

Tank Closure Program at Savannah River Site

Governor's Nuclear Advisory Council

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Presentation By
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Acronyms

- DOE – Department of Energy
- EPA – Environmental Protection Agency
- NRC – Nuclear Regulatory Commission
- PA – Performance Assessment
- SCDHEC - South Carolina Dept. of Health and Environmental Control
- WD – Waste Determination



Tank Closure Program

Objective: Empty, clean, and stabilize residual contaminants to meet commitments for tank closure and protect human health and the environment

Scope: Two Tank Farms (51 tanks, various equipment and underground transfer lines)



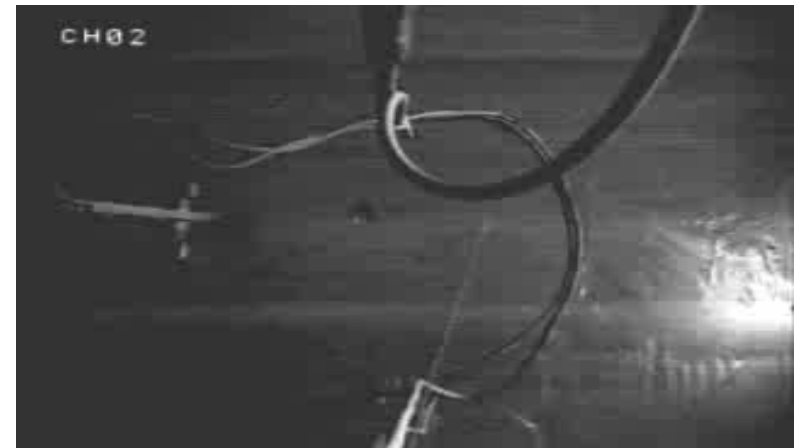
Progress Made

- **Phase I - Bulk Waste Removal**
 - 7 Tanks completed (Tanks 17, 20, 18, 19, 5, 6, and 16)
 - 2 Tanks underway (Tank 12 and 4)
 - Commitments to complete 17 non-compliant tanks by 2019
- **Phase II - Heel Removal & Tank Cleaning**
 - 4 Tanks actively underway
 - Mechanical Cleaning Tanks 18 and 19
 - Chemical Cleaning Tanks 5 and 6
 - Continue until DOE, SCDHEC & EPA agree to cease
- **Phase III - Characterize residual**
 - Prepare closure documentation
- **Phase IV – Grout**
 - 2 Tanks completed (17 and 20)
 - Commitments to close 24 non-compliant tanks by 2022
 - Anticipate closure of remaining 27 compliant tanks by ~ 2028



Tanks 18 and 19 Mechanical Heel Removal and Cleaning (Mantis[®])

- Three Phase cleaning strategy per tank
 - Mound Removal
 - Floor using hose
 - 10 Area Validation

