



U.S. DEPARTMENT OF
ENERGY



Savannah River Site Citizens Advisory Board

Liquid Waste Regulatory Update

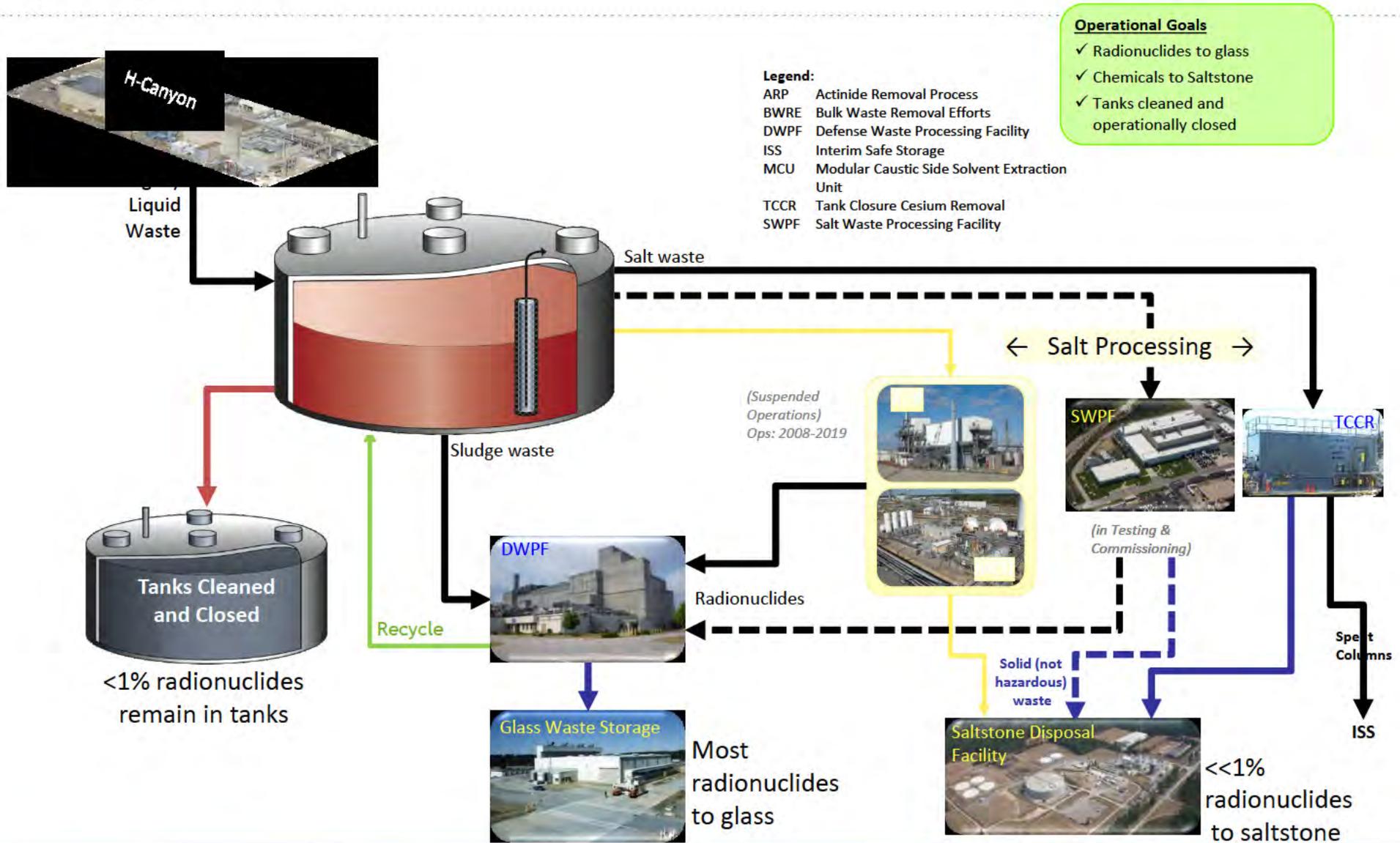
Aaron White
**Senior Program Manager for Waste
Disposition and Tank Closure**
Full Board Meeting
Tuesday, September 23, 2019

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**



Liquid Waste Regulatory Interactions



SRS Federal Facility Agreement

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
<http://www.srs.gov/general/programs/soil/ffa/ffa.pdf>

WSRC-OS-94-42

FEDERAL FACILITY AGREEMENT FOR THE
SAVANNAH RIVER SITE

Administrative Document Number 89-05-FF

Effective Date: August 16, 1993

- 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.

