



Liquid Waste Overview



May 24, 2011

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Technical Planning and Risk Management
Savannah River Remediation

- Liquid Waste Objectives
- Overview of Liquid Waste Facilities and Processes
 - Tanks
 - Waste Removal
 - Sludge Processing
 - Salt Processing



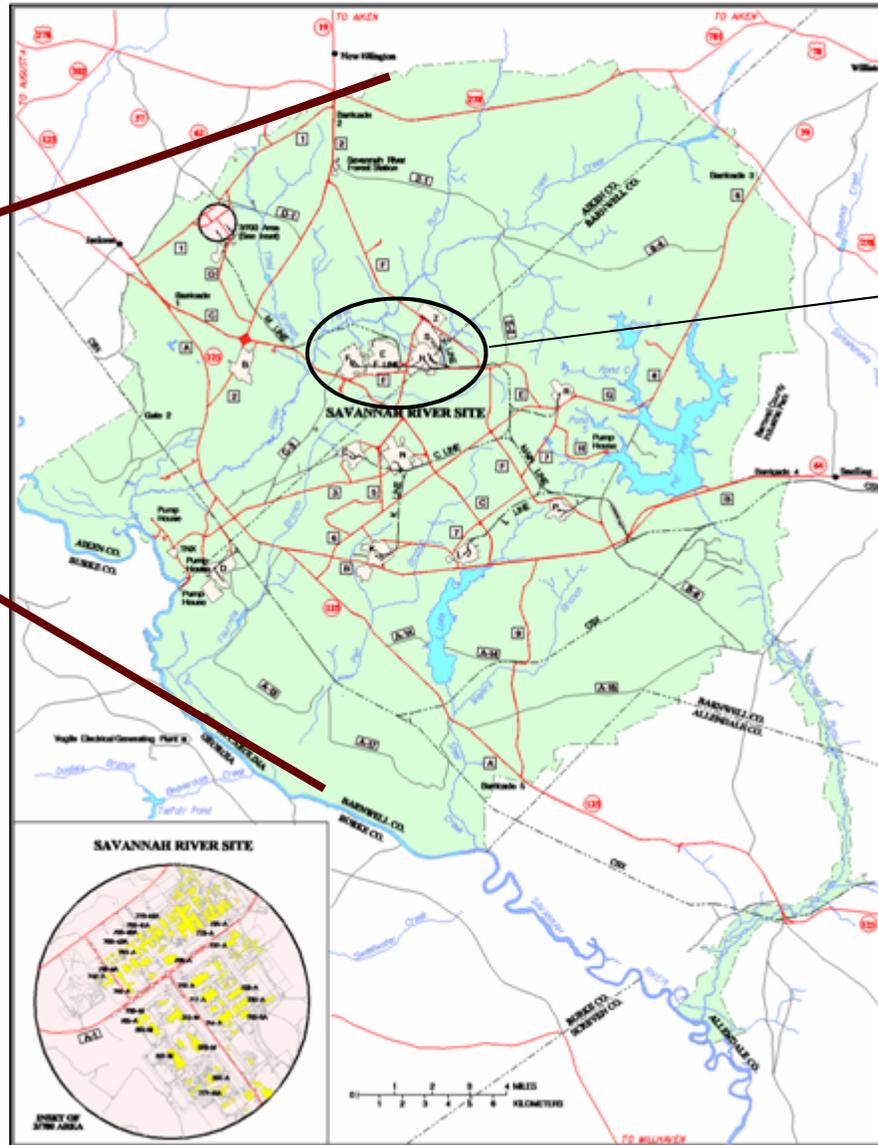
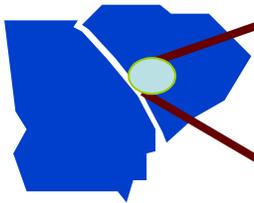
Safe disposal of the Savannah River Site waste

- Eliminate risks versus managing risks
- Protect the public, the workers and the environment
- Reduce the life cycle costs



- Process salt waste and reclaim tank space
- Reduce lifecycle cost and schedule for salt processing
- Reduce lifecycle cost and schedule for sludge processing
- Close tanks
- Support H-Canyon nuclear materials stabilization operations





Liquid Waste
Facilities



We do the right thing.

