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Idaho Site Hot Cells Once Again Prove Value for EM Waste Treatment Mission

IDAHO FALLS, Idaho – The Department of Energy Office of Environmental Management's (EM's) use of repurposed, Cold War-era hot cells at the Idaho National Laboratory (INL) Site continues to pay big dividends by allowing workers to address some of the most challenging waste types at the Idaho Cleanup Project.

Crews with EM INL Site cleanup contractor Fluor Idaho recently received a drum full of concrete at the Idaho Nuclear Technology and Engineering Center (INTEC) from the Advanced Mixed Waste Treatment Project (AMWTP). Surveys indicated that a radiological source within that concrete was remote-handled (RH) transuranic (TRU) waste, which is defined as having an activity level greater than 200 millirems per hour on contact. AMWTP crews discovered the solid concrete inside the drum during characterization activities.

Crews placed the drum into a hot cell at the New Waste Calcining Facility (NWCF), which until the year 2000, converted high-level radioactive liquid waste into a stable, granular solid called calcine. NWCF's hot cells were modified with specialized ceiling hatches to allow RH-TRU waste to be characterized, treated, and repackaged in compliance with waste acceptance criteria of the Waste Isolation Pilot Plant, where the waste would be permanently disposed.

Due to the solid nature of the concrete, waste management personnel drilled holes into it and injected an expanding grout into the holes to fracture the concrete. Crews then busted the concrete into pieces using equipment in the hot cell.

"The crews do an amazing job at developing methods to open these containers. Every time that I doubt them, they prove me wrong," said Mark Nefzger, Fluor Idaho waste management manager.

Inside the drum was TRU waste generated at the former Argonne National Laboratory-West, now the Materials and Fuels Complex, in the 1970s. Crews had shipped the waste to AMWTP for above-ground disposal. These details were verified by a tamper-indicating device number within the waste.

It was the second time crews addressed concrete containing RH-TRU waste in an INTEC hot cell. Hot cells at the INTEC facility were also used to characterize and repackage more challenging waste with limited data in 2018.

Hot cells previously used for spent nuclear fuel reprocessing at the Chemical Processing Plant-666 facility are also used for treating potentially reactive sodium waste using processes developed at the INL Site.

"Without these hot cells we could not handle, characterize, and repackage these types of challenging waste forms," said Nefzger.

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

Suggested Caption

The hot cell at the New Waste Calcining Facility at the Idaho Nuclear Technology and Engineering Center is ideally suited for characterizing, repacking, and dispositioning challenging waste forms like the recent drum containing a concrete-encapsulated radiological source.