citizens Advisory Board
Waste Management Committee
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Purpose

- To satisfy Waste Management Committee Work Plan by:

1) Providing update on the operating performance of the "Salt Disposition Project (SDP)", also known as the "Actinide Removal Process (ARP) / Modular Caustic Side Solvent Extraction Unit (MCU)"

2) Providing update on the demonstrated performance of the Next Generation Solvent (NGS) for the ARP/MCU process

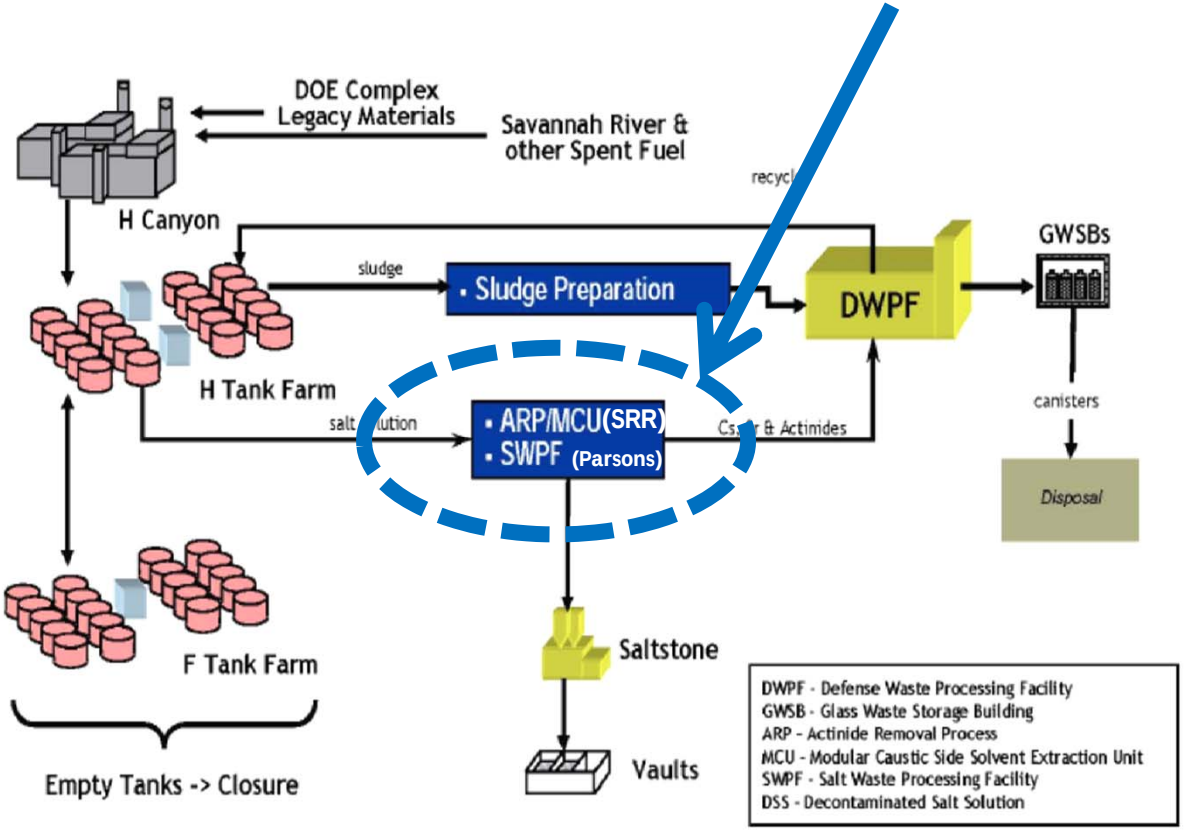
Agenda

- Acronym List
- Process Overview
- Continuous Life Cycle Improvement Strategy
- FY14/FY15 ARP/MCU Operational Performance
- Summary

Acronym List

ARP	Actinide Removal Process
CSSX	Caustic Side Solvent Extraction
DSS	Decontaminated Salt Solution
DWPF	Defense Waste Processing Facility
DF	Decontamination Factor
GWSB	Glass Waste Storage Building
MCU	Modular Caustic Side Solvent Extraction Unit
NGS	Next Generation Solvent
SRNL	Savannah River Nuclear Laboratory
SRR	Savannah River Remediation
SRS	Savannah River Site
SWPF	Salt Waste Processing Facility