- 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

SRS Federal Facility Agreement- 2019 Suspension Agreement

Project	Milestone
F-Tank Farm (FTF) Deactivation Plan	6/30/2020
Demonstration of Ancillary Structure Closure (FDB-5 and FDB-6)	Operational Closure – 12/31/2022
	Submittal of an Explanation of Significant Difference to the F-Area Tank Farm, Tanks 17 & 20 Record of Decision or Interim ROD (as appropriate)
FTF Operable Unit Record of Decision Acceleration	Record of Decision – 1/2040 Remedial Action Start – 4/2041
Supporting Tank Closure Cesium Removal Project	Water addition to Tank 9H to begin salt dissolution – 9/30/2020

SRS Federal Facility Agreement- 2019 Suspension Agreement

- Also Includes acceleration of other environmental project work

Project	Milestone
D-Area Groundwater Operable Unit (NBN)	Treatability Study Field Start – 1/31/2020 Treatability Study Data Report Submittal – 1/31/2021
	Action Memorandum Submittal – 5/31/2019 Removal Action Start – 1/31/2020
690-N, Process Heat Exchanger Repair Facility (aka Ford Building) Partial Decommissioning	Submit Decommissioning Project Final Report – 6/30/2021

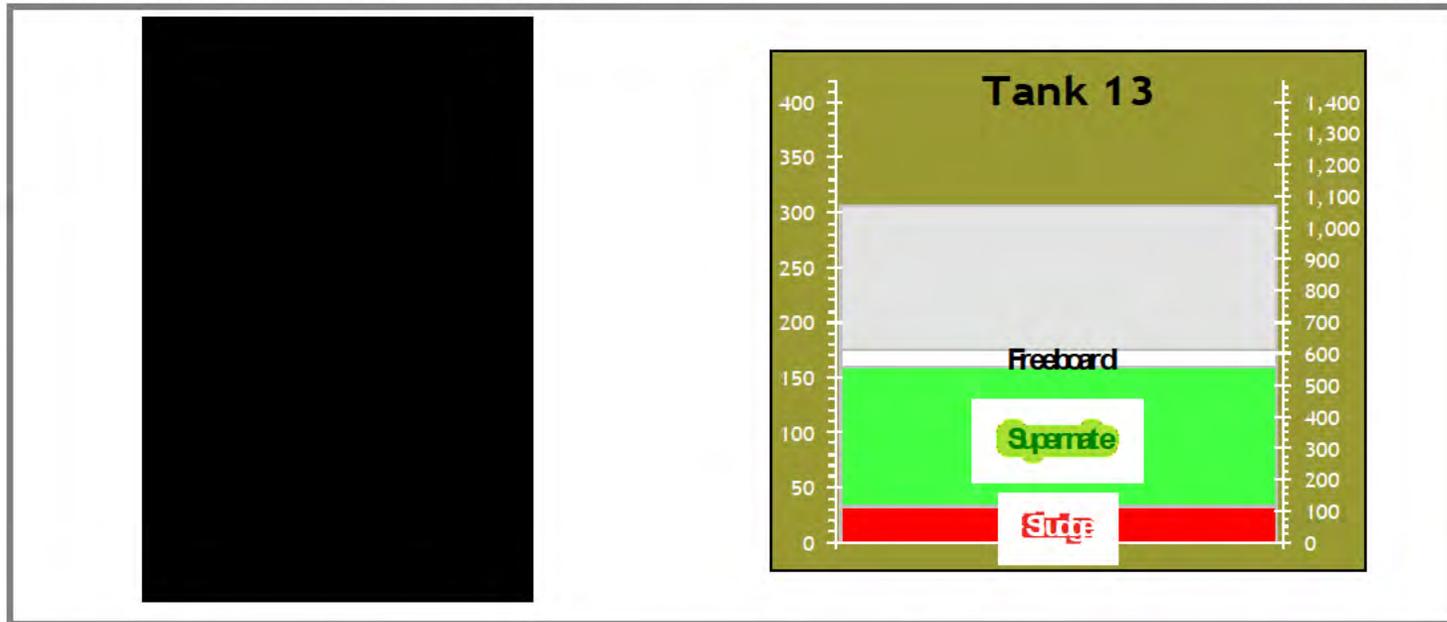
SRS Federal Facility Agreement- 2019 Suspension Agreement

