

● MAY 2015

SAVANNAH RIVER NUCLEAR SOLUTIONS

SRNS Today



the end of

Pad 16

SRNS dismantles former
radioactive waste storage facility



Also this month

Protecting high-energy waste • Plutonium sources leave SRS • Helping Golden Harvest • Mini Grants





Carol Johnson
SRNS President and CEO

Welcome

to the May 2015 edition of

SRNS Today



Video: E Area

To see the E Area segment of our video series "Why SRS Matters," please [click here](https://www.youtube.com/watch?v=zAGqdeHiskI) or visit <https://www.youtube.com/watch?v=zAGqdeHiskI>

Familiar things can be just part of our everyday landscape. But seen from a new perspective, familiar things can take on new aspects with a fresh life of potential.

At SRNS, our employees are always looking at familiar things to serve a different purpose. In the case of the dismantling of a former transuranic waste storage facility, an old boxcar and common wooden pallets took on new purpose for storage and secure placement of materials from the deconstructed building. This new use for old resources is saving money for our company, and is another great example of our employees' on-going ingenuity. Please see the story on the next page for more details.

At the Savannah River National Laboratory, our scientists are constantly looking for new ways to make our world safer. When a type of radiological waste bag wasn't lasting as long as he would like, an SRNL scientist invented a new one. For more on this new invention from SRNL, please see Page 5.

Our employees also take this "new perspective" philosophy into the community. A group from SRNS recently volunteered at the Golden Harvest Food Bank to re-engineer and repair the room that housed a walk-in cooler. The plywood flooring had become so warped that the space was unusable. As they worked on the flooring, the volunteers discovered that the "usual" had suddenly become "unusual." They quickly changed their perspective on the project, and brought their SRNS safety training and skills to complete the job safely. Golden Harvest can now store fresh produce to help area residents in need. Please see the story on Page 7.

I hope you enjoy this edition of "SRNS Today." As always, thank you for your interest in Savannah River Nuclear Solutions.

Carol



Savannah River Nuclear Solutions, LLC, is a Fluor-led company whose members are Fluor Federal Services, Newport News Nuclear and Honeywell. Since August 2008, SRNS has been the management and operating contractor for the Savannah River Site, a Department of Energy-owned site near Aiken, South Carolina, including the Savannah River National Laboratory. The SRNS corporate and community offices are located in the renovated 1912 "Old Post Office" building in Aiken, S.C. The primary initiatives of SRNS are national security, clean energy and environmental stewardship. SRNS Today is published monthly by SRNS Corporate Communications to inform our stakeholders of the company's operational and community-related activities. If you have questions or comments, please contact us at 803.952.9584 or visit our website.

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the end of

Pad 16

SRNS dismantles former radioactive waste storage facility

SRNS is using a variety of creative and highly efficient methods to dismantle and dispose of a 10,000 square-foot building at SRS, and in the process, drive down associated costs through strong project management practices.

One of the unusual methods used for this project involves a railroad boxcar that is no longer operational. It is now loaded with material and dismantled steel supports that formerly made up the walls and roof of the demolished building known as Pad 16. Using the salvaged boxcar as a waste storage container, SRNS avoided the purchase of eight "sea land" containers, each costing nearly \$4,000, to perform the same function.

In all, 18,500 square yards of wall and roofing material and 60,000 pounds of steel were removed for permanent disposal.

Another efficiency involved gathering and using excess wooden pallets from across SRS that had been classified as low-level waste. Using these slightly contaminated pallets made securing and placing the Pad 16 material into the box car for permanent disposition a more effective and faster process. This innovative idea also eliminated storage of no-longer-needed pallets.

The Pad 16 structure formerly stored hundreds of 55-gallon drums containing radioactive transuranic (TRU) waste, most of which is now at the Waste Isolation Pilot Plant, a DOE disposal site in New Mexico. TRU waste consists of items normally found within an industrial setting that have become contaminated with radioisotopes that have a half-life greater



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Don Turno

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than 20 years, such as plutonium. Tools, protective clothing, containers, rags and other debris would be typical examples.

The excess railroad boxcar and its Pad 16 contents have been classified as low-level waste and will be buried at SRS, observing all regulatory requirements.

In the project's next phase, a thick concrete cap will seal the flooring that remains at Pad 16. This will create a surface that will allow rainwater to naturally flow off the new structure. In time, an engineered mound of fill dirt containing a continuous layer of clay will cover the interim concrete cap.

