Department of Energy
Savannah River Operations Office
P.O. Box A
Aiken, South Carolina 29802

NOV 16 2017

Ms. Susan B. Fulmer, P. G., Manager
Federal Remediation Section
Division of Site Assessment, Remediation and Revitalization
Bureau of Land and Waste Management
South Carolina Department of Health and Environmental Control
2600 Bull Street
Columbia, SC 29201

Mr. Jon Richards
Acting Savannah River Site Remedial Project Manager
Superfund Division
U. S. Environmental Protection Agency, Region 4
61 Forsyth Street, SW
Atlanta, GA 30303

Dear Ms. Fulmer and Mr. Richards:

SUBJECT: Transmittal of Three-Party Signed Suspension Agreement and Three -Party Signed Minor Modification for High Level Waste Tanks Bulk Waste Removal Efforts (BWRE) and Operational Closure Milestones, CERCLIS Numbers: 23 and 89

As a condition of your December 2016 approvals of the extension associated with completion of Bulk Waste Removal Efforts (BWRE) for Tanks 10H and 15H, our agencies agreed to hold two meetings between April 1 and August 31, 2017 to discuss plans for the Federal Facility Agreement (FFA) Appendix L items #6 and #12 both due on September 30, 2017. Our first discussion was held on May 16, 2017, and a copy of the discussion materials is included as Enclosure 1. Our second discussion regarding options for consideration was held on August 15, 2017.

On September 27, 2017, the U.S. Department of Energy (DOE) requested a 45-day extension to 11/14/2017 of FFA Appendix L Items 6 and 12. On October 2, 2017, the South Carolina Department of Health and Environmental Control (SCDHEC) and the U.S. Environmental Protection Agency (EPA) approved this request in order to finalize our discussions and subsequently enter into the Suspension Agreement.

Based on the three-party (DOE, SCDHEC and EPA) discussion on November 1, 2017, our agencies agreed to and subsequently signed Enclosure 2, *Suspension Agreement—Federal Facility Agreement (FFA) High-Level Waste (HLW) Tank Milestones* suspending Appendix L Items #6, #7, and #12 commitments for completion of BWRE and operational closure of HLW tanks until May 2019. DOE sought suspension until the scope, cost, and resource-loaded schedule associated with the performance baseline for the new Liquid Waste contract can be fully assessed and used as a sound technical basis for justification for establishing new HLW tank commitments as required per FFA Section IX.E for submittal of "a plan (s) and schedule(s) for removal from

service of waste tanks system(s)/components that do not meet secondary containment standards" and for renegotiation, with any confidence, the FFA milestones.

The enclosed minor modification (Enclosure 3) incorporates our Suspension Agreement into the *Statement of Dispute Resolution Concerning Extension of Closure Dates for Savannah River Site High-Level Radioactive Waste Tanks 19 and 18* (signed 11/19/07), located in Appendix L of the FFA. The original FFA Modification Form has been signed by the DOE, SCDHEC, and EPA. DOE will incorporate the modification into the FFA.

The effort and time that the SCDHEC and EPA have given on the subject are greatly appreciated.

Questions from you or your staff may be directed to me at (803) 952-8365, or Ms. Jolene Seitz at (803) 208-6234.

Sincerely,

Brian T. Hennessey
SRS Remedial Project Manager
Infrastructure and Area Completion Project

WDPD:18-05

Enclosures:
1. Liquid Waste Program & FFA Milestones Discussion, dated May 16, 2017
2. Three-Party Signed Suspension Agreement Federal Facility Agreement (FFA) High-Level Waste (HLW) Tank Milestones
3. Three-Party Signed Savannah River Site Federal Facility Agreement Modification to Appendix L Items 6, 7, and 12

cc w/encl:
H. H. Cathcart, SCDHEC – Columbia
B. S. Mullinax, SCDHEC-Columbia
J. Dawson, TechLaw, Inc

cc w/o encl:
T. R. Fuss, SCDHEC – Aiken Environmental Affairs Office
M. D. Wilson, SCDHEC-Columbia
J. P. deBessonet, SCDHEC-Columbia
G. K. Taylor, SCDHEC-Columbia
D. Scaturo, SCDHEC-Columbia
R. H. Pope, EPA-Atlanta

U.S. DEPARTMENT OF ENERGY | OFFICE OF ENVIRONMENTAL MANAGEMENT

Liquid Waste Program & FFA Milestones Discussion

DOE Savannah River Operations Office
Waste Disposition

May 16, 2017

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Federal Facility Agreement App. L – Item #5

Why we are here today -

Extension changed milestone to complete Bulk Waste Removal Efforts for:

- Tank 15H – October 31, 2017
- Tank 10H – August 31, 2018
- DOE to provide monthly technical report on status of Tank 15
- Agreed to hold two meetings between April 1 and August 31 for three agencies to discuss plans for 2017 milestones (references: 12/20/16 SCDHEC letter and 12/22/16 EPA letter)

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Discussion Topics

- Operation Highlights (Jim)
- Overview and HLW Tank Status (Jolene)
- Final Request For Proposal and Contract Transition (Jim)
- Salt Processing Dispute Resolution Agreement Summary (Sherri)
- The Past Decade
- September 2017 FFA Milestones (Jolene)
- 2nd Meeting – date, location, topics
- FFA Appendix B – if time allows (Jolene)

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Operation Highlights

- Summary
- Melter 2 Replacement
- SWPF Scope Update
- 3H Evaporator System Recovery
- Saltstone Update

Led by Jim Folk

Operational Highlights

DWPF

- 52 canisters completed for FY17
- 200 canisters double stacked
- DWPF Melter 2 removal activities under way

Saltstone

•Saltstone Disposal Unit (SDU) 6 - water-tight start-up testing completed, turnover in progress, project closeout paperwork

•152,000 gallons of 900,000 gallons processed

Tank Farms

•3H Evaporator leak sites identified at the bottom section of the cone

•Space Recovery - 576,000 out of 750,000 gallons

Actinide Removal Process/ Modular Caustic Side Solvent Extraction Unit (ARP/MCU)

•MCU operations suspended due to Melter 2 end-of-life

•397,000 gallons completed for FY17

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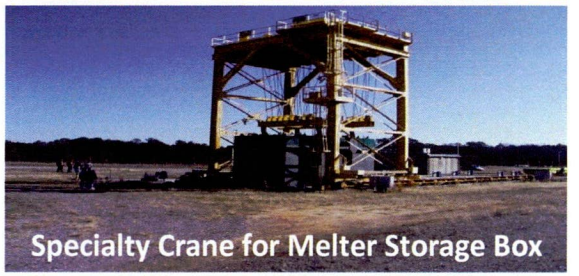
Melter 2 Replacement

- **The replacement effort includes the following scope:**
  - Melter 2 Removal
  - Cranes and Rails
    - Inspection and maintenance of multiple cranes, including specialty cranes used only for Melter movements.
    - Inspection and maintenance of rail systems and railcars
  - Melter 3
    - Placement of melter into the mock-up cell
    - Installation and checkout of components
    - Transport to Defense Waste Processing Facility (DWPF)*
    - Inspection and checkout of components at DWPF*
    - Startup and testing of Melter 3*
- **The Melter Replacement scope is being integrated with the DWPF Outage scope, which includes maintenance on numerous systems that can only occur during a Melter Outage**
- **The baseline schedule is being finalized and will include an independent review by personnel involved in Melter 1 replacement**

* Item not in-progress due to completion of predecessor activities

Cell Cover Cleanup


Specialty Crane for Melter Storage Box


Melter Prep & Test

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SWPF Scope Update

- SWPF Support
  - Liquidus model report is on track to complete May 2017
  - Next Generation Solvent Conceptual Design is on track – 30% internal design review under way
- DWPF Modifications
  - A procedure, with associated temporary modification, is under development to allow draining the Strip Effluent line from MCU in HTF to the LPPP. The safety evaluation supporting implementation of this procedure, confirming that pre-DOE approval is not necessary, if forecast to be completed in next couple of weeks. Actual draining of line is anticipated in early July.
  - DSA work continues with MCU DSA change transmitted to DOE for approval expected by end of May
- West Transfer Lines
  - Vendor mobilization in progress
    - *Sheet piling installation completed*
  - Work packages to install transfer line modifications in progress
  - Coordinate outages/flushing activities with Melter 2 replacement
- Tank 49 Feed Modifications
  - Phase III Transfer Line – backfilling
  - Jumper fabrication to connecting B3 pump and Tank 49 valve box is installed
  - Valve box modifications under way
  - B3 pump modifications under way with testing planned

