Liquid Waste Integration with the Salt Waste Processing Facility

Presented to Citizens Advisory Board
by Keith Harp, SRR
July 25, 2017
Objectives

• Operate the Modular Caustic Side Solvent Extraction Unit (MCU) until the Department of Energy (DOE) provides Authorization to Operate (ATO) the Salt Waste Processing Facility (SWPF)

• Support the SWPF start-up date provided by DOE

• Support SWPF start-up at a rate of 6 million gallons per year (MGPY), increasing up to 9 MGYP in fiscal year 2020 as funding permits, when Next Generation Solvent (NGS) is proposed to be available at SWPF
Introduction

• In the beginning (2009) SRR was contracted to integrate the existing Liquid Waste (LW) facilities with the Salt Waste Processing Facility (SWPF)
  - Salt Solution Receipt Tanks at the Saltstone Processing Facility - Complete
  - Waste Collection Hold Tank at the Effluent Treatment Facility - Complete
  - Tank 21 Blend Tank Readiness - Complete
  - New Feed Line – Phases I, II, and III - Complete
  - East Transfer Line Modifications – Complete
  - West Transfer Line Modifications – In progress
  - Defense Waste Processing Facility (DWPF) Modifications
    - Modular Caustic Side Solvent Extraction Unit (MCU) Continued Operations – In progress
    - SWPF Integrated Operations – In progress
**SWPF Integration Modifications**

**Up to 9 MGPY**

**Legend**
- Green checkmark: Scope Complete
- Blue checkmark: Required for 12/2018 Start Up
- Red checkmark: Supports Increased Throughput

**MCU & 512-S Decommission**
- Flush & Drain Tanks Prior to Final Tie-In
- On Track for 11/2018

**Utilities**
- TiO₂ Testing
  - Up to 5.85 wt %
  - On Track for 11/2018

**SWPF Feed Line Final Tie-In**

**Utilities**

**SWPF**

**DWPF Mods**
- On Track for 11/2018

**GWSB**

**Saltstone**

**Saltstone Staffing**
- 24/7 Operations
  - Train and qualify staffing to support up to 9 MGPY from SWPF

**SDU-6**

**SDU-7**

**Tank Farms**

<table>
<thead>
<tr>
<th>Fiscal Year</th>
<th>Tank Modifications for Salt Dissolution</th>
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</thead>
<tbody>
<tr>
<td>2018</td>
<td>Tank 41, Tank 27, Tank 03, Tank 44</td>
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<tr>
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<td>Tank 44, Tank 14, Tank 02, Tank 34, Tank 31</td>
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<td>Tank 31, Tank 25</td>
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**Blend Tank 21**
- (3 MGPY)
  - First Yr 4.65 M with T49
  - On Track for 10/2018

**Blend Tank 41**
- (6 MGPY)
  - On Track for 7/2018

**Blend Tank 26**
- (9 MGPY)
  - On Track for 12/2018

**Blend Tank 21**

**Blend Tank 41**

**Blend Tank 26**

**HTF East Hill Utilities**

**Tank Farms**

**Legend**
- Yellow checkmark: Scope Complete

**Feed Tank 49**
- On Track for 7/2018

**Initial Tie-In West Transfer Lines**
- On Track for 12/2017

**SWPF Feed Line Final Tie-In**

**Utilities**

**SWPF**

**DWPF Mods**
- On Track for 11/2018

**GWSB**

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Completed Scope

T21 Blend Tank
- Added shielding
- Validated pumps will support

Waste Collection Hold Tank
- Added 30 Kgal vessel to integrate transfers with SWPF

T49 Feed Line Modifications
- Installed over 300 linear feet of new feed line

East Transfer Line
- Installed spool piece from SWPF to final tie-in point
- Final spool piece fab complete

Salt Solution Receipt Tanks
- Added two 60 Kgal vessels to support SWPF throughput
MCU Continued Operations – Tank 49

- Jumper fabrication - **Complete**
- Valve Box Modifications - **Complete**
- B3 Pump
  - Tested satisfactorily - **Complete**
  - Provided savings of $2M

![Jumper Fabrication](image1)

![B3 Riser Modifications](image2)

![Valve Box Modifications](image3)
West Transfer Lines 511-S Transfer Controls – Low Point Pump Pit

Typical Leak Detection Box (LDB)

LDB Drain Plugs

Sump Pump
511-S Transfer Piping Diagram - Low Point Pump Pit

Existing Layout

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Post Tie-In Layout

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- purple: Existing Waste Transfer Lines
- green: New Waste Transfer Lines
Safety Basis Interface Controls

- **Administrative Controls pertaining to:**
  - Waste Acceptance Criteria
  - Communication protocols
  - Termination of transfers
  - Facility isolation
  - Monitoring of transfers
  - Response to Natural Phenomena (i.e., high wind, tornado, seismic event, etc.)
511-S Sheet Piling/Excavation

- Shoring/Sheet Piling

  March 1, 2017
  Pre-Construction

  March 30, 2017
  Sheet Piling Installed

- Excavation

  June 7, 2017
Partnering

- Radiological Control Inspectors
  - Trained and qualified SWPF inspectors
- Fan motors
  - Troubleshooting and repair support
- Transferring Unused Equipment/Materials
  - Electrical equipment for permanent power connections at SWPF
  - Unused pipe/electrical fittings from Parsons to SRR
  - Rigging equipment
- Laboratory training at C-Lab
  - Six (6) SWPF technicians currently trained
- Emergency Preparedness (EP)
  - Integrated EP drill set for October 2017
  - Ring down phones installed in SWPF and LW control rooms
Acronyms

ATO  Authorization to Operate
CFS  Cold Feed System
DOE  Department of Energy
DWPF Defense Waste Processing Facility
EP   Emergency Preparedness
LDB  Leak Detection Box
LPPP Low Point Pump Pit (511-S)
LW   Liquid Waste
MCU  Modular Caustic Side Solvent Extraction Unit
MGPY Million Gallons Per Year
NGS  Next Generation Solvent
SRR  Savannah River Remediation
SSRT Salt Solution Receipt Tanks
SWPF Salt Waste Processing Facility