"I really appreciate how we've come together as a team, dedicated to doing things smarter, safer and better while finding ways to cut costs," said Solid Waste Operations Manager Don Turno.

The project is expected to be completed by July 31, six weeks ahead of the original schedule. Pad 16 is the first of 15 buildings of this type within E Area at SRS that will eventually be dismantled as well.

Mini Grants

SRNS rewards innovative teachers with \$75,000 in annual presentation

SRNS recently presented grants totaling \$75,000 to 118 Central Savannah River Area (CSRA) educators as part of this year's SRNS "Innovative Teaching Mini Grants Program."

All applicants were honored at a reception held in Aiken where the monetary awards were presented. More than 274 grant proposals were submitted by teachers from schools located in five counties.

"In our school, we're really promoting STEM (science, technology, engineering and math) activities and partnering with SRNS and having that relationship is huge for our students," said Eli Putnam, Principal, Columbia Middle School, Grovetown, Ga. "We recognize that we're playing an important role towards preparing these students to eventually enter the workforce."

According to SRNS President and CEO Carol Johnson, the program's impact to area students has been impressive. "Based on the creativity and ingenuity found within the proposals, these teachers are passionate about helping their students grow academically," said Johnson. "We want to reward these remarkable teachers with funding to purchase new and innovative teaching tools."

The Mini Grants Program recognizes and supports projects that enhance elementary and middle school STEM programs. Educators from all CSRA elementary and middle schools (public and private) are eligible to apply for a mini grant in one of three



Teacher Kim Hampton, Evans (Ga.) Middle School, celebrates as she wins a prize during this year's SRNS "Innovative Teaching Mini Grants Program."

monetary-based categories: \$500, \$750 or \$1,000. The grants are provided through corporate funding made available by the parent companies of SRNS, LLC (Fluor Federal Services, Newport News Nuclear and Honeywell).

The goal of the SRNS education outreach program is to enhance interest in science, mathematics, engineering and technology and to support improvements in education throughout the CSRA by using the unique resources available at SRS.

Unneeded plutonium sources transferred from SRS

Removal of 26 sources to result in significant cost and risk reductions

A collection of 26 sealed plutonium-238 sources is now gone from the Savannah River Site, thanks to the efforts of a team of SRNS personnel and their collaboration with the Off-Site Source Recovery Project (OSRP) at Los Alamos National Laboratory.

The SRNS Tritium Facilities Analytical Laboratory had previously needed these sealed sources as standards for calibrating the equipment used to validate tritium loading operations.

In 2013, SRNS personnel demonstrated that Electrical Heat Standards designed by the Savannah River National Laboratory served as well as, if not better than, the plutonium-based standards, clearing the way to eliminate the sources.

"These sources have been safely managed without incident throughout their use at SRS," said Lee Schifer, SRNS Director of Tritium Operations. "But properly managing plutonium-238 requires significant cost and effort. It just made good sense to find a way to disposition them once they were no longer needed."

The SRNS team identified the OSRP, which is sponsored by the National Nuclear Security Administration, as the appropriate partner for disposition of the sealed sources. Since 1999, OSRP has carried out its mission to remove excess, unwanted, abandoned or orphaned radioactive sealed sources that pose a potential risk to health, safety and national security.

Once the SRNS team established a contract with OSRP, the sources' historical documentation was verified, and the sealed sources were successfully packaged with no safety or radiological issues, and shipped off-site.

The removal of the plutonium-238 sources from SRS will result in significant cost and risk reductions. The costs for calibration, inventory and monitoring to ensure that the sealed sources are not posing a safety hazard will no longer be incurred, and the measures to control and account for the sealed sources will no longer be needed.

National Lab scientists invent extra protection for high-energy waste

At SRNL, the primary goal is innovation for safe and cost effective legacy waste cleanup. New methods are constantly being explored in order to protect workers and protect the environment.

When Senior Scientist Dr. Aaron Washington realized that a radiological waste bag wasn't lasting as long as he would like, he set about inventing a new one. As a result, Washington and his team of researchers created a "double-ply" waste containment bag capable of better containing nuclear waste.

Special radiological waste bags are used to keep radiation from leaking into a storage container. After time, materials used to create these bags fail due to damage from intense or long-term exposure to radiation. This can result in contamination and a need to repack the contents.