- 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



SRS Federal Facility Agreement - Ongoing for Active Tank Systems

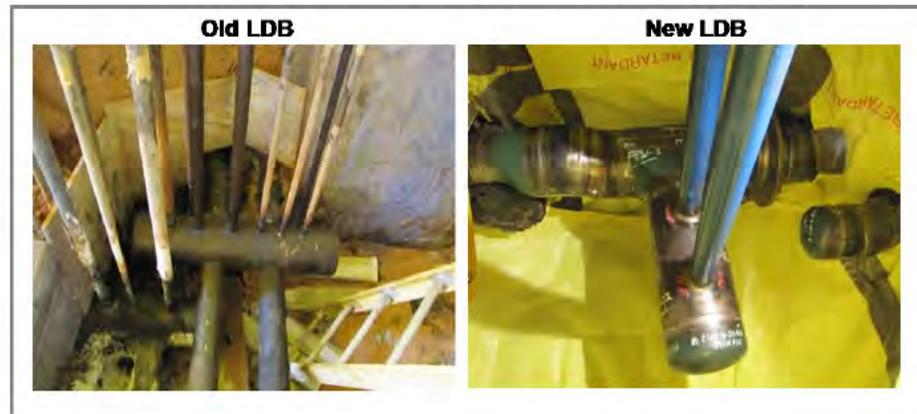
To provide the status of the radioactive liquid waste tanks being removed from service. The **“March 9th Report”**



Tank 12H Sample Test Equipment



Leak Detection Box (LDB) Replacement at Tank 7F

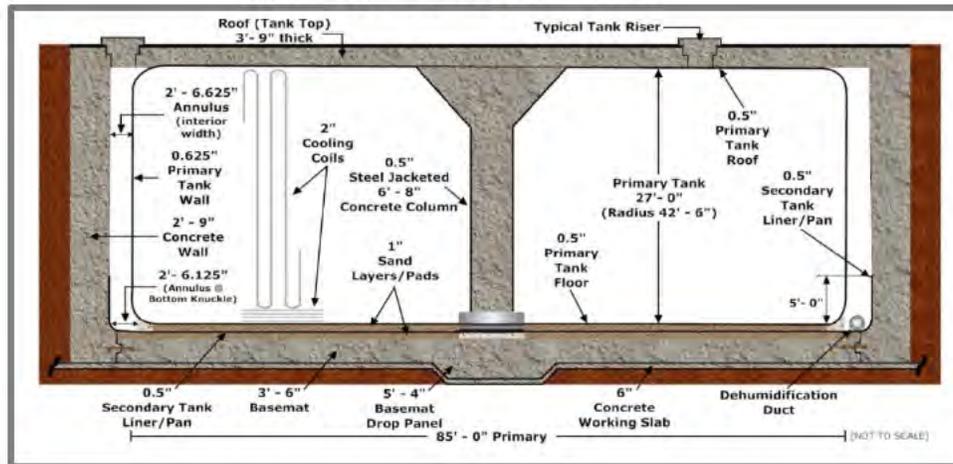


SRS Federal Facility Agreement - Ongoing for Active Tank Systems

- “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

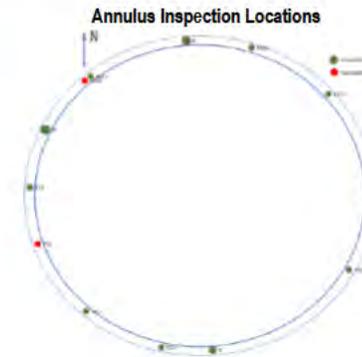


Tank 13

Placed into Service

1956

- Type II Tank
- H Tank Farm



Annulus Inspection Ports Available: 12

Inspection Capability: 90%

Number of Known Leak Sites	Date of Discovery	Waste on Annulus Floor	Location	Elevation from Tank Bottom
3	Mar 1977	Salt nodules on outside wall of primary tank and trace amounts in annular pan	West	279 in.
	May 1980	Salt nodules on outside wall of primary tank and trace amounts in annular pan	North	269 in.
	Oct 2012	Salt nodules on outside wall of primary tank and trace amounts in annular pan	West	270 in.

