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FOR IMMEDIATE RELEASE

First transfer in ABD mission at SRS completed

AIKEN, S.C., (March 22, 2023) – After several years of planning and integration, the initial discard of uranium solution from the new Accelerated Basin De-inventory (ABD) mission at the Savannah River Site has been successfully transferred from the H Canyon Chemical Separations Facility to the SRS liquid waste program. This transfer marks the first of many of the ABD mission, which will result in a significant cost reduction and represents multiple years of acceleration over the previous mission.

The newly implemented ABD mission replaces a previously used method of dispositioning spent nuclear fuel (SNF) from the Site's L Area Disassembly Basin through the H Canyon Chemical Separations Facility. The prior method involved dissolving, purifying and blending the highly enriched uranium from SNF into low enriched uranium that could be used to produce fuel for commercial power reactors. ABD dissolves the SNF, as before, but then prepares the resulting dissolved solution for discard to the SRS liquid waste program's H Tank Farm (HTF). Once received in the HTF, the solution is mixed with other sludge waste already stored in underground waste tanks. The sludge waste is vitrified into glass in the Site's Defense Waste Processing Facility (DWPF). The vitrified waste is stored in stainless steel canisters in safe, onsite interim storage until a federal repository is established. The SRS Liquid Waste Program is run by Savannah River Mission Completion (SRMC).

Radioactive liquid waste from SRS chemical separations processes, like those in H Canyon, is stored in the SRS Tank Farms in both solid and liquid forms. In these tanks, the insoluble solids in the waste settle to the bottom, forming sludge. Sludge contains the highest concentration of long-lived radioactivity.



H Canyon Outside Facilities Operator Andrew Pratt (left) and H Canyon Outside Facilities Radiological Control Operator Wanda Patterson load drums of depleted uranium solution that was prepared for addition to ABD material. The depleted uranium addition helps meet the safety limits for each material transfer from H Canyon to DWPF.

“Taken as a whole, the processing and discarding success of ABD material is highly sensitive to technology development timelines, regulatory requirement impacts, and processing schedules throughout the material's movement through SRS facilities,” Program Manager for SRS's managing and operating contractor Savannah River Nuclear Solutions (SRNS) James Therrell said. “Integration between SRNS and SRMC with support from the Department of Energy is paramount to ensure the processing systems and associated paperwork stay aligned and optimized in support of the mission.”

For material to be added into sludge, it must meet strict criteria to ensure the sludge is the right mixture and doesn't exceed regulatory approved radioactivity limits. The increased amount of uranium in the sludge would have increased the radioactivity, meaning the sludge would have needed to be distributed into a greater number of glass canisters to remain within limits for each canister. To avoid the use of additional canisters, the Department of Energy, SRMC, Savannah River National Laboratory, SRNS and other external stakeholders partnered to demonstrate that the needed

increase was acceptable and safe in order to get the regulatory limit increased. “The safe storage of increased amounts of uranium in glass is an example of one of several major technology advancements that has led us up to this initial transfer,” said Therrell.

“Adding ABD material to the Site’s tank waste represents many months of integration between SRMC and SRNS, as H Tank Farm and H Canyon both have highly complex processing schedules that must align,” said Matt Arnold, H Area Facility Manager for SRNS. “The ability to coordinate timing for ABD is essential to prevent extending the mission, avoiding downtime, and adding operating expense.”

“All of the preparation for this first transfer will set us up for future success. Getting to this point was really a team effort across the different companies, work groups, and the DOE,” said Arnold. “These changes have not only made the ABD mission possible, but have also saved significant lifecycle costs, proving yet again that we are committed to making the world safer.”