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3H Evaporator Recovery

- Leak site identification
  - Insulation removal from cone of evaporator completed
  - Used robot to flush exterior or pot cone
  - Dye added to pot and pot heated
  - Three leak sites identified in bottom cone
- Path forward/repair
  - Repair options are being developed as part of contract for repair
  - Characterization of cone using ultrasound, external dye, and laser mapping
- New Vessel
  - Proposals were received for fabrication of new evaporator vessel
  - Evaluation of proposals completed
  - Decision to procure new vessel is dependent on repair success and funding

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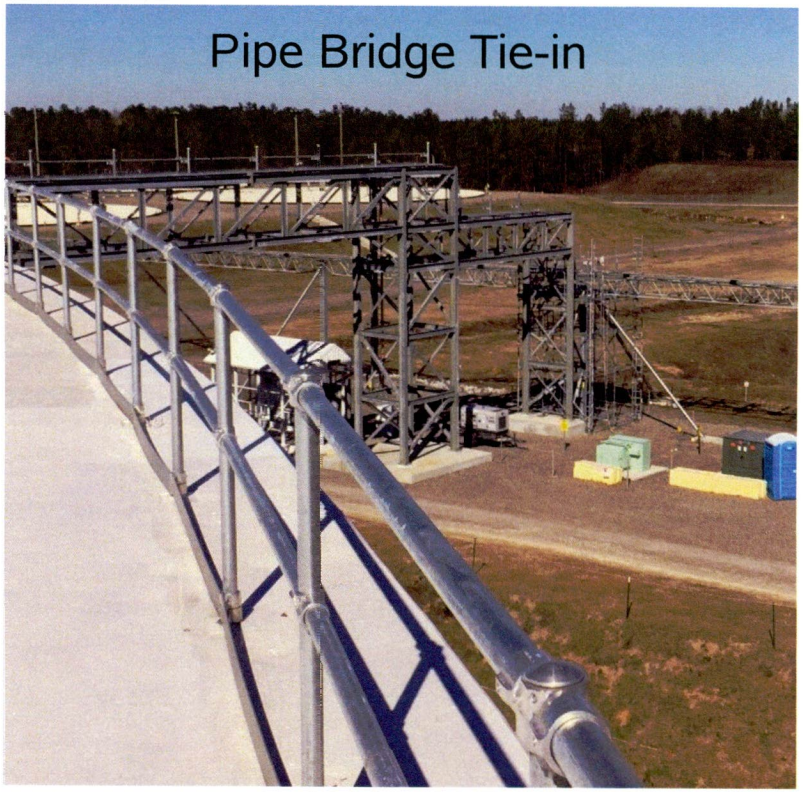
Saltstone Update

- Completed an independent verification of the 2016 safety basis annual update
- Completed a Facility Self Assessment for Saltstone Disposal Facility 6 (SDU 6) readiness
- SDU 6 Project remains on schedule
- Saltstone expected to be processing decontaminated salt solution by mid-May



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System Overview and HLW Tank Status

- System Overview
- Status of 24 Older Style Tanks
- Phases of Waste Removal and Closure
- Tanks 15 and 10
- TCCR

Led by Jolene Seitz and Sherri Ross

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SRS Liquid Waste Program (as of December 31, 2016)

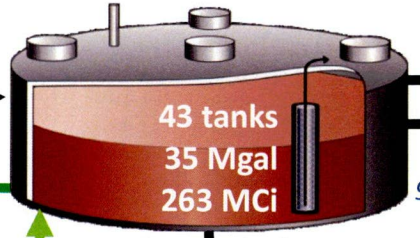
Legend:

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

H-Canyon Receipts
Currently receive ~150 kgal/yr



Salt Waste
9.0 Mgal treated

Recycle

Sludge Waste
4.1 Mgal treated

SWPF
(Construction completed, Undergoing commissioning)

Radionuclides

Inert chemicals

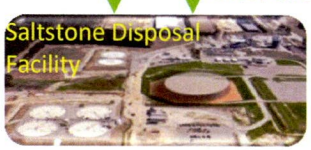
<1% radioactivity remain in tanks

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*

>98% radioactivity to glass

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



<1% radioactivity to saltstone

19.8 Mgal grout dispositioned containing 0.5 million curies

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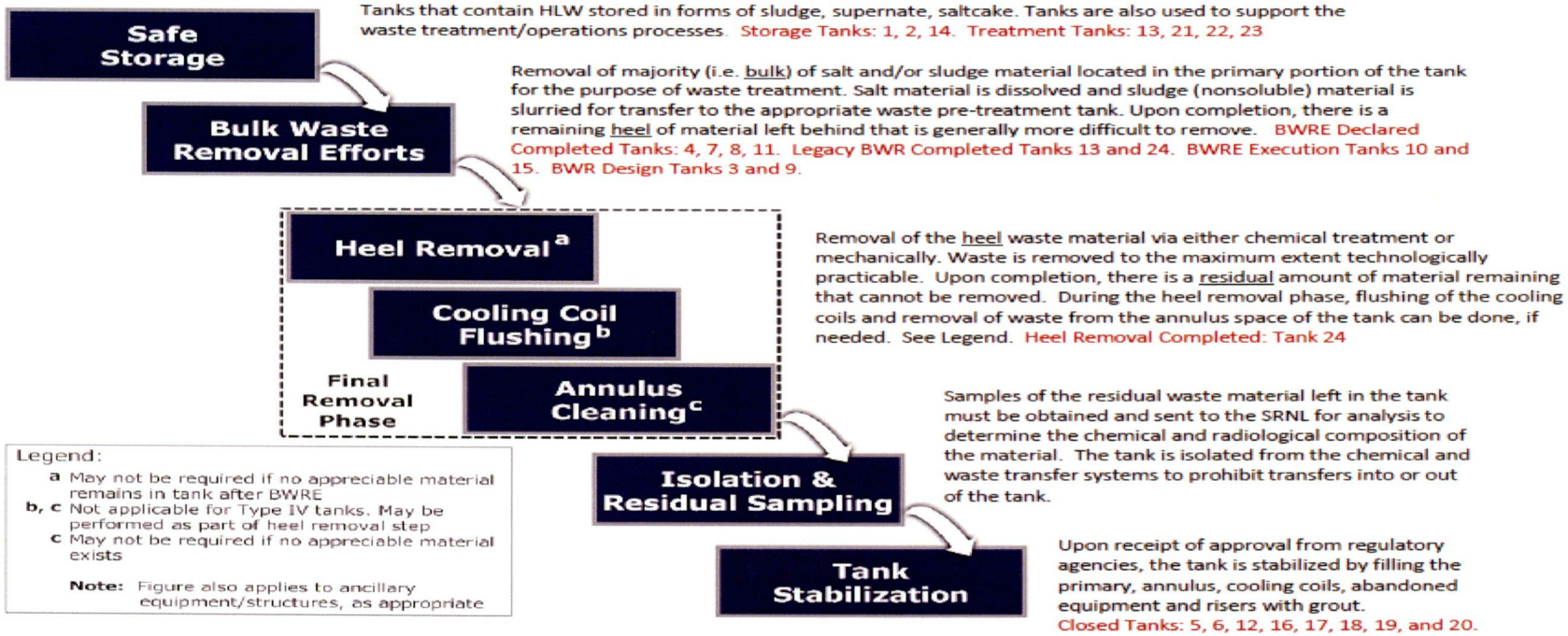
Phases of HLW Removal & Tank Closure



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Status of Older Style Tanks at F-Tank Farm

Type I	1	Saltcake Tank
	2	Saltcake Tank
	3	Saltcake Tank – BWRE Design started
	4	BWRE Complete - Limited Reuse Approved
	5	Operationally Closed (December 2013)
	6	Operationally Closed (December 2013)
	7	BWRE Complete - Limited Reuse Approved
	8	BWRE Complete - Limited Reuse Approved
Type IV	17	Operationally Closed (December 1997)
	18	Operationally Closed (September 2012)
	19	Operationally Closed (August 2012)
	20	Operationally Closed (July 1997)

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Status of Older Style Tanks at H-Tank Farm

Type I	9	Saltcake Tank - BWRE Design started
	10	BWRE Initiated and TCCR demo
	11	BWRE Complete - Limited Reuse Approved
	12	Operationally Closed (April 2016)
Type II	13	BWRE Complete - Sludge Hub Tank
	14	Saltcake Tank
	15	BWRE Initiated (October 2016)
	16	Operationally Closed (September 2015)
Type IV	21	Salt Batch Preparation
	22	DWPF Recycle Storage
	23	Salt Batch Preparation
	24	High Caustic Supernate – BWR and HR complete

