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# F-Tank Farm NDAA Section 3116 Draft Basis Document Scoping Meeting

Removal to the Maximum Extent Practical  
(FTF-WDIP-003)

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**SRR-CWDA-2010-00087**

- Input package overview
- NDAA 3116(a) criteria
  - Highly radioactive radionuclides removed to the maximum extent practical
- Approach to demonstration of compliance with NDAA 3116(a) criteria
- Draft FTF 3116 Basis Document content

- Input package FTF-WDIP-003 provides information anticipated to be used in Section 5.2, *Removal of Highly Radioactive Radionuclides to the Maximum Extent Practical*, of the Draft FTF 3116 Basis Document. Specifically, this input package addresses:
  - Removal to the maximum extent practical

The NDAA Section 3116(a) provides in pertinent part:

[T]he term “high-level radioactive waste” does not include radioactive waste resulting from the reprocessing of spent nuclear fuel that the Secretary of Energy..., in consultation with the Nuclear Regulatory Commission..., determines –

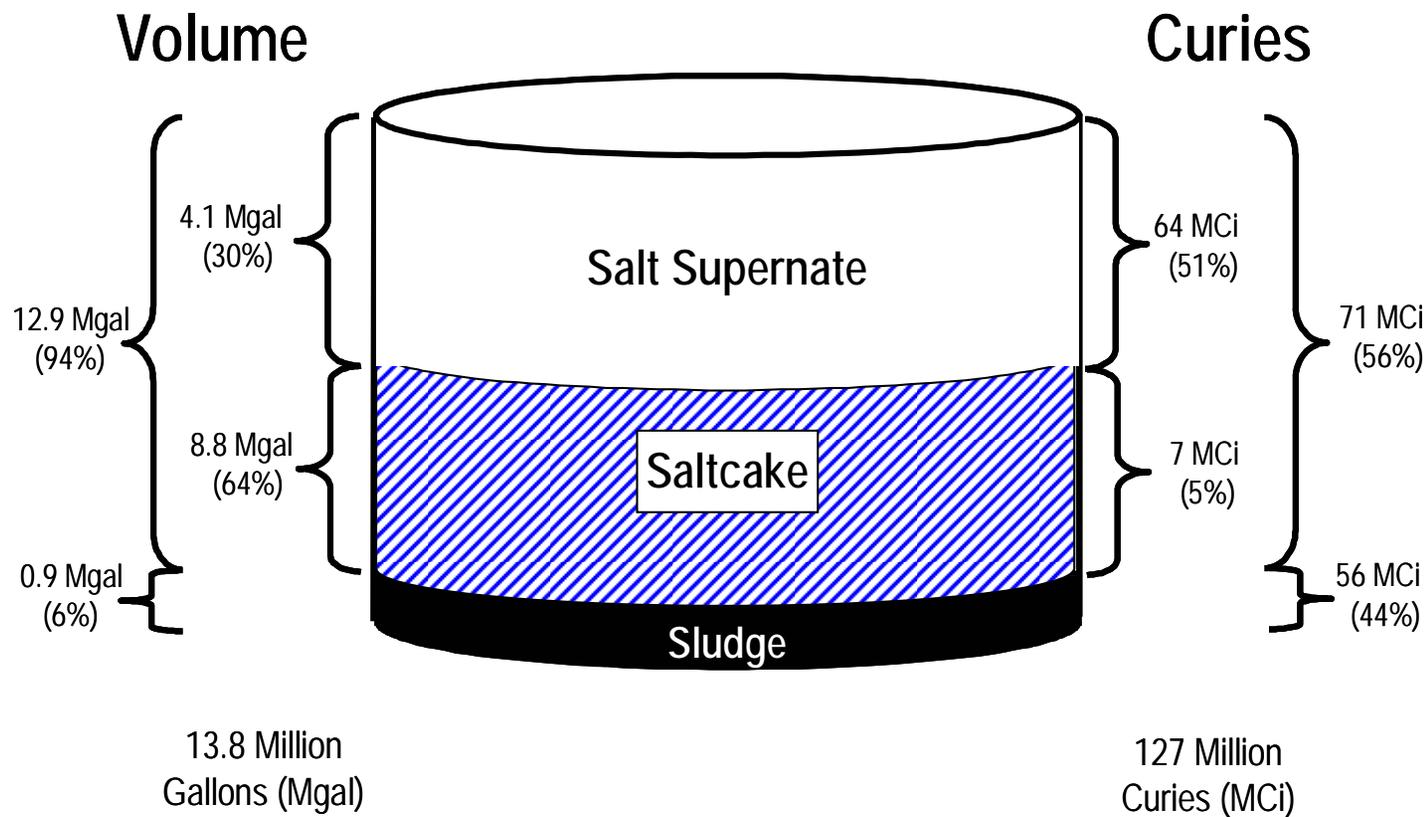
(2) has had highly radioactive radionuclides removed to the maximum extent practical.

