U.S. DEPARTMENT OF ENERGY

Presentation to the Savannah River Site Citizens Advisory Board

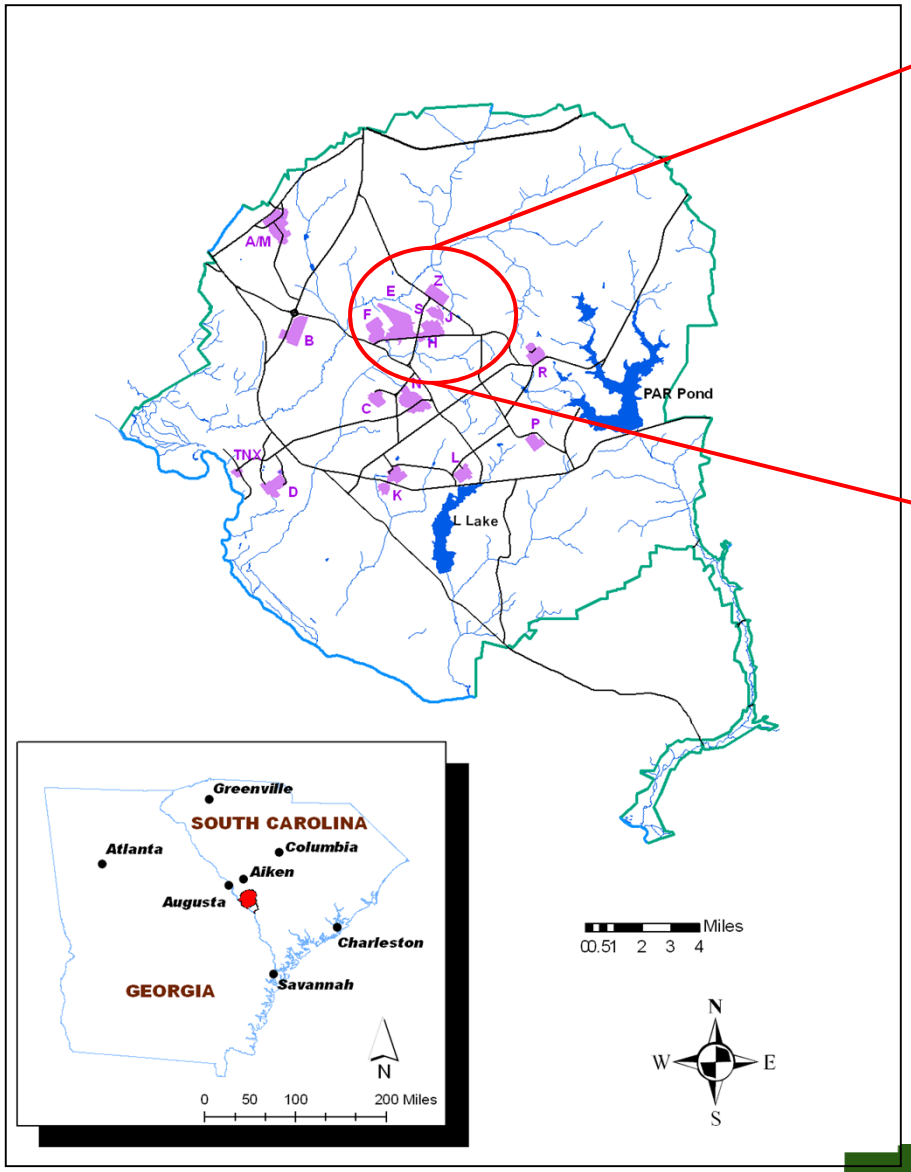
Tank Closure Update
July 24, 2012

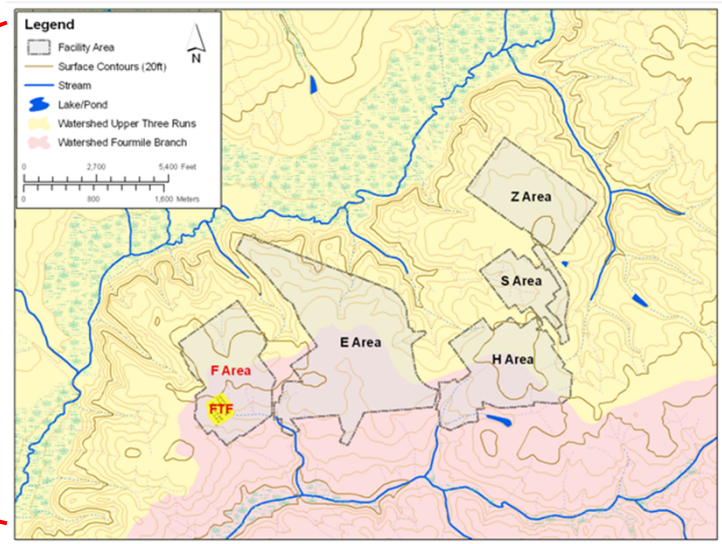
Sherri R. Ross
Program Manager, Waste Removal and Tank Closure
Savannah River Operations Office
U.S. Department of Energy

Purpose

- Provide update of tank closure activities
  - F Tank Farm Closure
    - Near Term Objective
    - Agency Decisions since November 2011
      - DOE actions to address NRC's Technical Evaluation Report
    - Grouting of Tanks 18 and 19
  - Looking Forward
    - F Tank Farm
    - H Tank Farm