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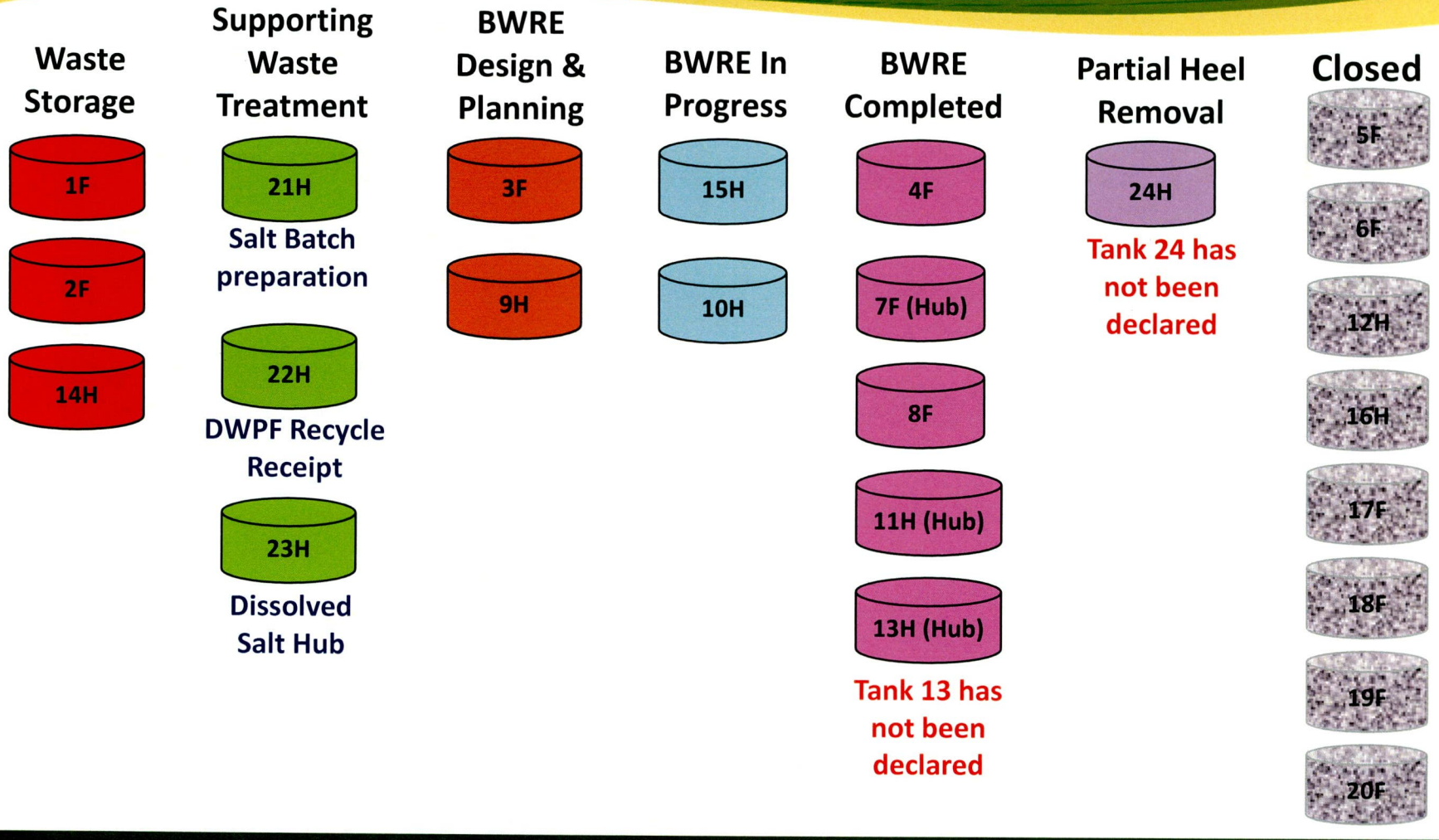
Status of 24 Older Style HLW Tanks



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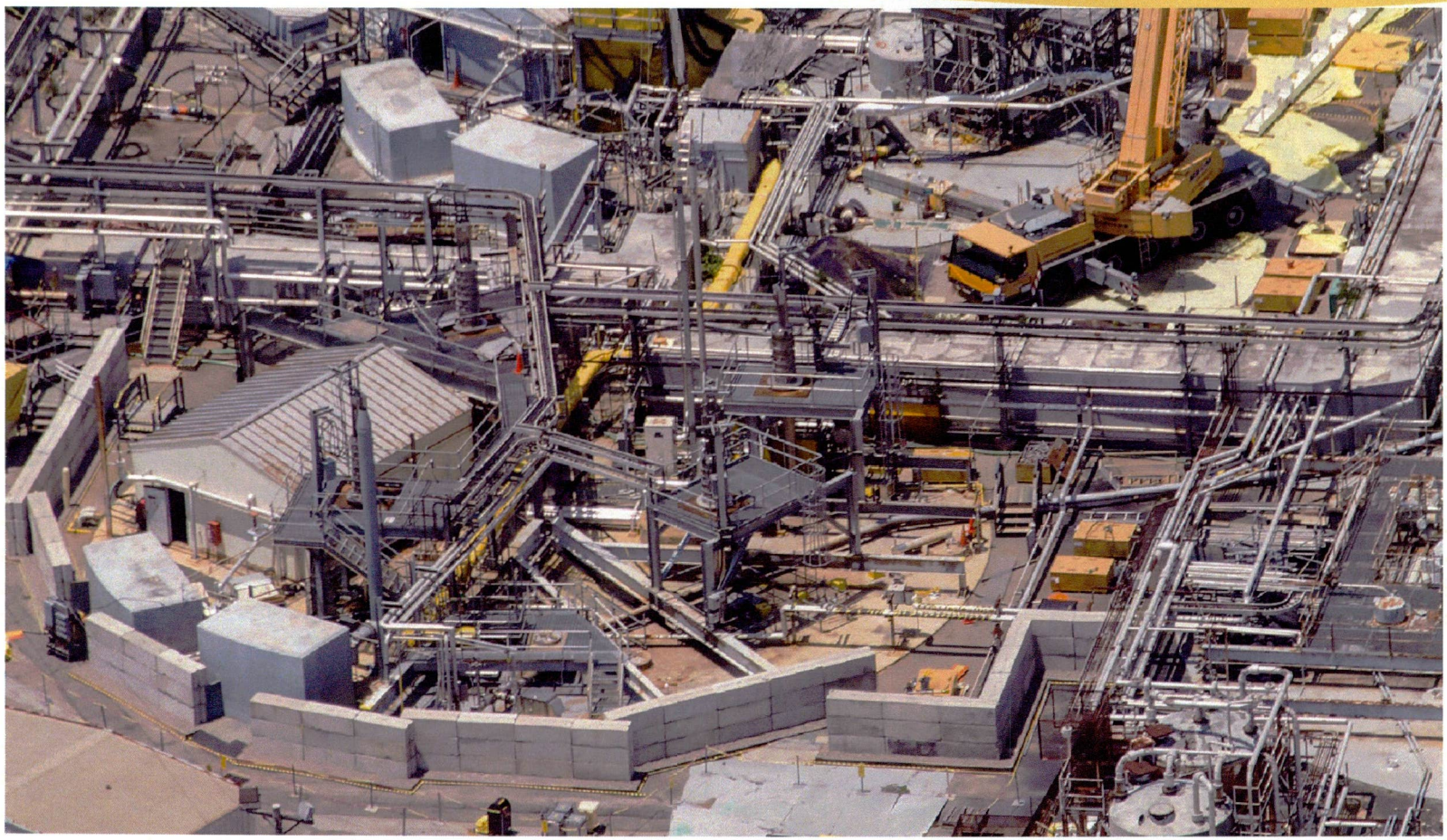
Status of Tank 15H Waste Removal



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Status of Tank 15H Waste Removal

- 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
  - 2nd campaign completed – May 3, 2017
  - Risk tracking – have experienced significant schedule delays to date
  - FFA Appendix L Item 5 milestone of October 31, 2017 has no schedule contingency
  - Sixth campaign forecasted completion is January 2018

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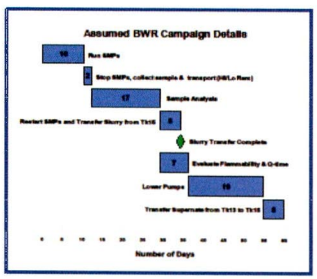
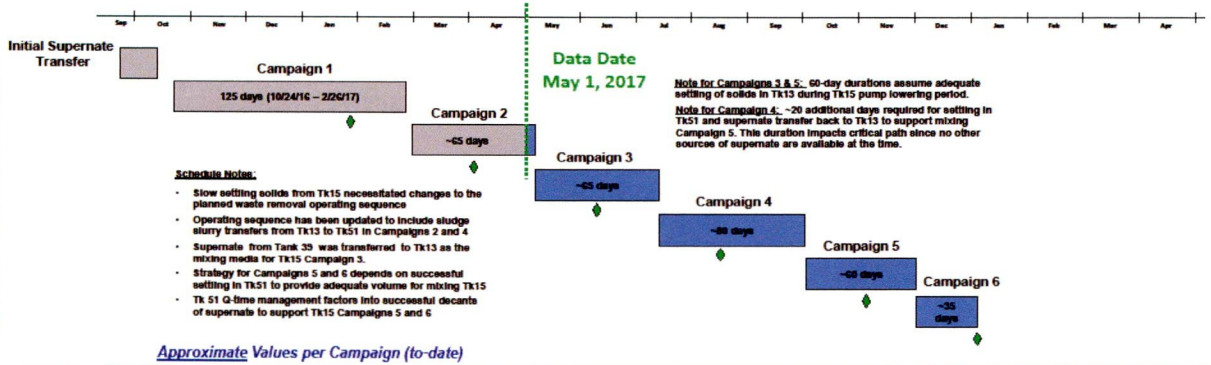
Monthly Technical Report on Status of Tank 15

Tank 15H Waste Removal Progress Tracker



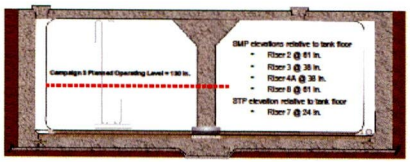


Note for Campaigns 3 & 5: 60-day durations assume adequate settling of solids in Tk13 during Tk15 pump lowering period.

