

DOE/SRR LIQUID WASTE PROGRAM UPDATE

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SRR-CWDA-2016-00131



- Overall Program Update
- Current Tank Status
- Focus Areas

TCCR Module Assembly



Tank 15 Bulk Waste Removal Execution

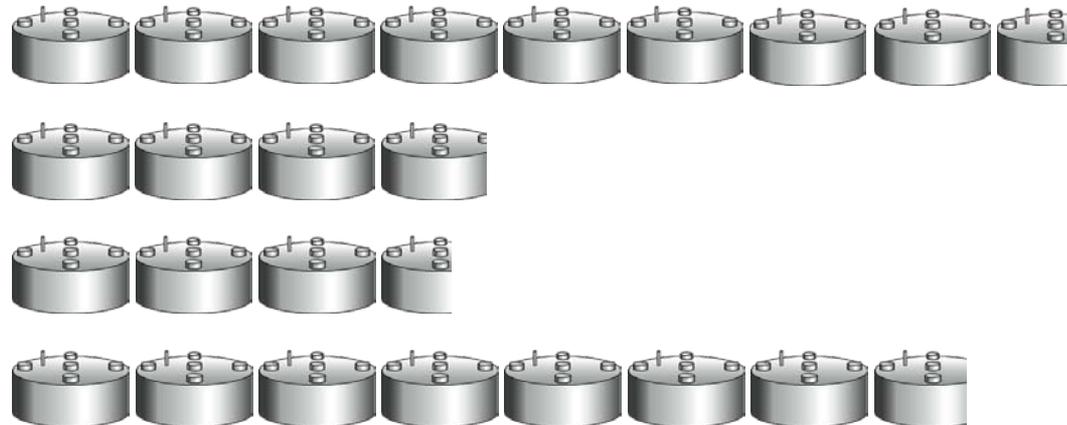


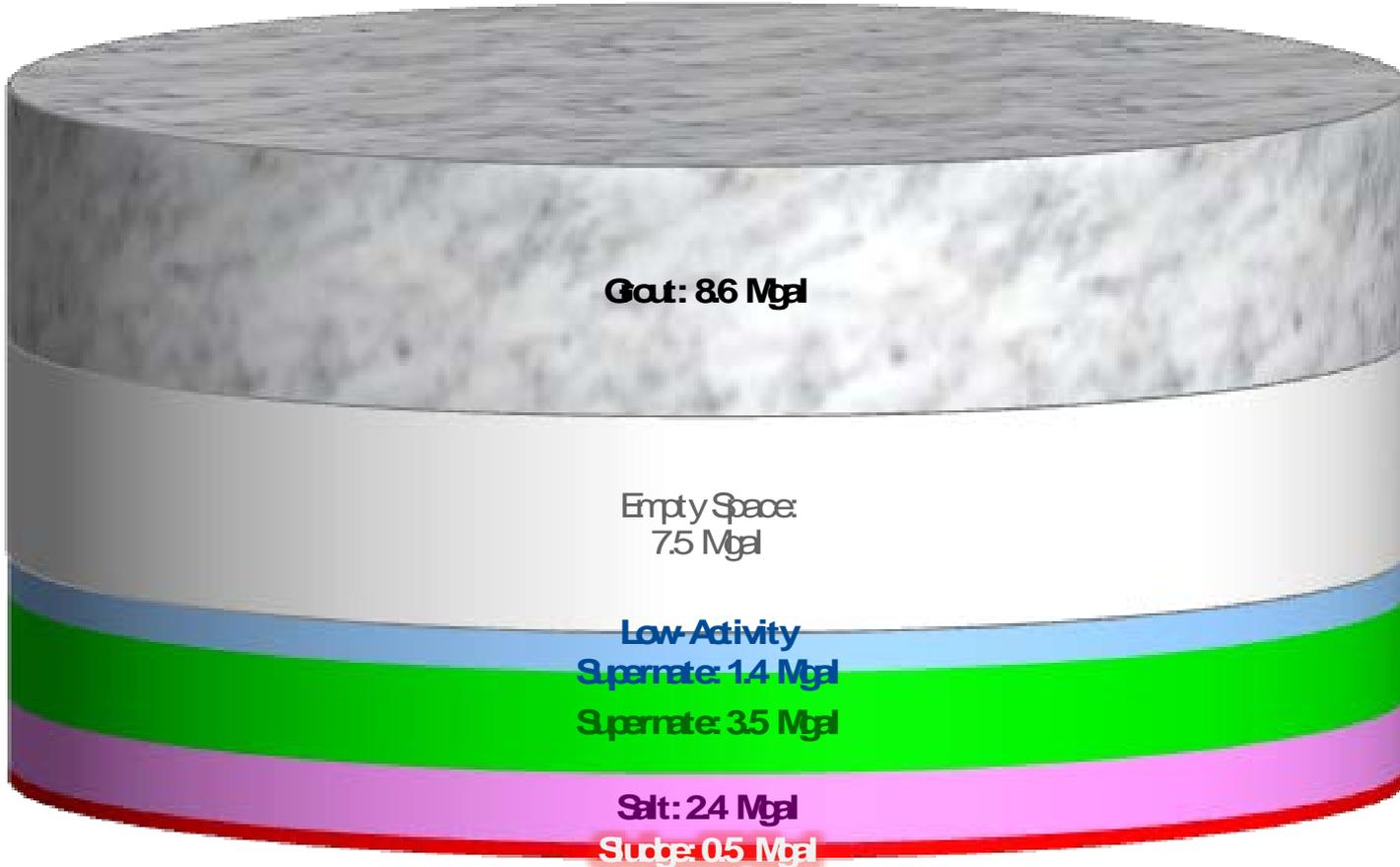
Type I	1	Saltcake Tank
	2	Saltcake Tank
	3	Saltcake Tank BWRE Design Process Initiated
	4	BWRE Complete - Limited Reuse Approved
	5	Operationally Closed (December 2013)
	6	Operationally Closed (December 2013)
	7	BWRE Complete - Limited Reuse Approved
	8	BWRE Complete - Limited Reuse Approved
Type IV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