170 acres

Saltstone Processing/
Disposal Facilities

Salt Waste Processing Facility

Defense Waste Processing Facility

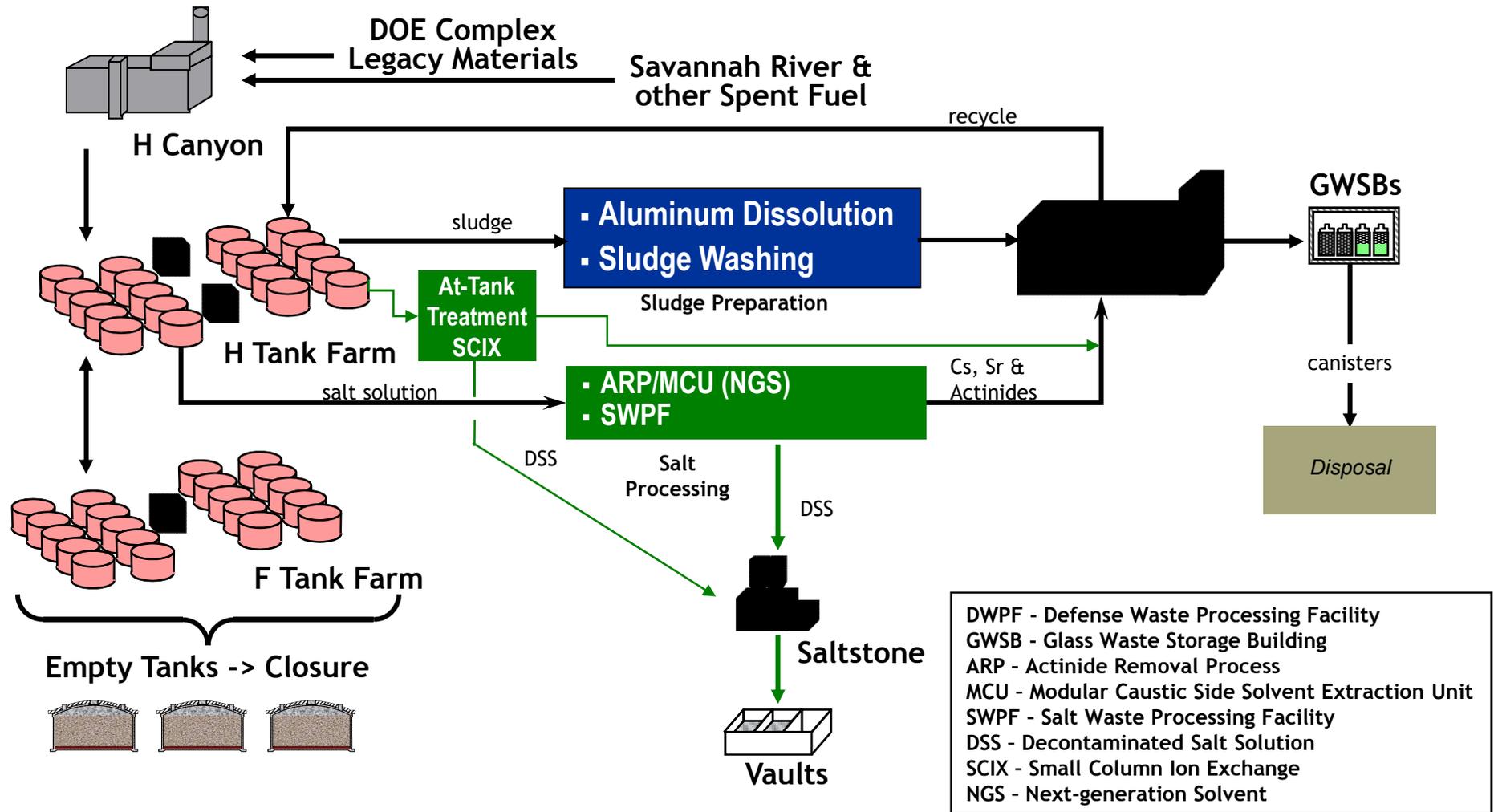
H-Tank Farm

F-Tank Farm

96-1220-2

Effluent Treatment Facility





DWPF - Defense Waste Processing Facility
 GWSB - Glass Waste Storage Building
 ARP - Actinide Removal Process
 MCU - Modular Caustic Side Solvent Extraction Unit
 SWPF - Salt Waste Processing Facility
 DSS - Decontaminated Salt Solution
 SCIX - Small Column Ion Exchange
 NGS - Next-generation Solvent





Tank Top - High Level
Waste Tank 16

➤ Tank Farm Operations

- Continue storing liquid radioactive wastes in a safe and environmentally sound manner
- Remove waste and prepare for salt and sludge treatment

➤ Waste Treatment

- Operate DWPF to process high-activity components of sludge and salt streams into a vitrified waste form for future permanent disposal
- Operate the Saltstone Processing Facility to process low-activity waste for disposal at the Saltstone Disposal Facility



DWPF Canister Pouring
Operations



Workers Lowering
Equipment into Waste Tank

➤ Tank Closure

- Clean and Close non-compliant tanks meeting the requirements of the Waste Determination (WD) Basis documents and Federal Facility Agreement (FFA) schedules

➤ Salt Disposition Integration

- Install infrastructure to support future operation of Salt Waste Processing Facility (SWPF)

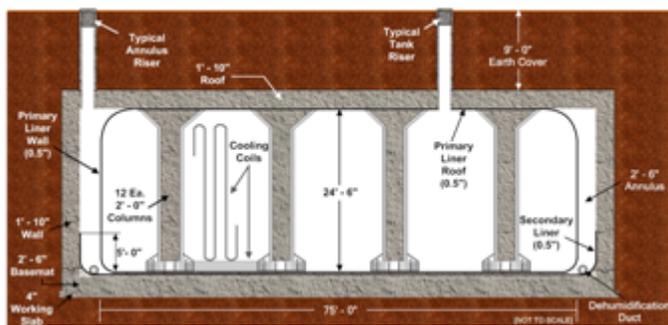
➤ Small Column Ion Exchange (SCIX)



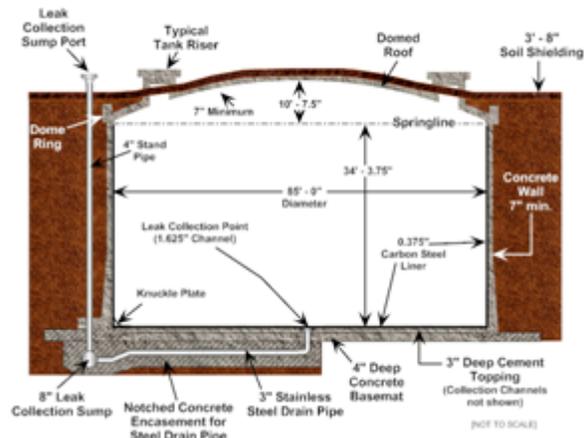
Effluent Treatment Plant
Control Room



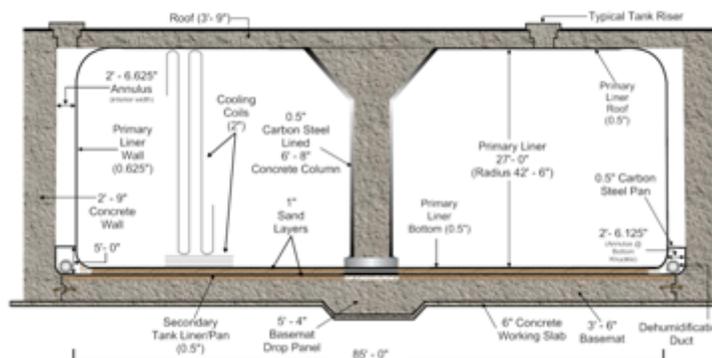
TYPICAL TYPE I WASTE TANK



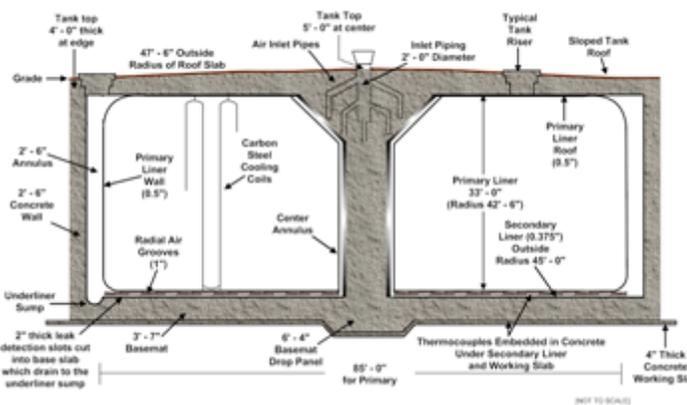
TYPICAL TYPE IV WASTE TANK



TYPICAL TYPE II WASTE TANK



TYPICAL TYPE IIIA WASTE TANK



51 Tanks

24 "Old-Style"

- Types I, II & IV

- 2 closed

- 6 emptied

- 18 contain waste

27 "New-Style"