Last Visual Inspections: October 2018.

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

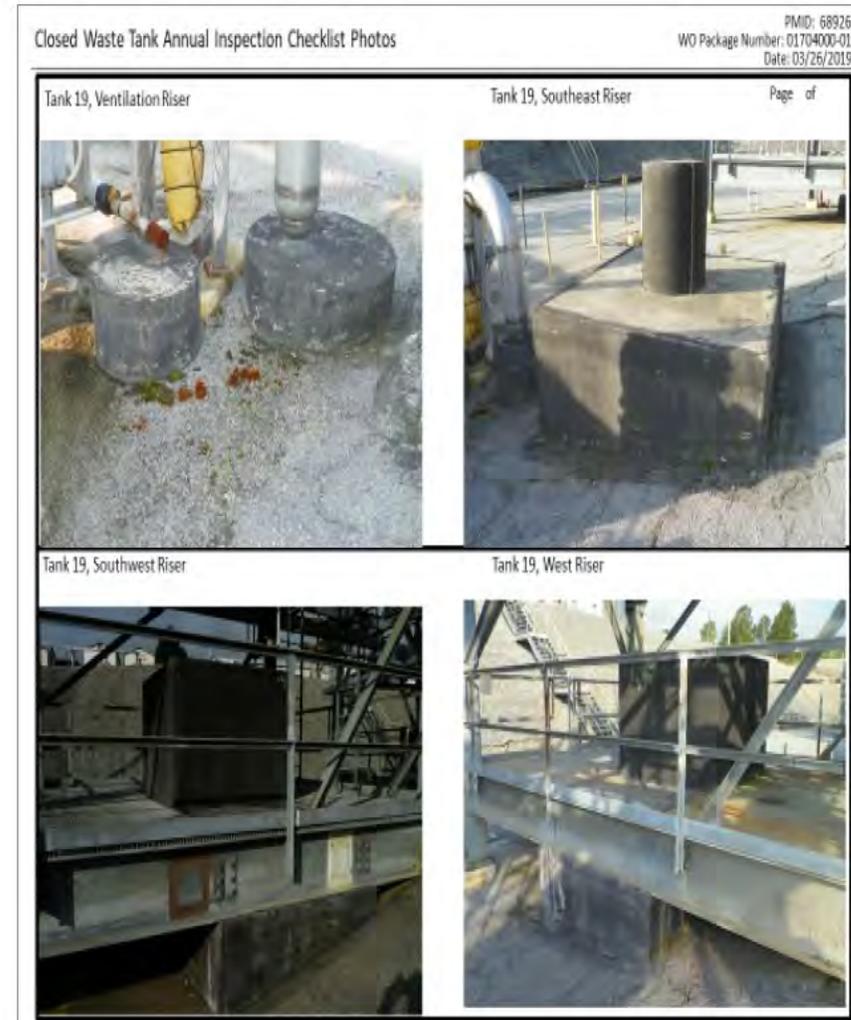
Ultrasonic Testing Inspections Performed: 1974, 1979, 1985, and 2000

Ultrasonic Testing Inspections Results: No detectable thinning of tank wall.

