Savannah River Site
Citizens Advisory Board

Liquid Waste Regulatory Update

Aaron White
Senior Program Manager for Waste Disposition and Tank Closure
Full Board Meeting
Tuesday, September 23, 2019
Liquid Waste Regulatory Interactions

- **Federal Facility Agreement**
  - 2019 Suspension Agreement

- **State Permits**
  - H-Tank Farm (HTF) & F-Tank Farm (FTF) Permit
  - Saltstone Disposal Facility Permit
    - 2016 Dispute Resolution Agreement
    - Force Majeure Reporting

- **Interactions with other regulatory agencies**
In support of environmental restoration activities at Savannah River Site, the DOE, the EPA, and SCDHEC signed a Federal Facility Agreement (FFA) pursuant to Section 120 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and Sections 3008(h) and 6001 of the Resource Conservation and Recovery Act (RCRA).

- The agreement became effective in August 1993.
- As part of the agreement, DOE committed to remove from service those liquid radioactive waste tank systems that do not meet the standards set forth in Appendix B of the FFA.
- Appendix B of the FFA also defines the specific waste tank systems that are subject to the agreement.

WSRC-OS-94-42, *Federal Facility Agreement for the Savannah River Site*
In November 2017, the Parties entered into an agreement to partially suspend this schedule (“Suspension Agreement”) in recognition of best available information, knowledge, and assumptions applicable at the time.

Included an aggressive suspension schedule for renegotiating new liquid waste milestones.
SRS Federal Facility Agreement- 2019 Suspension Agreement

• Replaces the 2017 Suspension Agreement

• Suspends remaining Bulk Waste Removal Efforts and Operational Closure Milestones (except for Tank 10 BWRE)

• Keeps the plan to pursue a comprehensive plan and schedule for removal of waste tank systems

• Provided additional activities to be incorporated into the FFA
<table>
<thead>
<tr>
<th>Project</th>
<th>Milestone</th>
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<tbody>
<tr>
<td>F-Tank Farm (FTF) Deactivation Plan</td>
<td>6/30/2020</td>
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<tr>
<td>Demonstration of Ancillary Structure Closure (FDB-5 and FDB-6)</td>
<td>Operational Closure – 12/31/2022</td>
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<td>Submittal of an Explanation of Significant Difference to the F-Area Tank Farm, Tanks 17 &amp; 20 Record of Decision or Interim ROD (as appropriate)</td>
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<td>FTF Operable Unit Record of Decision Acceleration</td>
<td>Record of Decision – 1/2040</td>
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<td>Remedial Action Start – 4/2041</td>
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<tr>
<td>Supporting Tank Closure Cesium Removal Project</td>
<td>Water addition to Tank 9H to begin salt dissolution – 9/30/2020</td>
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Also Includes acceleration of other environmental project work

<table>
<thead>
<tr>
<th>Project</th>
<th>Milestone</th>
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<tbody>
<tr>
<td>D-Area Groundwater Operable Unit (NBN)</td>
<td>Treatability Study Field Start – 1/31/2020</td>
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<td>Treatability Study Data Report Submittal – 1/31/2021</td>
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<td>Action Memorandum Submittal – 5/31/2019</td>
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<td>Removal Action Start – 1/31/2020</td>
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SRS Federal Facility Agreement- 2019 Suspension Agreement

- Goal to initiate discussion of a new comprehensive plan and schedule within 30 days of notice to proceed for new Savannah River Site Integrated Mission Completion Contract

- Transfer beneficial activities from previous agreements in Appendix L

- Includes informal updates during the existing Liquid Waste Program quarterly meetings

- Goal to complete negotiations by 9/30/22
To provide the status of the radioactive liquid waste tanks being removed from service. The “March 9th Report”
SRS Federal Facility Agreement - Ongoing for Active Tank Systems

• “Annual Radioactive Waste Tank Inspection Program” Report
  – Waste Tank Descriptions
  – Inspection Program Description
  – Calendar Year Inspection Program results
  – Summary of Calendar Year Inspection

Typical Type II Tank Cross-Section

Tank 13

- Type II Tank
- H Tank Farm

Annulus Inspection Locations

Placed into Service: 1956

- Type II Tank
- H Tank Farm

Annulus Inspection Ports Available: 12

Inpection Capability: 90%

Summary of Visual Inspections: No changes were noted since the inspections in 2017.