- Type III/IIIA



Type IV Tank Construction



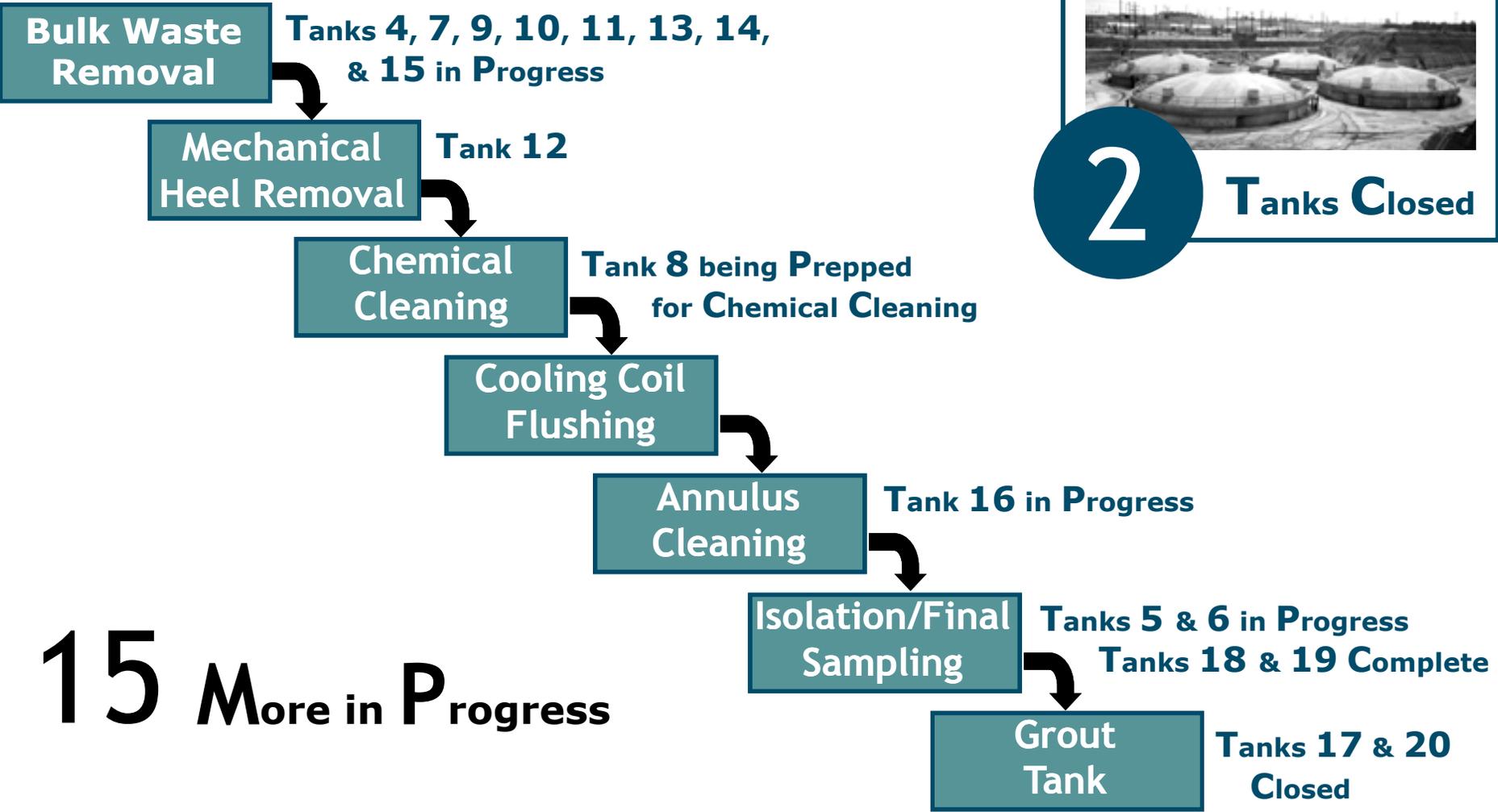
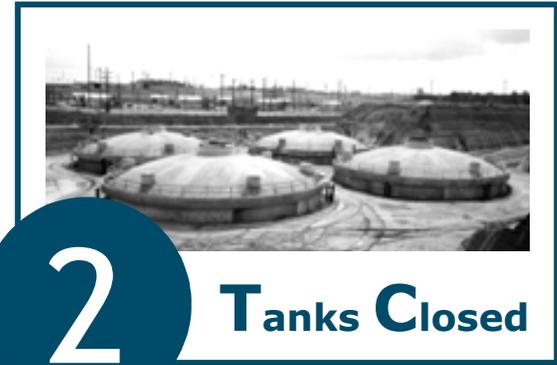
Inner Carbon Steel Liner



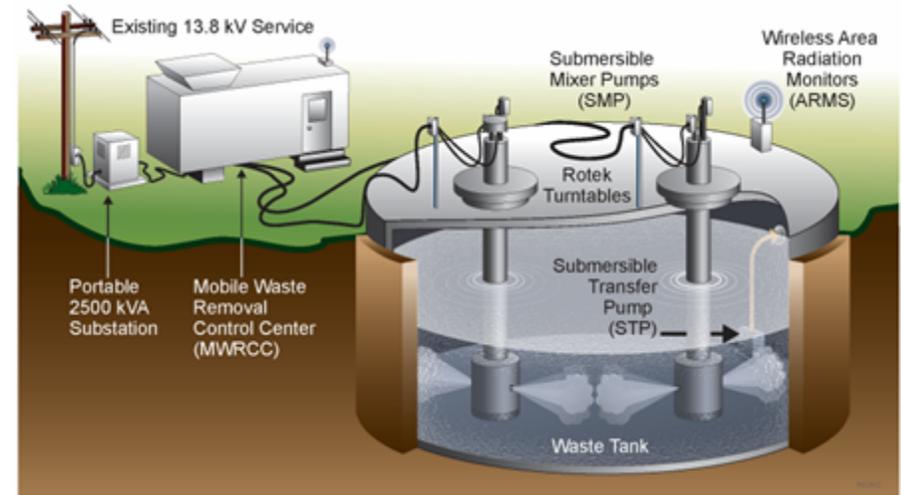
Outer Concrete Tank



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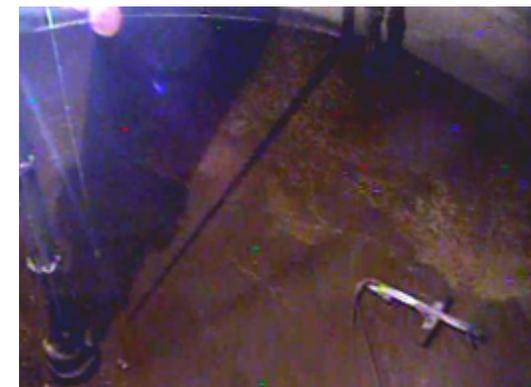
- Submersible Mixer Pumps (SMPs)
 - 7,600 gpm, 300 hp, floor mounted, reliable, easy to decon, reusable
 - Local, portable control station & power supply
- Hydrolances
 - High pressure spot cleaning in dormant areas of the tank
 - Used in concert with SMPs
- Robotic vacuum system for SRS tanks with no cooling coils