FTF-WDIP-002

FTF-WDIP-003

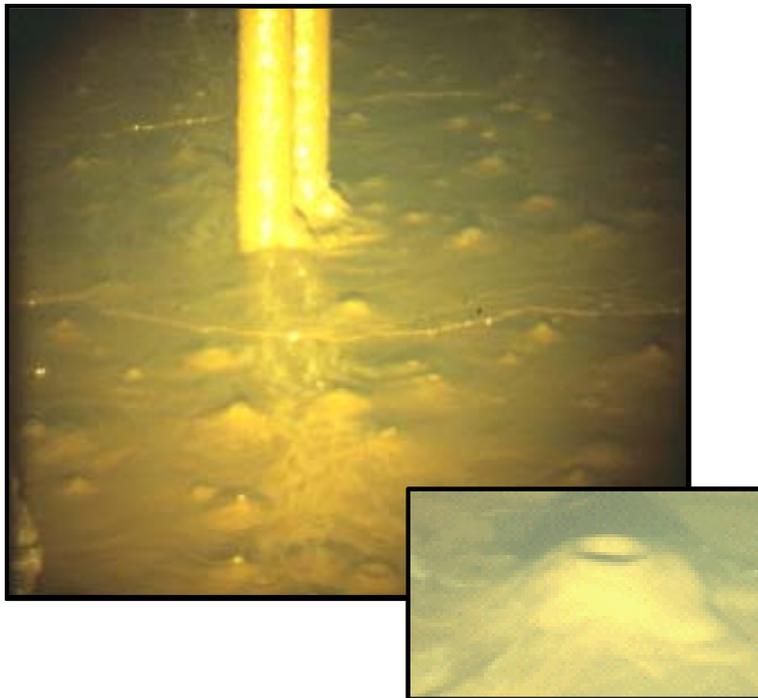
- Status of FTF waste removal activities
- Description of SRS waste removal technologies
- Basis for removal to the maximum extent practical
  - Determination of removal to the maximum extent practical
  - Demonstration of removal to the maximum extent practical
  - Documentation of waste removal and tank cleaning activities

- The majority of the waste removal activities will take place following the issuance of the FTF 3116 Basis Document
  - The NRC contemplates this situation in NUREG-1854
  - *Basis for Section 3116 Determination for Salt Waste Disposal at the Savannah River Site and Basis for Section 3116 Determination for the Idaho Nuclear Technology and Engineering Center Tank Farm Facility*, included forward-looking analyses that described future salt waste treatment activities and waste removal/grouting activities, respectively.
  - The Draft FTF 3116 Basis Document will be consistent with the approaches used in those prior 3116 Basis Documents.



Inventory values as of 2010-01-05

- Sludge



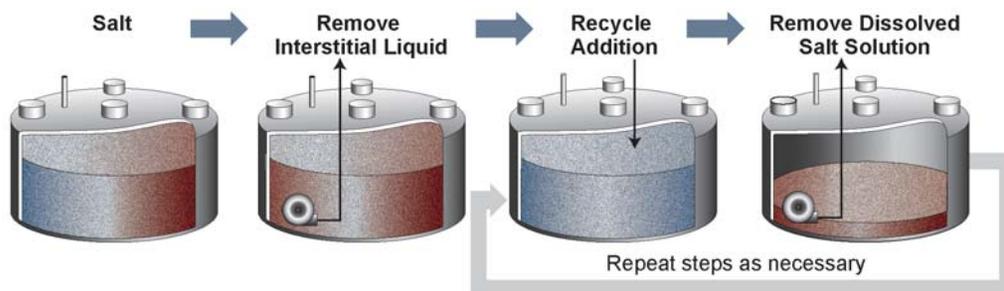
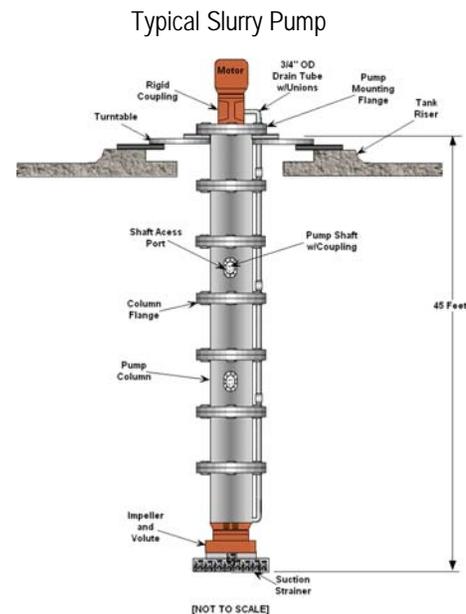
- Salt Waste

