

# SRR sets safety records, advances technology

## SUBMITTED ARTICLE

Savannah River Remediation (SRR), liquid waste contractor for the Department of Energy's (DOE) Savannah River Site (SRS), has kept its commitment to safety while executing the disposition of liquid waste. This safety performance has been ongoing since 2009 when the SRR contract began.

The SRR workforce achieved a safety milestone in June of 8.7 million hours without an injury causing a day away from work. The SRR Construction workforce has gone more than 30 million hours without such an injury.

SRR's safety culture has been underlying multiple operational accomplishments, especially over the last year.

For example, the company successfully constructed Saltstone Disposal Unit (SDU) 6. This project will support the SRS liquid waste program's objective of safely processing about 35 million gallons of radioactive waste from the site's remaining 43 waste tanks. At a 32.8-million-gallon capacity, SDU 6 is the site's first mega-volume SDU for grouted low-level radioactive waste. It was completed in July 2017. SDUs are permanent disposal units for low-activity waste grout produced from solidification of decontaminated non-hazardous salt waste.

DOE presented the 2018 Project Management Excellence Award to the SDU 6 project team that completed construction on the mega-cell more than \$25 million below budget and 16 months ahead of schedule. The SDU 6 project also won the DOE Project of the Year Award for the DOE's Environmental Management sector in November 2017.

SRR is building on the successful design and lessons learned from SDU 6 as it ramps up construction of SDU 7, the second of seven mega-volume disposal units planned at SRS. Ground was broken on this project in February 2018, and cell construction is set to begin later this year.

A new project that has the potential to be a major player in waste removal and tank closure at SRS was also developed this year. This innovative technology, called Tank Closure Cesium Removal (TCCR), is designed to remove cesium, a highly radioactive chemical element, from the Cold War legacy salt waste at SRS. It's being deployed near Tanks 10 and 11 in H Tank Farm.



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## Melter 3 arrives at the Defense Waste Processing Facility.

Through the process, the waste stream from Tank 10 is treated with an engineered resin inside an ion exchange column to remove the cesium. The cesium-rich resin and ion exchange column will then be sent to an interim safe storage area and maintained for future disposal. The decontaminated discharge will be directed to Tank 11 and eventually to the Saltstone Production Facility for disposal.

SRR also used the majority of 2017 to complete an outage of the entire Liquid Waste System. Important repairs, replacements, and maintenance put the Liquid Waste System in a better operational position for years to come.

During the outage, the Defense Waste Processing Facility (DWPF) melter was replaced. The melter is the key vessel at DWPF that vitrifies high-level radioactive waste into a stable glass form contained within stainless steel canisters. The first canister was poured using the new melter, Melter 3, in December 2017. After pouring seven canisters to confirm operability, the DWPF entered another outage to complete important facility maintenance. The facility restarted normal operations in May 2018.

April 2018 marked the 10th anniversary of radioactive operations for the Actinide Removal Process/Modular Caustic Side Solvent Extraction Unit (ARP/MCU) facilities, a duo that has played a significant role in six high-level waste tank closures at SRS. ARP/MCU, coupled as the interim salt waste processing program, are key players in the mission of positioning the salt waste in liquid waste operations. The set of salt-decontamination facilities works as an inte-



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## Savannah River Site's first mega-volume Saltstone Disposal Unit sits on 2½ acres and will hold about 32.8 million gallons of saltstone.

grated system to remove nearly all of the radioactive isotopes from the salt waste portion of the radioactive waste in storage tanks. ARP/MCU is operating as the pilot plant for the future Salt Waste Processing Facility.

SRR is safely dispositioning and stabilizing the SRS radioactive waste, which state regulators have said is the single greatest environmental risk to the state of South Carolina. The liquid

waste mission's end goal is to achieve operational closure of the waste tanks. The most recent tank closure project by SRR, Tank 12, was one of only two projects in North America to win the 2017 Project Management Institute's Award for Project Excellence.

We are proud to reduce the risk to our people, the environment, and our surrounding communities.