Note for Campaign 4: ~20 additional days required for settling in Tk51 and supernate transfer back to Tk13 to support mixing Campaign 5. This duration impacts critical path since no other sources of supernate are available at the time.

Schedule Notes:

- Slow settling solids from Tk15 necessitated changes to the planned waste removal operating sequence
- Operating sequence has been updated to include sludge slurry transfers from Tk13 to Tk51 in Campaigns 2 and 4
- Supernate from Tank 39 was transferred to Tk13 as the mixing media for Tk15 Campaign 3.
- Strategy for Campaigns 5 and 6 depends on successful settling in Tk51 to provide adequate volume for mixing Tk15
- Tk 51 Q-time management factors into successful decants of supernate to support Tk15 Campaigns 5 and 6



Tank 15H Profile View

Approximate Values per Campaign (to-date)

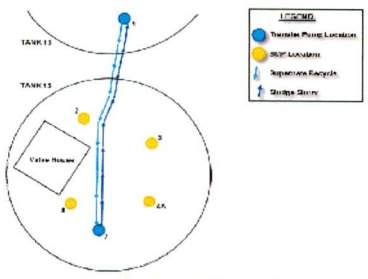
Campaign Number	Initial Liquid Level (in.)	Water/Chemical Additions to Tk 15 (gal)	Supernate Transferred to Tk 15 (gal)	SMP Operation Time (hrs)	Volume Transferred Out (gal)	Estimated Sludge Solids Removed (gal)	Estimated Sludge Solids Remaining (gal)
Initial Xfer	83	N/A	186,775	N/A	N/A	N/A	187,000
1	137	15,940	331,100	335	342,900	42,000	145,000
2	137	13,570	TBD	366	390,350	40,000	105,000
3	TBD						
4							
5							
6							
Total	N/A	20,365	517,875	701	733,250	82,000	105,000

TANK 15H REFERENCE NUMBERS

Nominal Tank Capacity = 1,070,000 gal
Initial Estimated Sludge Volume (Dry - Settled) = 187,000 gal
Known Leak Sites = 24

ACRONYMS AND ABBREVIATIONS

BWR – Bulk Waste Removal
SMP – Submersible Mixing Pump
STP – Submersible Transfer Pump
CTS – Contingency Transfer System
Tk – Tank
gal – gallons
hrs – hours
in. – inches



Tank 15H Plan View

MARCH PROGRESS NOTES

- No safety events
- Completed sludge slurry transfer from Tk13 to Tk51 (727,000 gallons) on 4/13
  - Tk 13 inspection showed no visible signs of screen blockage or damage to Riser 2A SMP
- Tk13 Riser 2A SMP troubleshooting continued
  - Static motor testing revealed satisfactory condition of all circuits
  - Troubleshooting plan approved for additional SMP startup efforts to attempt to dislodge potential debris
  - Planning for SMP replacement as contingency for unsuccessful troubleshooting
- Tk15 SMPs in Risers 3 and 4A were lowered to 38 inches
  - Mounding under Risers 2 and 8 prohibited lowering those SMPs
- Completed supernate transfer from Tk39 to Tk13 (506,000 gallons) on 4/24
  - Observed 4-day settling period after 39-13 transfer to prevent sludge carryover to Tk15
- Tk13 RTP in Riser 6 was lowered to 72 inches to support supernate transfer to Tk15
- Supernate transfer from Tk13 to Tk15 was initiated on 4/30 (currently in progress)
- Tk15 annulus level steady - ventilation fully operational

RISK TRACKING

- Weather Delays –
  - Hurricane Matthew delays restart of transfer (5 days)
- Equipment Issues –
  - Tk13 Riser 6 Transfer Hose In-tank Union (17 days)
  - VFD parameter acceptance requires reprogramming (6 days)
  - Tk13 SMP operability issues require troubleshooting (45 days)
- Annulus In-leakage –
  - Installation of CTS and instrumentation adjustment (7 days)
- Sludge Solids Settling Rate –
  - Tank 13 Q-time shortened; earlier mixing required (2 days)
  - Changes in operating strategy require critical path settling in Tk13 (4 days)
- Sludge Rheology Issues –
  - Operating strategy updated to include indexed operation of SMPs to target mounds under Risers 2 and 8 during Campaign 3 (4 days)
- Resource Limitations – Transfer delayed due to resource limitations over holiday weekend (7 days)

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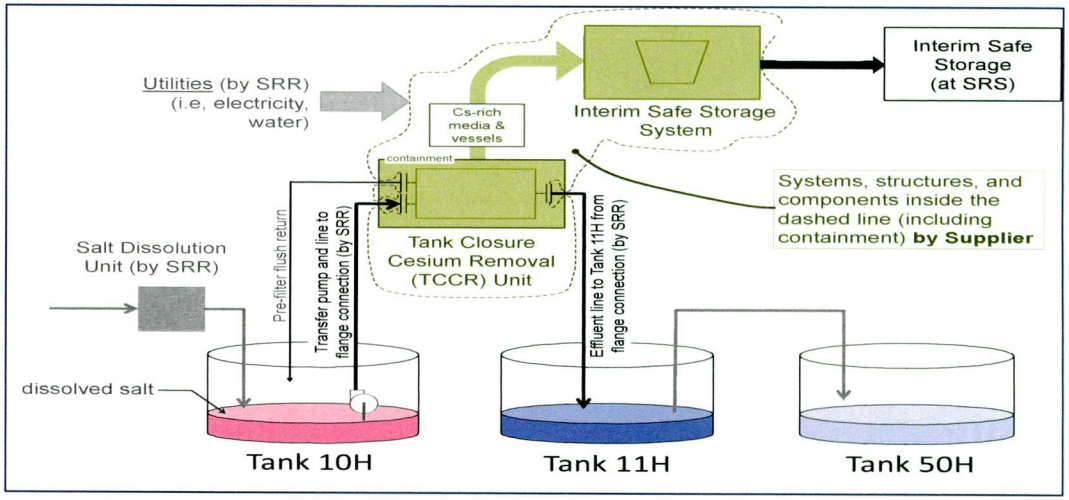
Status of Tank 10 Waste Removal – Tank Closure Cesium Removal Unit 1 Demonstration

- Subcontract awarded July 2016
- Equipment arrives onsite October 2017
- Equipment installation, procedures, training and start-up testing May 2018
- SCDHEC Permit Application in process
- Complete Tank 10 treatment
  ~ September 2018
- Technology demonstration report of technical feasibility and economic efficiency
  ~ January 2019



