

The logo for DOE NEWS. The letters 'DOE' are in a large, bold, blue serif font, with horizontal lines passing through them. To the right of 'DOE', the word 'NEWS' is written in a smaller, bold, blue sans-serif font. Above the 'DOE' text, there are several horizontal blue lines, some of which are partially obscured by the letters.

MEDIA CONTACTS:

Karen Lutz, DOE, (509) 376-4766
Geoff Tyree, Fluor Hanford, (509) 372-1145

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First Radioactive Sludge from Hanford's K Basins Treated for Disposal

Workers have finished treating the first radioactive sludge retrieved from a spent nuclear fuel pool at the U.S. Department of Energy's Hanford Site in southeast Washington State.

"Treatment of this radioactive sludge presented unique challenges," said Mark French, project director of DOE's Richland Operations Office. "Working with this first sludge has taught us valuable lessons that we can apply to treating the balance of the K Basins sludge."

The sludge was removed from a section of Hanford's K East Basin, one of two water-filled pools near the Columbia River. The million-gallon basin once contained hundreds of tons of spent nuclear fuel that had corroded over the decades, resulting in approximately 42 cubic meters of sludge covering the floor of the basin. Sludge is made up of fragments of concrete from the basin walls, sand blown in from the desert, and fuel corrosion products.

Approximately four cubic meters of sludge was retrieved from an offshoot of the basin, called the North Load Out Pit. During Hanford's plutonium-production era, the North Load Out Pit was used to load fuel irradiated in the K East Reactor into railroad cars for the trip to processing

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facilities on Hanford's Central Plateau. Most recently, the pit was used to hold "backwashed" sand from the basin's water-filtration system. The sludge from this area was less radioactive than the sludge in the rest of the basin and was identified for earlier treatment.

The sludge was pumped into large containers. Crews with contractor Fluor Hanford transported the containers to Hanford's T Plant canyon, where specialized equipment was used to process the material.

Workers began treating the sludge in October and finished the campaign on June 2. The sludge was measured out and then mixed with grout in 55-gallon drums. The grout, a cement-like material, was used to solidify and encapsulate the sludge for safe storage and disposal.

"The nature of the sludge itself presented challenges," said Dale McKenney, Fluor Hanford vice president of Waste Stabilization and Disposition. "The consistency of the sludge in each container that came from the K Basins was quite different. It varied from being flighty and light, to having the consistency of thick pudding."

The process resulted in 332 drums of treated waste, which will be stored at Hanford's Central Waste Complex, while they are evaluated for disposal at either an onsite or offsite facility.

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