

● JANUARY 2017

SAVANNAH RIVER NUCLEAR SOLUTIONS



SRNS Today



on a roll with robotics

SRNS funding, volunteers power up
students to explore careers in technology

This month

Testing technology • SRS recycles • Tritium honors • Small business at work • SRNL safety





Stuart MacVean
SRNS President and CEO

Welcome

to the January 2017 edition of

SRNS Today

At Savannah River Nuclear Solutions, we're committed to creating value for the community and ensuring they are informed and confident that we make the world safer through our contributions to solving national and global challenges. This month we feature a number of examples of how we are making the world safer through advanced technological innovations, finding better ways to reduce waste and conserve energy and helping our neighboring communities.

SRNS provides unparalleled community service and economic impact to the region, providing corporate contributions of \$8 million to local initiatives since becoming the M&O Contractor in 2008. But our commitment goes much further than our corporate philanthropy as our employees volunteer in a wide range of area service projects. We've become an integral part of our communities through numerous initiatives that will affect our region far into the future. SRNS also partners with colleges and universities, and leads an active and dynamic science, technology, engineering and math education outreach program. We're fueling the workforce of the future, funding educational programs that will inspire the next generation of scientists and engineers to carry on the future missions of the Savannah River Site.

SRNS is defined by its commitment to safety and security, service to our nation, exploration and use of technology and conservation of the environment. We put our commitment into action and we will strive for excellence in the months ahead as we develop innovative approaches to our nation's challenges and continue to make the world safer.

I hope you enjoy reading this edition of "SRNS Today." As always, thank you for your strong support of our company.



**Savannah River
NUCLEAR SOLUTIONSSM**
FLUOR • NEWPORT NEWS NUCLEAR • HONEYWELL

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 employees and other 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.

www.savannahrivernuclearsolutions.com



NNSA-SRFO Manager Doug Dearolph (from left); SRNS Sr. Vice President for NNSA Operations and Programs Wallis Spangler; SRNS Program Manager Kevin Scaggs; NNSA-SRFO Ryan Cox; SRNS President and CEO Stuart MacVean; and NNSA-SRFO Assistant Manager for Facilities and Security Roxanne Jump mark the recognition of the SRS Tritium Engineering Building's designation as a High Performance Sustainable Building.

Sustainable performance

Tritium Engineering Building honored by NNSA for 'green' excellence

The National Nuclear Security Administration (NNSA) has formally recognized the SRS Tritium Engineering Building as a "green" building, awarding it High Performance Sustainable Building (HPSB) status.

The HPSB designation means that the building meets 28 distinct performance requirements related to energy, waste and water reduction, and tenant health and comfort.

James McConnell, NNSA's Associate Administrator for Safety, Infrastructure & Operations, credited the partnership between NNSA's Savannah River Field Office (SRFO) and SRNS.

"The Savannah River Field Office and SRNS continue to demonstrate excellence in facilities management by having another building earn the designation of an HPSB," McConnell said in a letter congratulating NNSA-SRFO Manager Doug Dearolph and SRNS President and CEO Stuart MacVean. "These types of modern, functional buildings are great places to work, and achieve lower operating costs and reduced environmental impacts."

One other building in the SRS Tritium area—the NNSA Tritium Administration Office—achieved HPSB status in 2014.

"This building's features bring together three of our priorities," said MacVean. "Our commitment to the environment, our constant drive to operate the site in a cost-effective manner, and our dedication to making the Savannah River Site a compelling place to work. With

“

“The Savannah River Field Office and SRNS continue to demonstrate excellence in facilities management by having another building earn the designation of an HPSB.

These types of modern, functional buildings are great places to work, and achieve lower operating costs and reduced environmental impacts.”

James McConnell

”

its natural sunlight and improved indoor environment, this building provides an appealing space for engineers in the Savannah River Tritium Enterprise to carry out their important work in support of our nation's defense.”

Among the features that helped to earn the HPSB designation are large, store-front style windows that allow in natural daylight, Energy Star roofing products, and carpet and furniture that are environmentally preferable.

Approximately 35 percent of SRS work is on behalf of NNSA. The largest segment of the SRS NNSA mission is the work related to tritium, the radioactive form of hydrogen used in national defense.

Testing technology

SRNL shares radiation detection technology with law enforcement

Police departments and state agencies from five states recently joined SRNL to test vehicles equipped with radiological/nuclear (RadNuc) detection at SRS.

The U.S. Department of Homeland Security's Domestic Nuclear Detection Office (DNDO) sponsored the "State and Local Test Day."

Participating in the event were representatives from the Indianapolis, Suffolk County (N.Y.) and Las Vegas Metro police departments; the Florida Highway Patrol; and the S.C. Department of Health and Environmental Control.

A strategic partner with DNDO, SRNL developed the testing methodology and routinely tests RadNuc detection equipment.