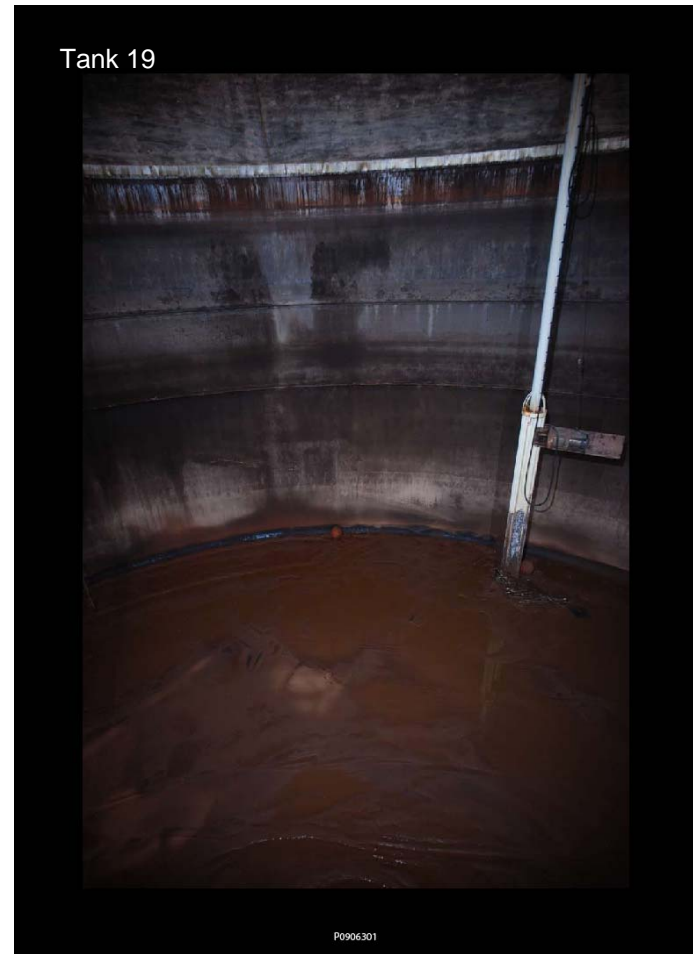


Tanks 18 and 19 Mechanical Heel Removal and Cleaning (cont'd)

- Each tank cleaned >400 hours
- ~ 1/4" – 1/2" vacuum design limitation
- Tank 19 stiffener bands hydrolanced (1200 psi) similar to Tank 18



