

Browns Ferry Nuclear Plant Wins Award for Nuclear Fuel Rod Testing System

Tennessee Valley Authority employees at Browns Ferry Nuclear Plant have been honored by the Nuclear Energy Institute for co-developing a monitoring system to improve nuclear fuel rod performance. The TVA team won the institute's B. Ralph Sylvia "Best of the Best" Top Industry Practice award, the industry group's top honor.

Five years ago, the industry set a goal to eliminate defects in fuel rods that hold the uranium pellets that power a reactor, with the aim of improving plant efficiency, lowering costs and reducing plant repairs. Working with Areva, the France-based nuclear power firm with U.S. headquarters in Bethesda, Md., the TVA team tested a new software system that allows real-time, online stress calculations for every 6-inch fuel rod segment in the reactor.

There are 91 rods in each Browns Ferry fuel assembly, and about 750 assemblies inside each of Browns Ferry's three reactors. Inside the rods, the uranium fuel pellets are in sealed metal tubes known as cladding. "For the first time, this new technology allows the reactor engineers to plan and execute reactor power maneuvers with an explicit understanding of the stresses imposed on the fuel rod cladding," said Jim Lemons, TVA senior manager, Reactor Engineering and Fuels. "This knowledge enhances our ability to improve fuel performance while simultaneously maximizing power generation."

NEI said this is the first method that can calculate how close fuel rods are to cladding damage, thus ensuring fuel integrity performance.