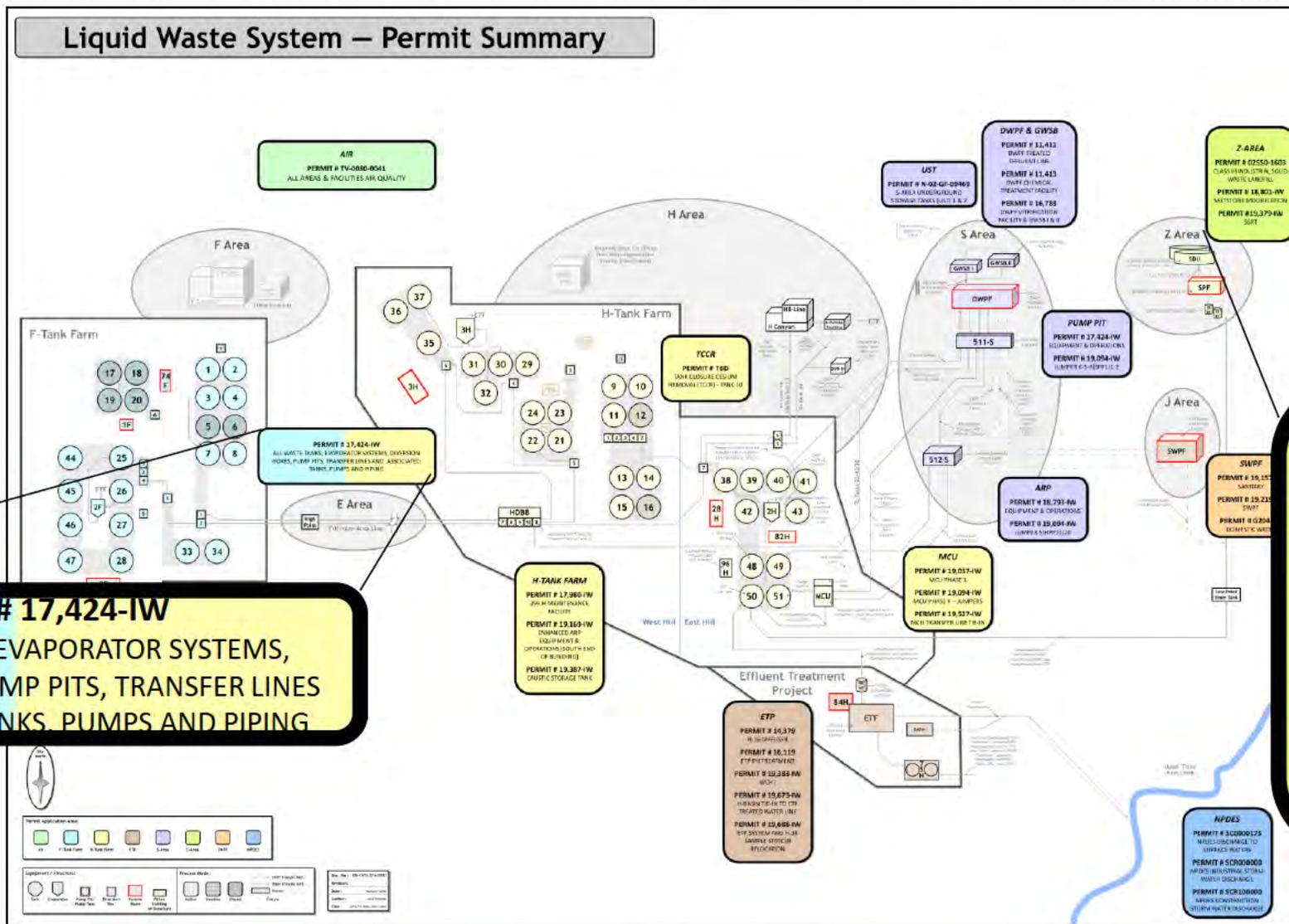
Conclusions following 2018 Inspections: No additional significant surface corrosion or other anomalies were noted. The 2018 inspection confirmed the structural integrity and waste confinement capability of Tank 13.