Tanks 18 and 19 Results

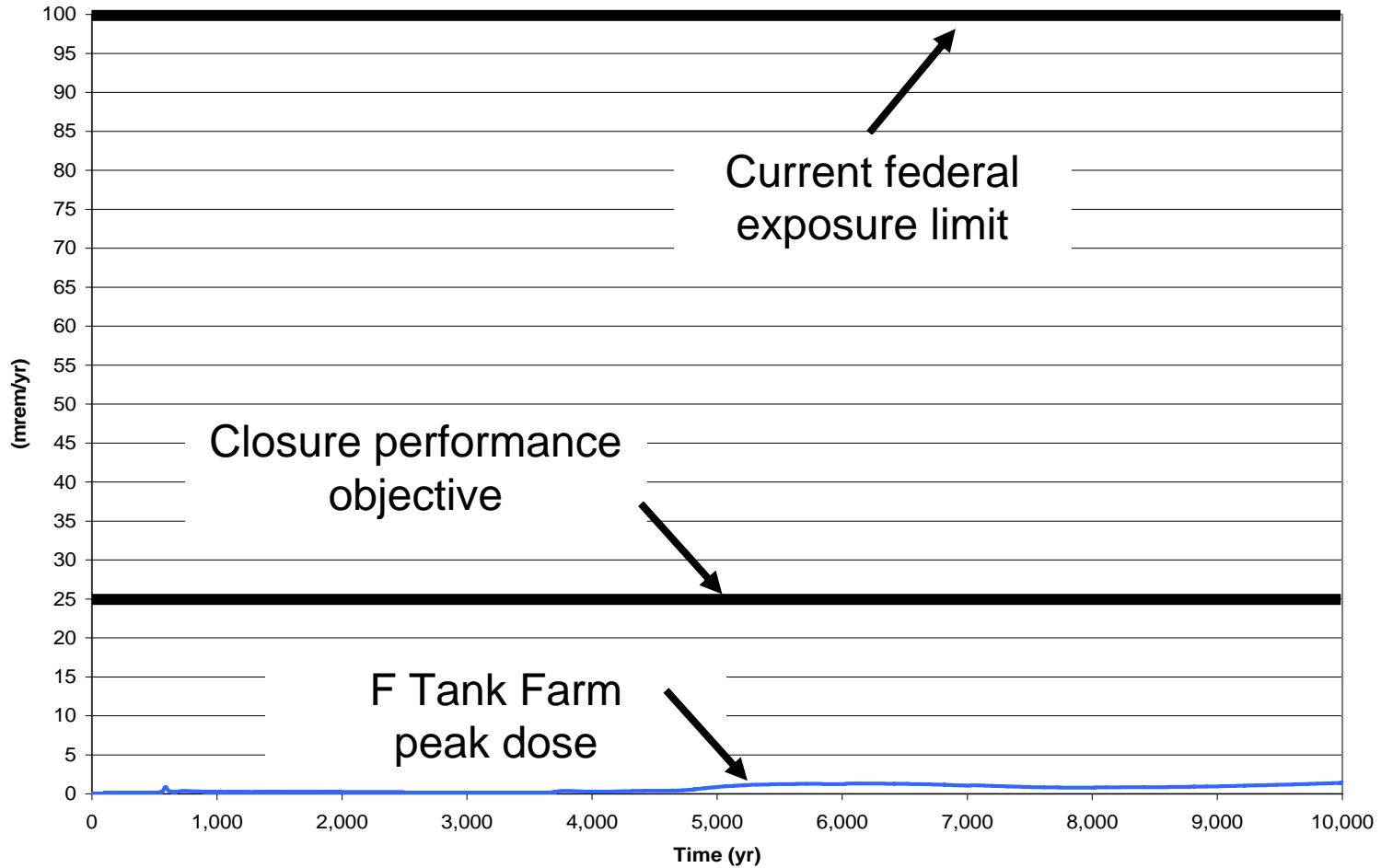


Tanks 18 and 19 Results (Cont'd)

	Tank 18	Tank 19
Pre-Mantis	6,730 gallons 98% curies removed	16,800 gallons 92% curies removed
Post Mantis (preliminary)	~1,100 gallons	~1,100 gallons
% Removed (preliminary)	~ 84% volume	~ 93% volume
PA bases	1,100 gallons	3,800 gallons



Comparison of Public Dose Risks



Tanks 5 and 6 Chemical Cleaning

- Three (3) oxalic acid strikes and water wash
 - Acid radionuclide concentration decreased
 - Solid volume increased in both tanks during final acid strikes and believed to be non-radioactive sodium and/or iron oxalates
 - In-process solid samples at lab for analysis
- Failed coils flushed in both tanks
- Annulus wall cleaning 100% complete Tank 6, 75% complete for Tank 5
- Solid sample analysis currently in progress



