

from Savannah River Nuclear Solutions, LLC

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For Immediate Release

Savannah River Tritium Enterprise Achieves High Marks for Support to Nation's Security

Fiscal Year 2012 Performance Prepares Enterprise for Continued Service

AIKEN, S.C. (February 7, 2013) – The National Nuclear Security Administration (NNSA) has rated the Savannah River Tritium Enterprise's overall Fiscal Year 2012 performance as "excellent," meaning that the Savannah River Site's tritium-related work has once again successfully met and exceeded NNSA's Defense Programs goals.

The Savannah River Tritium Enterprise (SRTE), which is managed for NNSA by Savannah River Nuclear Solutions (SRNS), earned the rating for its successful performance of the four missions it carries out in support of the nation's security: tritium supply, nuclear stockpile maintenance, nuclear stockpile surveillance, and helium-3 recovery. Tritium is an isotope of hydrogen and a key component of nuclear weapons, but it decays radioactively at the rate of 5.5 percent each year and must be replenished periodically. Replenishment is accomplished by recycling tritium from existing warheads and by extracting new tritium from target rods irradiated in nuclear reactors that are operated by the Tennessee Valley Authority.

"The country relies on Savannah River Site for vital tasks related to our national security," said NNSA Savannah River Site Office Deputy Manager Scott Cannon. "It's important to note that the Savannah River Tritium Enterprise team continues to perform these exacting tasks safely and securely." During the fiscal year, the team reached a major safety milestone: three million work hours without a lost workday injury. The last injury resulting in time away from work was more than four years ago.

Reservoir delivery and testing

Among the highlights in FY12 was the continuation of SRTE's more than half a century of successfully delivering reservoirs and other components to military customers. This included planning and carrying out a special project to complete four months of reservoir-loading commitments in a single month, as requested by NNSA to accommodate their need for a three-month pause in shipments for an upgrade within the Office of Secure Transportation.

The Savannah River Site is owned by the U.S. Department of Energy and is managed and operated by Savannah River Nuclear Solutions, LLC.

In weapons stockpile surveillance, SRTE completed all of the FY12 required gas transfer system function testing, which is a key component of the continued certification of the nuclear weapons stockpile.

Facilities for the future

Several of the FY12 accomplishments equip SRTE to continue providing its needed services to the nation well into the future. One such achievement was the completion of a project to design, build and relocate a new system for separating and capturing helium-3 gas, which is used – among other purposes – in radiation detectors employed by the U.S. Department of Homeland Security. The previous recovery system for helium-3 gas, a byproduct of the tritium manufacturing process, had been operating for over 40 years and was no longer cost effective to operate or maintain. The need to update and relocate the recovery process out of the previous Cold War-era facility led to the new system that is more reliable, more cost effective, and less hazardous to operate.

In addition, SRTE completed replacement of the Uninterruptible Power Supply systems for one of its major facilities. Additionally, one of the most significant outages in the history of the facility, requiring over a year to fully implement, was completed to replace piping and zeolite beds in the Purge Stripper / Zeolite Bed Recovery system. This replacement will allow the continued tritium processing to support the weapons stockpile without releases to the environment.

Research and development

The Savannah River National Laboratory (SRNL) provides research and development vital to the SRTE. Many of the processes SRTE relies upon to process tritium are based on technology developed during the Cold War, when the U.S. had a much larger nuclear deterrent, so SRNL's FY12 accomplishments apply 21st century advances to improve efficiency and reduce costs to match current tritium demands. Among these are a streamlined Thermal Cycling Absorption Process for separating tritium from less valuable hydrogen isotopes; improved hydride technology for storing hydrogen in solid form; and a new process for making used hydrides safe for disposal.

The new technology will benefit not only SRS, but other tritium-related facilities including OMEGA at the University of Rochester and the National Ignition Facility in California, which is the world's most powerful laser. A project to provide exceptionally secure and reliable wireless communications may enable even greater savings. With the cost of cabling in nuclear facilities approaching \$2,000 per foot, the secure wireless technology has the potential to reduce costs by millions of dollars for both new facilities and new equipment installations in old ones.

Reservoir management

Also helping to prepare SRTE for the future was the progress achieved on the new Automated Reservoir Management System (ARMS), a modern computer system that manages all aspects of reservoir processing through every phase of their lifecycle. Three major deliverables were accomplished over a month ahead of schedule, including implementation of the first operational function, which allows receipt, re-verification, and shipment of H1616 reservoir-shipping containers.

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Savings

By participating in 41 continuous improvement projects during FY12, SRTE achieved a total of \$2.144M in validated productivity savings. These included \$811,000 in savings by completing the consolidation of three control rooms, allowing activities in three buildings to be monitored from a single control room, rather than operating three separate stations. They also included \$339,000 in savings achieved by using process mapping to identify improvements in the configuration management process.

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 in the nation's national security enterprise. NNSA maintains and enhances the safety, security, reliability, and performance of the U.S. nuclear weapons stockpile without nuclear testing; reduces the global danger from weapons of mass destruction; provides the U.S. Navy with safe and effective nuclear propulsion; and responds to nuclear and radiological emergencies in the U.S. and abroad.

Savannah River Nuclear Solutions, LLC, is a Fluor led company whose members are Fluor Federal Services, Newport News Nuclear and Honeywell, responsible for the management and operations of the Department of Energy's Savannah River Site, including the Savannah River National Laboratory, located near Aiken, South Carolina.

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