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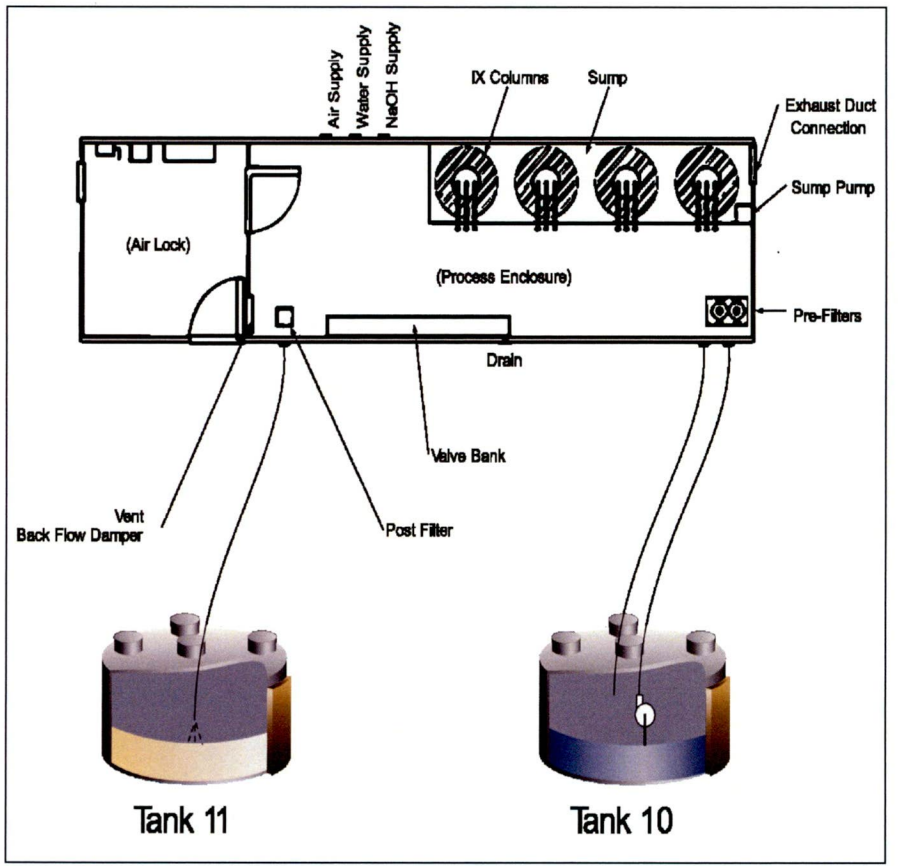
Status of Tank 10 Waste Removal – Tank Closure Cesium Removal Unit 1 Demonstration

Objective

- Modular, at-tank, ion exchange technology demonstration designed to remove Cesium and enhance bulk waste removal efforts
- Leverage commercial supplier expertise and contemporary Fukushima experience
- Improve flexibility by exploring alternatives for off-site disposition of used resin
- Simple design, reliable, cost-effective

Status

- Contract awarded to Westinghouse Electric Company in July 2016
- Detailed design is nearly complete
- Procurements and fabrication under way
- Equipment delivered in October 2017
- Siting, utility, and transfer line design work by SRR is under way
- Will be operated by site staff when complete



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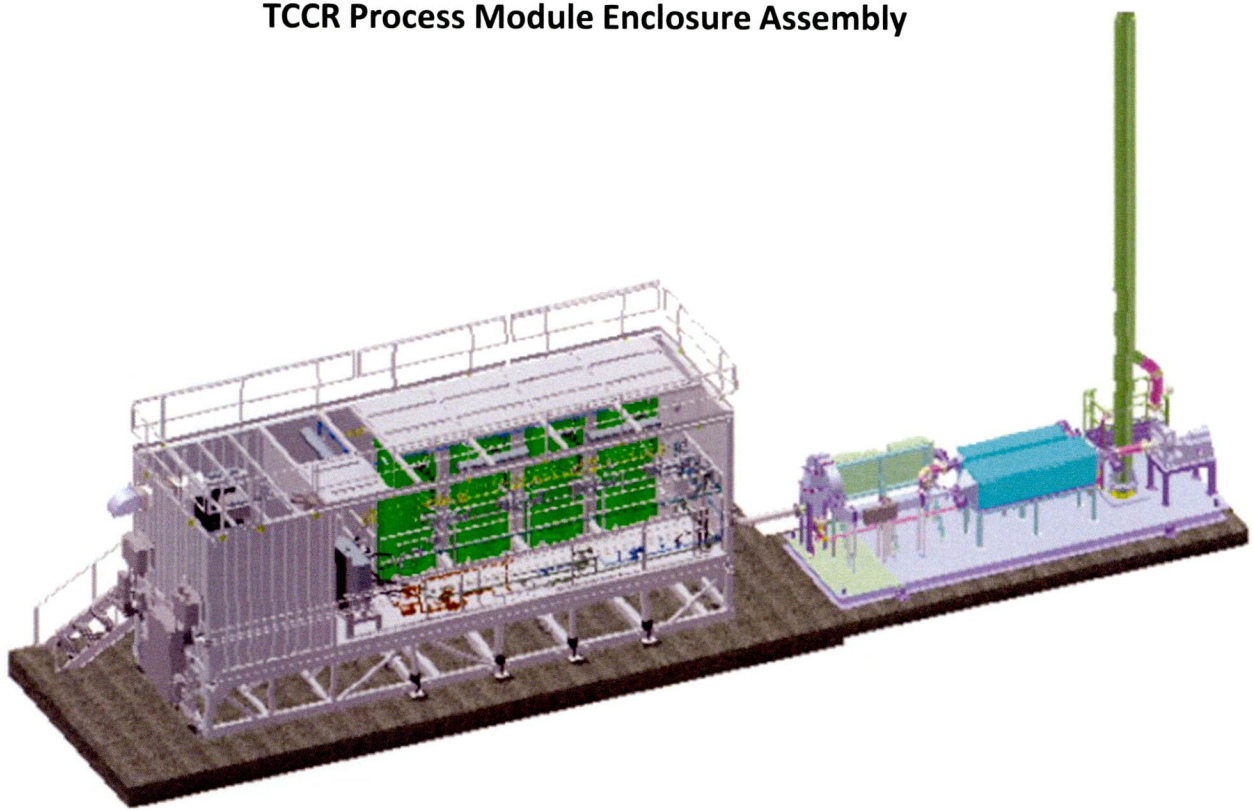
TCCR 3D Model Images

TCCR Process Module Enclosure Assembly



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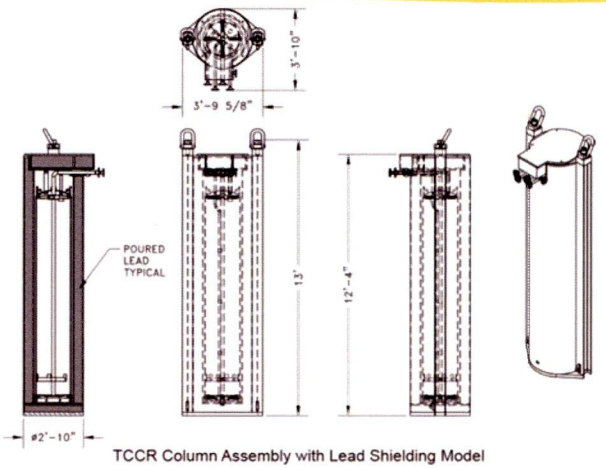
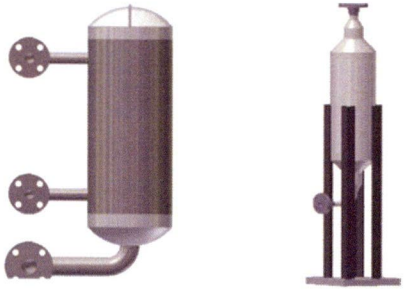
TCCR Design Components

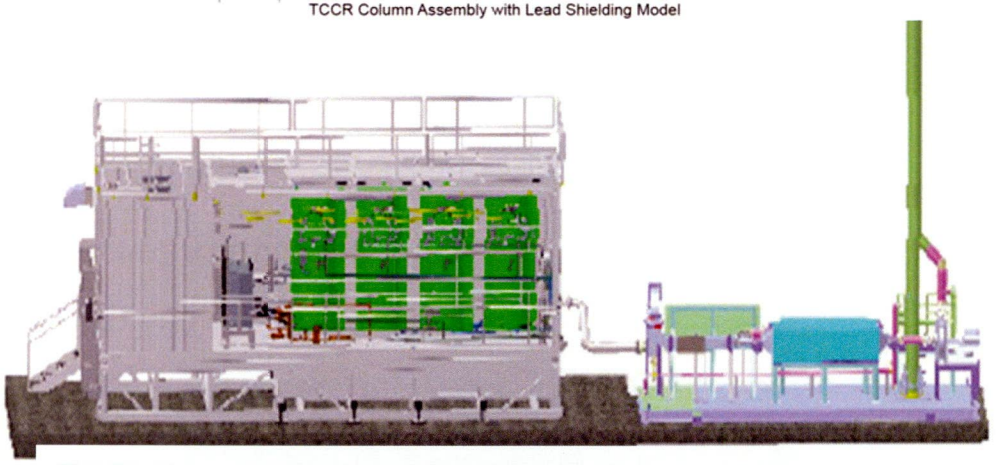
Ion Exchange Column



TCCR Column Assembly with Lead Shielding Model



Unshielded Pre-Filter and Resin Trap



TCCR Process Module Enclosure and Ventilation Skid

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TCCR WEC Fabrication Progress

TCCR
Process Module
Enclosure
Base
5/1/17

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TCCR WEC Fabrication Progress

TCCR
Ion
Exchange
Columns
5/1/17

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Final RFP and New Contract Status

- Final Request For Proposals – Objectives and Metrics
- Salt Processing Specifics

Led by Jim Folk

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Final Request for Proposals (RFP)

Major Performance Objectives:

- Safely operate facilities
- Optimize system performance
- Support SWPF completion, startup, and operation
- Construct Saltstone Disposal Units
- Close High-Level Waste Tanks

Key Performance Metrics:

	Salt Waste Processed (gals)	BWR (# tanks)	Tanks Closed (# tanks)
Base Contract Period (FY17-24)	42,000,000	8	5 (Type I or II)
Option Period (FY24-27)	26,000,000	2	2
Total Contract Term (FY17-27)	68,000,000	10	7

NOTE: Minimum requirement is to meet final RFP performance metrics
Desired approach is to exceed final RFP performance metrics

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Final RFP – Salt Waste Processing Specifics

Salt waste feed prepared for and processed via the following sources shall be counted toward meeting the contract performance metrics:

- ARP/MCU
- SWPF (during 1st year of radioactive operation by Parsons)
- SWPF (post transition to operation by LW contractor – scheduled for 3/1/20)
  - Shall maximize SWPF through put
  - Shall implement NGS no later than end of 2nd year of radioactive operations
- TCCR

Quantities of salt waste feed will be measured as follows:

- ARP/MCU and SWPF – quantity of salt fed from Tank 49 (or other feed tanks) at a nominal 6.44 Molar sodium concentration
- TCCR – quantity of salt waste available to transfer to Tank 50 after cesium removal

Sodium Molarity Adjustment – an adjustment factor shall be applied to the volumes to account for < or > 6.44 M concentration. Processing at other than 6.44 Molarity must be evaluated for impacts to the balance of the LW System and mitigated.

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Status of New Contract Award and Transition

- SRR Contract extended from June 30 to December 31, 2017
- Announcement of Award Selection - TBD
- Notice to Proceed (NTP) - ~30 days post announcement
- Transition Period – 90 day duration, immediately after NTP
  - Executive Summary – Stakeholder Engagement – 72 hours post NTP
  - Transition Plan – due 14 days post NTP
  - Material Differences Identified – due 45 days post NTP
  - Initial Contract Performance Baseline – within transition period
- Contract Base Period FY18 – FY24
  - Final Contract Performance Baseline – due 180 days post transition = 270 post NTP
  - Liquid Waste System Plan revisions – annually by 12/31 to DOE for approval
  - Develop Performance Evaluation Measurement Plan (metrics)
- Contract Option Period FY24 – FY27

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Salt Processing Agreement

- Summary of SCDHEC and DOE Salt Processing Dispute Resolution Agreement
- Comparison of RFP Metrics and Salt Processing Agreement

Led by Sherri Ross

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Salt Processing Dispute Resolution Agreement - October 31, 2016

- 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 salt 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

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Salt Processing Agreement and Contract Comparison

Contract Performance Metrics:

	Salt Waste Processed
Base Contract Period (FY17-24)	42 Million gallons
Option Period (FY24-27)	26 Million gallons
Total Contract Term (FY17-27)	68 Million gallons

Salt Processing Dispute Resolution Agreement:

Combination of ARP/MCU, TCCR 1, TCCR 2, and SWPF used to process 36.75 Mgal during FY16 – FY22 based on provisions specified in the agreement.

	Annually	Cumulatively
FY16	1.12 Million gallons	1.12 Million gallons
FY17	1.30 Million gallons	2.42 Million gallons
FY18	2.45 Million gallons	4.87 Million gallons
FY19	4.20 Million gallons	9.07 Million gallons
FY20	6.40 Million gallons	15.47 Million gallons
FY21	11.0 Million gallons	26.47 Million gallons
FY22	10.28 Million gallons	36.75 Million gallons
FY23+	8 Million gallons	

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The Last Decade: 2006 - 2017

- Key Technical Assumptions & Basis
- Key Process Changes and Technical Issues (Reality)
- Mitigating Activities Implemented and Planned

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Early (first years) Key Technical Assumptions and Basis

- Salt Waste Processing
  - ARP/MCU operational in 2008 with life expectancy of 3 years and using BOBCalix solvent
  - SWPF anticipated to be operational by 9/30/11 using BOBCalix solvent
  - Initiated improved (next generation) solvent research in 2007 (BEHBCalix –> MaxCalix)
  - Tank Space Management – processing large volumes via SWPF, provides adequate tank space
- Enhanced Chemical Cleaning Technology (Heel Waste Removal)
  - Replacement for bulk oxalic acid cleaning
  - Technology yet to be matured and to be demonstrated on Tanks 8F and 12H
  - Deployment expected to decrease SDU space
- Tank Closure Sequencing and Timing
  - Assumed short durations for closure module development
  - Assumed sampling and analysis less complicated
  - Tank Farm Performance Assessments were being developed - Point of Compliance changed
  - General Closure Plans yet to be developed
  - DOE Order 435.1 Waste Determination - assumed for each tank

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Key Process Changes and Technical Issues (Reality)

- Salt Waste Processing
  - SWPF Hot Operations Delay (from 9/30/11 to **12/4/18** = 7 years, 2 months)
    - *SDF Permit modified startup date - 10/31/15 (Note: did not adjust FFA App. L milestones)*
    - *Salt Processing Dispute Resolution Agreement startup date – 12/31/18; Next Generation Solvent deployed 28 months post startup*
- Tank Waste Issues
  - HTF sludge rheology and corrosion incompatibility (new information)
  - More lengthy Closure phase duration than initially assumed – sampling, analysis, closure module development, etc.
  - ECC abandoned – SDUs storage space not decreased; use bulk oxalic acid cleaning sparingly
  - Mercury vapor – ventilation stack extensions

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Key Process Changes and Technical Issues (Reality)

- Facility Issues/Impacts
  - 2F Evaporator declared out of service in 2012 – function transferred to 3H Evaporator
  - 3H Evaporator pot prematurely failed in 2/2016 – evaluating repair/replacement
  - Melter 2 reached end of life in 2/2017
  - Tank Space Management – equivalent tank space recovery not possible using ARP/MCU during extended operation
  - SMP Operability – experienced premature failure in HTF
  - Infrastructure – plant air and steam failed at HTF, transfer line
- Other
  - Nuclear Safety - Potential Inadequacy in the Safety Analysis
  - 2010 FFA Appendix L BWRE Definition

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Mitigating Activities Implemented and Planned

- Tank Farm Operations - Waste Removal and Tank Closure
  - Removed salt waste from tanks not affected by SWPF startup delay
  - Closed 6 tanks independent of SWPF delays
  - Continued Tank 15 sludge removal for Sludge Batch 10 prep - not impacted by 3H evaporator pot failure or Melter 2 reaching end of life
  - Closure Lessons Learned – New Consolidated General Closure Plan Improvements
  - Consolidated Control Room Operations
  - Implemented new SMP operating controls
  - Infrastructure upgrades to East Hill at HTF
  - At tank Low Temperature Aluminum Dissolution Heel Removal (Tank 12)
- DWPF
  - Low Temperature Aluminum Dissolution – sludge mass reduction
  - Bubbler installation
  - Optimizing sludge batch preparations post 3H Evaporator failure
  - Canister double stacking at GWSB 1 & 2

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Mitigating Activities Implemented and Planned

- Interim Salt Disposition Processing - ARP/MCU
  - ARP/MCU Operations
    - *Replaced BOBCalix with Next Generation Solvent – improved DF and through put rate*
    - *Extended operational life to 2018*
  - Filter-only ARP operations (no MST strike)
- TCCR
- SWPF
  - 9 Mgal/yr through put and DF >> 40,000
- Saltstone Disposal
  - Reduction in total radioactivity dispositioned
  - Continual improvement of SDU designs
    - *SDUs 2, 3, 5*
    - *Changed SDU6 and SDU7 design - 30 Million gallon vaults*

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Federal Facility Agreement App. L – Item #5

Again, we are here today because the

Extension changed milestone to complete Bulk Waste Removal Efforts for:

- Tank 15H – October 31, 2017
- Tank 10H – August 31, 2018
- DOE to provide monthly technical report on status of Tank 15
- Agreed to hold two meetings between April 1 and August 31 for three agencies to discuss plans for 2017 milestones (references: 12/20/16 SCDHEC letter and 12/22/16 EPA letter)

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September 2017 FFA Milestones

Complete BWRE in 3 tanks – Appendix L Item #6

- Applicability of August 2016 Requests for Minor Modifications
- Previous Proposal to Declare Tanks 13 and 24 with approval for reuse

Complete Operational Closure of 2 tanks – Appendix L Item #12

- Next tanks likely to be prepared for closure are Tanks 15 and 10

Led by Jolene

August 2016 Minor Modification Request #1

2010 Addendum to Appendix L - BWRE Definition

For the purposes of the November 2007 Statement of Dispute Concerning Extension Closure Date for Savannah River Waste Tanks 19 and 18, "complete bulk waste removal efforts" means: Completing efforts to remove the bulk of waste (waste includes salt cake, sludge solids, and contaminated liquids) from a tank leaving only a residual heel.