Path Forward

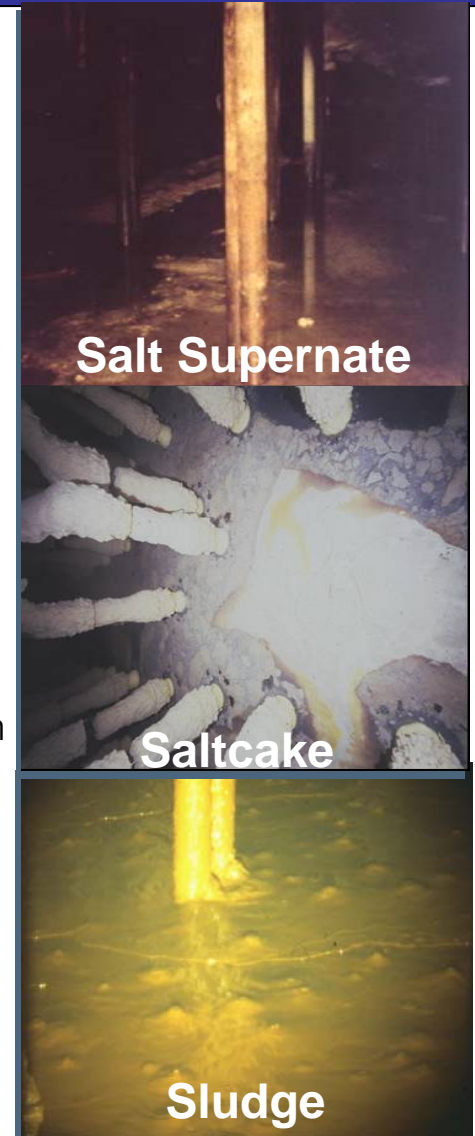
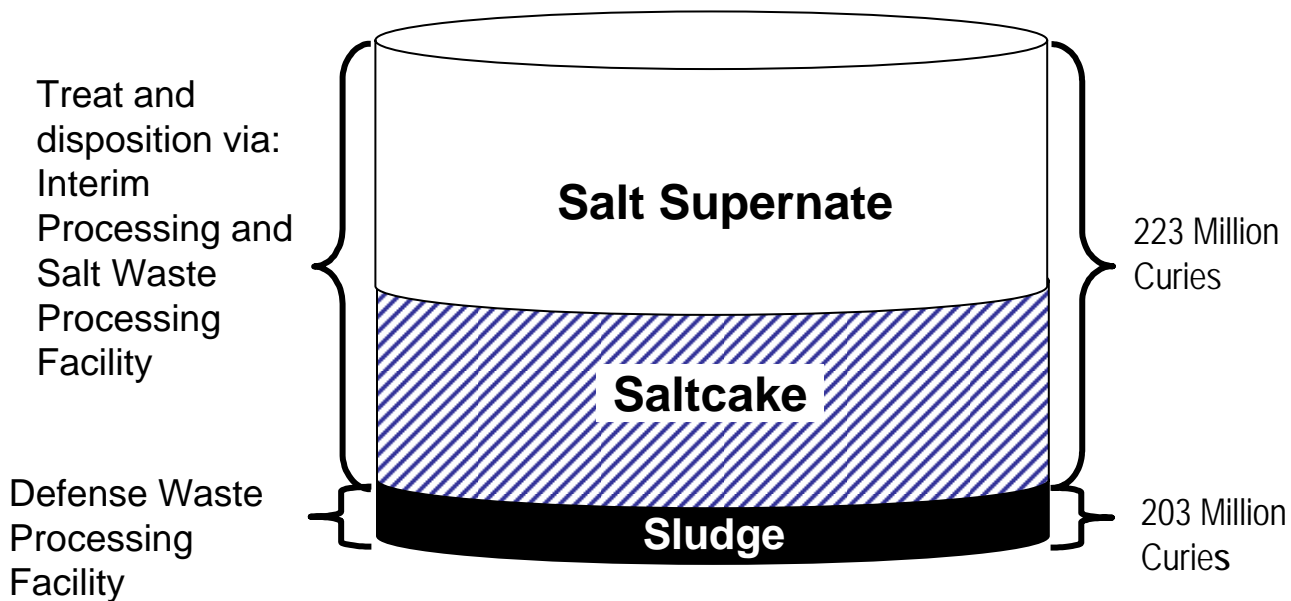
- Continue bulk waste removal and treatment
- Near term focus on F Tank Farm closure:
 - SCDHEC and EPA concurrence to cease waste removal for Tanks 18 and 19 ~ July 2009
 - Contractor recommendation on Tanks 5 and 6 soon
 - Issue Draft F Tank Farm Closure Plan to SCDHEC and EPA in Fall 2009
 - Issue Draft F Tank Farm WD Basis, revised PA, and PA comment responses to NRC, SCDHEC, EPA, and public by Spring 2010