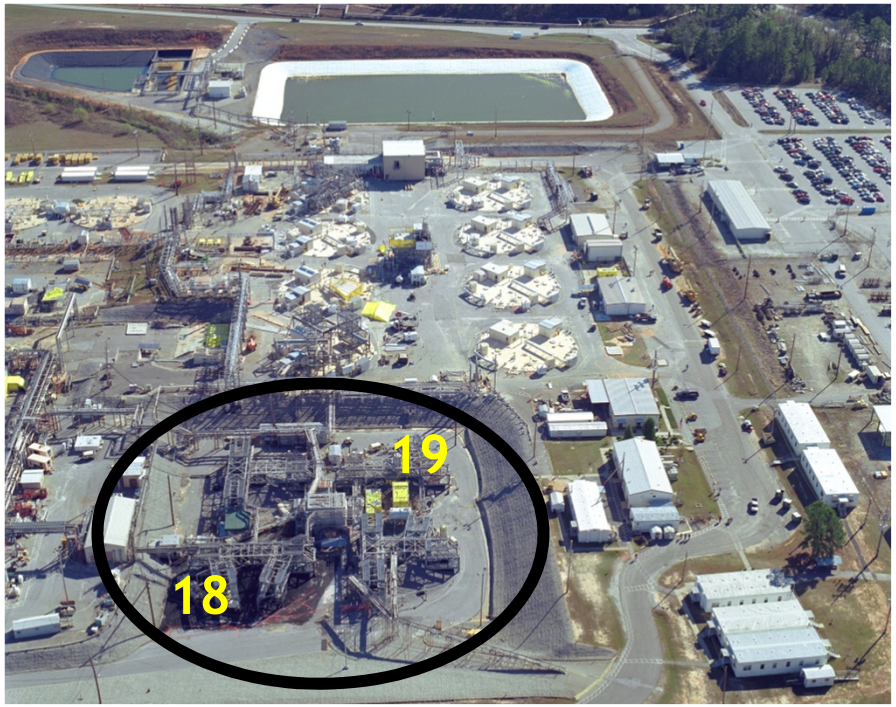
Savannah River Site – F-Tank Farm





Near Term Objective

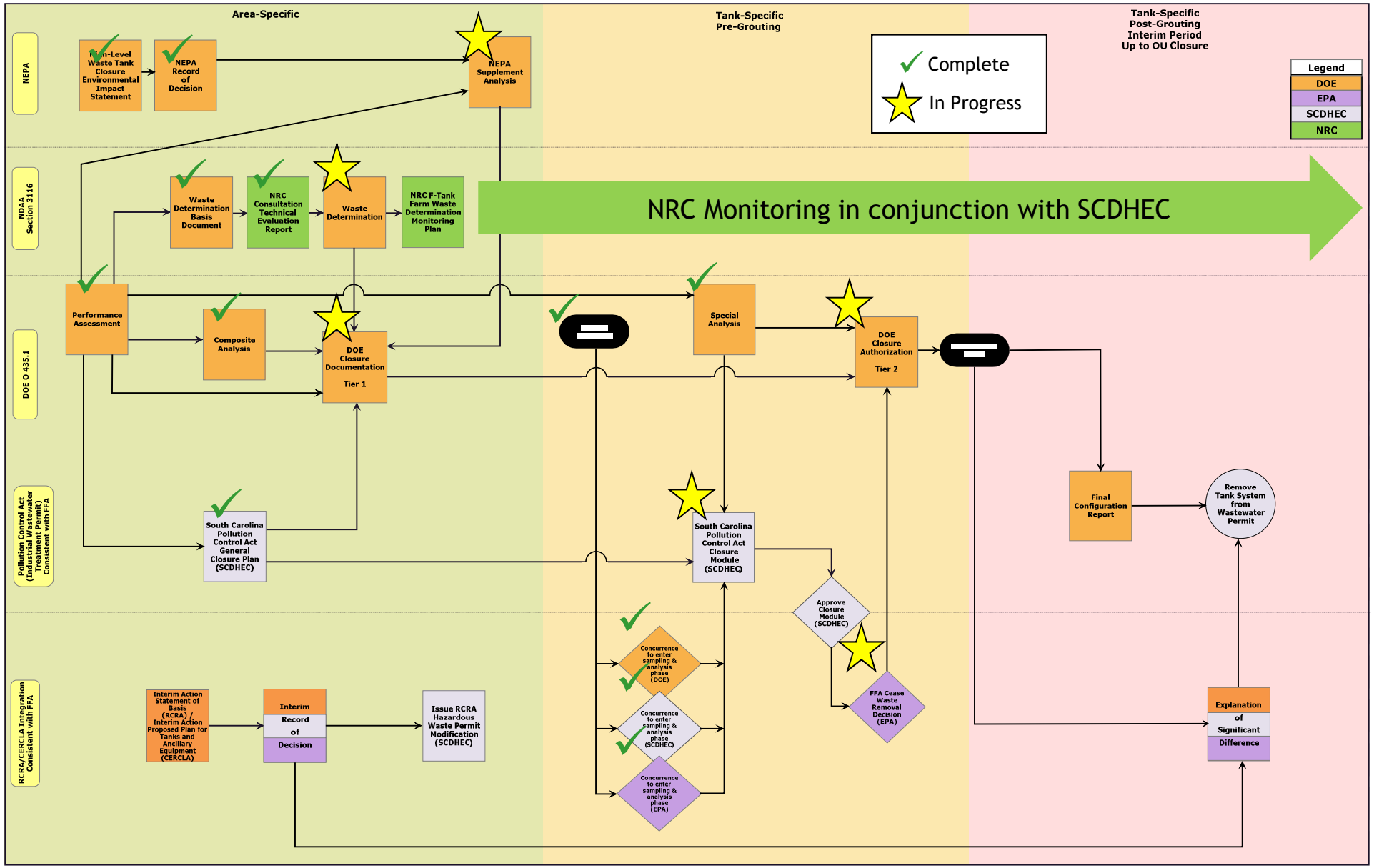
Operationally close SRS Tanks 18 and 19 by the Federal Facility Agreement date of December 31, 2012



Close the tanks in a way that is:

- Safe
- Technically sound
- Risk informed
- Compliant with regulations and commitments

DOE-SR's Regulatory Documentation Path to Waste Tank Removal From Service (11/15/2011)



NDAA §3116

Section 3116(a) – "Consultation"

- NRC provides technical consultation to inform the Secretary of Energy's Waste Determination decision