BEFORE CLEANING

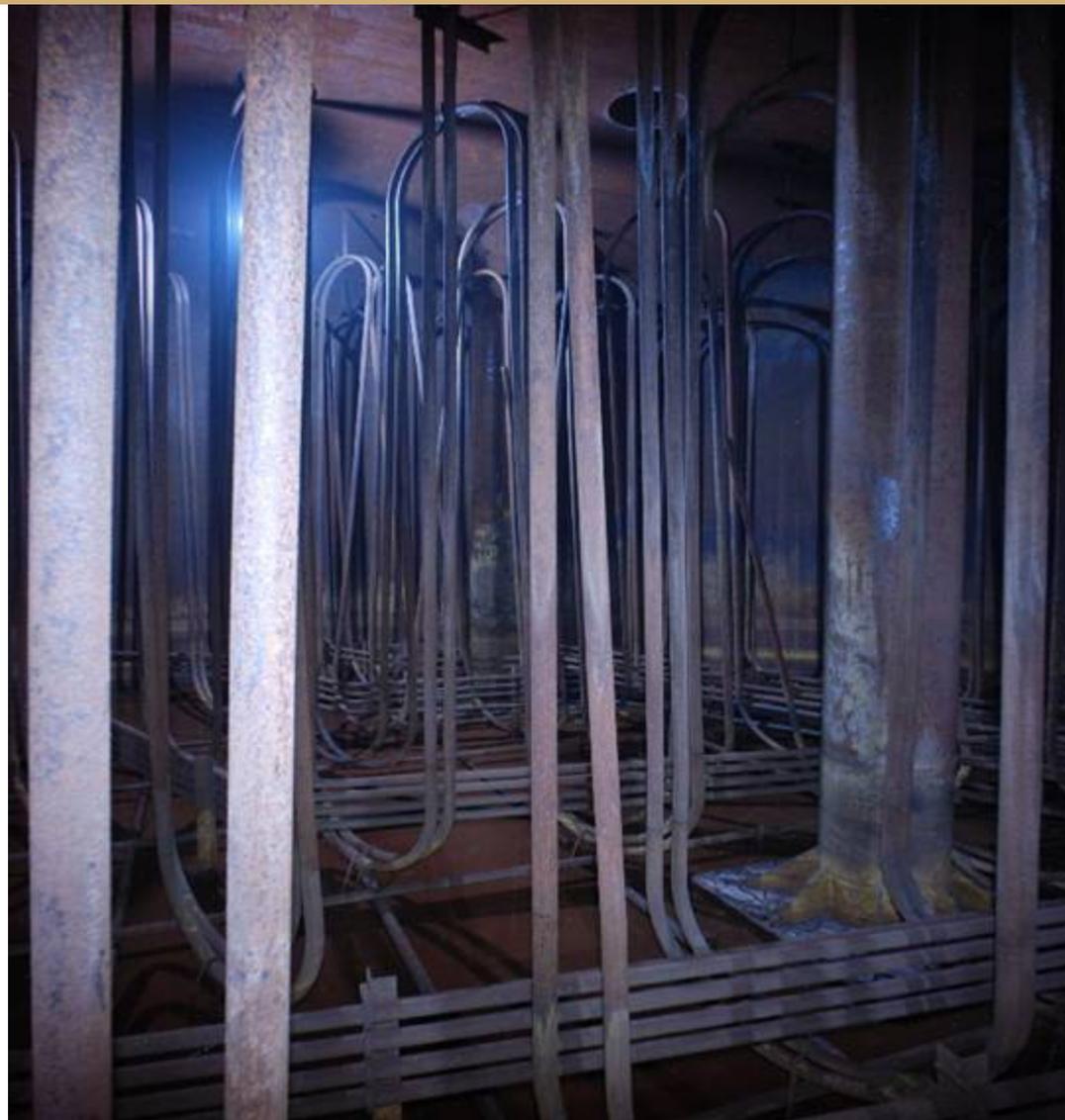


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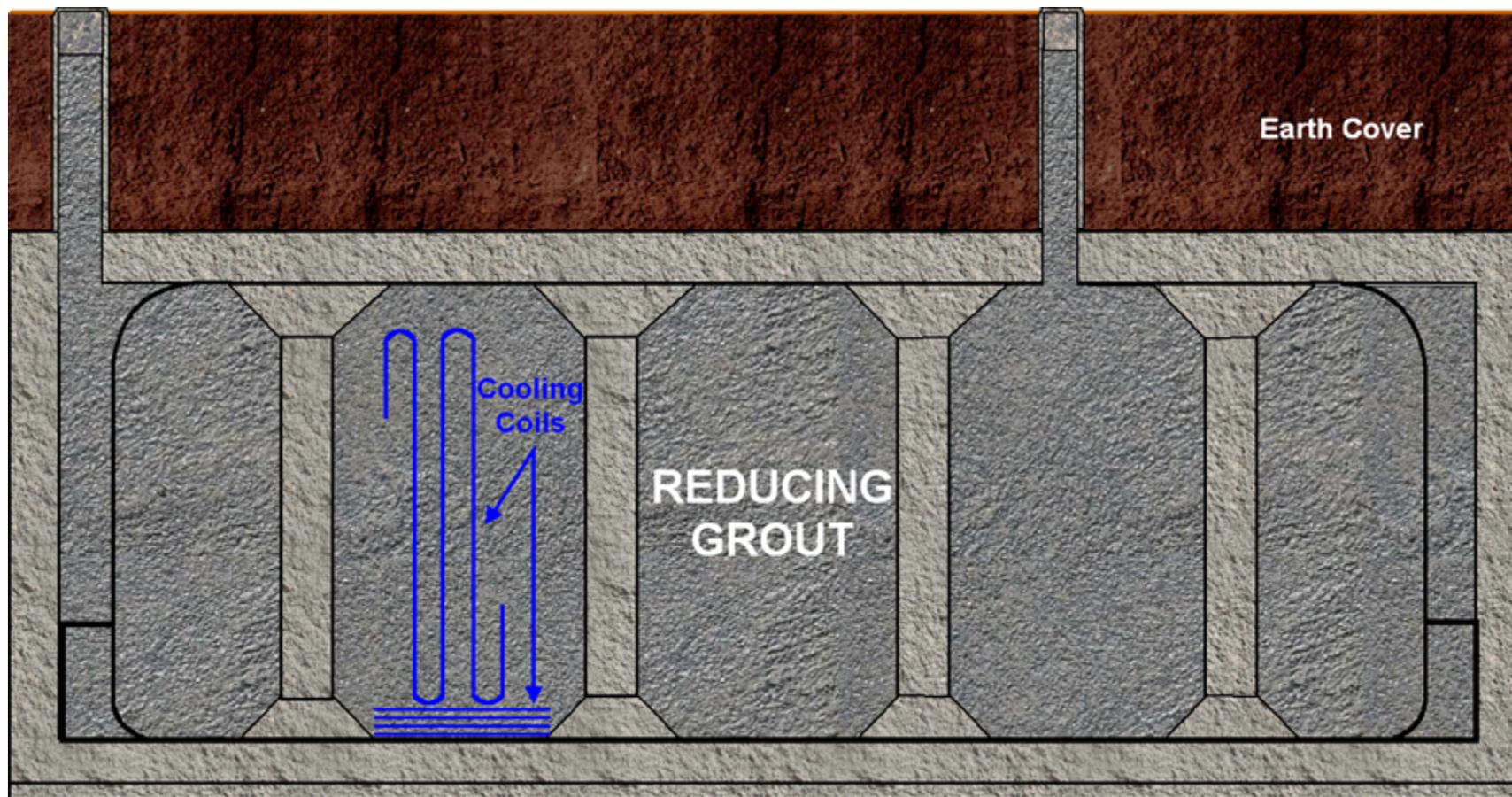


