

Savannah River Site

Citizens Advisory Board

Recommendation 312
Liquid Waste Treatment Maximization

Background

The Savannah River Site (SRS) has 37,000,000 gallons of liquid nuclear waste remaining from the various defense missions dating back to the early 1950's. The State of South Carolina considers this waste the most dangerous environmental issue in the state. Since the mid 1990's the Department of Energy (DOE) site has assumed the mission of cleaning the tanks, stabilizing the wastes and decommissioning the tanks.

This cleanup mission is the subject of an enforceable agreement with the South Carolina Department of Health and Environmental Control (SCDHEC) and the United States Environmental Protection Agency (EPA) referred to as the Federal Facility Agreement and General Closure Plans (FFA). The Liquid Waste System Plan Revision 18 presents a plan that has 20 of the remaining tanks being closed at dates beyond those agreed to in the FFA.

Currently cleanup consists of emptying the tanks by processing the liquid fraction through the Actinide Removal Process (ARP) and the Modular Caustic Units (MCU). A larger facility using similar technology, the Salt Waste Processing Facility (SWPF), is being constructed. The SWPF was expected to be complete in 2015 but the current target is to be complete in 2018. An additional technology exists that can facilitate the treatment of the liquid waste i.e. Small Column Ion Exchange (SCX). In recent years, technological improvements including improved titanate solvents have greatly improved the performance and capacity of the currently operational ARP / MCU units. Additional solvent research appears promising.

After the liquid fractions from the storage tanks has been processed by one of the previously mentioned technologies, the contaminated water from these separation processes is stabilized as grout in the Saltstone facility and the highly radioactive material is put into glass canisters in the Defense Waste Processing facility. The glass canisters are being stored at SRS until a long term repository is available.

The key to reducing the risk posed to the residents of South Carolina and Georgia from the liquid waste is the processing of the liquid waste through one of the potential separation processes. Overall risk can be reduced most rapidly and effectively by emptying the least reliable tanks as quickly as possible. In order to reduce the maximum risks most quickly, the Department of Energy (DOE) should review the existing technologies and feasible technological improvements and determine the optimal way to allocate resources. The goal would be to obtain the highest system through put until the SWPF was fully operational.

Recommendations

The Savannah River Citizen's Advisory Board recommends:

1. The DOE review the available technologies for liquid waste treatment and any feasible technological improvements and determine the optimal way to allocate resources to reduce risk most rapidly until the SWPF facility can be completed.
2. The DOE report to the CAB by January 2014 on their findings if an approach is determined to be available that can reprioritize resources to reduce risk more rapidly.