Liquid Waste Program Regulatory Update

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Waste Disposition Programs Division

March 2017
Purpose

• Provide update regarding recent Liquid Waste Program regulatory decisions
  • Salt Processing Dispute Resolution Agreement
  • 2016 Federal Facility Agreement Milestone
    • Status of Tank 15 and Tank 10
  • Planning 2017 and Beyond
  • Consolidated General Closure Plan
SRS Liquid Waste Program (as of December 31, 2016)

Legend:
- ARP: Actinide Removal Process
- DWPF: Defense Waste Processing Facility
- MCU: Modular Caustic Side Solvent Extraction Unit
- SWPF: Salt Waste Processing Facility

Successfully Meeting Operational Goals
- High-activity portion of tank waste to glass
- Low-activity portion of tank waste to Saltstone
- Tanks operationally closed

- 43 tanks
- 35 Mgal
- 263 MCl

Salt Waste
- 9.0 Mgal treated

Recycle
- Sludge Waste
- 4.1 Mgal treated

Tanks Cleaned and Closed

<1% radioactivity remain in tanks

51 Tanks
- 8 operationally closed
- 4 bulk waste removal completed
- 2 bulk waste removal in progress
- 2 bulk waste removal in design
- old style – 33% of space used
- new style – 76% of space used

Glass Waste Storage
- 4,141 cans poured of projected 8,170
- and 59 million curies immobilized in glass

>98% radioactivity to glass

Saltstone Disposal Facility
- 19.8 Mgal grout dispositioned containing 0.5 million curies

<1% radioactivity to saltstone

Inert chemicals

www.energy.gov/EM
Salt Processing Dispute Scope

- Saltstone Solid Waste Landfill Permit
  - Begin operations of Salt Waste Processing Facility by September 30, 2011
  - An exchange of letters extended start date until October 31, 2015 but fines retroactive if not achieved
  - Current target start-up is December 2018

- Main issues to resolve:
  - Salt processing rates and schedule recovery of Liquid Waste Program
  - South Carolina Department of Health and Environmental Control (SCDHEC) calculated ~$200 Million potential fines and penalties (September 2011 – October 2016) for alleged violation
• Commence operation of Salt Waste Processing Facility by December 31, 2018
• Perform Supplemental Tank Closure Activities:
  • Tank Closure Cesium Removal Unit 1
    • Technology demonstration report prior to September 30, 2019
  • Tank Closure Cesium Removal Unit 2
  • Deploy next generation solvent in Salt Waste Processing Facility 2 years earlier than planned
  • Sonar mapping technology demonstration
• Process 36.75 Million gallons of liquid waste between FY16 – FY22
  • Reduced processing rates allowed if SCDHEC approves DOE’s justification
  • Agreement will continue until 36.75 Million gallons achieved
  • After agreement, DOE to process at least 8 Million gallons/year
Complete Bulk Waste Removal Efforts for 2 tanks by September 30, 2016

- In June 2016 DOE requested an extension which Environmental Protection Agency (EPA) and SCDHEC denied

- The three parties used the informal dispute resolution process to resolve:
  - Complete Bulk Waste Removal Efforts:
    - Tank 15H – October 31, 2017
    - Tank 10H – August 31, 2018
  - DOE provide monthly technical report on status of Tank 15
  - Two meetings between April 1 and August 31 for three agencies to discuss plans for 2017 milestones
1st use of four Submersible Mixing Pumps

Waste removed (sludge slurry) and sent to Tank 13H

Tank 13H supernate (liquid) recycled back to Tank 15H

Operating Plan assumes six waste removal campaigns needed

1st campaign completed – February 26, 2017

Revised Federal Facility Agreement Milestone (October 31, 2017) has no schedule contingency

Risk tracking – have experienced significant schedule delays to date

Final campaign forecasted completion is December 2017
Subcontract awarded July 2016
- Equipment arrives onsite October 2017
- Equipment installation, procedures, training and start-up testing May 2018
- Complete Tank 10 treatment ~ September 2018
- Technology demonstration report of technical feasibility and economic efficiency ~ January 2019
• Two meetings between April 1 and August 31 for DOE, EPA and SCDHEC to discuss plans for 2017 Federal Facility Agreement milestones
  – First Meeting scheduled May 16, 2017
  – Second Meeting to be determined

