Savannah River Site Citizens Advisory Board

Recommendation 172
Salt Processing Design Revision

Background
The tailored treatment approach for Salt Processing at the Savannah River Site (SRS) is a three-prong approach (Ref. 1). DOE decided to implement the Caustic Side Solvent Extraction (CSSX) process for the separation of radioactive cesium from SRS salt wastes (Ref. 2). DOE has awarded two contracts for the conceptual design and one contract for detail, design, and construction startup and initial operations of the CSSX facility. As part of the contract, the selected firms are required to perform sensitivity studies for a small scale or "demonstration" Salt Waste Processing Facility of five, ten, twenty, and fifty percent of the full scale facility capacity of 17.5 gpm (Ref 3).

As part of the Record of Decision (ROD), DOE, in parallel with the procurement for the CSSX process, is also evaluating two other salt processing alternatives, actinide removal and low curie salt treatment. If successful and unimpeded, the three Salt Disposition strategies provided by DOE ensure that High Level Waste (HLW) in the storage tanks is processed by all regulatory commitment dates (Ref. 4).

Comment
One of the Salt Waste Processing options and a key to the success of tank space capacity and flexibility, is the disposal of low-curie salt to Saltstone. If successful, this process would create tank space to support more waste removal, feed preparation, and accelerated closure of non-compliant tanks. Any delay would result in more challenges (higher risks) to accomplish the HLW mission of stabilizing waste to reduce risk, closing tanks, and supporting other SRS mission. Based upon current information, it appears that low-curie salt to Saltstone is headed toward technical and permitting difficulties (Ref. 5).

In a recent meeting, DOE told the CAB that since the last briefing on CSSX that most development has been successfully completed and the risk of failure of satisfactory construction and operation of the CSSX has been reduced to a very low level. DOE considers the risk to the new facility to be very small.

The primary concern of the SRS Citizens Advisory Board (CAB) is to maintain the current HLW Tank closure schedule and to have a salt processing facility operational by 2010. As stated numerous times, any deviation in the Federal Facility Agreement closure schedule is considered unacceptable to the SRS CAB. If difficulties are apparent in the low-curie salt to Saltstone process, the SRS CAB believes DOE needs to re-evaluate its position on the size of the small scale SWPF. This increase should accelerate the reduction of total waste inventory in the HLW storage tanks.

Recommendation

The SRS CAB recommends the following:

1. DOE consider increasing the size of the "demonstration" SWPF to the currently designed full-scale or larger to accommodate the anticipated increase in the low curie waste stream to SWPF.
2. DOE determine the benefits (e.g. tank space management, tank closure) and the impacts on the FFA commitments of accelerating the salt processing by increasing the scale of the SWPF. Present the findings to the SRS CAB by January 15, 2004.

References

1. Salt Processing Update, presentation to the WM Committee by Joe Carter, March 4, 2003.
2. Record of Decision: Savannah River Site Salt Processing Alternatives, Federal Register Volume 66, Number 201, October 17, 2001.
3. E-mail response from Terrel Spears dated September, 18, 2003.
4. "Savannah River Site High Level Waste System Plan", Westinghouse Savannah River Company, Report HLW-2002-00025, Revision 13, March 2002.
5. "Tank Space Management Update", presentation to the WM Committee by Charlie Hansen, September 8, 2003.

Agency Responses

Department of Energy-SR (PDF)