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## **Coordination, teamwork leads to major equipment replacement at one-of-a-kind facility at the Savannah River Site**

**AIKEN, S.C.** (July 31, 2024) - After over six months of research, troubleshooting and coordination, contractor employees at the Savannah River Site have recently completed the replacement of a piece of equipment essential for operations in the Site's H Canyon chemical separations capable facility.



*The original condenser at the H Canyon chemical separations facility at SRS was guided by maintenance and rigging personnel to ensure the equipment cleared the scaffolding and structure as seamlessly as possible. The replacement of this equipment was essential for H Canyon operations.*

The General Purpose Evaporator (GPE) is used to help concentrate low-level radioactive wastes from various sources in the canyon, including sump material, leaks, lab waste and rainwater.

“In November 2023, the General Purpose Evaporator lost vacuum, making it inoperable,” said Regina Marquez, the GPE Design Authority Engineer for Savannah River Nuclear Solutions (SRNS), the Site's management and operations contractor. “Finding the cause of vacuum loss proved to be a six-month troubleshooting effort, involving testing several pieces of equipment, tanks and hundreds of feet of piping.”

The GPE is original to H Canyon, which was built in the early 1950s. Due to the size and number of potential points of failure in the approximately 75-year-old, massive GPE system, a calculated method for troubleshooting was necessary. For the troubleshooting plan to be successful, several departments across the facility were involved, including operations, maintenance, engineering, electrical and instrumentation, and planning.

H Canyon worked with employees of Savannah River Mission Completion (SRMC), the Site's liquid waste contractor, to ensure that the SRMC operated Effluent Treatment Facility (ETF) could take the unprocessed GPE

material and evaporate it for H Canyon temporarily. ETF treats low-level radioactive wastewater and generally receives waste from the GPE that, during its normal operations, has already been through one evaporation process. Since the ETF also has evaporators, the facility personnel changed some of their processing parameters to evaporate the waste in the GPE's stead. This temporary processing method required more rigorous and expensive sampling methods, but enabled H Canyon to continue operations.

After months of troubleshooting, the GPE's vacuum issue was determined to be a tube failure in the condenser, meaning a condenser replacement was necessary.

"We were concerned about finding a replacement condenser, since the condenser is original to the GPE and was installed in the 50s," said Marquez. "We originally thought we were going to have to have one fabricated, which would have taken as long as six months. However, when we checked the specifications, we discovered we already had a spare condenser that was an exact match to the model we were replacing in a no-longer used facility, the F Canyon chemical separations facility, on Site. The replacement had never been used and was in pristine condition."



*The new condenser ready for installation at the H Canyon chemical separations facility at the Savannah River Site*

Replacing the 10,000-pound condenser, which sits in a contaminated area, was not a small task and required coordination from even more SRNS departments including rigging, radiological protection department personnel, maintenance, procedure writers and others. Overhead piping, cooling water lines and asbestos containing gaskets had to be detached to remove the old condenser. The original condenser then had to be lifted out of the GPE system using the 100-ton crane, the largest crane on Site, and prepared for disposal. The new condenser was set in place very slowly and carefully, using the same 100-ton crane, with maintenance mechanics and crane operators guiding it into place and working in tandem to ensure the job was performed not only successfully, but safely as well.

"This equipment replacement is a testament to how SRNS employees come together as a team to accomplish even the most difficult tasks," said SRNS President and CEO Dennis Carr. "Congratulations to the team for a job well done, and, most importantly, a job accomplished safely."

H Canyon is the only operating, production-scale, radiologically shielded chemical separations capable facility in the United States. H Canyon dissolves spent nuclear fuel and disposes it through the Site's liquid waste program.



*The original 70-year-old condenser being lifted out of the GPE System by the 100-ton crane during the recent condenser replacement at the Savannah River Site's H Canyon chemical separations facility.*

SRNS-2024 -1483