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Collaboration Leads National Lab to Reuse Radioactive Source From Idaho Site

IDAHO FALLS, Idaho – A Department of Energy (DOE) Office of Environmental Management (EM) program at the Idaho National Laboratory (INL) Site has taken the “reduce, reuse, and recycle” concept to the next level by sending a legacy radioactive source to another DOE site for reuse.

The waste management program at EM INL Site cleanup contractor Fluor Idaho identified a small neutron-emitting, plutonium-beryllium source from a waste inventory at the Advanced Mixed Waste Treatment Project. Workers moved the material to a shielded cell at the Idaho Nuclear Technology and Engineering Center (INTEC) for inspection, characterization, sizing, and repackaging.

“Pacific Northwest National Laboratory (PNNL) in Washington state had expressed an interest in the source. Rather than package it up for eventual disposal, we placed it in a special-form capsule, a pipe-overpack container, and then a 55-gallon drum,” Fluor Idaho Waste Management Engineer John Naughton said. “It was shipped to PNNL safely and compliantly.”

An INTEC contractor acquired the source in the 1960s for spent nuclear fuel reprocessing operations. It was used in the testing of a prototype instrument to measure the concentration of fissile material in nuclear fuel reprocessing plant streams.

The source had been placed in storage in 1977, and in 1984, it was sent to the Radioactive Waste Management Complex at the INL Site for disposal. Waste management personnel identified it by cross-referencing it to its assigned product number.

The source is spherical in shape and had a long handle or rod affixed to it that was removed to fit the source in the specially designed capsule.

“PNNL wanted to use the source in their calibration laboratory,” said Irene Joo, remote-handled transuranic waste manager for Fluor Idaho. “Shipping it to them saves us the expense of keeping it here for several more years, monitoring it periodically, repackaging it, and shipping it for permanent disposal.”

PNNL’s Radiological Exposures and Metrology Laboratory specializes in using accredited radiation fields for materials research, instrument testing, and dosimeter proficiency. This new source augments PNNL’s extensive suite of sealed sources and radiation generators. The long half-life of this source will enable a low dose irradiation capability for many decades.

The Off-Site Source Recovery Program (OSRP) helped package the source in the special-form capsule for shipment to PNNL. OSRP is a National Nuclear Security Administration-sponsored program that identifies and removes excess, unwanted, or disused radioactive sealed sources that pose a potential risk to national security, health, and safety. Since 1997, OSRP has recovered nearly 45,000 sources from over 1,500 sites and has safely secured them. OSRP is located at the Los Alamos National Laboratory in New Mexico.

“There was great collaboration between three national laboratories,” Naughton said. “Where the source wasn’t being used in Idaho, it will get reused in Washington, which is a great practice with respect to usable radiological materials.”

Fluor Idaho, LLC is a wholly owned subsidiary of Fluor Corporation with subcontractor partners CH2M, North Wind Inc., Portage, and Waste Control Specialists. Fluor Idaho manages the

Idaho Cleanup Project Core contract at the Department of Energy's Idaho National Laboratory Site located 45 miles west of Idaho Falls. The 5-year, \$1.4 billion project, funded through the U.S. Department of Energy's Office of Environmental Management, focuses on safely remediating the Idaho National Laboratory site including dispositioning transuranic waste, managing spent nuclear fuel, and treating high-level radioactive waste.

For more information visit the Idaho Cleanup Project on the Web at <https://fluor-idaho.com>