

Savannah River Site Citizens Advisory Board

Recommendation #301

Demonstration Storage at WIPP Program for SRS High Level Waste Canisters

Background

The ultimate disposition of High Level Waste and Spent Nuclear Fuel is undefined at this point. A framework for the program was presented in a Blue Ribbon Committee (BRC) Report on America's Nuclear Future in January 2012. Definitive plans by DOE, NRC, EPA, and possibly others, on a path forward are being actively developed. What is clear to date is that all of the nation's nuclear waste will ultimately be stabilized in some manner and later shipped to a federal repository for final disposition. It is a program that will take decades to complete and will require a massive effort to carry out.

The SRS, of course, will necessarily be a part of that program and will be limited by the constraints and schedules developed for the national program. The SRS Nuclear Waste Disposition Program is far advanced over most of the Defense Waste activities of the other DOE sites and most of the commercial nuclear waste activities at large. SRS has approximately 3,500 canisters of defense nuclear waste ready for shipment to a final disposition repository. These canisters are very robust (durable stainless steel cylinders) and the waste content is a stable borosilicate glass with the constituents well-known and characterized. These canisters with their advanced state of preparation for disposition offer DOE the opportunity to develop some experience that will be useful in carrying out the national program on a much larger scale.

Discussion

One idea that seems worthy of consideration would be to ship a small number of SRS canisters to another location for storage as a trial test and storage program. The Waste Isolation Pilot Plant (WIPP) would be an excellent location to receive these canisters and store them as the program is being evaluated.

WIPP is a disposition facility for transuranic waste (TRU) in New Mexico. The TRU is placed in tunnels over 2000 ft. deep in a salt formation where it will be isolated forever. The WIPP has been very active for more than 10 years, and waste disposition is carried out efficiently and effectively. The WIPP is being evaluated for an expansion of its mission. If the WIPP mission could be expanded to allow the storage of a few SRS canisters, perhaps later the eventual disposition of these few SRS canisters, DOE would have the opportunity to learn a great deal for the larger national waste disposition program.

As noted many times, in the BRC Report there are numerous examples pointed out where considerable research and development will be needed to address a plethora of issues in the national nuclear waste program related to storage, shipping, potential reuse, preparation for disposition, and disposition.

For example if a few SRS canisters were shipped to WIPP for temporary storage it would allow DOE to develop experience in the following areas:

- Develop and evaluate shipping containers for the SRS canisters.
- Experience in developing the needs of a shipping facility
- Experience in developing the requirements of a receiving facility
- Experience in handling and transporting these canisters
- The learning process for consent based approvals.
- Assessments on the performance of canisters in a salt environment.

- Acquire knowledge of actual costs of actions described above.

If this test and storage program were carried out, it offers the advantage of showing real progress on a much earlier timescale than would otherwise be possible. All of this work should be a real boon to the national waste disposition program.

Recommendations:

The Savannah River Site Citizens Advisory Board recommends that DOE:

1. DOE-SR work with WIPP personnel in New Mexico to develop a plan for such a Demonstration Storage Program at WIPP for SRS High Level Waste Canisters.
2. Forward the Plan to HQ with the recommendation that DOE present this concept to other national leaders for consideration in national BRC implementation plans.

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Adopted October 30, 2012
Sponsored by the Waste Management Committee