Sufficient liquid may be added subsequent to this point to facilitate heel cleaning and removal.
Any further addition of contaminated liquids may be reintroduced after completion of bulk waste removal efforts upon approval by SCDHEC and EPA."

Proposed Options A and B for 4th statement

A: "Based on historical design and continued use as hub tanks, the two restrictions above are not applicable to Tanks 7F, 11H, and 13H. It is recognized that as hub tanks, waste must be transferred into these tanks for the purpose of completing waste removal in other old style tanks."

B: "Waste removed from other old style tanks may be added to hub tanks (Tanks 7F, 11H, and 13H) after completion of bulk waste removal efforts to facilitate bulk waste removal, heel removal or closure of an old style tank"

August 2016 Minor Modification Request #2

2007 Statement of Dispute Resolution Footnote

"Bulk waste removal activities are complete for tanks 17, 20, 18, 19, 5, 6, and 16 and are therefore not included in paragraphs 2 through 8 above."

Proposed Modification to Footnote

"Bulk waste removal activities are complete for tanks 17, 20, 18, 19, 5, 6, 16 and 24 and are therefore not included in paragraphs 2 through 8 above."

Note: If SCDHEC and EPA agree to the modification specific to Tank 24, it will necessitate a modification to one of the milestones listed as paragraphs 6 - 8 in order to reduce the number of tanks.

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Appendix L Item 6 - BWRE Milestone

As previously discussed on Dec. 7, 2106, two tanks are currently eligible for declaring complete in accordance with BWRE definition:

- Tank 13H – serves as HTF Types I and II sludge hub tank; legacy bulk sludge removal completed in 2012; ~38,000 gallons solids remained
- Tank 24H – legacy bulk salt waste removal completed in 1983; heel removal completed in 1985 using bulk oxalic acid chemical cleaning leaving ~4,000 gallons of alumino silicate gel (principally cesium laden-zeolite)

Of 8 remaining old-style tanks associated with Appendix L Items 6 – 8:

- Tanks 1F, 2F, and 14H – storing saltcake
- Tanks 3F and 9H – BWR design in process, saltcake dissolution preparation
- Tanks 21H, 22H, and 23H – continued use needed to support saltwaste and sludge processing

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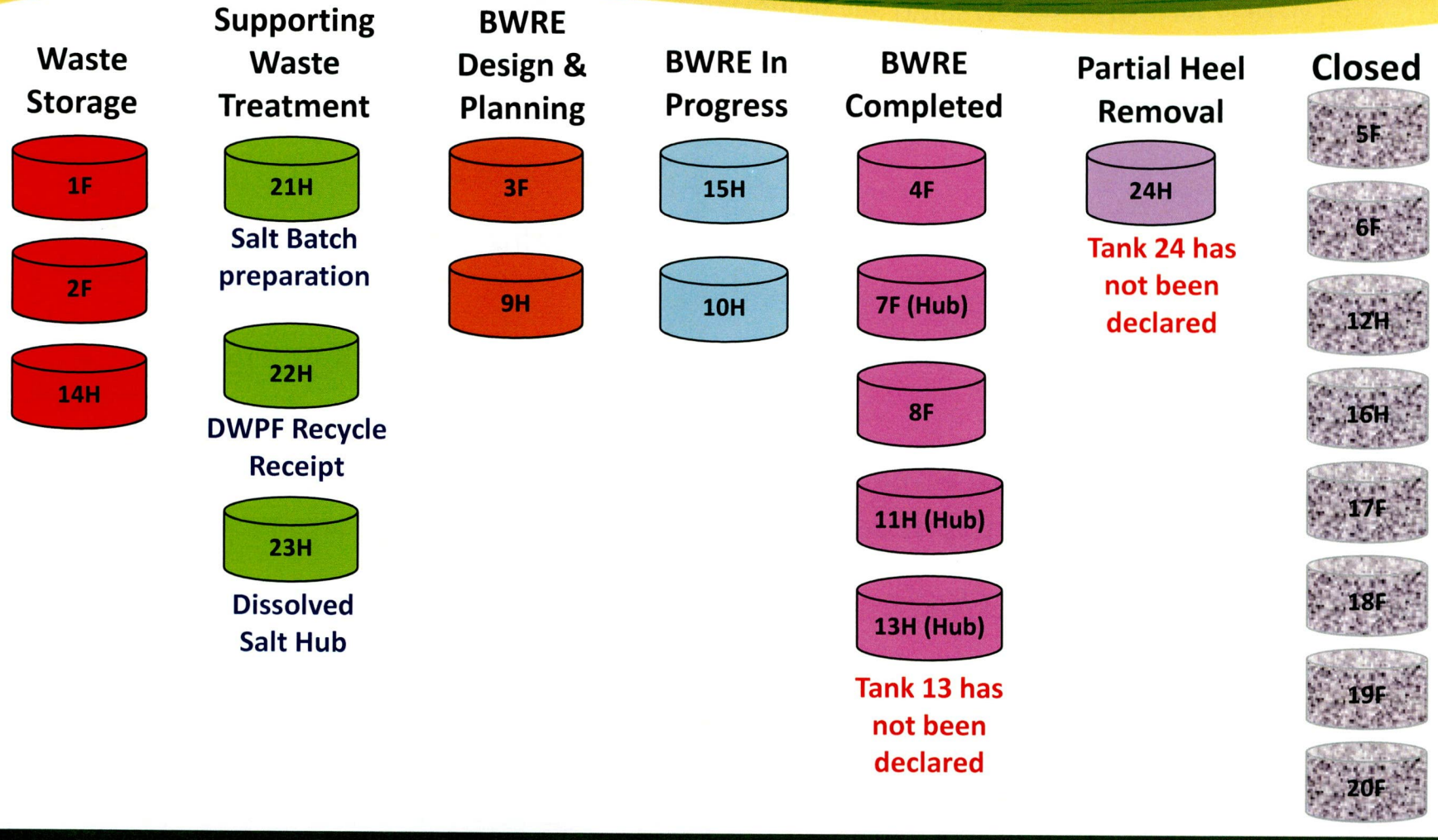
Status of 24 Older Style HLW Tanks



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Appendix L Item #12 – Closure Milestone

Out of 16 remaining Types I, II, and IV tanks to be closed

- No tanks are currently available for closure by 9/30/17
- 2 Tanks (15H and 10H) closures are *likely* independent of SWPF and DWPF operations – need further evaluation of heel waste for transfer to hub tanks T13 and T11.
- 14 remaining older style tanks dependent on treatment of saltcake and supernate
  - Hub Tanks (7F, 11H, 13H) needed to support cleaning and closure of other older style tanks
  - HTF Type IV Tanks are needed to:
    - Achieve the saltwaste processing rates per the October 31, 2016 Salt Processing Dispute Resolution agreement
    - Provide flexibility for continued operations and DWPF Operation (receipt of Recycle)
    - enable possible early FTF closure (6 Type I tanks and 10 Type III/IIIA tanks)

Suggested Options

Options for Item #6 – Complete BWRE in 3 tanks
Modify milestone and to change number of tanks with agreement that Tanks 13 and 24 can be declared • Item# 6 – complete BWRE in 2 tanks by 9/30/17
Split milestone as: • Item #6a – complete BWRE in 2 tanks by 9/30/17 with agreement that Tanks 13 and 24 can be declared • Item #6b – complete BWRE in 1 tank by (insert new date)
Extend milestone date and declare partial completion for Tanks 13 and 24
Modify Appendix L footnote to include Tank 24 and change milestone • Item #6 – complete BWRE in 1 tank by 9/30/17 with agreement that Tank 13 can be declared
Change BWRE to similar risk reduction metric (e.g., volume removed from older style tanks per tank farm, Preliminary Cease Waste Removal Decision reached per C-GCP)

Options Applicable to both 2017 Milestones
Extend beyond 9/30/17 to (insert date)
Collectively **replace** milestones #6 and #12 (3 BWRE tanks and 2 closure tanks) with a new milestone consistent with final RFP – operational closure of 5 tanks by 9/30/24
Suspend milestones for 12 months for good cause based on DWPF/SDI system outage, 3H Evaporator outage, and implementation of PISAs with agreement for DOE to provide an updated schedule and plan by 9/30/2018 based on outcome of at least one additional meeting occurring between 10/1/17 – 6/30/2018
Extend each milestone for 7 years and 2 months for good cause based on impact of SWPF start up of hot operations delayed from 9/30/11 to 12/4/18: • Item #6 changed to complete BWRE of 3 tanks by 11/30/24 • Item #12 changed to complete operational closure in 2 tanks by 11/30/24

