

News from the Savannah River Site

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Savannah River Site Enhances Pumps to Improve Tank Waste Retrieval

AIKEN, S.C. – (October 14, 2021) – The Department of Energy's Office of Environmental Management and its liquid waste contractor at the Savannah River Site (SRS) have developed a unique commercial mixer pump to use in a tank with space limitations, allowing waste retrieval efforts to advance in the tank farms.

Savannah River Remediation (SRR) currently uses commercial submersible mixer pumps (CSMPs) as the primary mixing device for waste retrieval in the majority of the tanks. The tank waste, composed of salt and sludge, needs to be mixed with water to allow the waste to be moved between tanks via transfer pumps and lines.

Typically, four CSMPs are used in each tank based on each pump's nozzle discharge reach, known as the effective cleaning radius. The pumps are inserted into the tank through riser openings at the top of waste tanks. However, in Tank 33, cooling coils are deployed in the openings, limiting the space for the pumps to be inserted. Other tanks have internally built cooling coils that do not limit the number of access riser openings in a tank.

For this reason, SRR designed an enhanced version of the mixer pumps specifically for Tank 33. It will provide a 50-foot effective cleaning radius within the tank versus the 29-foot radius provided by the regular CSMPs. The longer effective cleaning radius decreases the number of pumps from four to three that are needed during the bulk waste removal process.

The enhanced CSMP is the first-of-its-kind pump developed for SRR, according to Mark Schmitz, SRR chief operating officer and deputy project manager.

"The successful implementation of the enhanced mixer pump is essential for the current strategy of bulk waste removal in Tank 33," Schmitz said. "Once proven successful in Tank 33, SRR could deploy enhanced pumps in similar tanks."



An enhanced commercial submersible mixer pump, designed by Savannah River Remediation for use in Tank 33 bulk waste removal efforts, arrives at the Savannah River Site.

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Tank 33 is one of six waste tanks currently undergoing waste removal efforts, which advances EM's mission of waste tank closure, according to DOE-Savannah River Assistant Manager for Waste Disposition Jim Folk.

"Removing waste from aging waste tanks continues to be one of the Department's top priorities because each tank emptied reduces the risk posed to the community and environment," Folk said. "The development of innovative solutions to continue waste retrieval efforts when faced with infrastructure or operational challenges is key to our long-term success."

The enhanced CSMP was developed by a small business named GPM, Inc.