- Salt Supernate
- Saltcake



- Two closed tanks, Tanks 17 and 20
- 20 additional tanks and associated ancillary structures, many in varying states of cleaning operations
  - Tanks 18 and 19 complete
    - Characterization of residuals in-progress
  - Tanks 3, 4, 5, 6, 7, and 8 having undergone cleaning activities (varying degrees)

- Bulk Waste Removal
  - Sludge
    - Mechanical waste removal
  - Salt Supernate
    - Liquid transfer
  - Saltcake
    - Dissolution with agitation
    - Dissolution without agitation

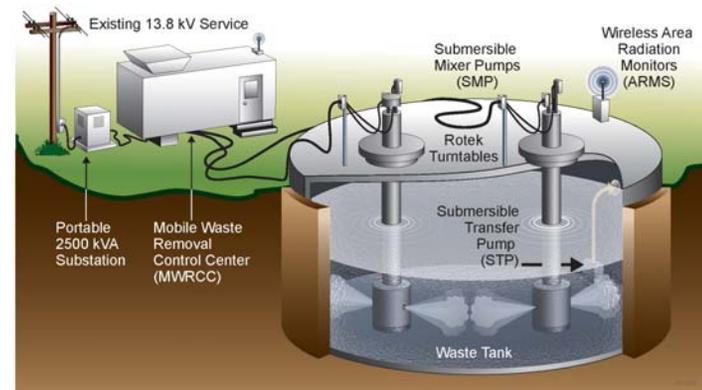


Salt Dissolution Without Agitation

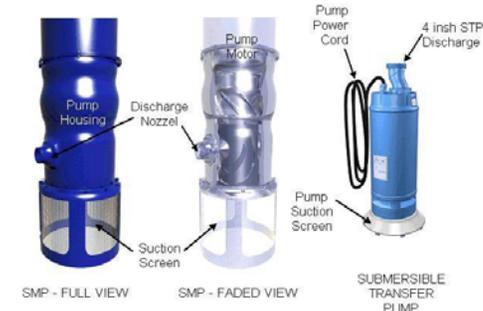
- DOE has selected three technologies for heel removal:
  - mechanical cleaning
  - chemical cleaning
  - vacuum cleaning
- All three technologies have been successfully implemented at SRS for waste removal.
- Past experience provides confidence that waste removal operations will meet or exceed expectations.

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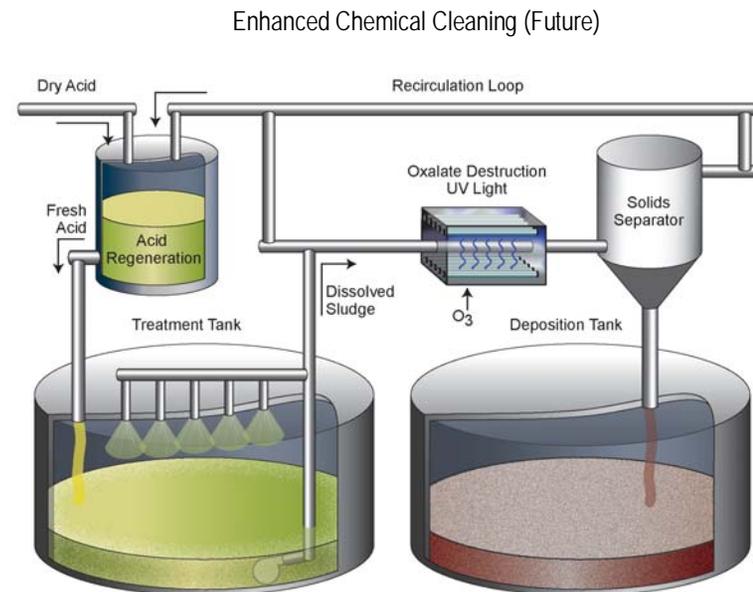
- Mechanical Heel Removal
  - Mobile Waste Removal Control Center
  - Submersible Mixer Pump
  - Submersible Transfer Pump
- Used on Tanks 5 and 6



