



Savannah River Site

Citizens Advisory Board

Recommendation 237

HLW Risk Reduction Efforts

Background

The first SRS High Level Waste (HLW) tanks were placed in service in the early 1950's. In total, 51 HLW tanks were constructed at SRS. These HLW tanks were not intended to be a permanent storage method for HLW but were only considered as interim storage to last up to fifty years each. Some fifty years later, well beyond their original design life, only two tanks have been closed, leaving 49 underground HLW storage tanks remaining to be closed. Twenty-four of the original 51 tanks are classified as Type I, II, and IV tanks and do not meet RCRA standards for secondary containment requirements. Seven of the twelve Type I tanks, all four of the Type II tanks, and two of the eight Type IV tanks have leaked. This leakage has occurred without exception through stress cracks located near weld joints.

The SRS HLW storage tanks and piping systems have exceeded their original design life yet are expected to be in use for another 20-30 years. Periodic visual and ultrasonic (UT) nondestructive examinations (NDE) have been performed on the tanks to monitor the effects of service. The 2005 inspections revealed three (3) new leaksites in Tank 5, two (2) new leaksites in Tank 12, and one (1) new leaksite in Tank 15. With no future plans to build additional HLW storage tanks, it is essential to continue to validate the integrity of current tanks and transfer systems and repair them until all the HLW waste is removed and to continue to close tanks (Ref. 1).

Comment

Tank 16, a Type II tank, is the only tank to have had a release of waste from the secondary pan. The leak, which occurred in 1960, was from the primary tank into the secondary pan where it overflowed into the surrounding concrete vault. A few tens of gallons of waste escaped to the concrete vault and it is assumed that the waste will migrate to the soil through concrete joints or cracks. Monitoring wells were installed and the tank was removed from service and cleaned. The location where the waste overflowed the secondary pan has been monitored to ensure that the surrounding soil retained the waste and that it has not migrated to other areas. Currently, Tank 16 is empty awaiting decommissioning; however, large quantities of insoluble salts remain in the annulus. SRS is currently working on technologies to remove this waste residue (Ref 2).

Based upon the 2005 inspection results, the SRS CAB is still concerned about the increased probability that a failure of a HLW tank would forcibly shut down HLW tank operations (this could happen with even a simple failure such as happened to Tank 16). While the HLW Tank Inspection Program provides some additional safeguards, it does not directly increase tank space or expedite tank closures.

The continuing reliance on old HLW tanks whose design would be unacceptable today, on support systems that have exceeded their design life, and on tanks known to have numerous cracks and leaksites, is unacceptable. The SRS CAB's expectations have been identified in the past with the following priority: (1) salt waste disposition, (2) bulk removal from the tanks, and then (3) tank closure. Our primary concern is that the continued delays in achieving long-term tank closure solutions

increase the risk to public safety and the environment. The SRS CAB feels a great sense of urgency to minimize the greatest remaining risk as SRS – the waste in the HLW tanks.

The SRS CAB is very frustrated with the lack of progress in the effort to reduce this high priority risk. A crucial part of this risk reduction is the early removal of low-activity salt waste through a process involving deliquification, dissolution, and adjustment (DDA) of the waste. In order to maintain the high level waste schedule, DDA should have started by July 1, 2006, and this did not happen. To date, regulatory permits from SCDHEC have not been received and neither has DOE commitment for funding to proceed with this project (Ref 3).

One concern voiced by SCDHEC on issuing the necessary permits is acceptable budget assurances from DOE for the salt waste disposition strategy. DOE has verbally told the SRS CAB that this is a fully funded priority program but has not provided detailed information on the expenditures to date and anticipated budgets. The letter from Secretary Bodman to Governor Sanford (Ref. 3) implies these assurances but does not actually commit to nor identify funding requirements. However, the letter does commit to limit the DDA process to treat waste only from Tank 41, which restricts the curie content to approximately 1 million remaining in Saltstone instead of the original 3-5 million. This is a significant reduction in risk to the citizens of South Carolina.

This risk and the ultimate curie content of waste remaining in South Carolina has been another issue that concerned SCDHEC. It appears to the SRS CAB that the entire Disposition Process Plan (DPP) is at an impasse and a stalemate exists between DOE and SCDHEC (Ref. 4). The SRS CAB understands SCDHEC concerns but believes that the risks are magnified if the HLW removal process is not started very soon and the total curie content for the entire HLW system remains in the old HLW tanks.

Recommendation

In order to begin the HLW removal process (Disposition Process Plan), the SRS CAB recommends the following:

1. DOE and SCDHEC work to resolve the existing stalemate so that the draft permits for DDA can be issued by August 15, 2006, with a final issuance date of October 15, 2006.
2. DOE provide the status of the actions taken to resolve the stalemate to the SRS CAB Waste Management Committee meeting on August 15, 2006.

References

1. "Savannah River Site (SRS) Tank Waste Management Update", presentation to the WM Committee by Tom Treger, DOE, June 27, 2006.
2. Citizens Advisory Board Recommendation No. 181 (adopted January 27, 2004), "HLW Tank Longevity versus Expected Lifetime."
3. Letter from Secretary Bodman to Governor Sanford dated July 6, 2006.
4. Letter from Governor Sanford to Secretary Bodman dated July 24, 2006.

Agency Responses

Department of Energy-SR

SC Department of Health and Environmental Control