

News from the Savannah River Site

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Spent Fuel Project Personnel Improve Process Efficiency and Employee Safety

AIKEN, S.C. June 10, 2015 – Savannah River Nuclear Solutions Spent Fuel Project personnel recently designed and implemented use of a new platform that increases efficiency and reduces hazards to employees while removing expended ion exchanging resin material in L Area at the U.S. Department of Energy's Savannah River Site (SRS).

The resin is used to maintain the proper chemistry in the 3.4 million gallon L Basin, an underwater storage facility for spent nuclear fuel. The resin attracts radioactive ions in solution, removing them from the basin water in order to keep conductivity as low as possible and minimize corrosion of stored materials. Over time, the resin is expended and is required to be changed every six to nine months. The expended resin is removed from the system by pumping it into a High Integrity Container (HIC), a steel container housed inside a concrete On-Site Storage Container (OSSC) that provides radiation shielding for employees conducting this process.

In the past, tall ladders were used to connect hoses from the deionization system to the top of the HIC/OSSC, which is 12-13 feet tall, in order to remove the resin. Improvements were implemented and a platform was created for easier and safer access. Over time, operators recognized that the platform required additional improvement. Some of the issues included the platform being cumbersome to use and time consuming to install, tripping



The HIC/OSSC platform before (left) and after improvements (right).

hazards created by routing hoses and cables on top of the platform, and overhead hazards by the use of a crane to suspend the camera system used to monitor the HIC contents.

“Every time we did a post-job review after removing resin from the system, operators would make suggestions for improvement,” said Don Joyner, Day Shift Operations Manager in L Area. “We took these suggestions to engineering, who came up with a new design that not only makes the work easier to do, but also eliminates many of the safety hazards involved. We believe that the best way to handle a hazard is to eliminate it. SRS fosters a safety-conscience work environment, and this is evidence that suggestions for improvement are respected and appreciated.”

The new HIC/OSSC platform was designed to incorporate more shielding to protect workers from radiation. It allows for easier installation, eliminates a safety hazard by routing the hoses underneath the platform, and mounts the camera system in a way that eliminates the use of a crane. It also allows for the elimination of some personal protective equipment, which helps reduce the risk of heat stress in the summer months.

The mission of the Spent Fuel Project in L Area is to reduce global nuclear threats and environmental hazards by safely receiving, processing and storing spent nuclear fuel. In 1996, L Basin equipment was reconfigured to safely handle and store spent nuclear fuel from off-site (foreign and domestic) research reactors. Since that time, L Area has received about 10,500 spent nuclear fuel assemblies from off-site sources.

Savannah River Nuclear Solutions is a Fluor-led company whose members are Fluor Federal Services, Newport News Nuclear and Honeywell, responsible for the management and operations of the Department of Energy's Savannah River Site, including the Savannah River National Laboratory, located near Aiken, South Carolina.

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