"SRNL has the unique capabilities to perform testing and exercises that are significant to the nation's nuclear security," said Richard Reichel, Director of SRNL Global and Homeland Security Programs. "We are able to provide information and distinctive scenarios and settings not possible elsewhere."

To prepare for the event, the SRNL team confirmed no hazards were present and no other activities would be in progress along the demonstration route. Sealed radiation sources were then placed at various distances from the road along the 1.5-mile route.

During the test, the SRNL team drove four SUVs equipped with RadNuc detection equipment to determine the type and amount

"SRNL has the unique capabilities to perform testing and exercises that are significant to the nation's nuclear security. We are able to provide information and distinctive scenarios and settings not possible elsewhere."

Richard Reichel

of materials placed along the route. Passes were made at speeds ranging from zero to 35 mph.

The testing team included SRNL employees, pipeline engineers from the SRNS Engineering Leadership Development Program and SRNS construction personnel.

Testing will continue to Phase 2, with each of the law enforcement agencies testing the RadNuc equipment at their own locations. This will also be coordinated by SRNL on behalf of DNDO.

An organization of the U.S. Department of Homeland Security, DNDO's mission is to execute domestic and global nuclear detection efforts by improving capabilities to deter, detect, respond to and attribute attacks.

Photo: Participants in the SRNL DNDO "State and Local Day" stage SUVs equipped with detection equipment that can identify radiological material.

National Laboratory employees make 2016 a year free of injuries

SRNL has more than 1,000 employees including administrators, engineers, operators and scientists; together, they have completed calendar year 2016 free of injuries.

As the DOE Environmental Management Laboratory, SRNL specializes in environmental remediation and risk reduction, nuclear materials processing and disposition and many other program areas that require critical work to fulfill the nation's missions.

To approach these ever-changing obstacles, SRNL's workforce must change and adapt in the pursuit of discovery and innovation.

For 2016, SRNL completed 1.5 million work hours with a Total Recordable Case (TRC) rate of zero, which means that there were no injuries that resulted in Medical Treatment or Days Away cases.

SRNL is one of only two national laboratories to ever achieve an annual TRC rate of zero.

Dr. Terry Michalske, SRNS Executive Vice President and SRNL Director, noted that this achievement speaks volumes about the safety culture and the caring attitude SRNL's employees possess that has been the driving force behind this achievement.

"We work together as a community. Sharing a common interest and goal to provide products for our customers in the safest manner possible, we look out for one another, ensuring everyone completes their work free of harm," said Dr. Michalske. "At SRNL, our slogan is 'We Put Science to Work.' We approach each task with fresh eyes, being mindful and alert to our surroundings."



An SRNL scientist wearing personal protective equipment

SRNL, AIChE, Georgia Tech partner in new RAPID Institute

SRNL has played a leadership role in the development of RAPID, the Rapid Advancement in Process Intensification Deployment Institute.

A collaboration developed by the American Institute of Chemical Engineers (AIChE), SRNL and the Georgia Institute of Technology, RAPID is forming public-private partnerships to help meet the nation's manufacturing challenges. The AIChE RAPID partners include 75 companies, 34 academic institutions, seven national laboratories and other organizations. The partners have committed to cost shares that leverage DOE's \$70 million contribution over five years with the total project spending exceeding \$140 million.

The institute will train engineers and technicians in the workforce, as well as undergraduate engineering students, in the application of new modular process intensification tools. RAPID's goal is to increase efficiencies in chemical processes and lower the capital cost of facilities.

SRNL plans to work with other RAPID partners in a statewide partnership that includes Clemson University, University of South Carolina, Fluor Corporation and the South Carolina Manufacturing Extension Partnership (SCMEP) by conducting research and development in support of RAPID and serving in various leadership positions.

The SCMEP plays a critical role in RAPID and will serve as the bridge between the medium and small businesses in the state and the RAPID Institute, South Carolina universities and SRNL. "This role

recognizes SRNL's continued growth on a national level while also bringing benefits to our federal customers as well as South Carolina and U.S. manufacturing," said SRNS Executive Vice President and SRNL Laboratory Director Dr. Terry Michalske.

T. Bond Calloway Jr., 2017 AIChE President and SRNL's Associate Laboratory Director for Clean Energy, will serve as a member in the governance committee, which provides oversight of the manufacturing institute for AIChE.

"SRNL has unique capabilities and expertise that will continue to aid in the success of RAPID," said Calloway. "The partnership between AIChE, companies, academia and government is one that displays total commitment to support the chemical engineering community and our nation's manufacturing needs. The RAPID institute will bring both innovation and talent to DOE Environmental Management and National Nuclear Security Administration missions."

SRNL has more than 30 years of experience with modular chemical process intensification. Over the past three years, SRNL has led a national effort to highlight modular chemical process intensification as a method to transform the chemical industry and DOE's nuclear chemical manufacturing facilities.

