

News from the Savannah River Site

NATIONAL NUCLEAR SECURITY ADMINISTRATION • AIKEN • SC 29808

Primary Media Contact: Angeline (Angie) French
Savannah River Nuclear Solutions
(803) 208-2110
angeline.french@srs.gov

NNSA Media Contact: Amy Boyette
(803) 952-3448
amy.boyette@nnsa.srs.gov

FOR IMMEDIATE RELEASE

Prototype System Brings Advantages of Wireless Technology to Secure Environment

AIKEN, S.C. (December 18, 2013) – Wireless networks have become commonplace in homes, restaurants and retail environments, but up to now, they have not been suitable for secure environments.

That may be about to change. The National Nuclear Security Administration's (NNSA's) Savannah River Tritium Enterprise (SRTE) has begun a year-long test using secure wireless technology in a tritium air monitoring system. The test is an important step in demonstrating the ability to reap the benefits of wireless technology in a secure environment, with potential for applications across the NNSA, other federal agencies and critical manufacturing facilities.

The Savannah River National Laboratory (SRNL) designed and fabricated a prototype wireless Tritium Air Monitoring (TAM) cart, funded by SRTE's Plant-Directed Research and Development program, which funds innovative research, development, and demonstration projects relevant to SRTE's support for NNSA. The project also includes a control room computer display for the monitoring results along with related software.

"Secure wireless technology offers a lot of advantages to help achieve our goals of improving reliability, reducing complexity and providing deployment flexibility for our TAM systems," said Lee Schifer, Director of Tritium Operations for Savannah River Nuclear Solutions, the company that manages both SRTE and SRNL.



Joe Cordaro of SRNL with the secure wireless Tritium Air Monitoring cart.

News from the Savannah River Site

NATIONAL NUCLEAR SECURITY ADMINISTRATION • AIKEN • SC 29808

Prototype Wireless Technology

2/3

"This is the type of technology that places SRNL at the forefront in innovation," said SRNL Laboratory Director Dr. Terry Michalske. "Not only does this solve a very expensive issue here at the Savannah River Site, this technology can be used across many industries to help keep information secure. At a time when citizens wonder if their valuable information is protected, SRNL is working to help make sure this most critical information remains secure."

NNSA and its sites around the country could benefit greatly from the ability to use this type of wireless technology for radiation monitoring in nuclear facilities, where monitoring is essential for operating the equipment safely and protecting personnel. With the cost of running cable into a radioactive process room as high as \$2000 per foot, a wireless system could save millions in construction or upgrade of new nuclear facilities. Wireless air monitoring is also expected to be more reliable than its wired equivalent because it reduces the number of components in the air monitoring system.

Another key advantage is the freedom of movement that comes when equipment is not restricted by wires and cables. The sensors can be placed directly in the area of concern, instead of pumping air to the sensors' location.

The prototype TAM cart houses robust tritium monitoring equipment, a secure wireless transmitter, alarms, and a backup power source. SRNL contracted with General Dynamics to develop components for the ultra-secure short range wireless network. During the demonstration, network reliability is being monitored by an independent computer. So far, the system has demonstrated 100 percent reliability.

The wireless TAMS is an outgrowth of SRNL's collaboration with the National Security Agency (NSA) on a design for classified data transmission. NSA approved the prototype hardware for use in certain classified communication operations, such as the air monitoring system. It has been approved by NSA for use in NNSA's Nuclear Security Enterprise nuclear facilities. While the TAM's radiation sensor is specific to nuclear facilities, the short range wireless sensor network could be adaptable to other applications that require high reliability with ultra-secure protection of the wireless data network, including industrial control systems at critical manufacturing facilities.

"The collaboration with the NSA from the beginning of the project was key, ensuring security was built into every aspect of the design. The approval to use the design for classified data transmission, in place of Type 1 hardware, was a first for not only DOE/NNSA, but for any US Government Agency" said Joe Cordaro, Advisory Engineer with SRNL.

News from the Savannah River Site

NATIONAL NUCLEAR SECURITY ADMINISTRATION • AIKEN • SC 29808

Prototype Wireless Technology

3/3

Savannah River Nuclear Solutions 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.

SRNS- 2013 – 178