Salt Disposition Process Overview



Process Overview: ARP/MCU Mission

- Process Salt Solution for Disposal utilizing the ARP/MCU process:
  - Continuing to optimize the "First of a Kind" process

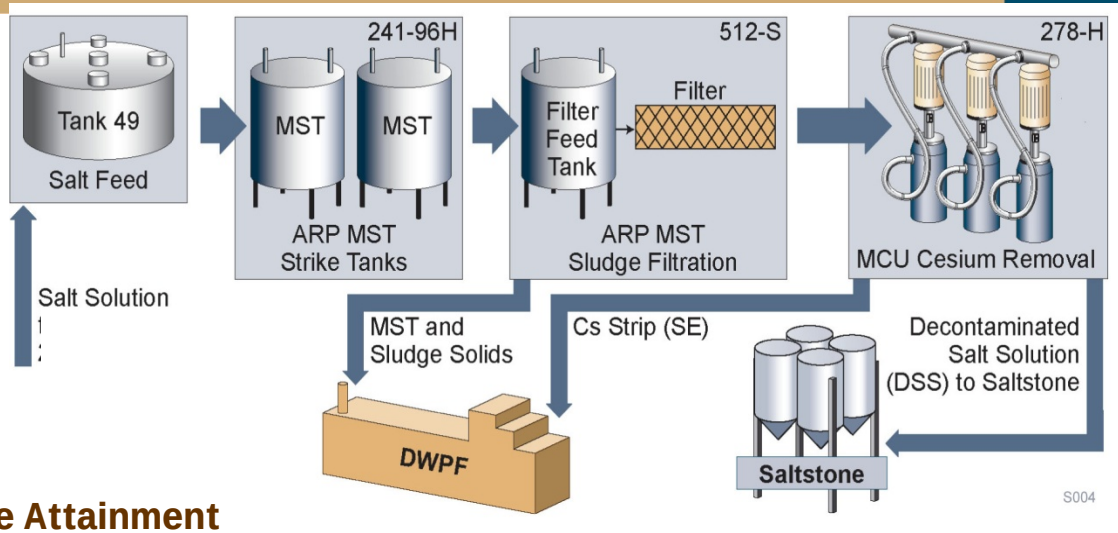
- Continued Operations - Mitigate Impact of Delay in SWPF Start-up:
  - Deploy/demonstrate the MCU- Next Generation Solvent

- Provide Operational Experience for the Salt Processing Program:
  - Continuing to gain process chemistry, equipment reliability and operational/maintenance knowledge and experience

Continuous Life Cycle Improvement Strategy

Objectives:

- Extend the salt processing capability (life-cycle):
  - Replace high risk equipment
  - Improve equipment reliability and maintainability
  - Improve process operations and attainment



Increase Attainment

Optimize the Process Flow-sheet

Upgrade Key Process Equipment to Improve Reliability

Modify Equipment to Facilitate Routine Maintenance

Improve MCU Performance (Cesium Removal)

Improve Equipment Monitoring & Diagnostic Capability

Increase Preventative Maintenance

Procure Spare Parts & Equipment

ARP - Actinide Removal Process
Cs - Cesium
DWPF - Defense Waste Processing Facility
MST - Monosodium Titanate (Used for Actinide Removal)
MCU - Modular Caustic-Side Solvent Extraction Unit
SE - Strip Effluent (Concentrated Cesium Stream from MCU)

FY14/FY15 ARP/MCU Operational Performance

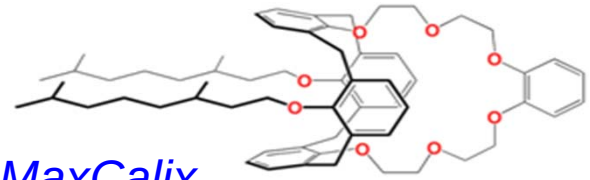
- FY14: Completed the initial Next Generation Solvent (NGS) demonstration processing over 550,000 gallons:

  - The NGS solvent shows improved hydraulic and DF performance.

  - NGS sets the stage for continued life cycle and increased MCU throughput.

- FY15: Completed reliability improvements during Oct/Nov. 2014 site steam outage.

- FY15: ARP/MCU processed ~40,000 gallons to date.



MaxCalix

- Processed over 4,600,000 gallons since initial start-up.

