



FACTS

ABOUT THE SAVANNAH RIVER SITE

Solid Low-Level Waste Management

The Savannah River Site (SRS) generates low-level radioactive waste in both solid and liquid forms. Low-level waste (LLW) refers to radioactive waste that does not meet the definition of high-level or transuranic waste. In other words, LLW is segregated from other waste forms because it has such a short half-life.

SRS's solid LLW includes such items as protective clothing, tools and equipment that have become contaminated with small amounts of radioactive material. Prior to the early 1990's, LLW was disposed in the Low-Level Radioactive Waste Disposal Facility (LLRWDF). In 1994, SRS opened new engineered vaults for the permanent disposal of LLW. SRS was the first facility in the nation to dispose of solid LLW in these state-of-the-art concrete vaults. Two types of vaults are used, one for low-activity waste (LAW) and one for intermediate-activity waste (IAW). The concrete used in the construction of both vaults was specially formulated to mitigate cracking and extend the vault life. LLW also is disposed in trenches if it is very low in radioactivity. The limits for disposal in vaults or trenches are based on a long-term Performance Assessment that ensures that the disposed waste will meet certain criteria, such as EPA drinking water standards for groundwater.

While the majority of LLW is disposed of onsite, selected solid LLW is disposed at DOE's Nevada Test Site and Envirocare, a commercial disposal facility, in Utah.

Low-Level Radioactive Waste Disposal Facility

The Low-Level Radioactive Waste Disposal Facility (LLRWDF) no longer accepts waste for disposal and is being closed under the Resource Conservation and Recovery Act (RCRA). Before being placed in the LLRWDF, waste was packaged and separated by the type and amount of radioactivity. Low-activity beta-gamma waste was packaged in 90 cubic feet steel boxes and placed in engineered low-level trenches approximately 22 feet deep. The higher-activity portion of the LLW was disposed in separate trenches or in greater confinement disposal consisting of either fiberglass-lined cylindrical holes or concrete trenches.

The LLRWDF closure project began in September 2004. In January 2005, the Soil and Groundwater Cleanup Project organization began shipping soil to the LLRWDF for final disposition. A low-permeability geosynthetic cover system will be constructed over the LLRWDF per the DOE approved closure plan. Final remediation is scheduled for completion in 2008. Monitoring of the surrounding groundwater will continue indefinitely.

Low Activity Waste Vaults

The vaults, located in E Area, include low-activity and intermediate-activity waste vaults. Solid low activity waste (LAW) will be placed in LAW Vaults. The first vault began accepting waste in October 1994. The original plan was to construct 20 vaults during the next 20 years to meet waste disposal needs. As the site changed missions and pollution prevention programs increased, waste generation decreased significantly. The Department of Energy (DOE) is currently evaluating the need for future vaults. Based on the most recent forecasts, only one additional LAW vault should be needed for the next 20 years.

WASHINGTON SAVANNAH RIVER COMPANY

The WSRC Team: Washington Savannah River Company LLC • Bechtel Savannah River, Inc. • BNG America Savannah River Corporation • BWXT Savannah River Company • CH2 Savannah River Company

Each LAW vault is 650 feet long, 150 feet wide and 30 feet tall and consists of 12 cells. Each cell will hold 1,000 standard B-25 waste boxes. A B-25 waste box is made of carbon steel and is 6 feet long, 4 feet wide and 4 feet high. Doorways in the front of each cell allow fork trucks to drive into the cells and stack the waste boxes. When the cell is full, the door opening will be sealed with concrete.

Intermediate Level Waste Vaults

The Intermediate Level Waste Vaults (ILV) provide disposal for waste radiating greater than 200 mrem/hour. In these vaults, waste that is contaminated with tritium is disposed separately from non-tritium waste to provide isolated monitoring of highly mobile tritium. To ensure that tritium is retained in the vaults, monitoring will continue for 100 years after closure.

The non-tritium vault is 188 feet long, 25 feet wide and 27 feet deep and consists of seven cells. The concrete walls are 2 ½ feet thick at the ends and 2 feet thick on the sides. The concrete floor is 2 ½ feet thick. The vault opens at the top. To dispose of waste, a crane straddles the vault and lowers the waste box into the cell. A rain cover protects the open cell until it is filled.

The tritium vault overall dimensions are identical to the non-tritium vault, but consists of only two cells. One cell is for packaged waste. The other cell contains a silo system, consisting of tubes surrounded by concrete, for the disposal of waste such as tritium crucibles. These crucibles, each 20 feet tall by 18 inches in diameter, are a by-product of the tritium production process. The next ILV will not include tritium silos because the current capacity is sufficient for existing tritium crucibles.

November 2005

WASHINGTON SAVANNAH RIVER COMPANY