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SRS Improves Aging Tank to Support Salt Waste Decontamination Project

AIKEN, S.C. (May 26, 2021) – An Environmental Management project team recently completed upgrades to a waste tank at the Savannah River Site (SRS) to ready it for dissolving waste for treatment through Tank Closure Cesium Removal (TCCR).

SRS liquid waste contractor Savannah River Remediation (SRR) has been preparing Tank 9 to support TCCR operations for several years, and the first salt waste dissolution campaign began this month.

SRR's waste retrieval and tank closure team also completed additional work, which included modifying systems for monitoring gas levels, enabling in-tank mixing, improving tank ventilation, and installing a submersible transfer pump and an above-grade transfer line to Tank 10.

Once that team completed its work, SRR evaluated Tank 9 functional areas of design, management systems, training and qualifications, safety, radiation protection, conduct of operations, and work planning and control. The reviews did not identify any findings or opportunities for improvement, which enabled the tank farm operations team to take responsibility for Tank 9 for its newest mission: providing feed for TCCR to resume operations later in 2021.

SRR Waste Retrieval and Tank Closure Project Director Jhivaun Freeman-Pollard is proud her team was able to get the tank, storing Cold-War legacy liquid waste, ready for its new mission.

"Tank 9 is over 60 years old and contains nearly 550,000 gallons of salt waste," Freeman-Pollard said. "To prepare these aging structures for waste retrieval activities takes a lot of innovative thinkers to develop plans to perform modifications safely."

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Now that the tank farm operations team is managing Tank 9, salt dissolution activities have begun with the addition of water to help dissolve saltcake inside the tank. Once water is added, jets pulse the water and mix it with the saltcake until it dissolves. The dissolved salt solution is transferred to Tank 10 where batches of material are prepared, sampled, analyzed, and chemical constituents are verified to be within safety requirements before sending it through the TCCR process.

TCCR is a tank-side demonstration project for processing salt waste. The module contains columns with specially designed resin that attracts cesium and stores it in the column. The output is decontaminated salt solution ready for treatment at the site's Saltstone Production Facility, where it is combined with a cement-like grout and pumped into Saltstone Disposal Units for disposal.

Since beginning operations in January 2019, TCCR has decontaminated nearly 300,000 gallons of salt waste.



The Tank 9 gas release mode skid, pictured, is a critical safety component of the salt dissolution system at the Savannah River Site.

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A low-volume mixing jet is installed into a Tank 9 riser to facilitate salt dissolution at the Savannah River Site.



A purge exhaust stack was installed to ensure Tank 9 vapors are properly evacuated from the work zone at the Savannah River Site.