Savannah River Site Citizens Advisory Board

Recommendation 170
EM Owned Plutonium Storage and Disposition at SRS

Background
Plutonium (Pu) is primarily a man-made element, produced by irradiating uranium in nuclear reactors. It exists in various forms and grades and is used in nuclear warheads and as fuel in nuclear reactors. The plutonium that the Department of Energy (DOE) produced is held in several physical forms, including metals, oxides, solutions, residues, and scraps. Most of DOE's plutonium is stored as a metal because, during the production era, plutonium was recycled and purified to metal form for use in nuclear warheads. Although DOE has ceased to manufacture plutonium for use in nuclear weapons, the plutonium produced in the past continues to present hazards. Because plutonium is highly radioactive, it poses acute dangers to human health and the environment, as well as to national security, unless it is properly stored and safeguarded.

In September 2000, the United States and Russia concluded a surplus plutonium disposition agreement. Under the agreement, both the United States and Russia will each dispose of 34 metric tons of surplus weapon-grade plutonium, enough for thousands of nuclear weapons. Both countries have agreed to disposition surplus plutonium by fabricating it into mixed oxide (MOX) fuel for irradiation in existing, commercial nuclear reactors. This approach will convert the surplus plutonium to a form that cannot be readily used to make a nuclear weapon. In addition to the surplus weapon-grade plutonium, DOE's Environmental Management (EM) Program has approximately 12 metric tons of legacy plutonium requiring storage, treatment, and disposition.

The Savannah River Site (SRS) Program Performance Management Plan (PMP) proposed the consolidation of EM's plutonium from across the DOE Complex at SRS to await disposition (Ref. 1). The PMP cited several benefits for the consolidation. These benefits included cost savings, reduced plutonium storage footprint, and an enhanced Homeland Defense by reducing the number of target facilities. DOE has not made a decision to consolidate EM-owned plutonium at SRS but consideration of taking such action is currently under study (Ref. 2). The ultimate decision will be based upon national security issues, disposition strategy, and economics.

Comments
While some of the surplus plutonium is planned to be disposed in the MOX facility, some of the legacy plutonium will be classified as "non-MOXable". Currently, a disposition path for such material has not been established. Furthermore, specifications for the MOX feed material have not been formally defined. The SRS Citizens Advisory Board (CAB) believes that the specification for the MOX acceptable feed is crucial to the decision regarding plutonium disposition. In addition, the SRS CAB has been voicing its concern about the lack of substantive dialogue with stakeholders on equity issues throughout the DOE complex since 1997 (Ref. 3). If plutonium consolidation may occur at SRS, now is a key time to begin such discussions.

Recommendation
The SRS CAB recommends that DOE:

1. Provide the specifications for plutonium that will be acceptable as feed material for MOX by January 15, 2004.

2. Identify the disposition path(s) for all non-MOXable plutonium by DOE site and present the preferred disposition method(s) by January 15, 2004.
3. Prepare all options, including a review of equity and safeguards, for the consolidation of plutonium at SRS and present the options for stakeholder consideration by January 15, 2004.

References

1. Environmental Management Program Performance Management Plan, WSRC-RP-2002-00245, Revision 6.
2. Storage and Disposition of EM Owned Plutonium at SRS, presentation to the NM Committee by Kevin Hall, August 18, 2003.
3. Citizens Advisory Board Recommendation No. 47 (adopted November 18, 1997), "Environmental Management Integration and some SRS specific Recommendations".

Minority Statement On EM Owned Plutonium Storage and Disposition at SRS (PDF)

Agency Responses

Department of Energy-SR (PDF)