

**Recommendation #250
Vitrified Plutonium Storage Consequences**

Background

On September 5, 2007, the Department of Energy (DOE) approved the consolidation of surplus non-pit plutonium to the Savannah River Site (SRS). The plutonium materials will be shipped to the SRS for consolidated storage from Hanford in Washington; Los Alamos National Laboratory in New Mexico; and Lawrence Livermore National Laboratory in California. Through the Mixed Oxide Fuel Fabrication Facility (MOX) project, the proposed Plutonium Vitrification Facility, and operations of H-Canyon, DOE has identified a proposed disposition path for the consolidated plutonium materials being shipped to SRS.

The plutonium consolidation at SRS meets several DOE objectives. It reduces the number of sites storing surplus non-pit plutonium. It provides the most secure storage for this material. It avoids large expenditures for security upgrades at Hanford, which could range from \$200 million to over \$1 billion. It also locates the storage at the disposition site, avoiding having to move the material more than once.

DOE plans on using a proposed Plutonium Vitrification Facility and using H-Canyon for the disposition of the surplus plutonium not planned for conversion to mixed oxide fuel. Plutonium disposed of through the proposed Plutonium Vitrification Facility and through H-Canyon is transferred to the Liquid Waste Operations for immobilization in the Defense Waste Processing Facility (DWPF) glass and stored onsite with eventual shipment to the Yucca Mountain Repository (Ref. 1).

Comments

The SRS Citizens Advisory Board (CAB) supports and has supported site integration activities of surplus plutonium at SRS since 1998. The SRS CAB has voiced its support for the rapid disposition of stored plutonium across the DOE-complex and recognizes that SRS has unique assets and operational experiences relative to plutonium handling and vitrification. The CAB has adopted several recommendations (Refs. 2 through 10) that specifically address plutonium consolidation and disposition. The SRS CAB's basic concern/issue is not WHAT the ultimate disposal option is, but that there is a documented disposal option with a definite timeline.

The SRS CAB has repeatedly asked DOE to expedite the development of a complete, well-considered plan for the disposition of all excess plutonium to preclude unnecessary extended storage of the excess plutonium at SRS. The CAB has also asked that DOE not ship plutonium to SRS until there is a realistic exit strategy for the stored plutonium, going so far as to recommend that DOE send no additional shipments of plutonium until

5% of the existing quantities of plutonium at SRS has been successfully dispositioned. The CAB is concerned that SRS should not receive additional plutonium until a viable and demonstrated disposition path is available and that DOE is processing plutonium from vulnerable form(s) to a less vulnerable form. Furthermore, and most importantly, the CAB wants to be assured there is a means by which all defense plutonium and defense plutonium materials will be removed safely, securely in a timely manner from SRS for storage or disposal elsewhere.

While DOE has set a target month of March 2017 for the Yucca Mountain Repository to begin receiving nuclear waste, many suspect the project may not open until some time later, given the politics and history of the effort. Yucca Mountain Repository's opening is currently 20 years behind schedule, and with the recent calls for additional congressional hearings, any delays at this juncture could doom the project. Any future delays in opening the Repository at Yucca Mountain means the continual storage of vitrified plutonium at SRS. Currently, there are no consequences to DOE if storage at SRS is extended, perhaps indefinitely. In addition, there are no equity considerations for the citizens of South Carolina and the local stakeholders for extending Plutonium storage at SRS. The SRS CAB acknowledges that the missions surrounding the consolidation and disposition of plutonium add economic benefit to the local community through the creation of temporary jobs. This centers more on adequate funding and compensations and is not the type of equity the SRS CAB has been advocating (Ref. 11 & 12).

Recommendation

The SRS CAB recommends the following:

1. By May 19, 2008, DOE provide the safety analysis that provides for both the short-term and potential long-term storage of vitrified plutonium at SRS.
2. If the opening of the Yucca Mountain Repository will be delayed beyond 2017 and the long-term storage of vitrified plutonium at SRS is inevitable, DOE work with the state of South Carolina and local stakeholders to develop an enforceable agreement with possible monetary consequence or other viable equity scenarios for the extended storage of vitrified plutonium at SRS.

References

1. Plutonium Consolidation, presentation to the Nuclear Materials Committee by Allen Gunter – DOE-SR, October 30, 2007.
2. Citizens Advisory Board Recommendation No. 246 (adopted May 22, 2007), "Supplemental Environmental Impact Statement for Surplus Plutonium Disposition at SRS".
3. Citizens Advisory Board Recommendation No. 243 (adopted January 23, 2007), "Plutonium Vitrification Facility Update".
4. Citizens Advisory Board Recommendation No. 223 (adopted September 28, 2005), "Plutonium Consolidation – GAO Report".

5. Citizens Advisory Board Recommendation No. 214 (adopted May 24, 2005), "Plutonium Disposition Options".
6. Citizens Advisory Board Recommendation No. 213 (adopted May 24, 2005), "Proposed Plutonium Vitrification Facility at SRS".
7. Citizens Advisory Board Recommendation No. 196 (adopted July 27, 2004), "Plutonium Shipments and Disposition".
8. Citizens Advisory Board Recommendation No. 188 (adopted March 24, 2004), "Plutonium Disposition".
9. Citizens Advisory Board Recommendation No. 170 (adopted September 23, 2003), "EM Owned Plutonium Storage and Disposition at SRS".
10. Citizens Advisory Board Recommendation No. 61 (adopted July 28, 1998), "Draft Surplus Plutonium Disposition Environmental Impact Statement".
11. Citizens Advisory Board Recommendation No. 63 (adopted July 28, 1998), "Political, Regulatory, and State Equity Issues and Treatment, Storage, and Disposal of Defense-Related Nuclear Wastes and Materials".
12. Citizens Advisory Board Recommendation No. 118 (adopted March 28, 2000), "Waste Management Equity Issues".