Back-up

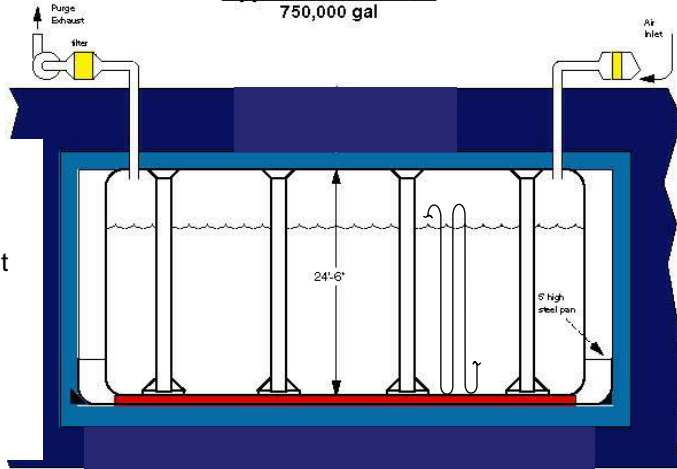


Bulk Waste Removal



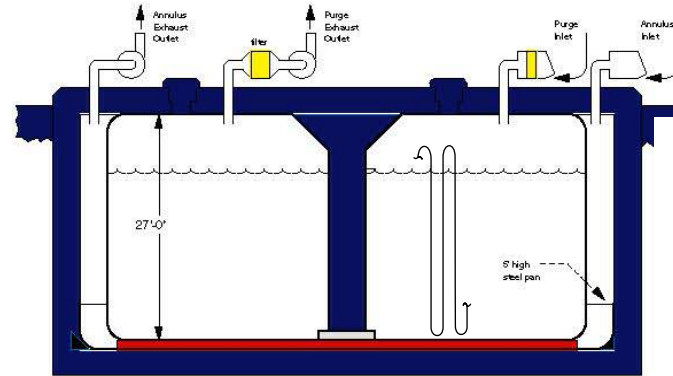
SRS Liquid Waste Tanks

Type I Waste Tank
750,000 gal



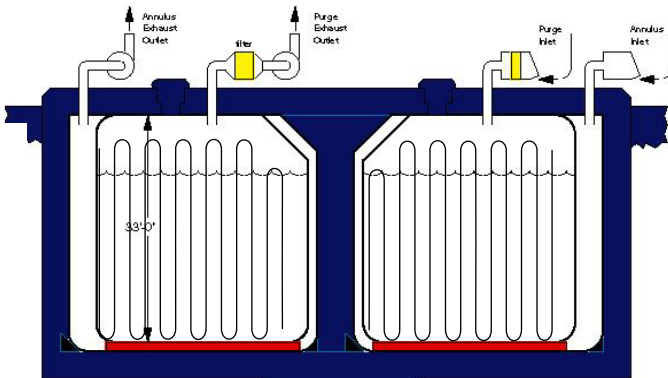
- 12 Tanks
- Built 1951 - 1953
- Non-Compliant
- Only 5 foot Secondary

Type II Waste Tank
1,030,000 gal



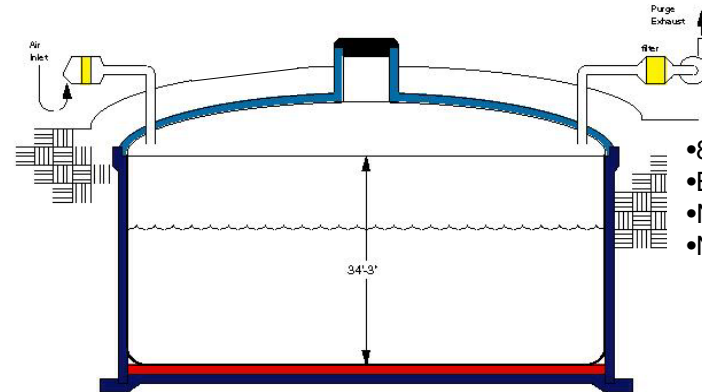
- 4 Tanks
- Built 1955-1956
- Non-Compliant
- Only 5 foot Secondary