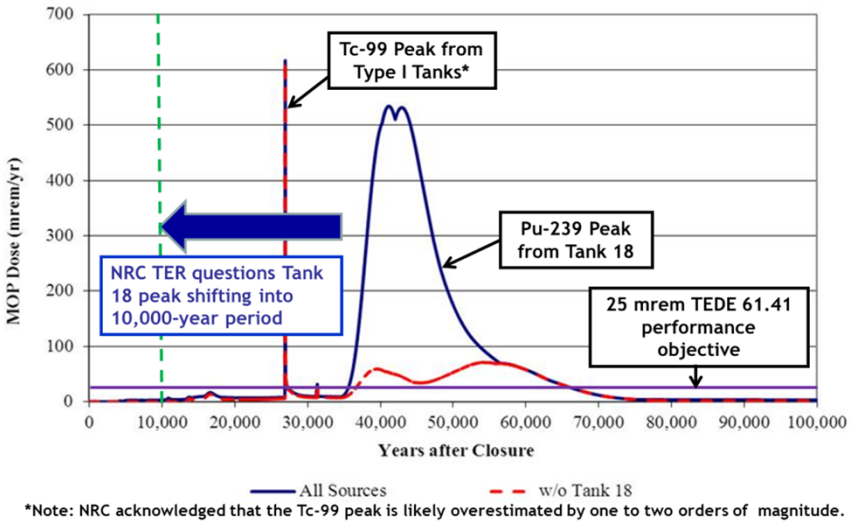
Section 3116(b) – "Monitoring"

- NRC, in coordination with SCDHEC, monitors disposal actions taken by DOE pursuant to Section 3116(a)

Summary of NDAA §3116

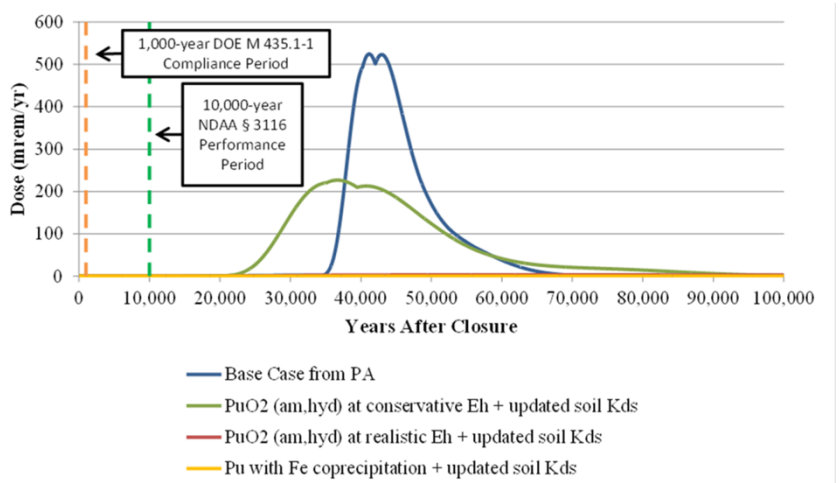
- DOE published Draft 3116 Basis Document for Closure of F-Tank Farm (September 30, 2010)
- NRC issued consultative Technical Evaluation Report (TER) (October 27, 2011):
  - Remained "neutral" on overall FTF conclusion due to bulk of tanks not yet cleaned and characterized
  - *Some positive observations supporting DOE performance assessment and related processes, and made recommendations for potential additional work*
  - Agreed that closure of Tank 19 can proceed
  - Recommended Tank 18 closure be delayed to:
    - Provide additional model support and reduce uncertainty
    - Explore practicality of additional waste removal
- DOE considered and addressed NRC TER consultation recommendations
- Secretary of Energy, based on the reasons set forth in the FTF 3116 Basis Document, issued the *Section 3116 Determination for Closure of F-Tank Farm at the Savannah River Site* on March 27, 2012