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**



Liquid Waste Permits

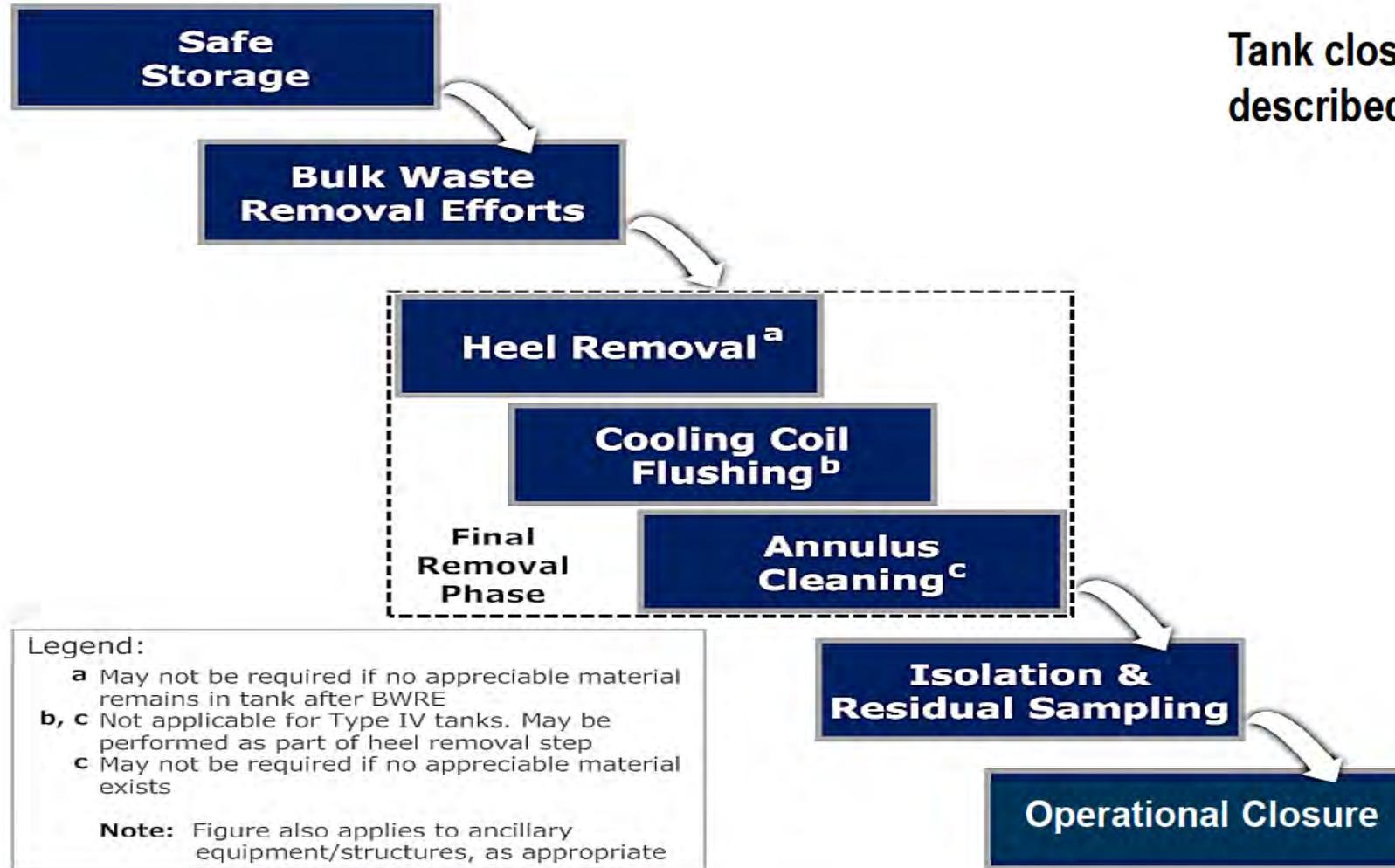


H & F Tank Farm Industrial Wastewater Construction Permit

- **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

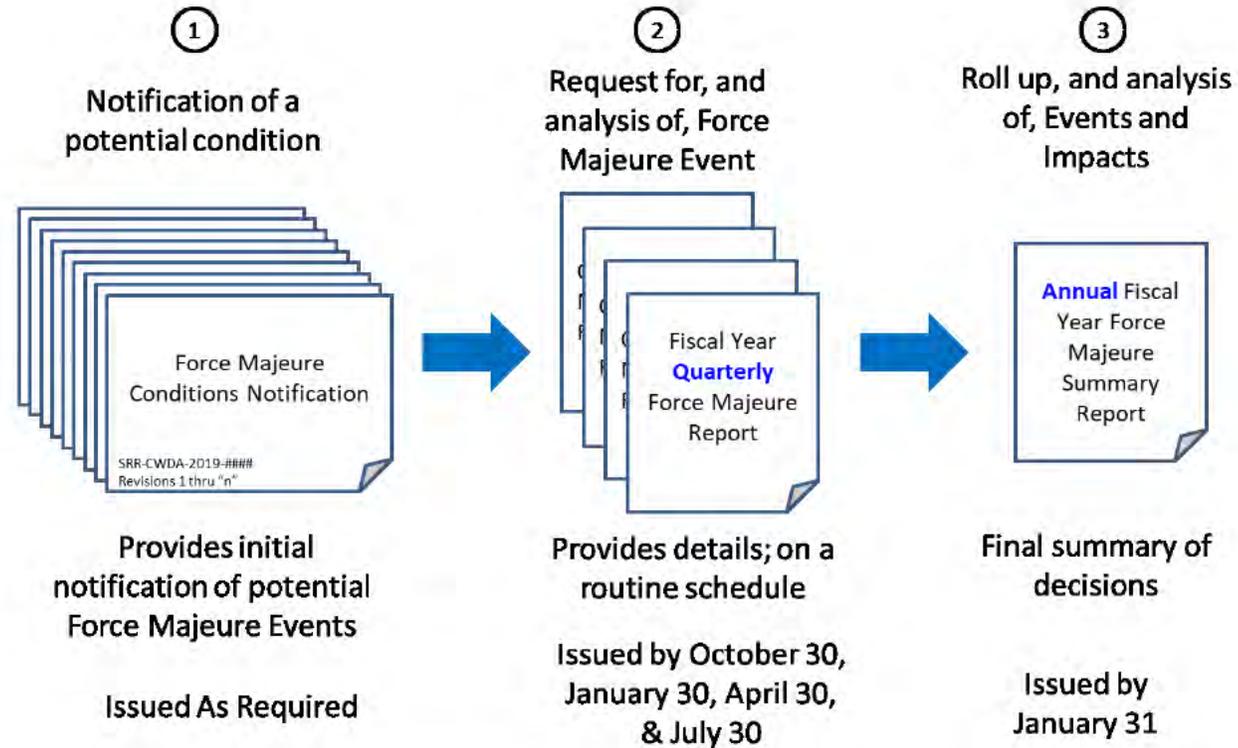
Saltstone Disposal Facility Landfill Permit

