FACT SHEET

Tank Closure Cesium Removal

Tank Closure Cesium Removal (TCCR) is a demonstration of innovative technology to assist in the acceleration of tank closure at the Savannah River Site (SRS). TCCR is a supplemental at-tank process that is removing cesium, a highly radioactive element, from the Cold War legacy salt waste at SRS. The new technology uses an ion exchange process within a self-shielded, self-contained column. The waste from Tank 10 passes through the modules, including a pre-filter and multiple ion exchange columns. The waste stream is treated with an engineered resin inside the ion exchange column to remove the cesium. The cesium-rich resin will then be sent to an interim on-site safe storage area and maintained for future disposal. The decontaminated discharge will be sent to Tank 11 and eventually to the Saltstone Production Facility for on-site disposal. Decontaminating the salt waste through TCCR will help accelerate the operational tank closure process, reducing the risk to workers, the community, and environment.

Aerial of H Tank Farm where TCCR is located

Inside view of TCCR module

Installation of ion exchange columns

TCCR process enclosure and ventilation skid in H Tank Farm

Key facts:

- Pilot demonstration of cesium removal from salt waste in Tank 10 with the decontaminated salt waste temporarily stored in Tank 11 before eventual transfer to Tank 50 and then the Saltstone Facility for disposal
- Application of this technology to treat salt waste in other tanks is under evaluation
- Demonstration operations began in January 2019
- TCCR will operate in batch processes; batch 1 was complete February 2019
- TCCR is expected to process 600,000-750,000 gallons of dissolved salt waste over nine months in 2019
- The unit consists of 3 modular skids: a main process enclosure housing all systems and components to treat the waste, a separate ventilation skid to provide environmental conditioning and contamination control, and a control skid to house the operating and video monitoring systems
- Westinghouse Electric Co. and Columbia Energy & Environmental Services supplied the TCCR unit
- Savannah River National Laboratory provided research and development on the engineered resin and safety basis aspects of TCCR
- Washington River Protection Solutions at the Hanford Site is pursuing the TCCR concept for its low-activity waste stream. The process is known as Tank Side Cesium Removal.

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