Submersible Mixer Pump

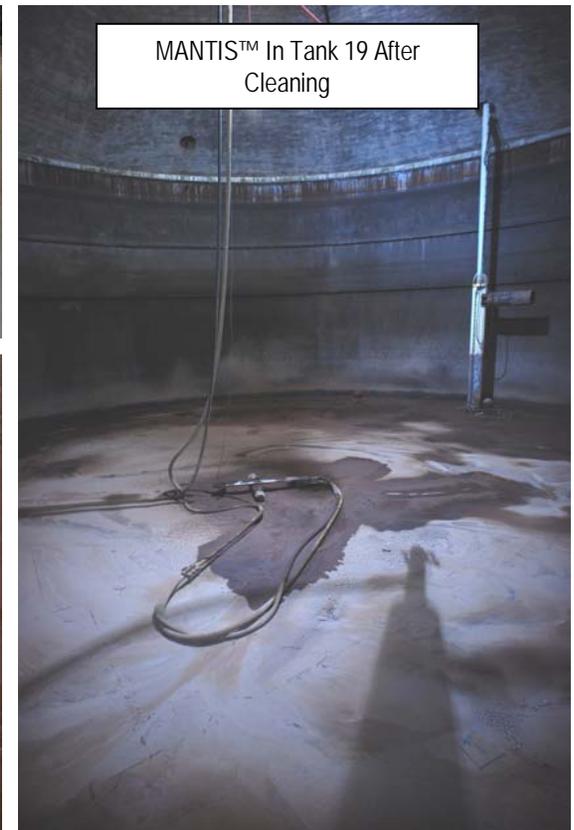


- Chemical Heel Removal
  - Bulk Oxalic Acid
  - Used on Tanks 5 and 6
  - Used on Tank 16 (H-Tank Farm)
- Enhanced Chemical Cleaning
  - Future



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- Vacuum Heel Removal
  - High-pressure water eductor
  - Used on Tanks 18 and 19
    - MANTIS™ Platform
- Alternate Deployment Platforms
  - Future



- **Basis for removal to the maximum extent practical**
  - Determination of removal to the maximum extent practical
  - Demonstration of removal to the maximum extent practical
  - Documentation of waste removal and tank cleaning activities

- In order to demonstrate that highly radioactive radionuclides have been removed to the maximum extent practical, waste removal activities on a given tank or ancillary structure will not be considered complete until the following criteria is clearly demonstrated for each particular tank or ancillary structure:
  - waste removal technologies were deployed until it can be demonstrated that HRR removal using the existing technology is no longer practical, and
  - an evaluation of other existing or emerging technologies has been completed and it has been determined that deployment of other additional waste removal technologies is not practical.

- DOE is considering including in the Draft FTF 3116 Basis Document evidence providing the basis for the Secretary of Energy's determination regarding removal of HRRs to the maximum extent practical. This information is anticipated to include, as an example, information and results from the waste removal activities that have occurred in FTF Tank 18, demonstrating the basis for achieving removal of HRRs to the maximum extent practical.

- DOE is considering including in the Draft FTF 3116 Basis Document a discussion on actions that will occur to support cessation of waste removal activities on individual waste tanks and ancillary structures, which will support demonstrated satisfaction of closure criteria for both DOE and South Carolina Department of Health and Environmental Control regulatory requirements.

- Documentation of the following elements is being considered
  - Data from cleaning operations
  - Information regarding potential deployment of additional waste removal technologies
  - Removal effectiveness of the overall waste volume and the specific HRRs
  - Cost-benefit analysis utilizing final characterization data along with future potential dose impacts provided by the FTF Performance Assessment
  - Final Report summarizing above information to either be integral to, or serve as primary reference for, the DOE Tier 2 Closure Documentation.

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