- **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



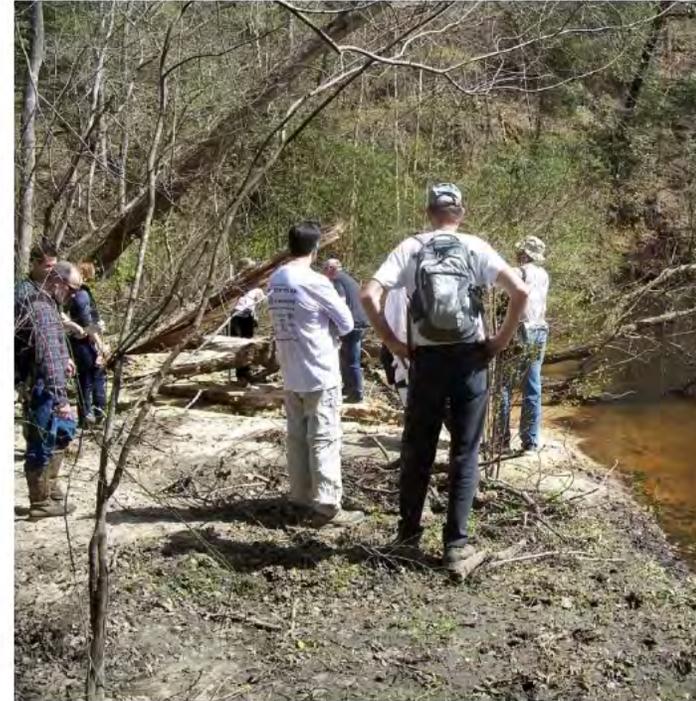
Saltstone Disposal Facility Landfill Permit

- 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

Fiscal Year (FY)	Agreement Total (minimum) (Million gallons)
	2016
2017	1.30
2018	2.45
2019	4.20
2020	6.40
2021	11.00
2022	10.28
Total	36.75