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

If one considers the average tank volume (averaged across Type I, II, and IV tanks):

- 8.7 equivalent tanks are operationally closed
- 3.9 are out of service (vapor space above HLLCP)
- 3.6 are empty (available vapor space below HLLCP)
- 7.8 are in continued use





2016-09-30

Objective

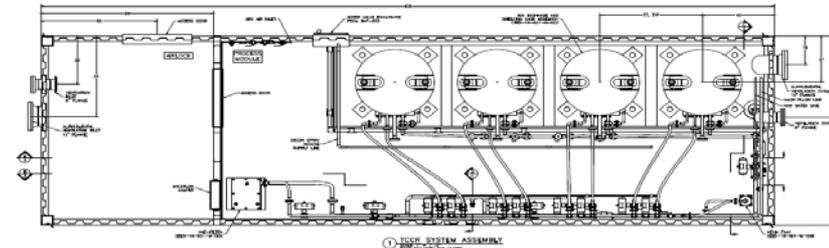
- Modular, at-tank, ion exchange technology demonstration designed to enhance bulk waste removal efforts
- Leverage commercial IX supplier expertise and Fukushima experience
- Improve flexibility by exploring alternatives for spent resin disposal
- Simple, reliable, cost effective

Status

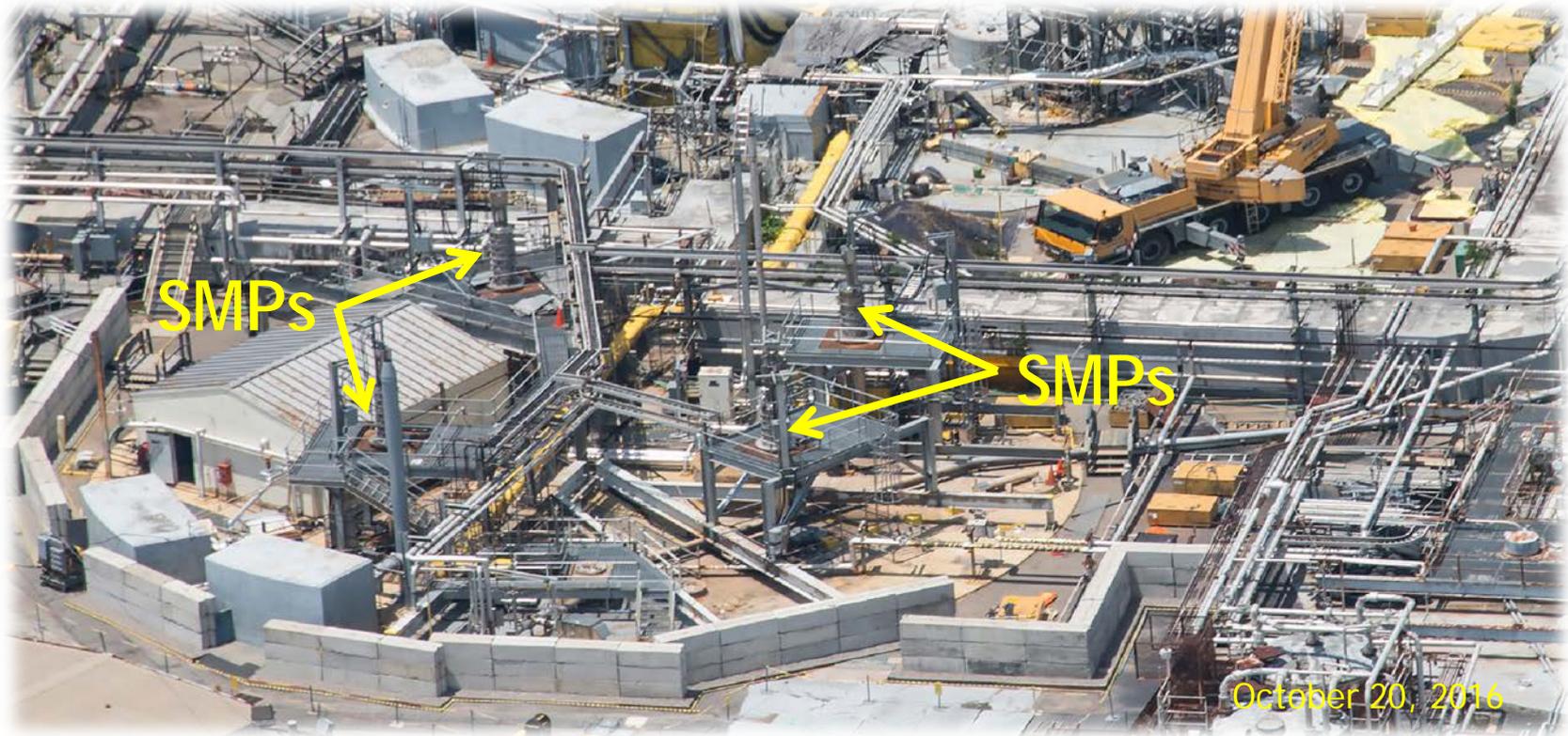
- Contract awarded to Westinghouse Electric Co on 7/7/16
 - 50% Design Submittal complete 11/4/16
 - Planned equipment delivery is 9/17
- Safety Basis Strategy approved by SRR
- Process flowsheet, modeling and design input complete
- Demonstration of TCCR equipment planned on Tank 10 salt waste for Spring 2018



