SRS Citizen's Advisory Board

Recommendation No. 124

May 23, 2000

DWPF Canister Storage

Background

Currently, canisters of vitrified High Level Waste (HLW) produced by the Defense Waste Processing Facility (DWPF) are stored on-site in a dedicated interim storage building called Glass Waste Storage Building #1 (GWSB#1). This building is a below-grade seismically qualified concrete vault that contains support frames for vertical storage of 2,286 canisters. The storage vault is equipped with forced ventilation cooling to remove radioactive decay heat from the canisters. An industrial steel frame building encloses the operating area directly above the storage vault. A 5-foot thick concrete floor separates the storage vaults from the operating area.

A device, called the Shielded Canister Transporter (SCT), moves one canister at a time from the DWPF vitrification process area to the GWSB#1. This device transports the canisters into the operating area. It also removes the shielding plug from the pre-selected storage location, lowers the canister into the storage vault, and replaces the shielding plug. Due to a problem with the shielding plug being out of round with the floor liner, 572 canister storage positions are currently unusable. In addition five canisters are occupied by test canisters and can not be used. SRS estimates that the plugs in 450 of the canister storage locations can be repaired economically. The 122 others will be abandoned in place (Ref 1). This leaves the current working capacity of 2,159 usable storage locations in GWSB#1. As of March 10, 2000, 804 of the storage locations have been filled, which leaves 1,355 empty storage spaces (Ref 2).

If DWPF production proceeds at the current rate of 250 canisters per year, GWSB#1 will reach capacity in FY05. Therefore, conceptual design preparations are under way for a GWSB#2. The GWSB#2 design will be similar to GWSB#1with a total estimated cost between 75 -100 million dollars. A parallel path is also being pursued to study an alternative above ground dry storage unit (Ref 3). This planned storage unit would include a concrete or gravel storage pad, a cask interface facility, the storage casks, and a cask transport vehicle. It is also planned to utilize depleted uranium oxide (DUO) in the construction of the storage casks. This could reduce the required concrete wall thickness due to the shielding properties of the depleted uranium oxide.

It is proposed that an offsite commercial vendor would design and fabricate both the dry storage casks and the transport vehicle. SRS would lease the storage casks and transport vehicle for the life of the project, projected to be 20-30 years. SRS would design and build the interface facility and the storage pad. The vendor would take title to the DUO and be responsible for removal of the DUO from SRS to the vendor's cask manufacturing facility. The vendor would also be responsible for the removal and disposition of the casks after the HLW canisters are removed and shipped to a final repository. In addition, the vendor must establish an escrow account to ensure funding for final disposal of the casks. A vendor Notice of Intent (NOI) was issued in July 1999 and a Request for Proposals (RFP) was available on March 2, 2000. Originally, response to the RFP was due back by May 1, 2000 but an extension has been approved until August 1, 2000 (Ref 4).

SRS believes the above ground storage units allows them to distribute the cost over a longer period of time compared to the significant up front capital required for the construction of the GWSB#2. Other advantages include the use of a waste product (the depleted uranium oxide) in the construction, greater flexibility to meet changes in DWPF production rates should they increase (i.e., lease more or less storage casks) , and provides an economical short term storage need if Yucca Mountain meets a FY10 shipping date. The Environmental Assessment (EA) for the above ground storage units was made available for public comment on March 28, 2000. In order to receive comments from the SRS Citizens Advisory Board (CAB) and concerned stakeholders, a formal request was made to extend the EA comment period until after May 23, 2000.

The SRS CAB can understand the benefits of using temporary storage casks, which are portable and flexible, to meet increase DWPF production rates. The use of DUO in the construction of the storage casks may help solve some of SRS's disposal issues related to this source material.

However, the SRS CAB and the public have both specific comments on the EA and general comments about the alternative above ground dry storage concept. Many of the general comments focus on the escrow account and the ability of the vendor to revert disposal responsibility back to DOE. These general comments form the basis of the Board's recommendation and the specific EA comments are addressed below.

Comments

1. The EA should include the estimate of the environmental impacts associated with the construction of the storage casks by the vendor.
2. The EA should include the environmental impacts of disposal of the storage casks and restoration of the lands on which they were stored by the vendor.
3. The EA should discuss the environmental impacts the surface loading from the storage pad has on the groundwater under the proposed facility. Will the loading cause a perched water table in the vicinity of the storage pad? If so, what impacts will it have on the monitoring or remediation of groundwater adjacent to the storage facility?
4. The EA should include an analysis of the chemical toxicity of the DUO used in making the casks and in the cask failure scenario.
5. The EA should summarize the environmental impacts from the supplemental EIS for the second GWSB (the No Action Alternative), so the public and decision-makers can evaluate and compare the environmental impacts from this alternative.
6. The EA should address the alternative of DOE owning the casks and being responsible for their final disposition.

Recommendations

Before deciding which approach (GWSB #2 or dry above ground storage), DOE states in the EA that it would compare cost, schedule, and technical considerations along with environmental impacts in making their decision. The SRS CAB and the public want to be fully informed about these comparisons and involved in the decision process. Therefore, the SRS CAB recommends the following:

1. Reevaluate the scope of the EA as a result of these comments and report DOE's conclusions and intentions for the changes to the EA in a briefing to the WM Committee by September 26, 2000.
2. By September 26, 2000, DOE provide the most current information on the cost, schedule, and technical comparisons between the GWSB #2 and the above ground dry storage alternative.
3. Involve the SRS CAB and the public in the decision making process to chose the preferred alternative for interim storage of vitrified HLW.

References

1. Savannah River Site High Level Waste System Plan, Westinghouse Savannah River Company, Report HLW-99-008, Revision 10, June 1999 with October 1999 Update.
2. Draft Environmental Assessment to Evaluate an Alternative Approach for the Defense Waste Processing Facility Glass Waste Storage Facility at the Savannah River Site (Rev.1), March 28, 2000.
3. Defense Waste Processing Facility Canister Storage, presentation to WM Committee by Sonitza Blanco, March 9, 2000.
4. Defense Waste Processing Facility Canister Storage EA Update, presentation to WM Committee by Howard Gnann, May 9, 2000.
5. Citizens Advisory Board Recommendation No. 13 (adopted November 26, 1995), "High Level Waste Storage Building".
6. Citizens Advisory Board Recommendation No. 109 (adopted January 25, 2000), "DOE and South Carolina Agreement on Removal of High Level Vitrified Waste from SRS".

Agency Responses

Department of Energy-SR