SRS Citizen's Advisory Board

Savannah River Site
Citizens Advisory Board
Recommendation 230
SWPF Decision – HLW Disposition Program Systems

Background

The Savannah River Site (SRS) Citizens Advisory Board (CAB) has reviewed the decision process used by the Department of Energy (DOE) to change the design basis of the Salt Waste Processing Facility (SWPF) at the SRS to PC-3 seismic qualifications. In addition, the Waste Management Committee of the SRS CAB has considered this issue for several months. As reported, the decision was largely qualitative and did not use a risk-based systems analysis. Furthermore, no cost-benefit analysis was performed. And, it is our understanding that this decision process did not include an evaluation of either the risk or the cost involved in the PC-3 decision mandated extended long-term operation of the High Level Waste (HLW) tank farm. (Ref. 1)

DOE is currently developing a revised implementation approach for interim salt processing that will address the tank space needs and work on closing the gap associated with the SWPF delays necessitated by the design changes. Components of the strategy under consideration include: new decontaminated salt solution storage tanks, continued limited use of structurally-sound old style tanks, minimized use of deliquification, dissolution, and adjustment (DDA) for salt processing, increased emphasis on the Actinide Removal Process (ARP) and Modular Cesium Removal Unit (MCU) treatments, development of new tank cleaning processes, and shortening the Section 3116 process.

In early 2005, The National Research Council published Risk and Decisions; About Disposition of Transuranic and High-Level Radioactive Waste. It pointed out weaknesses in the DOE risk assessment process and noted that these weaknesses had been previously identified by other studies and organizations. The report made specific recommendations concerning how DOE could adopt a risk-informed process that takes a broader look at the risk involved in any decision. (Ref. 2)

Comment

The SRS CAB has made over a dozen recommendations on the High Level Waste Program since 1994. Our constant and urgent theme has been to reduce the greatest risk at SRS – the large volume of radiological waste in the HLW tanks. Our consistent prioritization with regard to risk reduction at SRS has been: 1) salt waste disposition, 2) bulk removal from the tanks, and, 3) tank closure.

Our deepest concerns now are how to minimize the impacts of the delay by accelerating the construction of the SWPF; the availability of sufficient funds for construction; the ability to meet existing regulatory commitments; and the potential increased risk to workers and the environment due to loss of efficiency and productivity because of resulting adverse HLW tank space management issues. We are also very concerned about the availability of sufficient funding for the various contingencies (e.g., the ARP and MCU operations) that are necessary to successfully sustain the Liquid Waste disposition effort until the SWPF is completed.

Moreover, we believe SRS should incorporate a risk-based systems approach for the HLW program using quantitative analyses wherever appropriate. These analyses should consider how impacts to any single system affect the functional ability of the entire system and follow the National Academy of Sciences recommendations as outlined in the National Research Council report.

Recommendation

The SRS CAB recommends the following:

1. DOE-SR recommit to starting up the deliquification, dissolution, and adjustment (DDA) process by July 1, 2006, and closing tanks 18 and 19 by the end of FY07.

2. DOE-SR adopt quantitative risk and cost-benefit analysis procedures and documentation as part of the decision making in HLW management.

3. DOE-SR adopt a systems approach in decision making in HLW management and perform risk and cost-benefit analyses on all affected systems influenced by that decision.

4. DOE-SR consider other possible options for increasing tank capacity during the period prior to operation of the SWPF. Such options could include replacing Tank 50, the Saltstone feed tank, with an above ground storage tank and returning Tank 50 to high level waste service.

5. DOE commit to sufficient funding for satisfactory completion of the SWPF project and the key corollary HLW treatment operations.

References

1. Discussion on the Salt Waste Processing Facility Design Upgrade Decision, presentation to the Waste Management Committee by Bill Clark-DOE-SR, January 31, 2006.
2. Risk and Decisions; About Disposition of Transuranic and High-Level Radioactive Waste, The National Research Council, 2005

Agency Responses

Department of Energy-SR