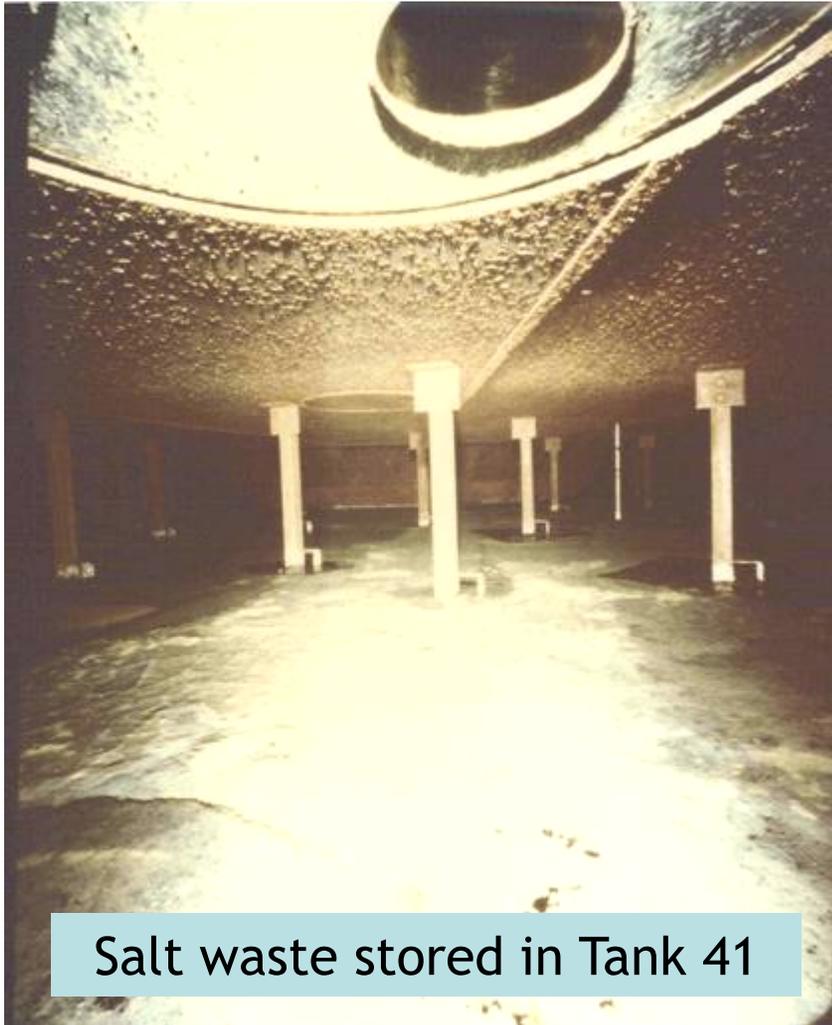
AFTER CLEANING



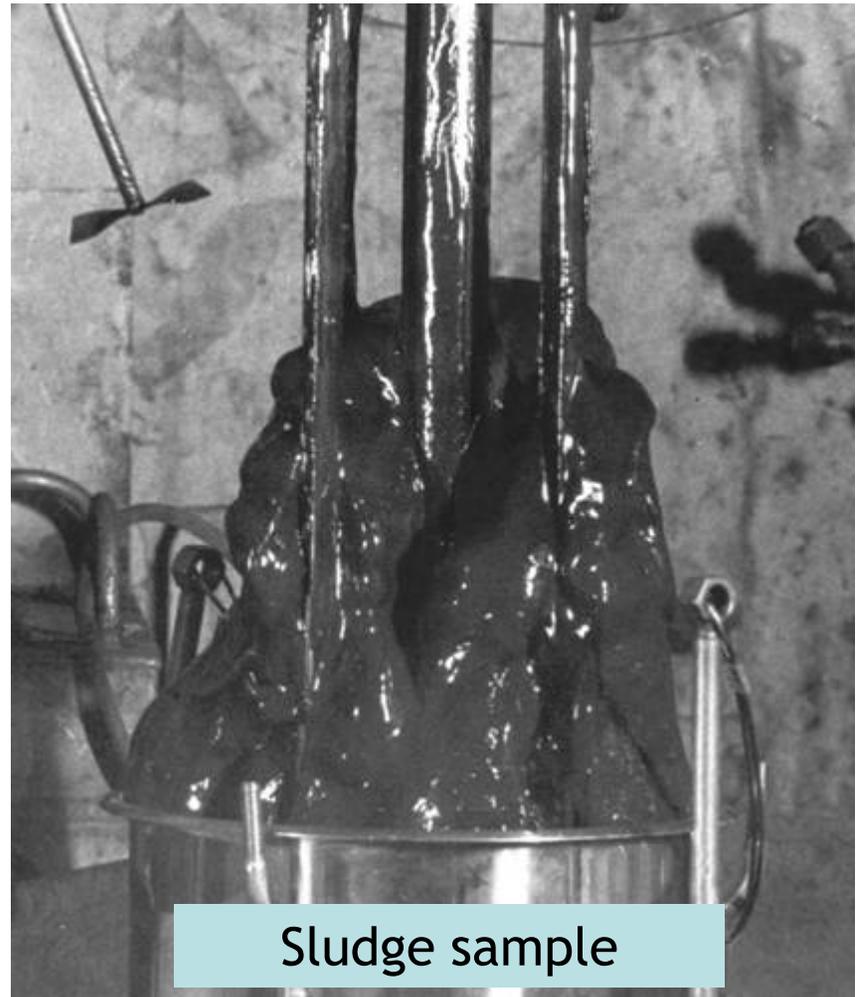




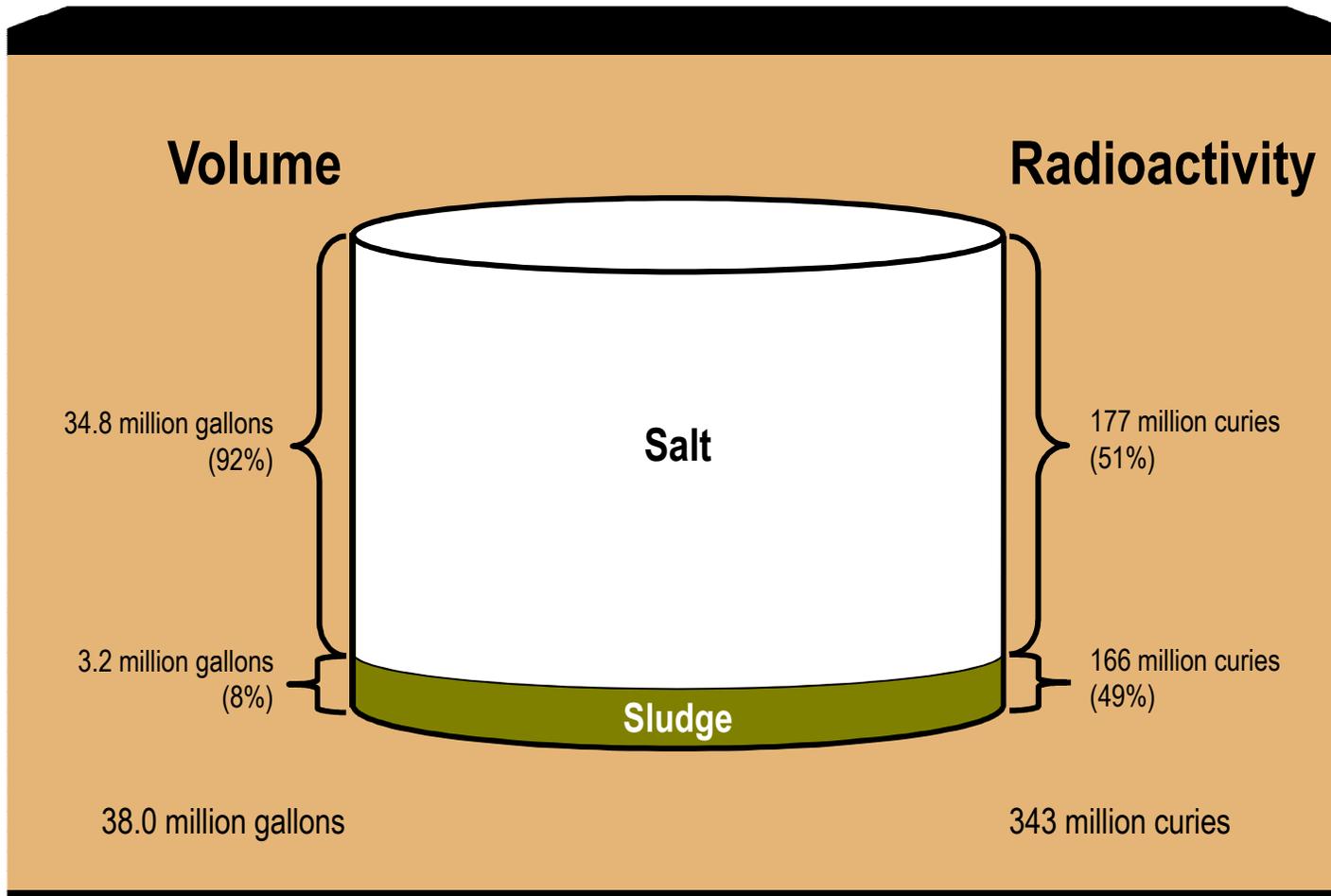




Salt waste stored in Tank 41

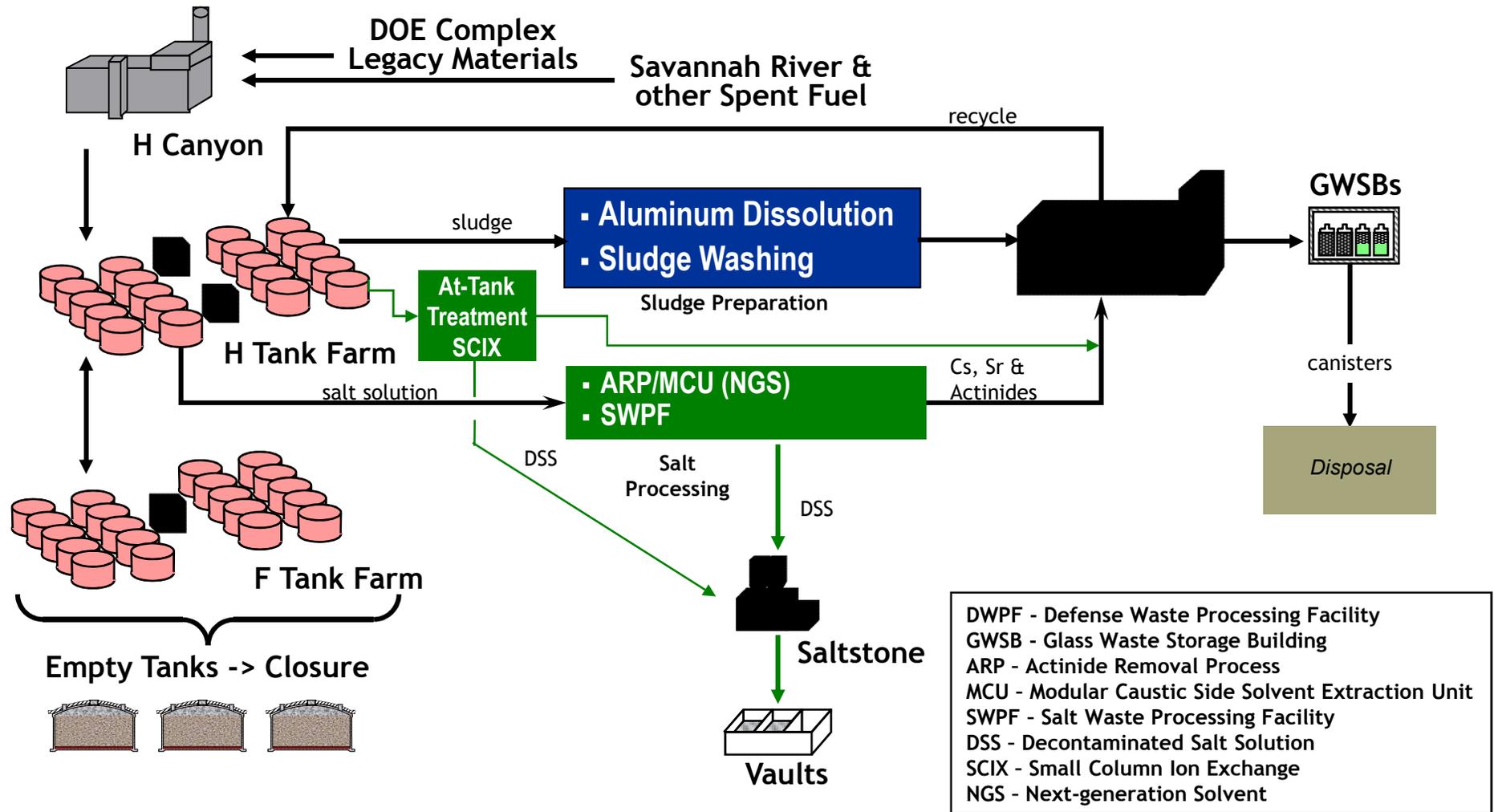


Sludge sample

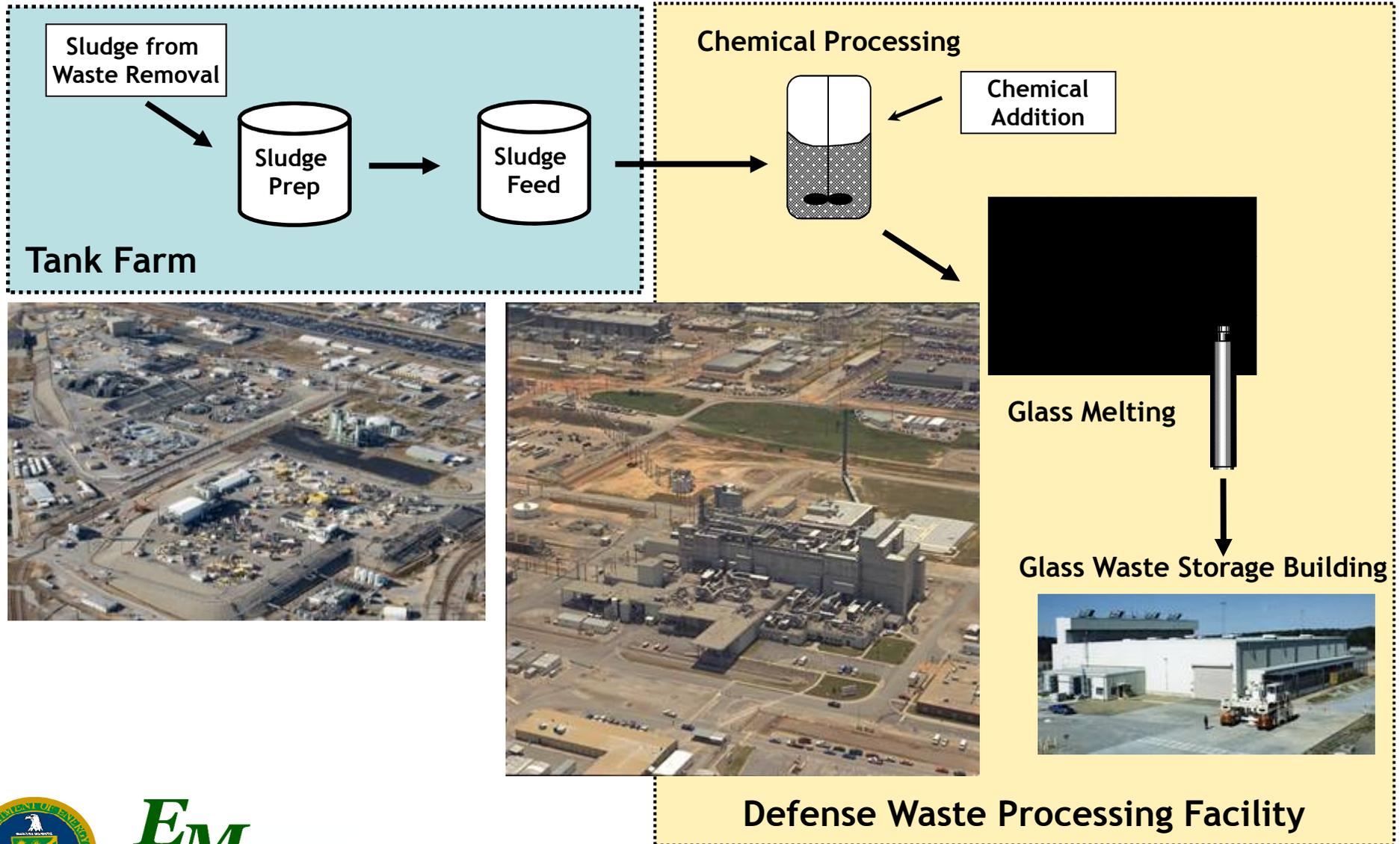


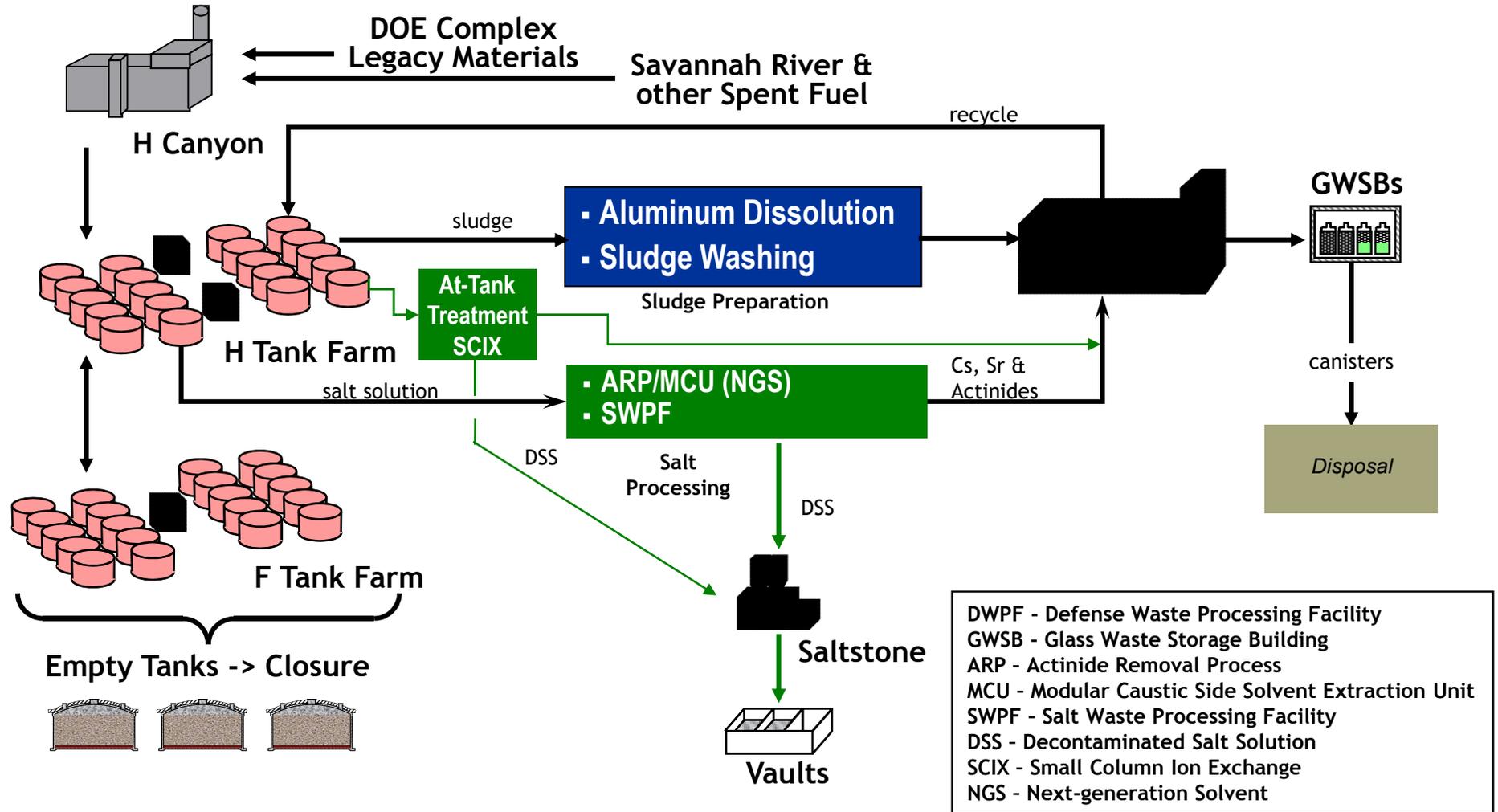
Inventory values as of 2010-12-31