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

MA 1	MA 2	MA 3	MA 4	MA 5	MA 6	MA 7	MA 8
Inventory	Waste Release	Cementitious Material Performance	Radial System Performance	Closure Cap	Performance Assessment Measurement	Protection of Health and Safety During Operations	Site Stability
1.1 Final Inventory and Disposition	2.1 Solidification Process, Infiltration and Release	3.1 Steel and FRP to monitor Concrete Wall and Annulus (No. 1 Radial to Steel Line Closure and Waste Release)	4.1 Radial System Performance	5.1 Long-Term Hydrology Performance	6.1 Concrete Analysis	7.1 Protection of Health and Safety During Operations	8.1 Settlement
1.2 Final Waste Storage	2.2 Shielding and Radiation	3.2 Concrete Condition Monitoring	4.2 Concrete Wall and Annulus	5.2 Long-Term Hydrology Performance	6.2 Concrete Analysis	7.2 Protection of Health and Safety During Operations	
1.3 Final Waste Volume		3.3 Drainage and Cracking	4.3 Environmental Monitoring	5.3 Closure Cap Design	6.3 Concrete Analysis	7.3 Protection of Health and Safety During Operations	
1.4 Final Waste Inventory		3.4 Concrete Performance					
1.5 Waste Recovery		3.5 Wall and Annulus					
		3.6 Waste Storage					

H and F Area Tank Farms Monitoring Factors

Last Updated 4/9/2018

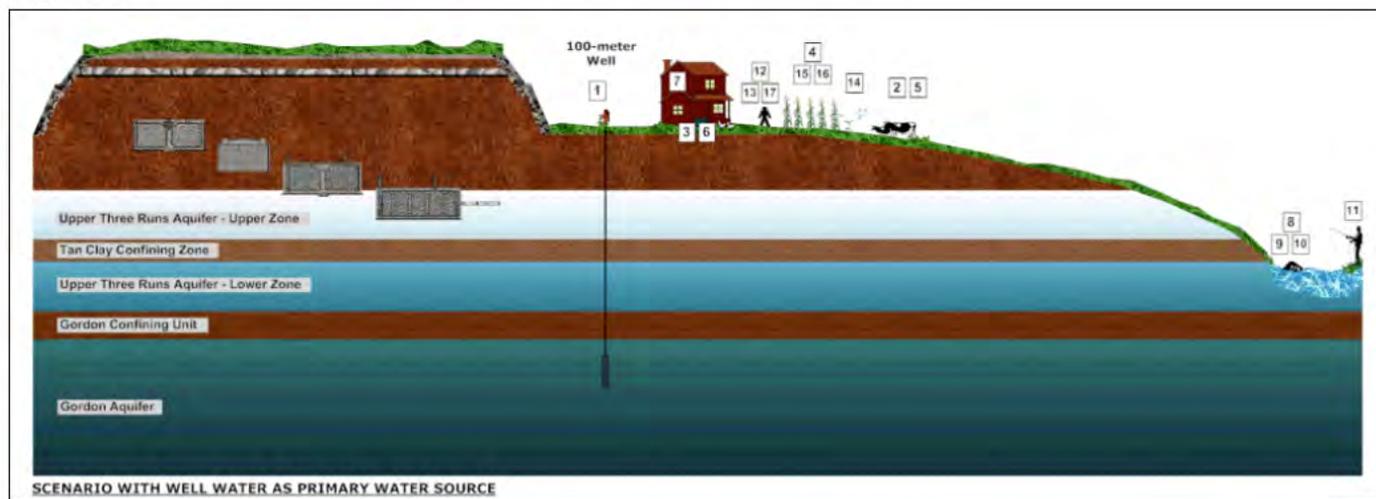
DOE Headquarters

- **Low Level Radioactive Disposal Facility Federal Review Group**

- The U.S. Department of Energy (DOE) meets its responsibilities regarding disposal of radioactive waste under the Atomic Energy Act of 1954, as amended, by providing the requirements for protection of the public, workers, and the environment for its radioactive waste disposal facilities in DOE Order (O) 435.1, *Radioactive Waste Management*.
- 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



Optional slides

