Savannah River Site
Citizens Advisory Board

Recommendation 204
3116 Implementation – High Level Waste Tanks

Background
The National Defense Authorization Act (NDAA) for fiscal year 2005 was signed into law by the President on October 28, 2004. Section 3116 provides the Secretary of Energy, in consultation with the Nuclear Regulatory Commission, the authority to determine that certain waste does not require disposal in a geologic repository as high level waste. There is no definition of what "in consultation" means in the Act and the Department is currently trying to determine the roles of the players. Section 3116 only applies to SRS and the Idaho sites. All other sites in the DOE complex and some operations at SRS that does not fall under 3116 will continue to follow DOE Order 435.1 (Ref. 1).

The Senate, at the request of Senator Lindsey Graham (R-SC), inserted Section 3116 to give the Department of Energy the authority to reclassify high-level waste in the SRS tanks as not requiring geologic repository disposal providing an exception to the Nuclear Waste Policy Act and allowing waste to remain in the tanks encased in a cement/grout mixture.

The waste in tanks at Savannah River Site and INEEL are no longer high-level waste if: (1) the waste does not require permanent isolation in a deep geologic repository for spent fuel or high-level radioactive waste, (2) the waste has had highly radioactive radionuclides removed to the maximum extent practical and (3) the waste either does not exceed concentration limits for Class C low-level waste and will be disposed of in compliance with the performance objectives of 10 CFR 61, Subpart C and pursuant to a State-approved closure plan or State-issued permit or, if the waste does exceed concentration limits for Class C low-level waste, the waste will be disposed of in compliance with the performance objectives of 10 CFR 61 Subpart C, pursuant to a State-approved closure plan or State-issued permit and pursuant to plans developed by the Secretary in consultation with the NRC.

Based upon this waste determination, the intent is to close the HLW tanks at SRS using a cement/grout mixture as was done between 1996 and 1997 to close Tank 17F and Tank 20F. At that time, the closure plans were reviewed by NRC and received approval from EPA and SCDHEC (Ref. 2). The Defense Nuclear Facilities Safety Board (DNFSB) closely observed the closure process and saw no basis to determine that the remaining residual material constituted a danger to the public (Ref. 3). Subsequent to the closure of 17F and 20F the closure plans were reviewed by the NRC.

The next two tanks to be closed have new FFA regulatory commitment dates. The previous dates were renegotiated due to the impasse over the WIR lawsuit. The new dates are October 31, 2006 for Tank 19 and February 28, 2007 for Tank 18. Before the closure process can begin, a revised ROD for the revised general Tank Closure EIS must be issued and a public review and comment period provided for the general closure plan. DOE must prepare a waste determination document for each tank and must consult with NRC on the waste determination. A waste determination document is a technical evaluation of the waste stream against each of the requirements of Section 3116.

In addition, DOE must prepare a general closure plan and a waste tank closure plan module before they can close tanks. SCDHEC must review the general closure plan and each waste tank closure module and provide an independent decision prior to DOE initiating the tank closure plans. SCDHEC is waiting for DOE's and NRC's concurrence on the waste determination document before providing their review and decision on the general closure plan. Once the waste determination and closure modules are complete, a public review of the

waste determination for Tank 19, 18, & the 1F Evaporator and the individual Closure Modules for Tank 19, 18, & the 1F Evaporator must take place. The public review will take place before a final SCDHEC decision.

All of these activities are expected to occur between April and December 2005. Some of these approval activities will take place concurrently with the Salt Waste Processing Section 3116 implementation. The proposed timeline is critical to ensure that the new FFA tank closure dates can be met. A study of the plans to manage waste which exceeds the concentration limits for Class C low-level waste must be conducted by the National Academy of Sciences (NAS) per provision Section 3146 of the NDAA. This requirement could also impact the schedule.

Comment
The Savannah River Site (SRS) Citizens Advisory Board (CAB) suggested closing the 1F Evaporator along with Tank 18 and 19 over seven years ago (Ref. 4). The SRS CAB is pleased to see the suggestions being implemented and would like to be briefed on the technical aspects of the project. The proposed timeline to receive HLW Tank closure approvals is very aggressive and the SRS CAB is skeptical that it can be met, especially since dual reviews from both NRC and SCDHEC are required for both the Salt Waste Processing and HLW Tank Closure 3116 Implementations. The SRS CAB would like to see DOE's backup plan to address impacts associated with schedule slippage. As voiced repeatedly in numerous motions, one of the primary goals of the SRS CAB is to accelerate the HLW stabilization program at SRS, particularly the removal of liquid HLW from the tanks and the final closure of HLW Tanks.