Type III Waste Tank
1,300,000 gal



- 27 Tanks
- Built 1967-1981
- Compliant
- Full Secondary

Type IV Waste Tank
1,300,000 gal



- 8 Tanks
- Built 1958-1962
- Non-Compliant
- No Secondary

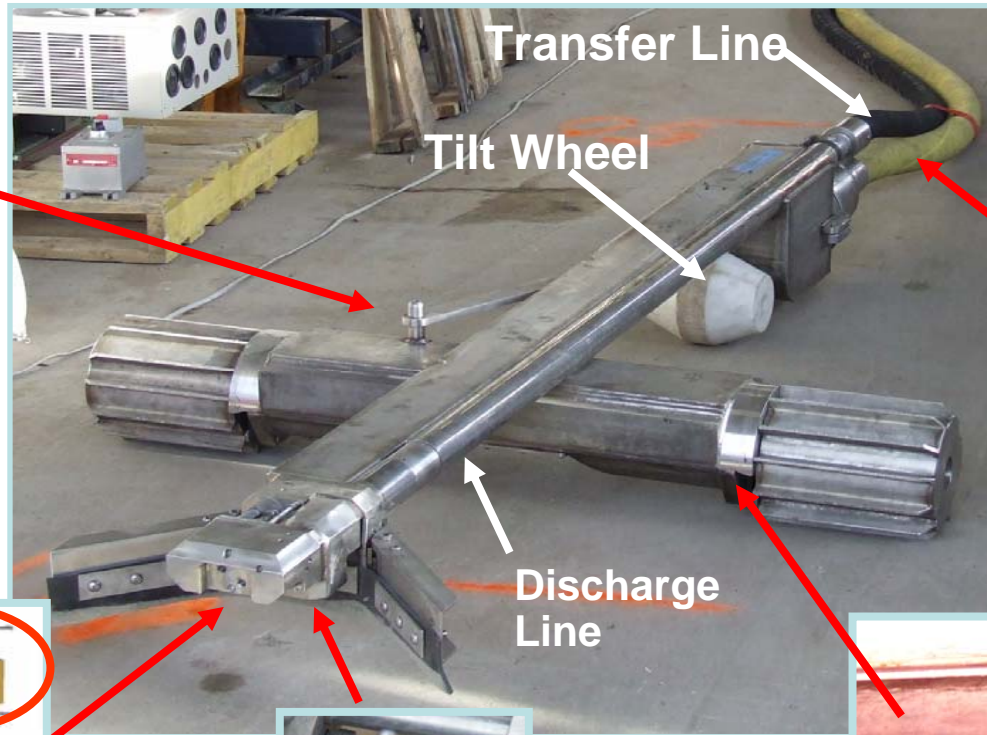
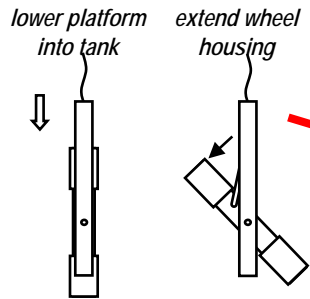
Commitments

- Appendix L of the Federal Facility Agreement between DOE, SCDHEC and EPA effective 11/19/07
- F Area Tank Farm PA to SCDHEC and EPA by 8/31/08 (Complete)
- H Area Tank Farm PA to SCDHEC and EPA by 3/31/11
- Bulk Waste Removals:
 - 2 tanks by 9/30/10
 - 2 tanks by 9/30/14
 - 3 tanks by 9/30/17
 - 1 tank by 9/30/19
 - 1 tank by 9/30/11
 - 2 tanks by 9/30/16
 - 6 tanks by 9/30/18
- Clean Tanks until DOE, SCDHEC and EPA agree to cease
 - Remove up to 75% of residual volume from Tanks 18 and 19 between 6/30/09 and 9/30/09
- Tank Closures (grouted)
 - Tanks 18 and 19 by 12/31/12
 - 2 Tanks by 9/30/17
 - 5 Tanks by 9/30/21
 - 4 Tanks by 9/30/15
 - 2 Tanks by 9/30/19
 - 7 Tanks by 9/30/22



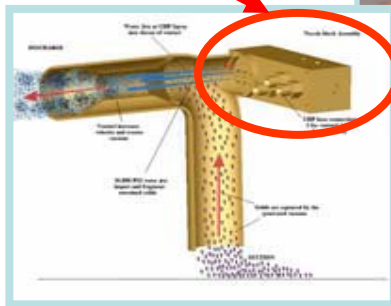
Sand Mantis®

Tank Insertion



Umbilical Line
(Contains Hydraulic, HP and UHP Hoses)