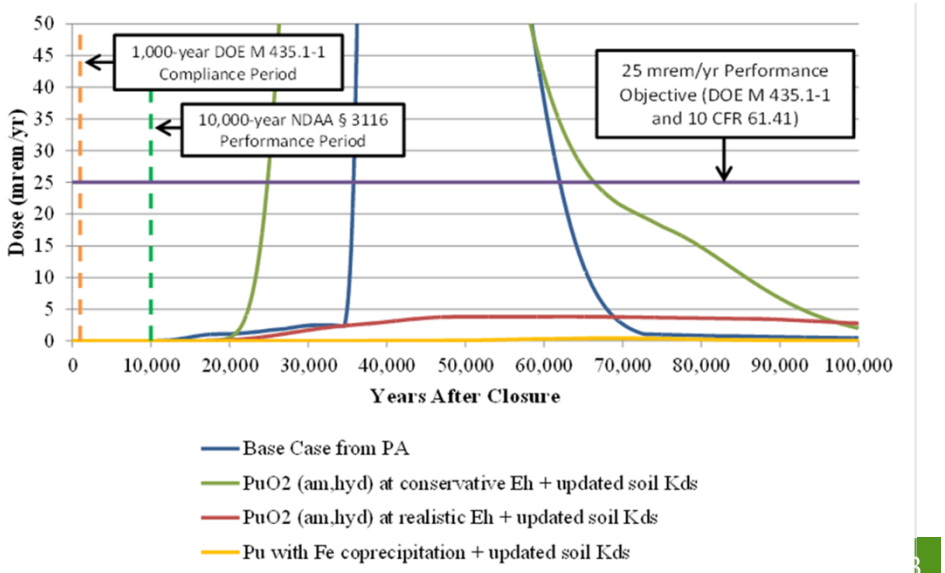
Additional Model Support and Reduced Uncertainty



*Note: NRC acknowledged that the Tc-99 peak is likely overestimated by one to two orders of magnitude.

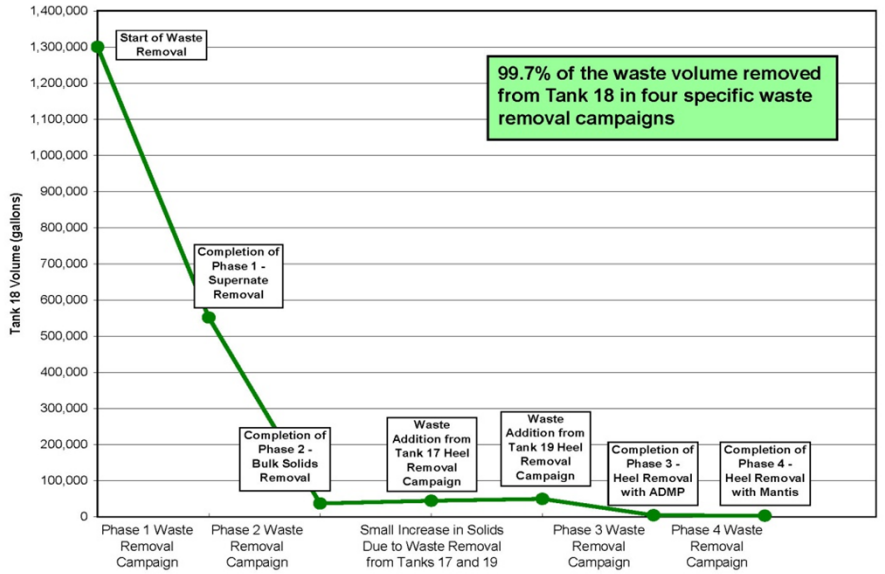
- Pu Solubility Peer Review
- Tanks 18/19 Special Analysis
  - Revision of Waste Release Model (Nuclear Energy Agency Database)
  - Series of additional science studies
  - Parametric Pu Solubility and K_d studies
  - Pu Speciation Experiments
  - New sensitivity modeling runs