The SRS CAB is focused on this goal because it will minimize the greatest remaining risk ats SRS – the waste in the HLW tanks. In Recommendation #181 on HLW tank longevity, the SRS CAB noted that many of the tanks have already exceeded their useful life. The SRS CAB believes there is vulnerability in a "go-slow" approach and wants to accelerate the closure of the tanks to the maximum extent possible consistent with environmental protection and worker safety. It is the CAB's understanding that the average concentration of residual waste and reducing grout will not exceed Class C. Therefore, a study by NAS may not be required; however, the CAB has questions regarding the role of NAS in the tank closure process.

The SRS CAB views the final closure of the first "4 pack" along with the evaporator of considerable importance. This closure will establish a precedent for other final sectional closures for "multi-pack" tanks and their associated facilities. The closure process involves a conservative performance assessment and transport modeling of the residual material left in the tanks. This performance assessment is the basis for determining the potential safety and health consequences. The SRS CAB would like to hear a briefing on the modeling based upon the "4 pack" concept.

With about 2 tanks per year requiring closure after this initial "4 pack" to meet the tank closure end-state milestone, the opportunity for simplifying the HLW Tank closure paperwork exists. With some thought, planning, work, and especially coordination among the regulators during the closure process, some type of standardization would contribute to meeting the tank closure timeline. With standardization, the SRS CAB envisions considerable savings in time and money. By extension, one concept that may streamline certain aspects of this process is the potential for a "plug-in-rod." As seen from previous implementation at SRS, the plug-in-rod process cuts down on paperwork, simplifies the process, and, more importantly, accelerates the cleanup while improving it at the same time. With this concept, SRS could move ahead and take this initial "4 pack" out the current tank farm area closure and move directly into individual "multi-pack" closures. This could be done as each "multi-pack" is closed. The plug-in-rod concept for HLW tank closure should be investigated and implemented.

Recommendation
The SRS CAB recommends the following:

1. DOE-SR work withand SCDHEC to provide a formal timeline and a more descriptive

narrative of the roles and responsibilities of all of the agencies involved in the Section 3116 implementation to the SRS CAB by March 29, 2005. In addition, describe the contingencies for potential schedule slippage and the expected impacts to the FFA and recently renegotiated tank closure dates.

2. DOE-SR work withand SCDHEC to involve stakeholders in the Section 3116 implementation process as early and as often as possible for any documentation transmitted between agencies (DOE, NRC, NAS, SCDHEC, etc.) and not wait until formal public comment periods. (Moreover the SRS CAB has already requested a public forum on this topic in Recommendation 193.). Include these early briefings in the proposed formal timeline (see # 1 above).
3. DOE-SR provide a briefing to the SRS CAB by March 29, 2005, on the technical aspects of closing the 1F evaporator and provide a listing of other such larger associated type units that may be closed with future tank closures.
4. DOE-SR provide a briefing to the SRS CAB by March 29, 2005, on the performance assessment for the HLW tank closure and include any recalculations and justifications associated with the “4 pack” concept.
5. DOE-SR in concert with the regulatory agencies work toward a standardized process for future individual HLW tanks closures.
6. DOE-SR investigate and implement a “plug-in-rod” concept for taking the initial “4 pack” and future “multi4- packs” out of tank farm area closure directly into individual “multi-pack”CERCLA closure.
7. DOE-SR provide to the SRS CAB by March 29, 2005, the anticipated scope of work for an NAS study per Section 3146 related to the HLW tank closure process.

References

1. National Defense Authorization Act, Section 3116 Implementation, presentation to the Waste Management Committee by Doug Hintze (DOE-SR), January 11, 2005.
2. Grout in High-Level Waste Tanks, presentation to the Waste Management Committee by John Harbour, PhD (SRNL), January 11, 2005.
3. Nuclear Safety Consequences of Section 3116 letter from John T. Conway, Chairman, DNFSB to the Honorable Spencer Abraham, Secretary of Energy, May 14, 2004.
4. Citizens Advisory Board Recommendation No. 43 (adopted July 22, 1997), "High Level Waste 1F and 1H evaporators."
5. SRS CAB Recommendation 181 and 193.

Agency Responses

Department of Energy-SR