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A B O U T T H E S A V A N N A H R I V E R S I T E

Waste Solidification Building (WSB)

The Savannah River Site (SRS) is the principal location for U.S. efforts to dispose of surplus U.S. highly enriched uranium and weapon-grade plutonium by peaceful use as commercial nuclear fuel. To dispose of surplus weapon-grade plutonium, NNSA is constructing three facilities at SRS. The Mixed Oxide (MOX) Fuel Fabrication Facility will fabricate surplus U.S. weapon-grade plutonium into MOX fuel, which will be irradiated in commercial power reactors. Once irradiated, the plutonium can no longer be readily used for nuclear weapons. This critical facility, along with the associated Waste Solidification Building (WSB) and a pit disassembly and conversion (PDC) capability also planned to be built at SRS, are essential to U.S. plans to consolidate and dispose of surplus U.S. weapon-grade plutonium. Once operations commence, it is estimated that this surplus nuclear material could generate enough electricity to power all South Carolina households for 20 years, while reducing inventories of surplus weapon-grade nuclear material.

The planned plutonium disposition facilities at SRS - MOX and PDC - will generate radioactive liquid waste streams that cannot be treated or processed in existing SRS waste treatment facilities. These waste streams will be treated and processed in a newly constructed Waste Solidification Building.

The WSB will treat approximately 150,000 gallons of transuranic waste and approximately 600,000 gallons of low level radioactive waste generated from MOX and PDC operations, and convert these wastes into a cement form. Resulting transuranic waste will be packaged and sent to the Waste Isolation Pilot Plant (WIPP) in New Mexico. Resulting low-level waste will be packaged and sent to government or commercial low-level waste disposal facilities.

DOE completed the design and began construction of the facility in FY 2008. Construction is on schedule for completion in 2012 with start-up in September 2013. It will be a single story hardened concrete structure of approximately 33,000 ft² in size and contain the following key areas: high-activity liquid waste process rooms; a low-activity liquid waste process area; laboratory; and cementation rooms. The primary process equipment includes tanks, evaporators and solidification equipment. The WSB is being built in F-Area and will operate for approximately 15 years. Its operating life could be extended to accommodate continued MOX and PDC operations.

DOE plans to use the existing SRS Effluent Treatment Project for up to 3,000,000 gallons per year of liquid low level waste and will use SRS solid waste handling facilities for packaging transuranic solid wastes and low-level radioactive solid wastes.



The WSB will process waste streams from the plutonium disposition process at SRS

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