Savannah River Site
Citizens Advisory Board

Recommendation 177
DOE Spent Nuclear Fuel Disposition at SRS

Background
The Savannah River Site (SRS) provides for safe receipt and interim storage of irradiated spent nuclear fuel (SNF) assemblies from SRS reactors and from test and research reactors, domestic and foreign. These assemblies are presently stored on site in water basins until a treatment and interim storage facility is available. The SRS SNF Management Environmental Impact Statement considered alternative ways of managing SNF at SRS (Ref. 1). DOE identified seven technologies that could be used to prepare SNF at SRS for disposition: (1) Prepare for Direct Disposal/Direct Co- Disposal; (2) Repackage and Prepare to Ship to Other DOE Sites; (3) Melt and Dilute; (4) Mechanical Dilution; (5) Vitrification Technologies; (6) Electrometallurgical Treatment; and (7) Conventional Processing Technology.

In its Record of Decision for SRS SNF Management Final EIS, DOE decided to implement the preferred alternative of Melt and Dilute with Direct Disposal as a backup technology (Ref. 2). In melt-dilute, furnaces melt SNF and dilute the uranium enrichment, while reducing the volume needed for storage and disposal. The direct disposal process dries the fuel and packages it in special containers with no further stabilization required for final disposition.

However, this decision is currently being revisited under DOE' Top-To-Bottom review. DOE-EM has formed a SNF Corporate Project Team. This team was created to develop an integrated national program for DOE SNF activities that focuses on risk reduction and opportunities to streamline and optimize EM activities, this includes reducing EM's financial liability of $12 billion over the next 35 years. The SNF Project Team is currently re-evaluating the SNF disposition technologies. In addition to the melt and dilute, direct disposal, and conventional processing, the team is evaluating a new ship "as is" alternative (Ref. 3).

Comments
The SRS Citizens Advisory Board (CAB) is in favor of accelerating the SNF program at SRS and welcomes the opportunity to offer its comments during the SNF project team's evaluation. The SRS CAB believes that the direct disposal technology offers several advantages over the other options being considered. It has been analyzed as a safe alternative in the EIS and would generate less waste than potential canyon processing. Melt and dilute is not a proven technology and may not be ready to meet an accelerated schedule. The ship "as is" option would require new capabilities (facilities) to be built at Yucca Mountain, plus it has not be fully analyzed and would require another costly EIS.

Recommendation
The SRS CAB recommends that DOE:

1. Implement the Direct Disposal technology for SRS SNF and provide cost details for implementation by March 15, 2004. Identify the expected concessions and SRS waste acceleration schedule for a SNF swap between DOE-Idaho and SRS and provide this information to the SRS CAB by January 15, 2004.
2. Reduce or if possible eliminate the domestic SNF receipts to SRS.

References

1. SRS SNF Management EIS, DOE/EIS –0279, March 2000.
2. Record of Decision for the SRS SNF Management Final EIS, Federal Register, Volume 65, No. 152, pp. 48224-48228, August 7, 2000.
3. Spent Fuel Disposition Planning Status, presentation to the NM Committee by Randall Ponik, October 27, 2003.