SRS Citizen's Advisory Board

Savannah River Site
Citizens Advisory Board

Recommendation 199
Building 235-F Decontamination

Background
Building 235-F was constructed as part of the original Savannah River Plant project in the mid-1950s. The 235-F Building is a two-story, windowless, reinforced concrete structure. Portions of the 235-F Building were once used to produce plutonium-238 oxide pellets to fabricate thermoelectric generators for space mission applications. In December 1983, DOE completed Pu-238 fuel clad production in Building 235-F for NASA's Galileo and Ulysses space missions. This process was then placed in standby, awaiting resumption of production. It was expected that once new fuel clad requirements were identified, fuel clad production could be restarted quickly and at minimal cost. For this reason, and because the hot cell design made cleanup difficult without dismantling the facility, only a limited effort was undertaken to decontaminate the process cells, and a residual amount of highly corrosive and intensely radioactive Pu-238 oxide powder was left in the cells.

In Section 3183 of the National Defense Authorization Act for Fiscal Year 2003 (Public Law 107-314), Congress directed the Defense Nuclear Facilities Safety Board (DNFSB) to conduct a study of the adequacy of the K-Area Materials Storage facility (KAMS) and related support facilities at the Savannah River Site (SRS), such as Building 235-F, for the storage of defense plutonium and defense plutonium materials. One of the most significant hazards in 235-F results from the presence of extensive plutonium-238 contamination in process cells no longer in use. Since there is no future use for the process cells containing this holdup, the DNFSB believes the hazard should be eliminated to enhance the safety of the facility. The DNFSB believes that DOE should continue to remove plutonium currently stored in 235-F and should not plan to use this facility for extended storage of plutonium until proposals in the Board's study have been implemented (Ref. 1)

DOE has started evaluating options for removing plutonium-238 holdup, as well as for fixing the plutonium in place (e.g., by grouting or applying a fixative). A proposal for addressing this hazard will be finalized in conjunction with the new safety analysis at the end of 2004. The DNFSB considers DOE's action on this proposal to be appropriate. Should DOE decide to fix the plutonium in place, agreements need to be obtained that such action provides an acceptable end state for decommissioning the facility. Fixing the plutonium-238 in place could increase the difficulty and risk of removal if it is decided the contamination must be removed.

Comments
Since these cells contain probably some of the most highly contaminated surfaces at SRS, the SRS Citizens Advisory Board (CAB) is very interested in DOE's proposal to address this hazard. The SRS Environmental Management Integrated Deactivation and Decommissioning Plan defines the appropriate end states for all EM facilities and integrates the D&D program with existing waste site cleanup plans (Ref. 2). As the DNFSB states, DOE's proposed action for decontamination action would have an impact on an acceptable end state for Building 235-F. The SRS CAB wants to be keep fully abreast of any study or plan ("path forward") that proposes the decontamination of the 235-F cells or any alternatives (contamination immobilization) that will impact current and future maintenance and operation and eventual D&D of the facility.

Recommendation The SRS CAB recommends that DOE:

1. Present to the SRS CAB on or before November 16, 2004, the options for removing plutonium-238 holdup in the Building 235-F process cells as well as alternatives that

may include fixing the plutonium contamination in place. Also, document how the proposed actions will impact reaching the planned end state for Building 235-F.

References

1. "Plutonium Storage at the Department of Energy's Savannah River Site – First Annual Report to Congress," Defense Nuclear Facilities Safety Board study, June 2004.
2. Savannah River Site Environmental Management Integrated Deactivation and Decommissioning Plan, WSRC-RP-2003-00233, May 2003.

Agency Responses

Department of Energy-SR