Savannah River Remediation

We do the right thing.

Waste Removal & Tank Closure
New Technologies

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Point of View

- SRR baseline is to use 2 mechanical and 1 chemical technology on each tank
  - Large slurry mixer pumps
  - Hydrolancing/Robotic vacuum system
  - Oxalic acid
- Technologies in hand
- Incremental improvements to meet evolving mission needs and to have a defendable Maximum Extent Practical basis

Program Status

Bulk Waste Removal — Tanks 4, 7, 9, 10, 11, ~~12~~, 13, 14, & 15 in progress

Mechanical Heel Removal — Tank 12

Chemical Cleaning — Tank 8 being prepped for chemical cleaning

Cooling Coil Flushing

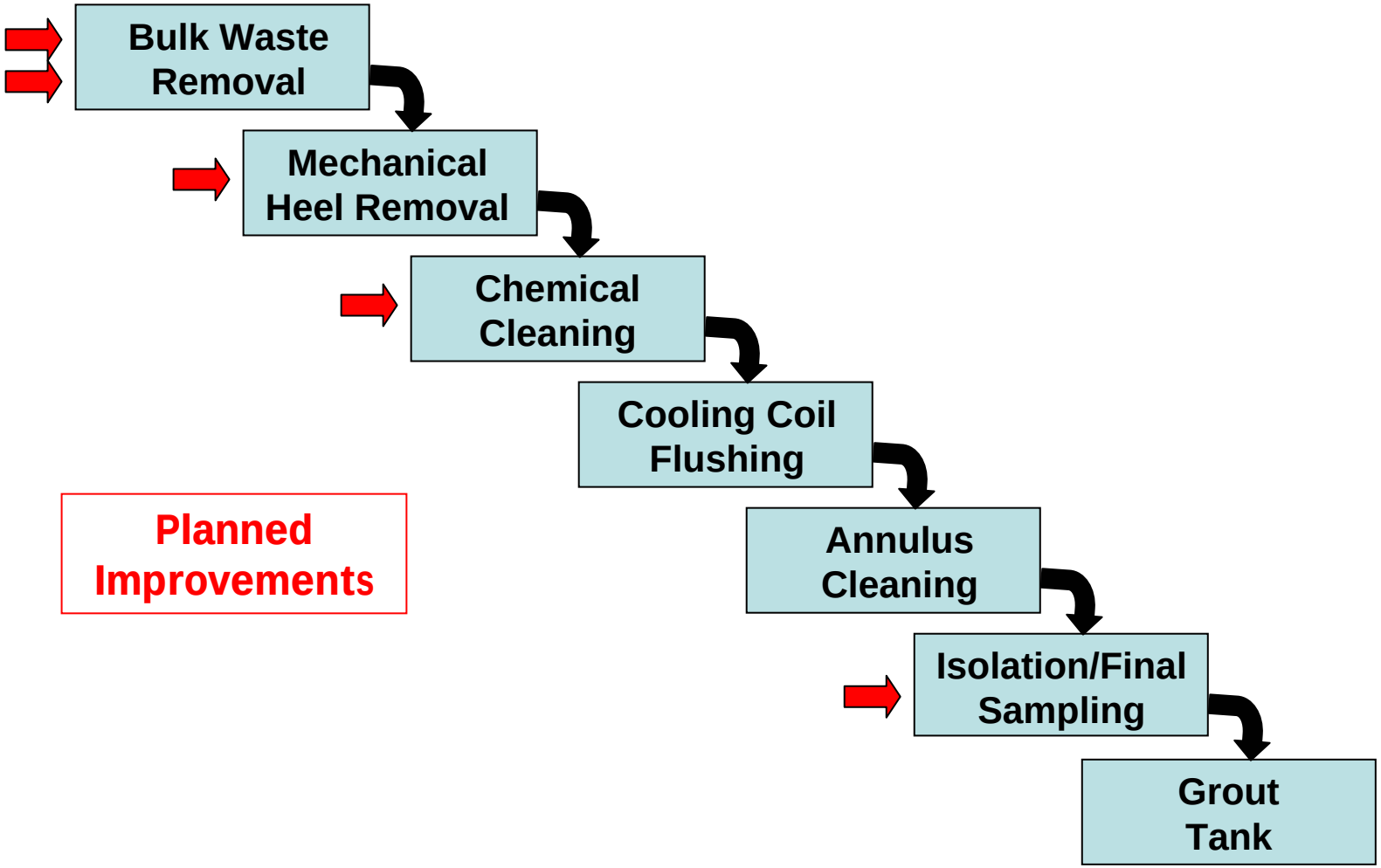
Annulus Cleaning — Tanks ~~5~~, ~~6~~ & 16 in progress

Isolation/Final Sampling — Tanks 5&6 in progress; Tanks 18&19 complete

Grout Tank — Tanks 17& 20 closed

2 tanks closed
15 more in progress

Outline


Bulk Waste Removal
Mechanical Heel Removal
Chemical Cleaning
Cooling Coil Flushing
Annulus Cleaning
Isolation/Final Sampling
Grout Tank
Planned Improvements