This new invention uses nanotechnology to infuse radiation-resistant particles onto a sacrificial polymer layer. By altering the material on a molecular level, it is now able to virtually eliminate damage from high-energy alpha particles. SRNL is in the process of patenting this technology.

"It can be thought of as adding an additional layer of containment. This inner polymer layer is highly resistant to radiation damage compared to the polyethylene alone, and will extend the life of the bag by an order of magnitude without much additional cost," explained Washington. The improved containment bag will be vital in the cleanup and containment of high-energy waste such as plutonium.

This technology will save money, but more importantly, it will make the process safer. Alpha radiation generating waste with long-term storage often needs to be repackaged before it can be delivered for final disposal.

"If we eliminate or significantly reduce this need for repackaging, we will save time, reduce the risk of personnel exposure, and reduce the environmental impact of generating more waste with failed contaminated bags. By using inexpensive polymers and additives, the cost increase associated with making the improved bag is minimal," Washington said.

The special coating includes materials that may also be used as a sensor because the materials change color if the inner layer of the bag is breached.

Other members of the research team include SRNL Principal Engineer Mike Serrato, Senior Engineer Dr. Jason Wilson, Senior Scientist Dr. Joseph Teprovich, and Postdoctoral Researcher Dr. Jonathan Christian.



"If we eliminate or significantly reduce this need for repackaging, we will save time, reduce the risk of personnel exposure, and reduce the environmental impact of generating more waste."

Dr. Aaron Washington



SRNS donates \$10,000 to the Family Y of Barnwell

SRNS President and CEO Carol Johnson (left) presents a \$10,000 check from SRNS to the Barnwell Family Y.

Accepting the check on behalf of the Y are (front row, from left) Board Chair Lisa Firmender, Executive Director Matt Mullen, Board member Cheryl Long; and (back row, from left) Board member Pat Richardson, Barnwell County Council member Jerry Creech and Board member Russell Overton.

The Barnwell YMCA will use the funds to provide potential improvement in their wellness center, group exercise rooms, community meeting area, childcare rooms, administrative offices and outdoor recreation spaces.

This YMCA is a regional resource serving citizens living within the counties of Barnwell and Allendale. Their membership numbers recently exceeded 2,000.

"SRNS knows the important role the YMCA plays in youth development, healthy living and strengthening community," said Carol Johnson, SRNS President and CEO.

"The programs and services offered here will enable people of all ages to realize their potential and offer families an outlet to grow healthier in mind, body and spirit," Johnson continued. "It's in the interest of being a good corporate neighbor that SRNS made the donation to help improve this facility, while the Barnwell YMCA organization continues to enhance the services it offers area residents."



SRNS President and CEO Carol Johnson (right) poses with this year's winners of the SRNS Family Scholarships: (front row, from left) Caleb DiPrete, Tho Van, Jessica Tran, Stephanie Munie, Sophia Nance, Cameron Clamp; (back row, from left) Logan Hughes, Dillon Jones, Brenna Ashe, Katie Rogers, Jessica Schifer, Mikaela Schifer, and Jonathan Ketusky. Not pictured: Jonathan Bowman and David Stoner

All in the SRNS family

SRNS family scholarships awarded to 15 sons and daughters of employees

Fifteen students have each won a \$3,000 SRNS Family Scholarship, received at a special ceremony held in May. The winners are sons and daughters of SRNS employees.

This program rewards graduating high school students on the basis of general ability, leadership and scholastic achievement, recognizing the top students participating in the competition. Since 2009, more than \$315,000 in scholarships has been presented to area students as a part of this program.

"The hard work and exceptional dedication displayed by these amazing students is impressive," said Carol Johnson, SRNS

President and CEO. "I'm confident great opportunities lie ahead for each one of them as they have already achieved so much."

"Through my parents, I knew it was very competitive. I feel honored just to be here," said Caleb DiPrete, a senior at Greenbrier High School, Evans, Ga. DiPrete has decided to attend Georgia Tech and learn how to develop prosthetics using exoskeleton technology.

Stephanie Munie, a senior at Aquinas High School in Augusta, Ga., has plans to pursue a career as a biomedical engineer and will be attending the University of South Carolina. "I was so excited when my dad called and told me I had won the scholarship," said Munie.