Suggested Options

Options for Item #12 – Complete Operational Closure in 2 tanks
Modify and extend milestone consistent with final RFP – 5 tanks by 9/30/24 and also modify milestone #13 (2 tanks by 9/30/24) • Item #12 – complete operational closure of 2 tanks by 9/30/24 • Item #13 – complete operational closure of 2 tanks by 9/30/24
Split milestone and extend using forecasted closure dates in LWSP Rev. 20 • Item #12a – complete operational closure of Tank 15 by 9/30/20 • Item #12b – complete operational closure of Tank 10 by 9/30/23
Change operational closure milestone to similar risk reduction metric (e.g., isolation of tank in accordance with C-GCP) applicable to tanks 15 and 10 with closure dates to be determined in the future

Options Applicable to both 2017 Milestones
Extend beyond 9/30/17 to (insert date)
Collectively **replace** milestones #6 and #12 (3 BWRE tanks and 2 closure tanks) with a new milestone consistent with final RFP – operational closure of 5 tanks by 9/30/24
Suspend milestones for 12 months for good cause based on DWPF/SDI system outage, 3H Evaporator outage, and implementation of PISAs with agreement for DOE to provide an updated schedule and plan by 9/30/2018 based on outcome of at least one additional meeting occurring between 10/1/17 – 6/30/2018
Extend each milestone for 7 years and 2 months for good cause based on impact of SWPF start up of hot operations delayed from 9/30/11 to 12/4/18: • Item #6 changed to complete BWRE of 3 tanks by 11/30/24 • Item #12 changed to complete operational closure in 2 tanks by 11/30/24

Next Meeting

- Set Date and Location – Before August 31
  - DOE preference is July 10 or 11
- Purpose – Continue Discussions leading to acceptable approach for the FY2017 Milestones
  - Review Options
  - Draft Agreement
- Reminder – In accordance with FFA Section XXXI Extensions
  - Due to good cause and effect any enforceable deadline in Appendix D, the Agreement shall be modified according to Section XLIII (Modifications)
  - Any request for an extension shall be made prior to the deadline or scheduled deliverable date…either in writing or orally with a written follow-up request within ten business days.

Savannah River Site
Federal Facility Agreement Modification

This form may be used for any modification not declared "major" under the terms of Section XLIII. of the Federal Facility Agreement.

Modification Requested By	Requester Organization	Date
B. T. Hennessey	USDOE	11/08/2017

Section To Be Modified
Appendix L, *Statements of Dispute Resolution*

Reason for Modification
Inclusion of Suspension Agreement Federal Facility Agreement (FFA) High-Level Waste (HLW) Tank Milestones

Modification Requested

(1) The Statement of Resolution of Dispute Concerning Extension of Closure Dates for Savannah River Site High-Level Radioactive Waste Tanks 19 and 18 (signed 11/19/07), Items 6, 7, and 12 (located within FFA Appendix L) are suspended, with agreement by DOE, EPA, and SCDHEC to work pursuant to the Suspension Schedule to identify and implement a revised FFA plan and schedule established pursuant to FFA Section IX.E(1).

(2) The milestones associated with Items 6, 7, and 12 will be removed from FFA Appendices D and E, as appropriate, until new milestone dates are established.

DOE Approval (Signature)		Date 11-8-2017
SCDHEC Approval (Signature)		Date 11/9/2017
EPA-IV Approval (Signature)		Date 11/9/17

Suspension Agreement
Federal Facility Agreement (FFA) High-Level Waste (HLW) Tank Milestones

The three parties agree to a suspension of the FFA Appendix L items #6, #7 and #12 associated with completion of Bulk Waste Removal Efforts (BWRE) and Operational Closure. This suspension is entered into for the purpose of allowing time to negotiate a comprehensively revised set of HLW Program Milestones as outlined below. This suspension does not include item #5 of Appendix L as modified in the "2017 Update to the Statement of Resolution of Dispute Concerning Extension of Closure Dates for Savannah River Site High-Level Radioactive Waste Tanks 19 and 18 (signed 11/19/07)."

Our agencies previously agreed to hold two meetings between April 1 and August 31, 2017 to discuss the two FFA milestones due in fiscal year 2017. These meetings were held on May 16 and August 15. Follow-up discussions were held on September 6 and 8.

The FFA Appendix L BWRE and operational closure milestones were established in November 2007 based on best available information, knowledge, and assumptions applicable then. As discussed, substantial programmatic issues have arisen and adjustments have been or will be made to the Liquid Waste Program because of:

- **New Liquid Waste Program Contract Pending Award with an emphasis directed toward enhanced salt waste processing**
- **Salt Waste Processing Facility (SWPF) construction completed (4/29/2016) with start-up testing well underway including tie-in with existing Liquid Waste infrastructure (e.g., waste transfer line, DWPF, and Tank 49 modifications)**
- **DOE EM-1 45-Day Review Initiative Action Plan**
- **Significant System Outages (e.g., 2F Evaporator failure (2012) and 3H Evaporator failure (2016), Defense Waste Processing Facility (DWPF) Melter failure (2017) and replacement and maintenance)**
- **Tank Waste issues (e.g. rheology, corrosion control, closure durations, chemical cleaning, mixing pumps, tank farm aging infrastructure)**
- **New Nuclear Safety Requirements**

During our discussions, we have also considered our mutual interest to renegotiate all of the remaining Appendix L BWRE and operational closure milestones (Appendix L items #6-8 and #12-15) while furthering our shared interest in continuing risk reduction efforts. DOE will support this common goal of risk reduction by accelerating two Soil and Groundwater projects in D-Area. To achieve this, the undersigned agree to the following:

- **A suspension of Appendix L milestones (items #6, #7, and #12), with agreement to work pursuant to the attached Schedule to identify and implement a revised FFA plan and schedule established pursuant to FFA Section IX.E(1).**
- **Acceleration of two cleanup activities, D-Area Groundwater Removal Action to remediate acidic groundwater using a carbonate reactive substrate and D-Area Coal Storage Yard (484-17D) cleanup. These new milestones will be incorporated into Appendices D and E of the FFA as appropriate.**

Project	Rev.0 EE/CA	Submit Final Action Memo	Removal Action Start
D-Area GW (injection wells, canal treatment w/ $CaCO_3$)	7/2018	1/2019	1/2020
D-Area GW - 484-17D coal yard soil neutralization (no D&D)	9/2018	3/2019	4/2020

- Maintain a good faith effort to advance the SRS Liquid Waste Program with the following goals during negotiation:
  - Near term focus on waste removal from high risk H-Area Type I and II tanks
  - Near term partial turnover of F Tank Farm to Area Closure with incorporation of dates into FFA Appendix E, once established
  - Acceleration of F-Area Tank operational closure
  - Accelerated completion in advance of Liquid Waste System Plan Revision 20 milestones
  - EM funding requests to support acceleration schedule

All parties will act in good faith to accomplish the provisions of the Suspension Agreement. If DOE does not maintain a good faith effort to advance the liquid waste program as stated above, or the parties, acting in good faith, do not establish a mutually agreeable comprehensively revised set of HLW milestones for Appendix L items #6-8 and #12-15 by May 30, 2019, the suspension of time for completion of activities in Appendix L items #6, #7, and #12 may be terminated by any party in writing upon 10 days of notice. Upon termination for either of these reasons, the parties will revert to their respective positions as of November 15, 2017, with all obligations and rights available to the parties as if there had been no Suspension Agreement.

Upon reaching agreement for the comprehensive milestones by or before May 30, 2019, an FFA modification will be submitted to the parties for signature and incorporation into the FFA.

James L. Folk

Mr. James L. Folk, USDOE
Savannah River Operations Office
Assistant Manager Waste Disposition
FFA DRC Member

11/6/2017
Date

Daphne D. Neel

Ms. Daphne G. Neel, SCDHEC
Chief, Bureau of Land and Waste Management
FFA DRC Member

11/6/17
Date

Mr. Franklin Hill, EPA Region 4
Director, Superfund Division
FFA DRC Member

11/8/17
Date

Suspension Schedule

(Assumes SRS Liquid Waste Contract Awarded in early October 2017)

Regulatory Meeting (new contract status and strategy)*	30 days after Contract Notice to Proceed
Regulatory Meeting (contract baseline status and strategy)*	NLT September 30, 2018
Submittal of Liquid Waste System Plan	February 1, 2019
Regulatory Meeting (System Plan and Baseline Presentation)*	February 15, 2019
Regulatory Negotiation First Meeting	March 1, 2019
Regulatory Negotiation Second Meeting – develop draft modification of Appendix L	March 30, 2019
Draft FFA Major Modification – Community Involvement	April 14, 2019
Regulatory Settlement Meeting to finalize tank milestones – sign FFA Modification	May 30, 2019
Submit Major Modification to FFA Appendix L	June 30, 2019

* denotes Regulatory Interactions necessary to explain the workscope, schedule and consider regulatory feedback applicable to management of the contract.