TCCR Module Assembly



Bulk Waste Removal Execution Initiated



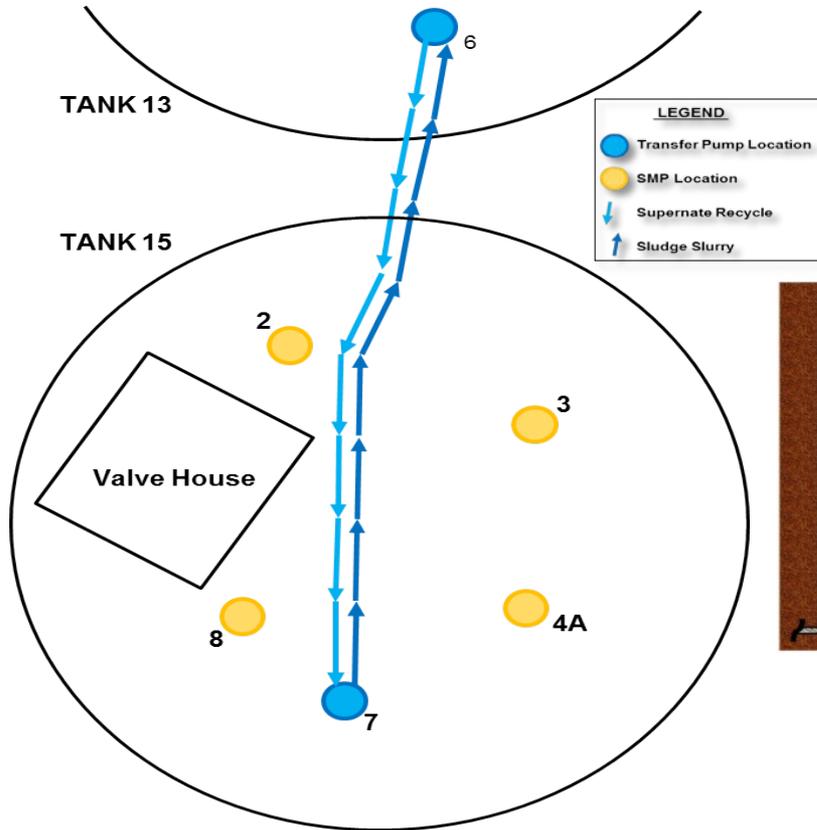
Accomplished in FY2016

- Completed startup testing
- Completed readiness evaluation
- Initiated BWRE Campaign 1