AMP hits a home run for Buddy Baseball

Aspiring Mid-Career Professionals (AMP) from SRNS recently stepped up to the plate for Buddy Baseball, a volunteer league in Aiken, S.C., for special needs children.

The Aiken Parks, Recreation and Tourism Department has organized the Buddy Baseball league for six years. The season runs for six weeks during spring and summer.

"Buddy Baseball is a way for players to experience the thrill of participating, while also breaking down barriers and fostering friendships," said Jerry Shedd, head of the Buddy Baseball Board. "We could not do it without the support of our community members."

AMP volunteers were assigned to help a player or "buddy," and the 23 volunteers helped the players bat, run the bases and play the infield. During all Buddy Baseball games, no one keeps score, and each player has a chance to play.

AMP is a mid-career professionals organization that serves SRNS full-time employees who have between seven and 20 years of work experience.

Photo: AMP member and SRNS employee Matthew Biasiny and his buddy Jesse at Buddy Baseball

Golden Opportunity

SRNS volunteers tackle 'fixer-upper' for Golden Harvest Food Bank

SRNS employees recently volunteered their construction skills at Aiken's Golden Harvest Food Bank. Led by SRNS Vice President Dan Armstrong, a group of construction, project management and project control employees volunteered their Fridays off to re-engineer and repair a walk-in cooler.

At the Golden Harvest facility, the plywood flooring that supported a walk-in cooler had become so warped and unstable that Golden Harvest was not permitted to use the space.

"For many years we were unable to fix our cooler room. The labor and materials needed were going to cost us more than \$10,000," said Johnathan Adams, Chief Operations Officer, Golden Harvest Food Bank.

Tim Bolen, a manager in SRNS Environmental Management Operations and the company's liaison with Golden Harvest, found out about the broken cooler. He called Armstrong to ask if he knew of any volunteers who could help them out. "Dan and the volunteers did a tremendous job of quickly taking ownership and solving the problem in a turnkey fashion," said Bolen.

The first task was to find out what was causing the damaged insulated floor to feel bouncy and spongy. When Armstrong's volunteers ripped up the first layer of plywood flooring, they were expecting to find wood rot or a lack of floor supports. Instead, they found layers of stainless steel and galvanized steel that had caved in.

"We weren't expecting to find stainless steel under the floor. When the demo didn't go as predicted, we called a safety 'time out,' stopping work until we had the right tools and appropriate personal protective equipment for the job," said Armstrong.

The team safely removed the damaged floor, installed new supports for the walls, filled the gaps in the cooler room's walls with spray foam, installed a new door seal and painted.

"I really appreciate the energy from the group of volunteers from SRNS and their skills put into action. Now we can store more refrigerated goods – including fresh produce – and reach out to more agencies that help people in need in our region," said Adams.



TC Green of SRNS Construction at Golden Harvest Food Bank



Events raise funds for charities

Celebrity Waiter SRNS EM Operations Senior Vice President Wyatt Clark (left) serves Greg Floyd, SRNS Director of Safeguards and Security, at the SRNS Celebrity Waiter Night on May 11. SRNS raised \$28,874 for Children's Place, Inc., at the event, an annual fundraiser that brings "celebrities" from across Aiken to wait tables in local restaurants.

UW Golf Tournament SRNS Site Services raised over \$27,000 during the 12th annual United Way Golf Tournament at Mount Vintage Plantation Golf Club in North Augusta, S.C. All proceeds from the event will benefit local United Way agencies. "Even though we had to reschedule the tournament because of tornado damage to the golf course, we had one of our greatest years yet," said Kevin Heath, SRNS Site Services United Way Golf Tournament Coordinator.

SRNS donates nuclide charts

A set of full-size nuclide charts were recently donated to Augusta Technical College by SRNS to further support the college's Nuclear Technology Program. The special charts provide an important visual reference for students to better understand the properties of nuclear isotopes, especially regarding their relationship to one another.

On hand for the presentation of the chart were Dr. Abdullah Kendoush, Augusta Tech Instructor; Ed Donner, SRNS nuclear engineer; Dr. Terry Elam, Augusta Tech President; Bill Wabbersen, SRNS nuclear engineer; Jon Guy, SRNS nuclear engineer; and Bob Collins, Program Manager, Augusta Tech, Nuclear Engineering Technology.

We make the world **safer.**

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