• Subsequent Federal Facility Agreement Milestones to be determined considering:
  – New Liquid Waste contract
  – New performance baseline, updated system planning, system health, results of Tank Closure Cesium Removal demonstration, etc...
SCDHEC approved F Tank Farm General Closure Plan used to close Tanks 18, 19, 5 and 6

SCDHEC approved H Tank Farm General Closure Plan used to close Tanks 16 and 12

Consolidated General Closure Plan
  - Incorporates lessons learned
  - Streamlines process and Closure Module development/approval
  - Provides flexibility for isolation and grouting sequence

Public Review and Comment Period: March 1 – 31, 2017
  - Written Comments Only
  - Julie Song SCDHEC/Water, 2600 Bull St. Columbia, SC 29201-1708
  - songjj@dhec.sc.gov
Questions And Comments?
Back-up Slides
Monthly Technical Report on Status of Tank 15

Tank 15H Waste Removal Progress Tracker

Approximate Values per Campaign (to-date)

<table>
<thead>
<tr>
<th>Campaign Number</th>
<th>Initial Liquid Level (in.)</th>
<th>Water/Chemical Additions to Tk. 15 (gal)</th>
<th>Supernate Transferred to Tk. 15 (gal)</th>
<th>Supernate Operation Time (hrs)</th>
<th>Volume Transferred Out (gal)</th>
<th>Estimated Sludge Solids Removed (gal)</th>
<th>Estimated Sludge Solids Remaining (gal)</th>
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<tr>
<td>1</td>
<td>83</td>
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<td>117</td>
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<td>Total</td>
<td>117</td>
<td>16,640</td>
<td>517,875</td>
<td>335</td>
<td>342,900</td>
<td>42,000</td>
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Tank 15H Profile View

Tank 15H Plan View

February Progress Notes

- No safety events
- Turbidity measurement in Tk 15 indicated suspended solids are settling much slower than originally anticipated
  - Turbidity results indicate the transfer from Tk13 to Tk11 will be required sooner than originally planned in order to maintain acceptable turbidity volume in Tk15 for Q-time management
- Tk15 supernatant (SMP) in Riser 2 and 3 was successfully pumped
- New elevations from tank floor 61' and 67' respectively
- An attempt was made to lower the SMP in Tk15 Riser 8 but was unsuccessful due to proximity of sludge beneath pump suction
- SMP was restored to previous configuration and will activate at 61" during campaign 2
- Tk15 SMP in Riser 4 was not lowered (already at desired elevation per flowsheet)
- Completed recycle transfer from Tk13 to Tk15 on 2/26 (331,100 gallons)
- Tk15 SMPs were operated to reset Q-time on 2/27 (next run required by 3/31)
- Tk15 annulus level steady, ventilation fully operational

Risk Tracking

- Weather Delays — Hurricane Matthew delays restart of transfer (5 days)
- Equipment issues — Tk14 Risers 6 Transfer Hose (17 days)
- NPS parameter acceptance requires reprogramming (5 days)
- Annulus leak repair — Installation of CTS and instrumentation adjustment (7 days)
- Sludge solids settling rate recovery — Tank 15 Q-time shortened, earlier mixing required (2 days)
- Flowsheet required (potential impact T&D)
- Sludge Rheology Issues — none to date
- Radiological issues — none to date
- Resource Limitations — Transfer delayed due to resource limitations over holiday weekend (7 days)
- Sample Analysis Delays — none to date
# Status of Older Style Tanks at F-Tank Farm

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<thead>
<tr>
<th>Type</th>
<th>Number</th>
<th>Description</th>
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<tr>
<td>Type I</td>
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<td>Saltcake Tank</td>
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<td>Saltcake Tank – BWRE Design</td>
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<td>8</td>
<td>BWRE Complete - Limited Reuse Approved</td>
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<td>Type IV</td>
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# Status of Older Style Tanks at H-Tank Farm

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<td>Saltcake Tank - BWRE Design</td>
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<td>Saltcake Tank - BWRE Initiated</td>
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