Eductor



Discharge Line

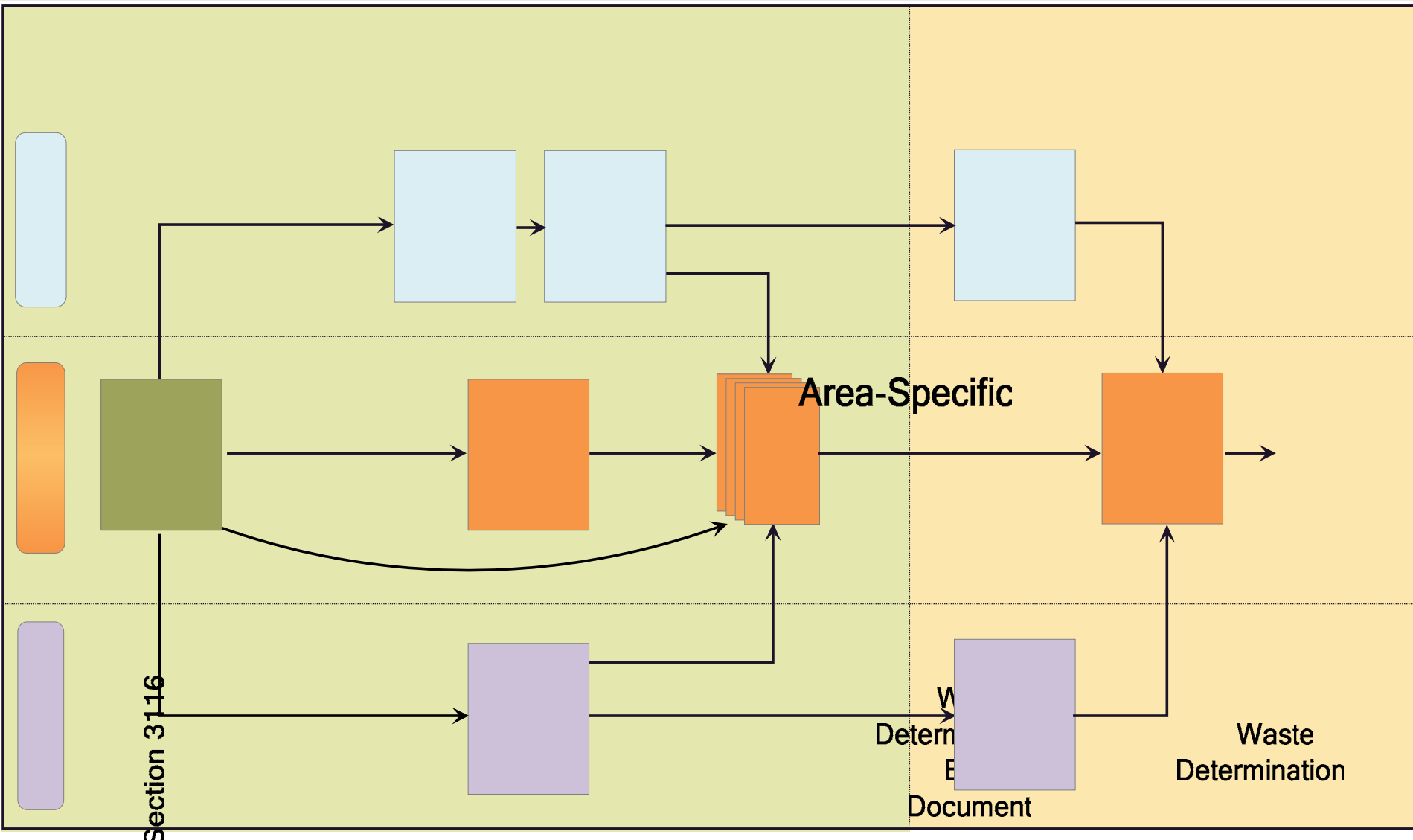
Cable Cutter



Suction



Process for Decision Making



F-Tank Farm All-Pathways Peak Dose for 20,000 Years