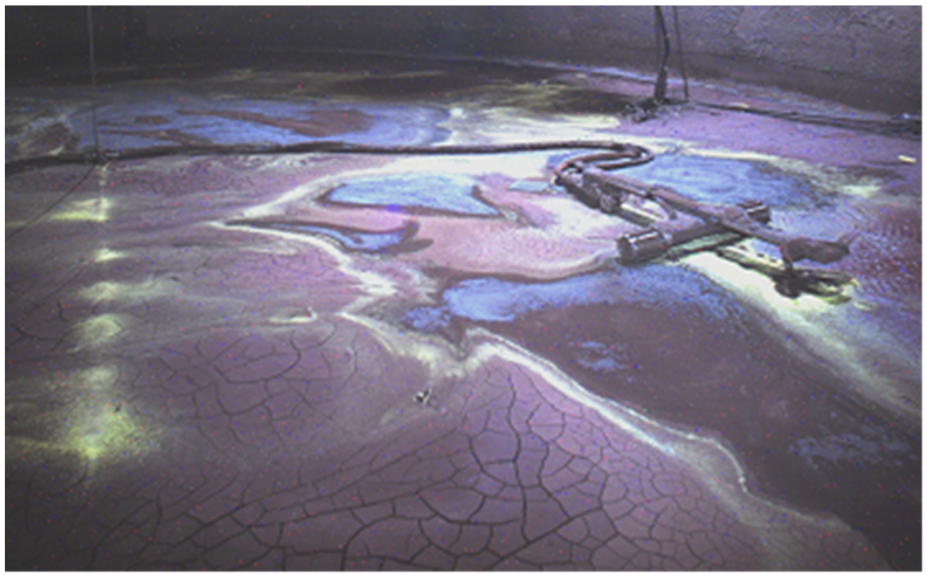


Additional Waste Removal Impractical

- Completed a System Engineering Evaluation and Cost-Benefit Analysis evaluating practicality of further waste removal
- Results demonstrate additional cleaning is not practical
  - Worker dose ~ 3.2 person-rem and $38M
  - Worker dose 20X greater than 50 yr public dose avoidance in 10,000-year performance period
  - $253M/rem reduction is 126,000X higher than NRC guidance of $2K/rem
  - Consideration of bounding 500 mrem/yr peak dose around 40,000 yr does not alter conclusions (Note: lower dose in Special Analysis sensitivity cases)



Inventory	Tank 18 Waste	
	Approximate Gallons	Cumulative % Removed
Inventory Prior to Waste Removal	1,300,000	**0**
Inventory at Completion of Phase 1 Campaign	550,000	**57.7**
Inventory at Completion of Phase 2 Campaign	37,000	**97.2**
Inventory at Completion of Phase 3 Campaign	4,300	**99.7**
Inventory at Completion of Phase 4 Campaign	**4,000**	**99.7**