FY14/FY15 ARP/MCU Operational Performance – (NGS DF)

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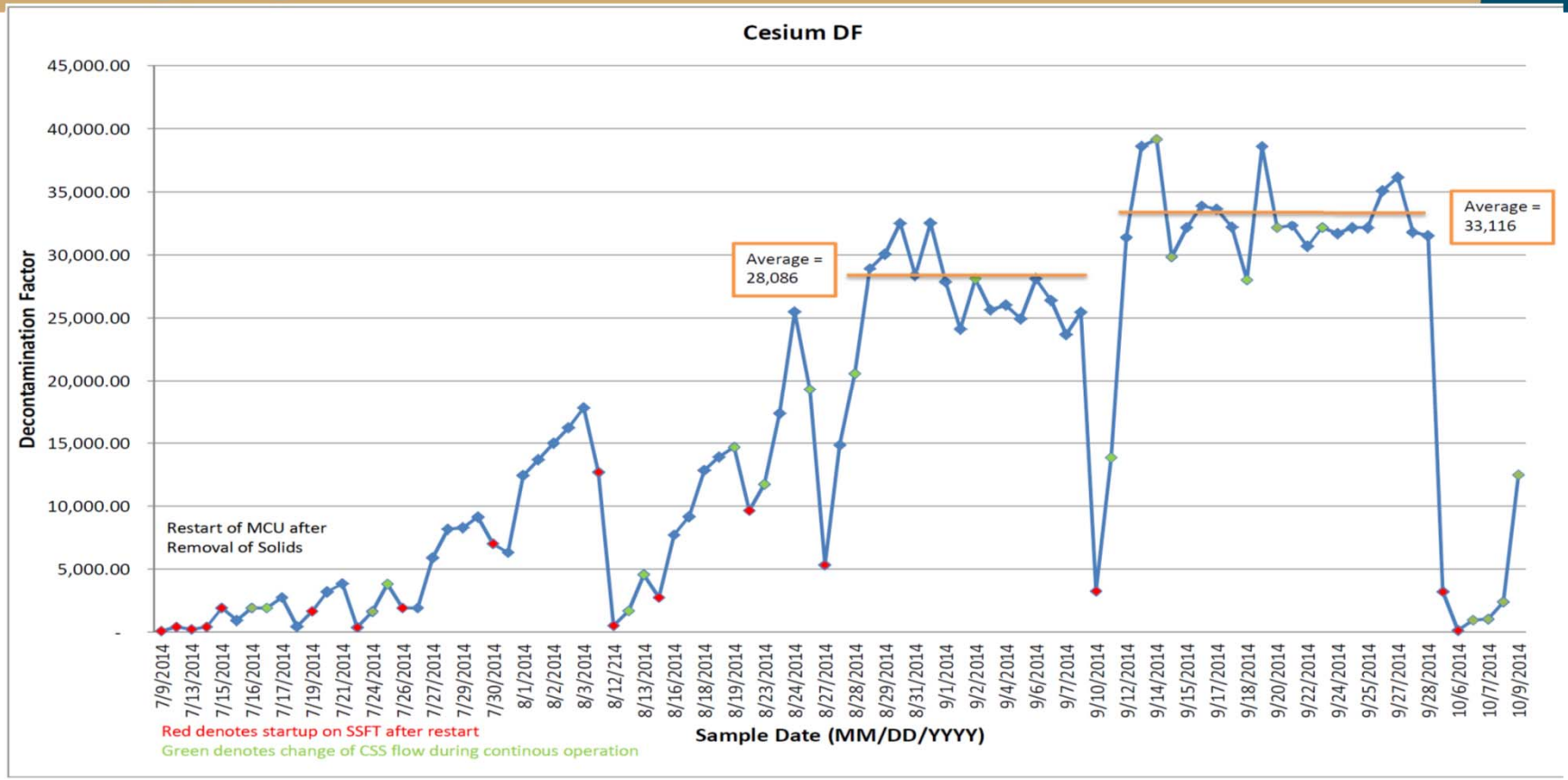

Summary

- The ARP/MCU process continues to provide successful salt processing since start-up in 4/08:
  - Helps reduce the lifecycle of the Salt Processing Program
  - Helps bridge the gap until the Salt Waste Processing Facility starts up
  - Enables continued optimization of the process flow-sheet
  - Provides valuable process, equipment and operational experience for the Salt Processing Program.

- The lifecycle enhancements set the stage for continued ARP/MCU operations

- Implementation of the MCU-"Next Generation Solvent":
  - Provides a lower curie cesium waste stream to Saltstone for the continued operational life of MCU.
  - Sets the stage for increased throughput (with additional funding)

Back-Up: MCU Contactors