

Spent Nuclear Fuel Project set records

The Spent Nuclear Fuel Project, managed by Fluor Hanford, capped a banner year this month when it completed a Tri-Party Agreement milestone requiring the removal of 957 metric tons of heavy metal (irradiated uranium) from the K West Basin. The project then went on to remove two additional Multi-Canister Overpacks (MCOs) of fuel before entering its quarterly January outage, bringing the total of fuel removed to about 972 metric tons in 187 MCOs. The total represents all the spent fuel that was in the K West Basin when the project began.

The fuel-removal feat was praised by Larry Gadbois, manager of the K Basins Project for the U.S. Environmental Protection Agency, as “the result of super-human efforts by hundreds of workers.”



Above, a worker checks measurements of the large-diameter container inside the sludge/water transport cask recently procured by the Spent Nuclear Fuel Project.

“Our critics said we’d be months, or even years, behind schedule, but we knew we had to stay the course and let our performance prove them wrong,” said Keith Klein, manager of the Department of Energy Richland Operations Office.

As a result of removing this much fuel, the project has taken about 25 million curies of radioactivity away from the Columbia River shoreline, accomplishing more risk reduction than any previous Hanford cleanup project.

In the past year, the SNF Project dramatically increased its fuel-removal rate. In December, Fluor Hanford SNF Project workers set records by removing 25 MCOs in a month and seven MCOs in one week. Employees decreased the cycle time for filling, sealing, removing, drying, transporting and placing an MCO in storage from about 155 hours per MCO to just over 80 hours.

Moving K East fuel

In another significant accomplishment this past year, the SNF Project began transferring fuel from the K East Basin to the K West Basin for processing, using the newly installed fuel transfer system. Keith Thomson, president and chief executive officer of Fluor Hanford, called the achievement “a definite turning point in this very important project, as now we can squarely focus on our next major cleanup task in the 100K Area — safely processing and storing the K East Basin fuel.”

SNF Project employees conceived the complex fuel transfer system, which stretches through two major radiological facilities, as a way to save time, money and potential radiation exposure. The system loads, transfers and then unloads 10 canisters of K East Basin fuel in a heavy shielded transfer cask inside of a cask transfer overpack. About 45 transfers have been made safely and successfully since the system began operations in November 2002.

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Norm Boyter, Fluor Hanford vice president of the SNF Project, praised the employees and the FTS itself. "This effort has encompassed true employee involvement, in the best sense of the Integrated Safety Management program," Boyter said. "Integrated safety management really means involving the people who will operate the equipment in designing it to the safest, most efficient operational parameters, so that it performs well. The fuel transfer system is not a simple system, yet the whole endeavor is a true case of finding a better, safer way to get work done."

Success with other spent fuel

In 2002, the SNF Project received and began safely storing three other major types of spent fuel at the Hanford Site. Between August and November, all seven casks of irradiated commercial fuel that had been stored in the 324 Building were accepted at the Interim Storage Area. The Interim Storage Area is an outdoor storage facility managed by the staff of SNF's Canister Storage Building. The fuel contained nearly 650,000 curies of radioactivity, and the move signaled a change to a much safer storage configuration and location.

In October, the SNF Project also moved 101 spent-fuel assemblies from an old research reactor that had operated in the 308 Building to safe storage in the Interim Storage Area. And, between August and December, the Canister Storage Building accepted seven loads of irradiated fuel that had been stored in Hanford's T Plant since about 1979. This legacy fuel, contained in large canisters similar to MCOs, was placed in storage tubes. All of these fuel relocations were part of the SNF Project's mission to consolidate, manage and store all on-site spent fuel in one location on Hanford's central plateau.

Other SNF Project successes

In December, the Basket Fabrication Sub-Project within the SNF Project completed its work of manufacturing 2,209 large steel and copper baskets to hold K Basins irradiated fuel through drying and permanent storage. The basket-fabrication team met its final delivery date, and every one of its previous interim benchmarks, early and under budget. The sub-project, considered one of the most successful activities of its kind in recent memory, fabricated more than 1.1 million pounds of materials and made more than three miles of welds. The workers had to make and assemble nearly 46,000 components, and they did so with less than a quarter of one percent of the parts being scrapped because of quality issues.

Late in 2002, Fluor Hanford agreed to aggressive new DOE performance goals and incentives for the project. Those goals include cleaning the K East Basin by June 30, 2005; cleaning the K West Basin by Sept. 30, 2005; welding all MCOs at the Canister Storage Building by Sept. 30, 2005, and completing deactivation and transition to Hanford's River Corridor Project by Oct. 30, 2005.

The project's next significant "deliverables" include the startup of welding operations at the Canister Storage Building next month, startup of both the sludge/water system and scrap processing this coming spring, and formulation of a breakthrough plan for deactivating its facilities by June. ■



At left, MCOs for spent fuel are made of stainless steel. Each MCO is about 14 feet high and 24 inches wide.