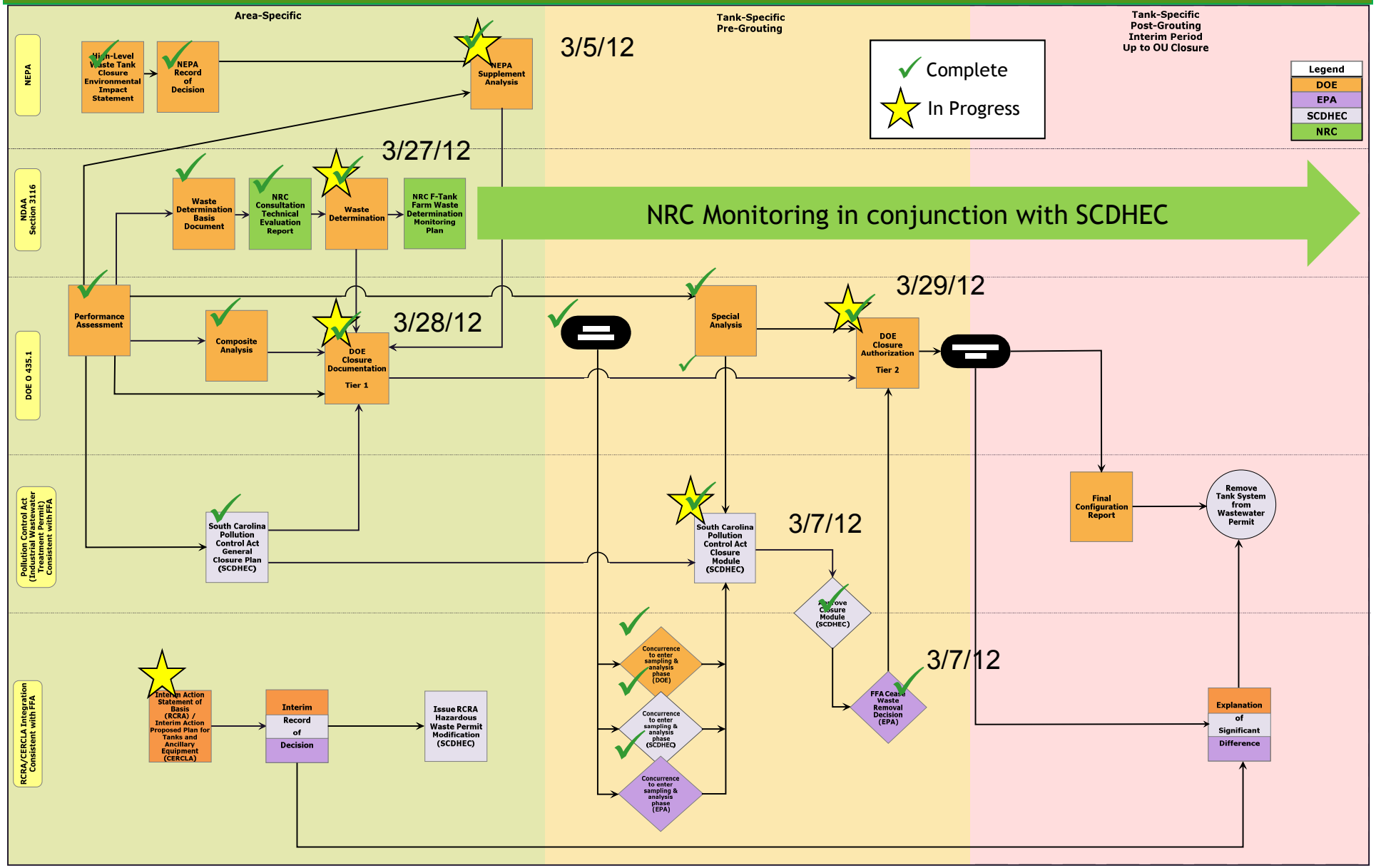


Other Activities Regarding NRC Recommendations

- Performed a formal Features, Events, and Processes review for FTF Performance Assessment
- Updated Liquid Waste Performance Assessment Maintenance Plan with long-term activities
- Documented post-operational closure technologies available to reduce long term performance risk
- Added a reference in the 3116 Basis Document to clearly document how DOE addressed each NRC recommendation

Documents posted for public access at http://sro.srs.gov/f_htankfarmsdocuments.html

DOE-SR's Regulatory Documentation Path to Waste Tank Removal From Service (7/24/2011)



Grouting of Tank 19

At ~9:00 am on 4/2/2012, grout was first introduced

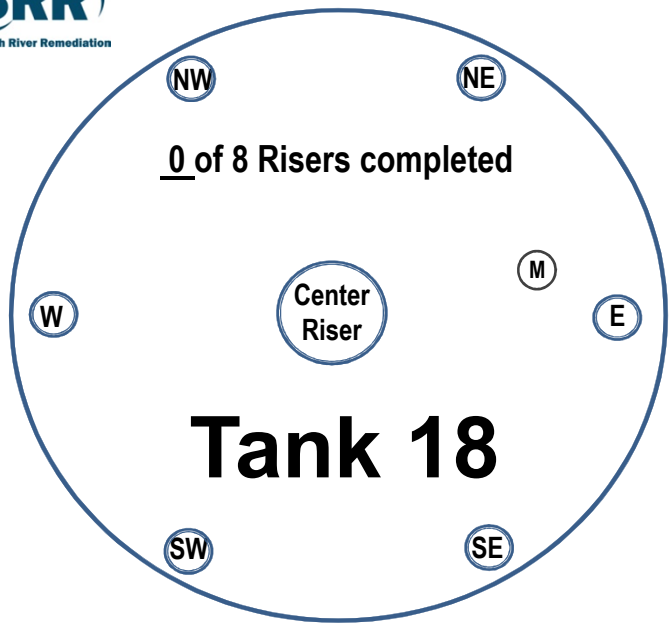
Grouting of Tank 18

At ~8:00 am on 4/3/2012, grout was introduced in Tank 18.