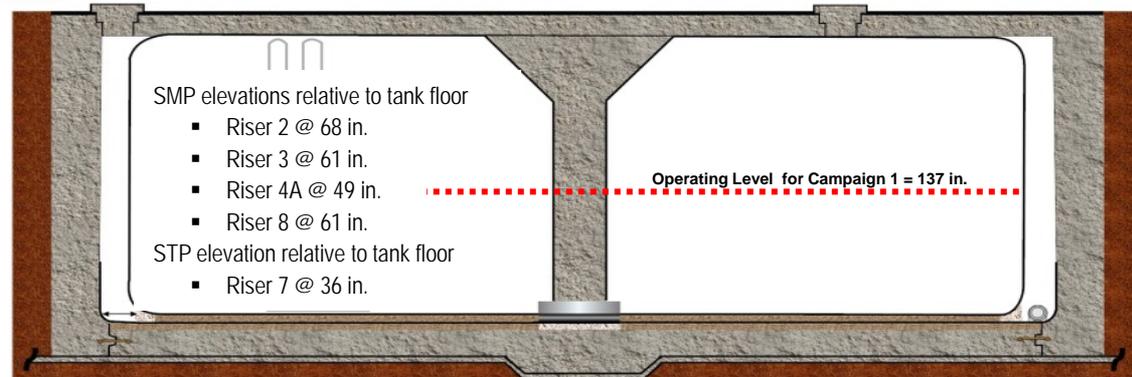
Remaining Scope

- Continue BWRE mixing and transfer campaigns*

* BWRE schedule impacted by the failure of the 3H Evaporator pot

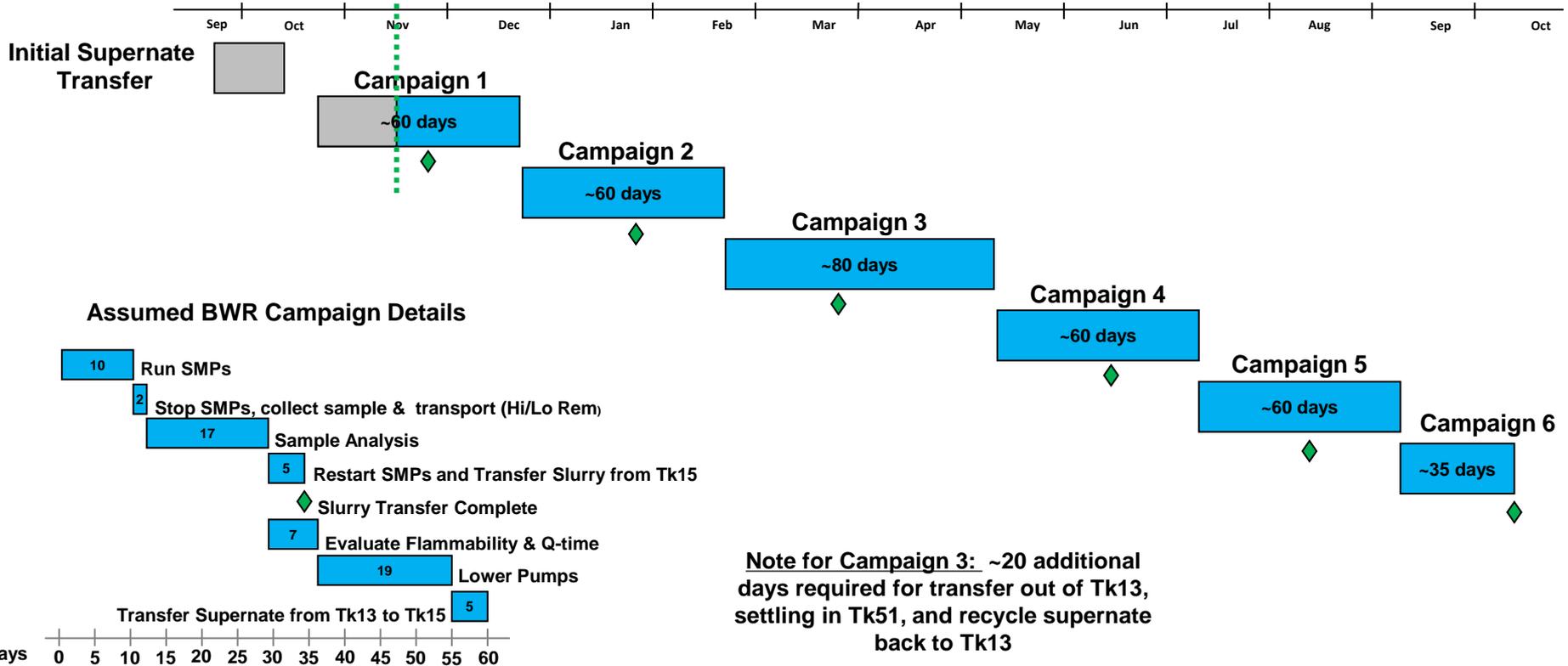


Tank 15H Plan View



Tank 15H Profile View

Data Date November 15, 2016



We do the right thing.

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Approximate Values per Campaign (to-date)

Campaign Number	Initial Liquid Level (in.)	Liquid Volume Added (gal)	SMP Operation Time (hrs)	Volume Transferred Out (gal)	Estimated Sludge Removed (gal)	Estimated Sludge Remaining (gal)
Initial Xfer	83	186775	N/A	N/A	N/A	N/A
1	137	4410 (flush)	254			
2						
3						
4						
5						
6						
Total	N/A					

TANK 15H REFERENCE NUMBERS

Nominal Tank Capacity = 1,070,000 gal
Initial Estimated Sludge Volume = 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

