

**Savannah River Site
Citizens Advisory Board**

Recommendation #298

Trial Disposition Program for SRS High Level Waste Canisters

Background

The DOE program for ultimate disposition of SRS's high level waste is at this point uncertain. The SRS canisters consisting of vitrified liquid waste in stainless steel containers are in a stable configuration; however, the next step of shipping these canisters to a federal repository is ill-defined.

The lack of a federal repository has created a need for extended storage for these canisters far beyond earlier plans and projections. This extended storage has raised concerns with the local populace and with local political leaders that SRS is becoming a "nuclear waste dump site."

Federal planning for further actions relative to disposition of both the SRS waste canisters and the SNF is awaiting a path forward to be developed primarily from a report issued by the Blue Ribbon Committee (BRC) on America's Nuclear Future in January 2012. Definitive plans by DOE, NRC, EPA and perhaps others are likely to be developed in the 2012-13 timeframe. All estimates seem to indicate that actual ultimate disposition in a repository could take many decades (some estimate on the order of 50 years).

As discussed in the report the general approach seems to be development of interim storage facilities for consolidation of SNF followed by expedited work on a final disposition repository.

There is one interesting aspect to the waste disposition program- both commercial nuclear waste and defense-related nuclear waste is addressed in the same program which will ultimately result in geological disposal.

Discussion

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 related to storage, shipping, potential reuse, preparation for disposition, and disposition in a federal repository.

The fact that there are two basic types of nuclear wastes (defense waste and commercial waste) offers in the view of the CAB a unique opportunity for the waste disposition planners and decision makers. Discussion on this opportunity is as follows:

- Defense waste is considerably smaller than commercial waste in quantity. Defense waste volume is approximately 10% of the commercial waste volume.
- Defense waste (particularly the waste canisters) is well prepared for ready disposition relative to the outer container (durable stainless steel cylinder), the waste form is stable (borosilicate glass), and the constituents are well-known and understood. (meets all known specifications).

- Since the Defense waste seems to be in an advanced state of preparation for disposition in a repository many of the lingering technical questions for commercial fuel do not apply to much of the Defense waste.
- The unique opportunity is that the Defense Waste with its advanced waste forms could be dispositioned at the Waste Isolation Pilot Plant (WIPP) in advance of the commercial waste forms which will require much more study and understanding.
- A Trial Disposition Program for the DWPF canisters where the canisters are placed in final disposition could serve as real learning tool in dealing with issues related to remaining wastes.
 - i. For example, approval for the canisters disposition in the WIPP could be one aspect of learning how to implement “consent-based” approval.
 - ii. Issues on shipping and transportation could be understood and addressed better.
 - iii. Numerous related technical issues could be addressed using the more advanced waste forms and applied to the lesser known waste forms.
- Such an approach offers the advantage of showing real progress on a much earlier timescale than would otherwise be possible.

In view of the uncertainties surrounding canister removal from SRS it would be a dramatic and positive measure for the DOE to develop plans for the removal of the DWPF canisters to the WIPP rather than another 30- 50 year wait for a federal repository. Further, the Trial Program would provide useful information to be applied to the more problematic waste forms and provide much earlier scheduler progress on a significant national issue.

Recommendations:

The Savannah River Site Citizens Advisory Board recommends that DOE:

1. Plan and execute a program for the ultimate disposition of the SRS canisters to the Waste Isolation Pilot Plant.
2. Use this program as a pilot for the overall DOE national nuclear waste disposition program to address such issues as:
 - a. Consent based siting issues
 - b. Shipping container and transportation issues.