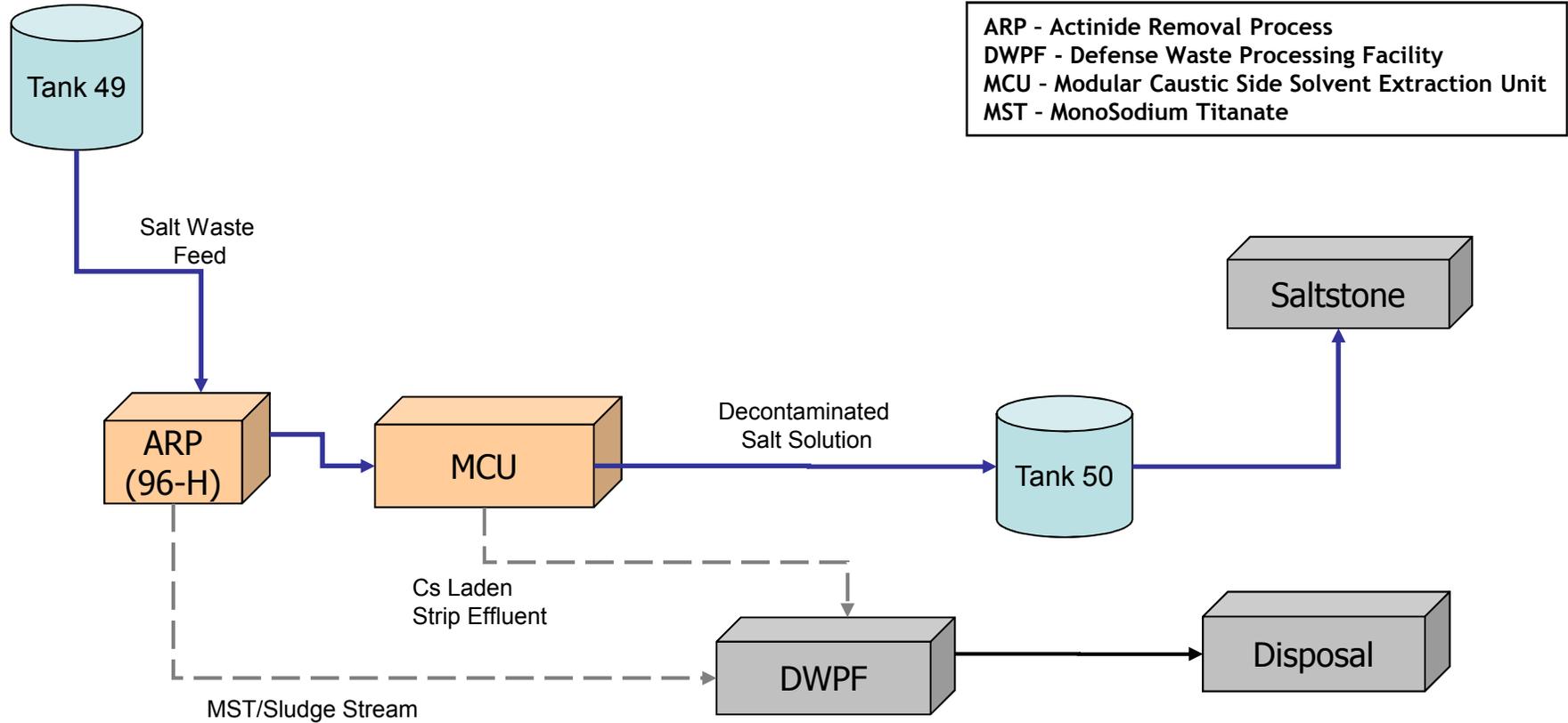




Sludge Processing



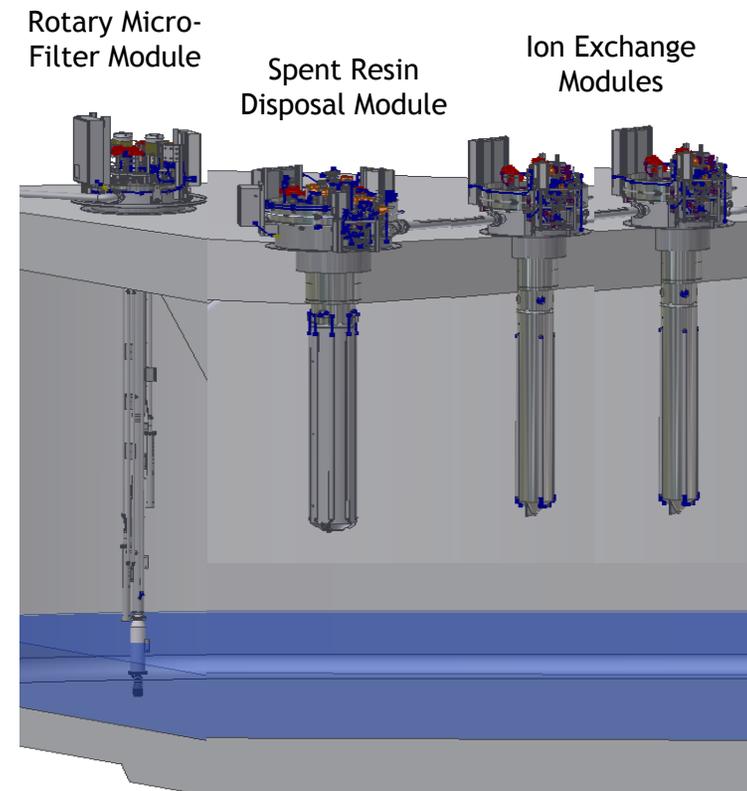




ARP - Actinide Removal Process
 DWPF - Defense Waste Processing Facility
 MCU - Modular Caustic Side Solvent Extraction Unit
 MST - MonoSodium Titanate



- Deploy At-tank treatment process
 - Rotary Microfilter
 - Small Column Ion Exchange
 - Spent Resin Disposal
- Provide additional salt processing capability
- Operational Expectations
 - Throughput: 2.5 Mgal/yr



We do the right thing.



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- Protect the public, the workers and the environment
- Reduce the life cycle costs



ARP	Actinide Removal Process
Cs	Cesium
DWPF	Defense Waste Processing Facility
ECC	Enhanced Chemical Cleaning
FBSR	Fluidized Bed Steam Reformer
FFA	Federal Facility Agreement
FTF	F Tank Farm
HLW	High Level Waste
HTF	H Tank Farm
ISDP	Interim Salt Disposition Project
MCU	Modular Caustic-Side Solvent Extraction Unit
MST	Monosodium Titanate
SCIX	Small Column Ion Exchange
SDF	Saltstone Disposal Facility
SPF	Saltstone Processing Facility
SWPF	Salt Waste Processing Facility