NOTES

This Period

- No safety events
- Completed first mixing run and collected sample on 11/4
- Sample results needed to quantify Inhalation Dose Potential prior to transfer
- Planning for coordination of transfer operations around holiday weekend
- Managing tank temperature using all available cooling coils
- Annulus level decreasing - 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)
- Annulus In-leakage -
 - Installation of CTS and instrumentation adjustment (7 days)
- Sludge Rheology Issues - none to date
- Radiological Issues - none to date
- Resource Limitations - none to date
- In-process Inspection Delays - none to date
- Sample Analysis Delays - none to date

- **Equipment failures**
 - Spare STP/SMPs available but replacement would impede BWR operations
 - Already impacted by the unavailability of the 3H Evaporator
- **Primary tank wall failure**
 - Leak rate exceeding capability of CTS would impede BWR operations
- **Sludge rheology**
 - Worse than anticipated rheological properties would impede BWR operations
 - Additional mixing/transfer campaigns required
- **Tank space**
 - Ability to transfer waste out of Tank 15H depends directly upon availability of space in Tank 13H and the downstream system
 - The highly integrated Liquid Waste System must function properly to create space
- **Tank temperature**
 - SMPs generate more heat than cooling coil system can cool causing supernate temperature to exceed SMP operating limit
- **HEPA filter loading**
 - Filter loading reaching the action limit dose rate requires pump shut down to change filters



Accomplished in FY2016

- Completed development operating procedures
- Completed integrated testing of:
 - Four CSMPs and associated turntables
 - One telescoping STP
 - Mixing and transfer control systems
 - Alarms associated with modifications
- **The need date for Sludge Batch 10 moves out due to 3H Evaporator failure. Waste retrieval preparations have been suspended.**

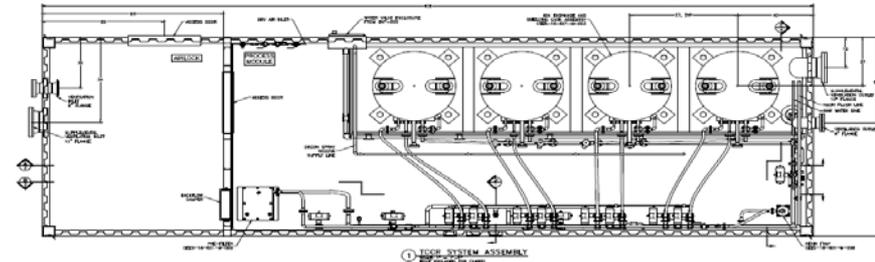
- **Salt Dissolution Tanks**
 - Tank 3F
 - Design input developed
 - Designs in progress
 - Ventilation Stack
 - Salt Dissolution equipment
 - Dissolved salt transfer system
 - Tank 9H
 - Design input in progress
 - Design expected to begin in January

We do the right thing.

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- **Completed HTF RCRA/CERCLA Docs**
 - HTF (Tank 16) IASB/PP (Jan 2016) IROD (August 2016), ICMI/RAIP (December 2016), & IRA Start (January 2017)
- **Remove Tank 12H from the Wastewater Permit**
 - Final Configuration Report (almost done)
 - Explanation of Significant Difference (drafting)
- **Tank Closure Cesium Removal**
 - SRR review of Westinghouse 50% design submittals
 - Westinghouse initiate the 90% design activities and long lead procurements
 - SRR initiate development of the Balance of Plant design
- **Tank 15H BWRE**
 - Perform BWRE campaigns
- **Tanks 3F and 9H**
 - Complete design input and continue design process

TCCR Module Assembly



- DOE requested an extension of milestone for two tanks in a letter to SCDHEC and EPA June 1, 2016
- EPA and SCDHEC each issued a letter of denial identifying concerns on June 21 and June 22, respectively
- DOE invoked the informal dispute resolution process with a letter to SCDHEC and EPA on July 12, 2016
- DOE provided additional information regarding extension request, including responses to concerns, August 8, 2016 - all concerns closed and no new regulatory concerns identified
- DOE requested minor modifications of two bulk waste removal efforts statements in FFA Appendix L August 8, 2016
- Informal dispute resolution meetings held August 31 and October 12, 2016 with next meeting scheduled for December 7