

**For Immediate Release**

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## **Idaho Site Tests Technologies to Retrieve Calcine Waste**

**IDAHO FALLS, Idaho** – The Department of Energy Environmental Management (EM) Program and Idaho National Laboratory Site cleanup contractor Fluor Idaho are testing technologies that will enable the retrieval and transfer of a granulated high-level radioactive waste called calcine that's been in storage for decades.

Fabricators and engineers for the calcine retrieval project have developed one-of-a-kind remotely operated equipment needed to retrieve 220 cubic meters of calcine from a set of ring-shaped bins in an underground storage vault known as the Calcine Solids Storage Facility 1 (CSSF1) and transfer the material to the nearby semi-underground CSSF6 containing tall, cylindrical tanks. The original CSSF would then be cleaned and closed under federal regulations.

Calcine was created through a thermal process that converted a liquid waste generated from spent nuclear fuel reprocessing to a more stable, granular solid. It was transferred to stainless steel storage vessels contained within six CSSFs.

The team has been testing their new technologies on a mock-up of the CSSF1.

"Each technology has a specific role with the goal of removing as much calcine as possible," Fluor Idaho Calcine Retrieval Project Manager Howard Forsythe said. "In addition to testing the technologies, we're refining our retrieval procedures."

The team has been testing a surface cleaning tool and arc welding tool to affix a pipe to the top of the bins of the CSSF1 that will provide the pathway for all equipment to enter.

Also being tested is equipment designed to keep the calcine in motion in the bins and control the rate of retrieval and transfer by adjusting the depth and air flow rate through a fluidizing nozzle inside the bin.

Another tool being developed has a high flow-rate directional nozzle to move the calcine toward a vacuum line. Engineers believe this tool would aid in the removal of the bulk of calcine in the CSSF.

An articulating arm named DAR-1, specifically designed to reach around the ring-shaped bins of CSSF1, would be inserted into the bin. The arm has an end nozzle that directs residual calcine toward the vacuum.

The team has also been testing a crawler that would attach itself to the bin walls through vacuum pads. It will identify the last residual amounts of calcine and aid in its removal.

A full-scale calcine retrieval and transfer system has been installed with the CSSF1 mock-up and is also being tested by project engineers. The system represents the actual length of piping that will be needed to retrieve calcine from CSSF1 and transfer it to CSSF6. The long-term plan, however, is to use this system for emptying all six CSSFs.

In accordance with a 1995 agreement with the state of Idaho, EM is required to have all 4,400 cubic meters of calcine contained within the six CSSFs ready to leave the state by 2035.

*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

Chris Graham, calcine retrieval project lead design engineer for EM contractor Fluor Idaho, operates a riser positioning tool with a joy stick at the Idaho National Laboratory Site.

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