Tank Mixing

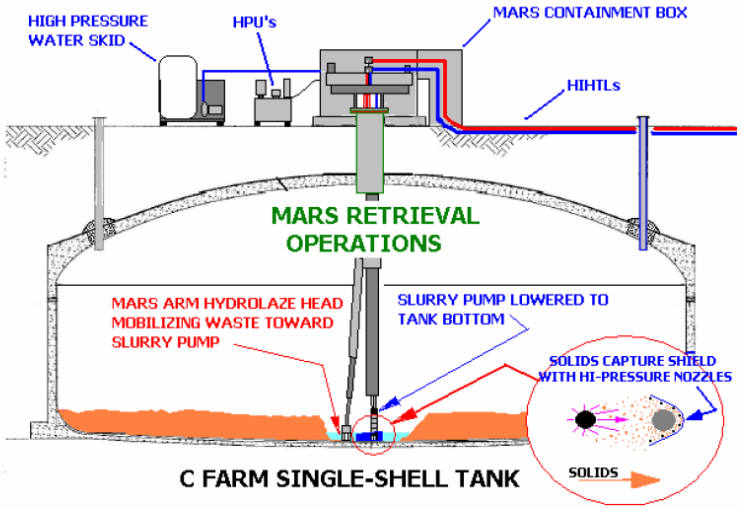
- Baseline technology
  - Submersible Mixer Pumps (SMPs)
- Driver for incremental improvement:
  - SMPs incompatible with low viscosity chemical cleaning solutions
- Plan:
  - Develop Multi-Purpose Pump
  - Compatible with all phases of the waste removal and tank cleaning process
  - Combines best features of the SMP and Lawrence Slurry Pumps
  - Required performance well within what we have already deployed

Waste Transfer

- Baseline technology
  - Use existing transfer lines
- Driver for incremental improvement:
  - Accelerated tank closure challenges:
    - transfer infrastructure
    - Ability to handle water additions
- Plan:
  - Increased use of hose-in-hose transfer systems
  - Recovery and reuse of slurry media
  - Run hoses on the ground
    - Not sloped to completely drain
    - No leak detection at low points
    - Reduces height of system
    - Reduces shielding
    - Reduces cost and schedule

Mechanical Cleaning - Type IV Tanks

- Baseline technology
  - Submersible Mixer Pumps (SMPs)
- Driver for incremental improvement:
  - 4 tanks remain with no cooling coils
  - Evolution of robotic techniques could reduce cost
- Plan:
  - Prototype high pressure low volume water eductors developed for potential use in Tank 5
  - Hanford has developed the MARS
  - Explore a marriage between the SRS eductor and the MARS
  - Continue to refine to eductor technology to minimize water addition

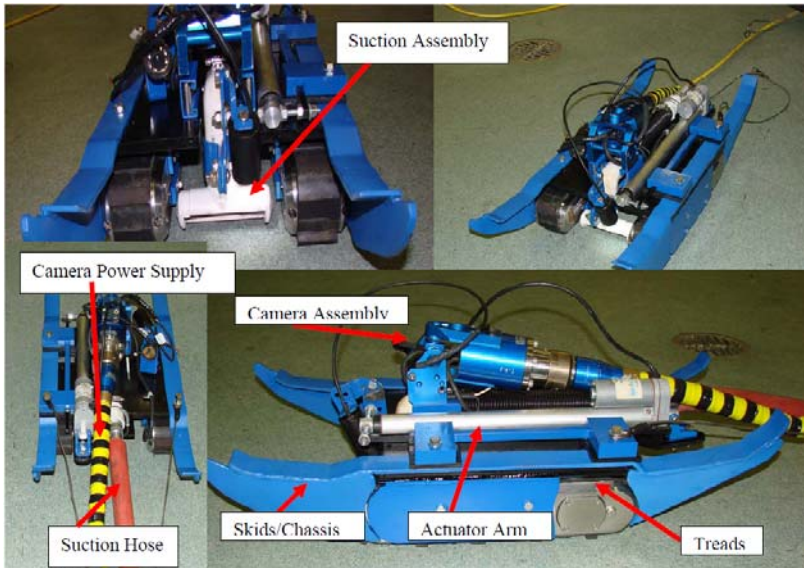


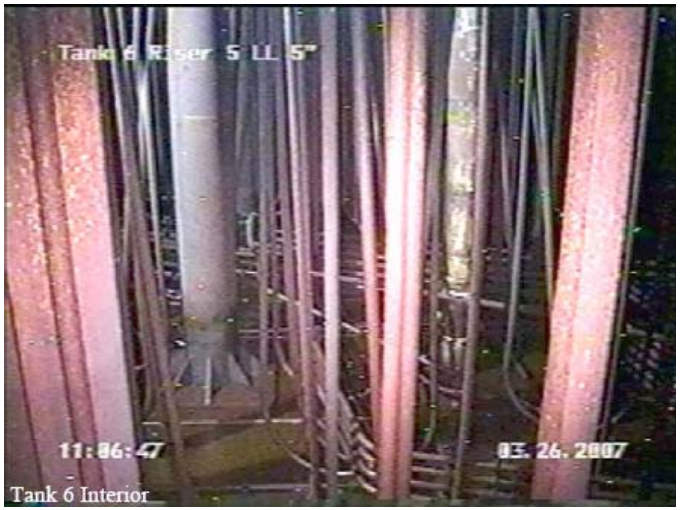
Chemical Cleaning

- Baseline technology
  - Oxalic Acid
- Driver for incremental improvement:
  - Improve dissolution of some radionuclides
  - Establish margin vs. requirements
- Plan:
  - Oxalic acid remains the acid of choice
  - Other organic acids could be used in conjunction with oxalic acid
  - Organic acids expected to be compatible with ECC thus they will be destroyed to eliminate downstream impacts

Residual Sampling

- Baseline technology
  - Mast mounted core sampler
  - Mast mounted "scrape" sampler
- Driver for incremental improvement:
  - Inability to sample all remote residual locations has resulted in high uncertainty applied to analytical results
- Plan:
  - Expand use of robotic crawler devices to tanks with cooling coils
  - Navigate around and over coils
  - Leverage the Tank 5 prototype "vacuum cleaner" work
  - Reduce uncertainty





Questions ?