Ultrasonic Testing Inspections

Conclusions following 2018 Inspection: No additional significant surface corrosion or other anomalies were noted. The 2018 inspection confirmed the structural integrity and waste containment capability of Tank 13.
SRS Federal Facility Agreement - Ongoing for Closed Tanks

- “Annual Visible Engineered Barriers Inspections and Maintenance”

- Inspections documented in an annual report

- SCDHEC and EPA have participated in annual inspections and in five-year remedy reviews

- Maintenance performed as required
PERMIT # 17,424-IW
ALL WASTE TANKS, EVAPORATOR SYSTEMS,
DIVERSION BOXES, PUMP PITS, TRANSFER LINES
AND ASSOCIATED TANKS, PUMPS AND PIPING.

Z-AREA
PERMIT # 02550-1603
CLASS III INDUSTRIAL SOLID WASTE LANDFILL
PERMIT # 18,801-IW
SALTSTONE MODIFICATION
PERMIT # 19,379-IW
SSRT
H & F Tank Farm Industrial Wastewater Construction Permit

- Consolidated General Closure Plan (CGCP) for F-Area and H-Area Waste Tank
  - The closure plan outlines the integration of documentation required for the permit and the RCRA/CERCLA integrated documentation consistent with the FFA.
  - Provides facility descriptions of each tank farm and types of tanks.
  - Identifies the state environmental requirements and guidance that apply to the removal from service of FTF and HTF individual waste tank systems, and describe how DOE will comply with these requirements.
  - Describes the process DOE will follow in selecting waste removal and stabilization methods for individual waste tank systems as they are removed from service.
H & F Tank Farm Industrial Wastewater Construction Permit

Tank closure process as described in the CGCP

Legend:
- a May not be required if no appreciable material remains in tank after BWRE
- b, c Not applicable for Type IV tanks. May be performed as part of heel removal step
- c May not be required if no appreciable material exists

Note: Figure also applies to ancillary equipment/structures, as appropriate
Saltstone Disposal Facility Landfill Permit

- Contained Special Conditions related to:
  - Specific reporting on radionuclides and curies disposed in SDF
  - Initiation of ARP/MCU operations
  - Initiation of SWPF operations

- SCDHEC and DOE entered into a Dispute Resolution Agreement
  - Perform Supplemental Tank Closure Activities
  - Process 36.75 Million gallons of liquid waste between FY16 – FY22
  - Reduced processing rates allowed if SCDHEC approves DOE’s justification
Saltstone Disposal Facility Landfill Permit

- Justification Process

1. Notification of a potential condition
   - Force Majeure Conditions Notification
   - Provides initial notification of potential Force Majeure Events
   - Issued As Required

2. Request for, and analysis of, Force Majeure Event
   - Fiscal Year Quarterly Force Majeure Report
   - Provides details; on a routine schedule
   - Issued by October 30, January 30, April 30, & July 30

3. Roll up, and analysis of, Events and Impacts
   - Annual Fiscal Year Force Majeure Summary Report
   - Final summary of decisions
   - Issued by January 31
Saltstone Disposal Facility Landfill Permit

- Any combination of treatment processes may be used to meet Agreement Total
- Reported annually by January 31
- Production Impacts + Production $\approx$ Agreement Total
- Production impact volume made up after FY22 by SWPF
- As of FY 18
  - Production impacted = 3,142,235gal
  - Actual production = 1,666,156

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<thead>
<tr>
<th>Fiscal Year (FY)</th>
<th>Agreement Total (minimum) (Million gallons)</th>
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<tbody>
<tr>
<td>2016</td>
<td>1.12</td>
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<tr>
<td>2017</td>
<td>1.30</td>
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<tr>
<td>2018</td>
<td>2.45</td>
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<td>2019</td>
<td>4.20</td>
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<td>2020</td>
<td>6.40</td>
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<td>2021</td>
<td>11.00</td>
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<td>2022</td>
<td>10.28</td>
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<td>Total</td>
<td>36.75</td>
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Interactions with other Regulatory Agencies

- U. S. Nuclear Regulatory Commission (NRC)
- Low-Level Radioactive Waste Disposal Facility Federal Review Group (LFRG)
### Example NRC Monitoring Areas/Factors

#### For Tank Farms
- Inventory
- Waste Release
- Cementitious Material Performance
- Closure Cap

#### For Salt Waste Disposal
- Inventory
- Infiltration and erosion control
- Disposal structure performance
- Subsurface transport
- Waste form performance and degradation

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#### H and F Area Tank Farms Monitoring Factors

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<th>Area</th>
<th>Monitoring Factor</th>
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Low Level Radioactive Disposal Facility Federal Review Group


- The LFRG provides regulatory oversight, identified in DOE Manual (M) 435.1-1, *Radioactive Waste Management Manual*, to confirm that the disposal of low-level radioactive waste in DOE facilities and tank closures are conducted in a manner that is protective of public health and safety and the environment.

Liquid Waste System Performance Assessments

- H- Tank Farm
- F-Tank Farm
- Saltstone Disposal Facility