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**FOR IMMEDIATE RELEASE**

## Engineering Innovation in Tritium Facility Results in \$18.8 Million Saved at SRS

AIKEN, S.C. (October 6, 2021) – Savannah River Nuclear Solutions (SRNS) engineers saved \$18.8 million on a project to replace outdated x-ray systems with digital radiography equipment in the H Area New Manufacturing (HANM) Tritium Facility at the Savannah River Site (SRS). They achieved this by creatively developing a new approach to the reservoir inspection process, while staying within National Nuclear Security Administration (NNSA) requirements.

SRS is the only place that prepares and ships tritium-loaded containers, called reservoirs, to the Department of Defense, where they are installed in weapons. Before operators can pack a reservoir for shipping, the reservoir weld must pass an inspection that ensures it is operationally ready for use by the military. Operators typically use an x-ray system installed within a glovebox to capture images of a reservoir weld on film, but this outdated inspection method introduced unnecessary risks to carrying out the NNSA tritium mission that supports the nation's nuclear deterrent.

“Purchasing x-ray film for reservoir weld inspections is increasingly a risk to our success in carrying out this national security mission,” said Russ Warfield, SRNS Project Coordinator. “In the U.S., there has been a significant transition away from x-ray film to digital radiography. This could lead to film supply issues for the work we do at SRS in the future, and secondly, continuing to purchase and store film is not cost effective.”



*Aerial of the tritium facilities at SRS.*

Digital radiography produces an image on a computer, allowing operators to inspect the reservoir weld and save the image without needing to print and physically store it. In developing the transition plan, engineers identified several other benefits and cost savings associated with this approach.

“We determined digital radiography equipment could be installed outside gloveboxes,” said Charles Bell, then-SRNS HANM Operations Manager. “This eliminates the need for open glovebox maintenance, which: is expensive, can require planning years in advance, results work stoppage, and can introduce radiation contamination risk. It’s possible to take this approach without worry of radiation contamination or tritium escaping by modifying the reservoir inspection process.”

In the past, the reservoir weld was examined for operational purposes while the reservoir was still in the glovebox, and then it was decontaminated for removal. Now, engineers have determined that operators can first examine the reservoir for safety purposes, decontaminate it and then remove it for operational inspection.

“Installing digital radiography equipment outside gloveboxes led to further cost savings,” said Warfield. “This approach requires only one digital radiography machine, as opposed to three. Initially, digital radiography equipment was going to be installed on three finishing lines in HANM, but because of the inspection process modification, reservoirs ready for weld inspection are transported to a common digital radiography machine.”

This innovative approach resulted in cost savings of \$18.8 million spread over eight years, the original amount of time engineers thought the project would require when it began in October 2020. Engineers now project that they’ll complete the digital radiography equipment installation and inspection process modifications in November 2022, a significant time reduction.

“I continue to be inspired by the innovation coming from the team executing NNSA’s tritium mission,” said Jason Armstrong, NNSA Savannah River Field Office Manager. “SRS is delivering on our commitments to ensure a vital national security need continues to be met, and we are doing so safely, efficiently and cost effectively.”

SRNS Senior Vice President – NNSA Operations and Programs Mark Davis said, “A key goal for SRS is to ensure we have the ability to safely and effectively provide components for the nation’s nuclear stockpile. This project allows us to avoid significant outages to our production schedule, realize substantial cost savings and modernize equipment, all while maintaining a posture of readiness as the backbone of deterrence in support of peace.”

Established by Congress in 2000, NNSA is a semi-autonomous agency within the U.S. Department of Energy responsible for enhancing national security through the military application of nuclear science. NNSA maintains and enhances the safety, security, and effectiveness of the U.S. nuclear weapons stockpile; works to reduce the global danger from weapons of mass destruction; provides the U.S. Navy with safe and militarily effective nuclear propulsion; and responds to nuclear and radiological emergencies in the U.S. and abroad.

Savannah River Nuclear Solutions, a Fluor Corporation-led company with Newport News Nuclear and Honeywell, is responsible for the management and operations of the Department of Energy's Savannah River Site, located near Aiken, South Carolina.

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