Tank Closure: Regulatory Framework

July 27, 2010

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SRR-CWDA-2010-00092

Briefing to the Citizens Advisory Board
• General description of F-Area Tank Farm
• Regulatory Framework and Documentation Required for Tank Closures
• Status of Documentation for Closure of next Two Tanks
National Environmental Policy Act (NEPA)

- Requires assessment of environmental impacts of Tank Closure alternatives and of residual material in tanks at closure
- Final Environmental Impact Statement issued May 2002
- DOE Record of Decision issued August 2002
- Supplement Analysis preparation complete; issuance pending approval of F-Tank Farm Performance Assessment
• Establishes a process through which the Secretary of Energy can determine that radioactive waste resulting from reprocessing of spent nuclear fuel is not “high-level radioactive waste”

• Applies to the residuals remaining in the SRS waste tanks at the time of stabilization (i.e., grouting)

• Requires consultation with the Nuclear Regulatory Commission (NRC)
NDAA §3116 (a) Criteria

- Does not require permanent isolation in a deep geologic repository
- Had highly radioactive radionuclides removed to the maximum extent practical
- (A) Does not exceed concentration limits for Class C low-level waste and will be disposed of:
  - In compliance with the performance objectives set out in Subpart C of 10 CFR 61
  - Pursuant to a State-approved closure plan or a State-approved permit
- (B) Exceeds concentration limits for Class C low-level waste and will be disposed of:
  - In compliance with the performance objectives set out in Subpart C of 10 CFR 61
  - Pursuant to a State-approved closure plan or a State-approved permit
  - Pursuant to plans developed by the Secretary in consultation with the NRC
Section 3116 (a):

...Secretary of Energy in consultation with the Nuclear Regulatory Commission determines-

1) Does not require permanent isolation in a deep geologic repository

2) Has had highly radioactive radionuclides removed to the maximum extent practical

3) (A) Does not exceed concentration limits for Class C low-level waste and will be disposed of:
   i) In compliance with the performance objectives set out in Subpart C of 10 CFR 61
   ii) Pursuant to a State-approved closure plan or a State-approved permit

   (B) Exceeds concentration limits for Class C low-level Waste ...

Section 3116 (b):

Monitoring by Nuclear Regulatory Commission

1) The Commission shall, in coordination with Covered State, monitor disposal actions……

2) If the Commission considers any disposal actions…to be not in compliance…inform DOE, the Covered State, and following congressional committees…
NDAA §3116 Documents

NRC Review is extensive and intensive with a typical nine-month duration.

NRC Review → NRC Technical Evaluation Report (TER) → Basis for Section 3116 Determination for Tank Closures at the Savannah River Site → NRC Monitoring Plan

All NRC activities conducted per NUREG-1854

Monitoring

- Follow-Up Activities
- NRC Site Visit
- Information Exchange
- NRC Onsite Observation Report
• DOE Order 435.1-1, DOE Manual 435.1-1, and associated Implementation Guide define requirements for management and closure of DOE’s radioactive waste facilities
• Composite Analysis: assesses combined impact of multiple facilities within SRS
• Tier 1: Defines parameters, approach, and plans for FTF closure activities
• Special Analysis: Verifies closure activity satisfies performance objectives using final residual characterization data
• Tier 2: Demonstrates Tier 1 and State criteria have been met and authorizes grouting
Federal Facility Agreement (FFA) Section IX addresses *High-Level Radioactive Waste Tank System(s)*:

- Provides for the removal of “all” residuals from system or requires DOE to demonstrate that such removal is not “practicable”
- Establishes the completion schedule for the following operational closure activities for all non-compliant tanks:
  - Bulk waste removal on a tank-by-tank basis
  - Operational closure on a tank-by-tank basis
  - Submittal of performance assessments for each tank farm
- Requires agreement among DOE, SCDHEC, and EPA to cease waste removal activities in each tank
Bulk Waste Removal and Operational Closure Commitments
• General Closure Plan:
  – Identifies Federal and State requirements and method for compliance
  – Describes methodology for determining impacts of each closure action such that closure of all FTF systems remains compliant
  – Describes specific documentation to detail closure activities and the review/approval process to obtain closure authorization

• Closure Module
  – Provides tank system-specific closure information
  – Demonstrates compliance with FFA and SC Pollution Control Act requirements
Performance Assessment

• Single performance assessment (PA) serves as backbone for demonstrating compliance with all performance objectives

• PA = a key risk assessment tool used to inform closure and disposal decisions
  – Models fate and transport of materials over long periods of time to determine potential consequences
  – Utilizes informed assumptions
  – Provides most likely consequences of planned actions

• Provides best estimation of what the dose consequences will be, both chemical and radiological, over time

• Reflects uncertainty and identifies key parameters for which the model has the greatest sensitivity (importance)
• Interim Record of Decision: Defines monitoring and maintenance requirements for the interim period between tank grouting and area closure

• Explanation of Significant Difference: Applies those interim requirements to each tank system when grouting is complete
All documents will be publicly available