SCDHEC staff made the trip to the Site from Columbia to witness this historic day for DOE and the State.

Closure Module Field Status

(as of close of business on)
July 12, 2012
Calendar Day 102 of 176

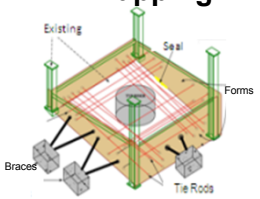


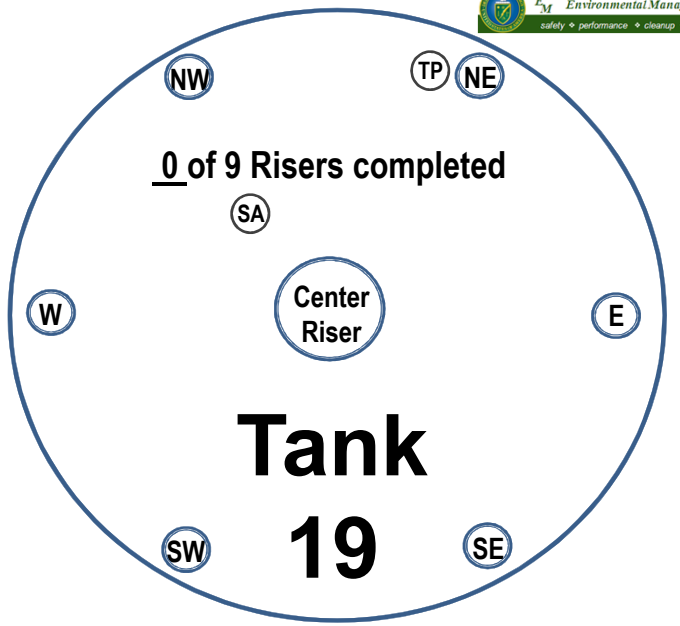
Riser	Riser Fill	Equip Fill	Lower Cap	Upper Cap
NE				
E		50%		
Mantis				
SE				
SW				
W				
NW		50%		
Center	95%			

Notes:
-2055 total truck loads placed
-Minor overflow Tank 18 SE riser
-Completed 5 riser fills on Tank 18
-Installing Tank 19 capping forms
-Continued D&R on both tanks
-Hot with a chance of rain
-Next week activities: M/T/W/T/F

Riser Status Legend	
	Not Applicable
	Complete
% Complete	In Progress
	Not Started

Capping





Riser	Riser Fill	Equip Fill	Lower Cap	Upper Cap
NE				
E				
SE				
SW				
W				
NW				
Transfer Pump				
Sample				
Center				

Looking Forward: F-Tank Farm

Request CAB consider closing Recommendation #284 – Need to Continue Ongoing Progress for Closure of Tanks 18 and 19

- Tank 5 has been cleaned, sampled and characterized
- Tank 6 has been cleaned, sampled, and characterized
- A State-approved Closure Module must be prepared and approved for Tanks 5 & 6
- Tank 5 and 6 isolation…..
- Grouting preparations/field activities….

Goal: Optimize the Tank 5 and 6 schedule to enable operational closure well before the Fiscal Year 2015 FFA milestone

Looking Forward: H-Tank Farm

- An HTF General Closure Plan and associated HTF Groundwater Monitoring Plan under preparation
- A revision to the HTF Performance Assessment is underway
  - Public comments on Revision 0 being incorporated
  - Lessons learned from FTF and Saltstone being incorporated
- Consultation with NRC on HTF Draft 3116 Basis and revised Performance Assessment planned CY 2013

Strategy: Model and build upon the FTF document success to expedite the preparation, review, and approval process for the HTF documents