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Tank Closure Demonstration Project Advances at SRS

AIKEN, S.C. (August 5, 2021) – The Department of Energy’s Office of Environmental Management and its liquid waste contractor at the Savannah River Site (SRS) continue to make progress on a waste treatment demonstration project with the installation of new ion-exchange columns.

Savannah River Remediation (SRR) recently installed four new ion-exchange columns into the Tank Closure Cesium Removal (TCCR) process unit.

A pilot demonstration helping accelerate tank closure at SRS, TCCR selectively removes radioactive cesium from salt waste in Tank 10 in H Tank Farm. The four ion-exchange columns hold a specially engineered resin called crystalline silicotitanate. Salt waste is processed through these ion-exchange columns to remove the radioactive cesium. The resulting decontaminated salt solution stream is sent to Tank 11 and eventually to the Saltstone Production Facility for on-site disposal in Saltstone Disposal Units.

Installing the new columns is one of many tasks preparing for TCCR operations to resume this summer. In parallel, salt waste is being prepared in Tank 9 for transfer to Tank 10, the feed tank for TCCR. Decontaminating salt waste through TCCR supplements the decontaminated salt solution produced by Salt Waste Processing Facility operations.

The new columns are the second set of four to be used in TCCR. The original columns were filled with the cesium collected from Tank 10 and removed from the unit in December 2020.

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

DOE-Savannah River Assistant Manager for Waste Disposition Jim Folk said the TCCR project helps bring Tank 10 closer to operational closure.

“Operational waste tank closure at the Savannah River Site is part of EM’s vision that will protect the public and environment,” Folk said. “Tank Closure Cesium Removal is accelerating that vision by supplementing salt waste processing at SRS in support of tank closure.”

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SRR President and Project Manager Phil Breidenbach said TCCR has modernized and advanced salt processing.

“The Tank Closure Cesium Removal system is built on the experience of commercial nuclear plant decontamination technology,” Breidenbach said. “This innovative technology, including the recently installed new ion-exchange columns, is another tool that will allow Savannah River Remediation to continue removing and treating waste leading to the ultimate end state of closed waste tanks.”