The RAPID Institute is a member of Manufacturing USA, a network of public-private partnerships that work towards securing the nation's future through manufacturing, innovation, education and collaboration.



● New year, renewed focus

Each January, SRS employees returning from the December holidays are greeted with new roadway banners refocusing their attention on safety and security. This year's banners place new emphasis on the continuing slogan "Safety and Security begin with me," and features employees from all contractors at the site. The banners appear at barricades and on each side of the cloverleaf (pictured above).

SRNS recycling program demonstrates commitment to environment, reducing waste

SRNS continued its commitment to protecting the environment and reducing waste in fiscal years 2015 and 2016, proven by robust recycling and waste minimization programs.

"DOE sets ever-increasing goals for our recycling and waste minimization numbers, and we take pride in reaching, and sometime exceeding, those goals," said Kim Cauthen, Program Management and Integration, Environmental Compliance and Area Completion Projects.

"The site is made up of many different contractors and departments, all with their specific waste needs and issues," Cauthen continued. "It is imperative that we work together to ensure that we are doing all we can to protect our environment."

Among the items recycled at SRS are light bulbs, fluorescent lights, automotive batteries, used tires and used oil. The latter is sent to an electric utility for energy recovery. SRNS also saved an estimated \$427,900 in FY16 through shredding and recycling used paper through a contract with an offsite vendor.

"Unlike many cities, SRNS sends their waste to the onsite Waste Management facility in a single waste stream. That stream is then sent to North Augusta, S.C., for sorting and recycling," Cauthen said. "In FY16, 685 metric tons of trash were sent to the landfill, while 695 metric tons were diverted to recycling. That is a 50.4 percent recycle rate."

Not all waste at SRS is produced through normal household or office streams, however. Waste is also produced at the nuclear facilities



Site Services Site Trucking and Waste Operations personnel Mike Wiggins (left) and Mike Owen collect diesel fuel to be recycled.

on site. Each year, these facilities are given waste minimization and pollution prevention goals to help limit their waste, as well.

"Each facility thinks of unique ways every year to meet their goals," said Betsy Westover of Solid Waste Engineering. "Some examples include recycling nitric acid during material processing in H Canyon, substituting harmful chemicals for those less harmful to the environment, and reducing the level of personal protective equipment needed in certain areas."

SRNS has also taken steps toward a reduction in energy use. For example, when a facility at SRS needs a new roof, the replacement is a new energy efficient roof that helps keep the building cooler in the summer.

Putting small business to work

SRNS surpasses contracting percentage and funding goals for fiscal year 2016

SRNS believes in putting small businesses to work, and the company has surpassed its small business contracting goals for fiscal year FY16.

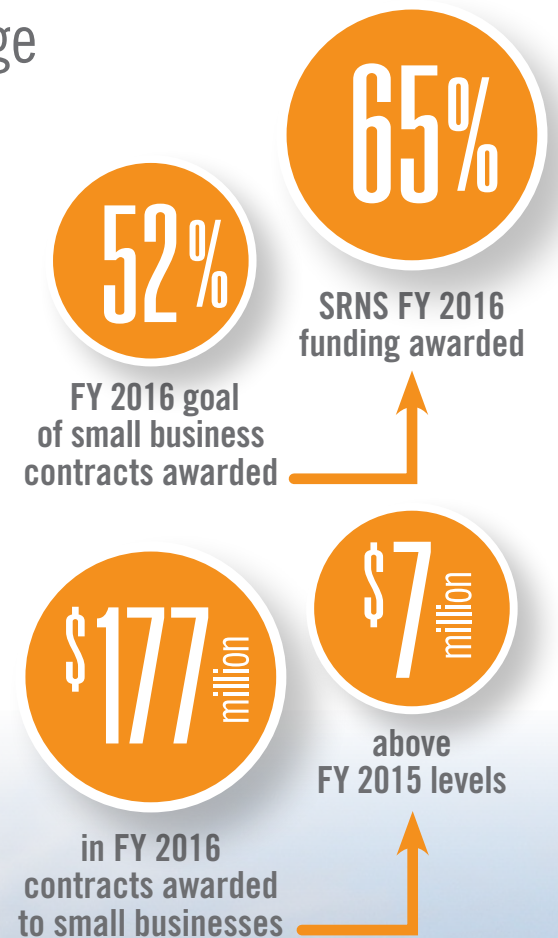
SRNS awarded more than \$177 million to small businesses, which is 65 percent of all the funding it awarded, exceeding the company's goal of placing 52 percent of all contract work with small businesses. The amount represents more than \$7 million above SRNS FY15 levels.

"We have a long history of working closely with and supporting small businesses," said Norm Powell, Senior Vice President of SRNS Business Services. "Not only are these contracts vital to the site in areas such as staff augmentation and construction support, but it also allows us to support and grow local businesses in our region."

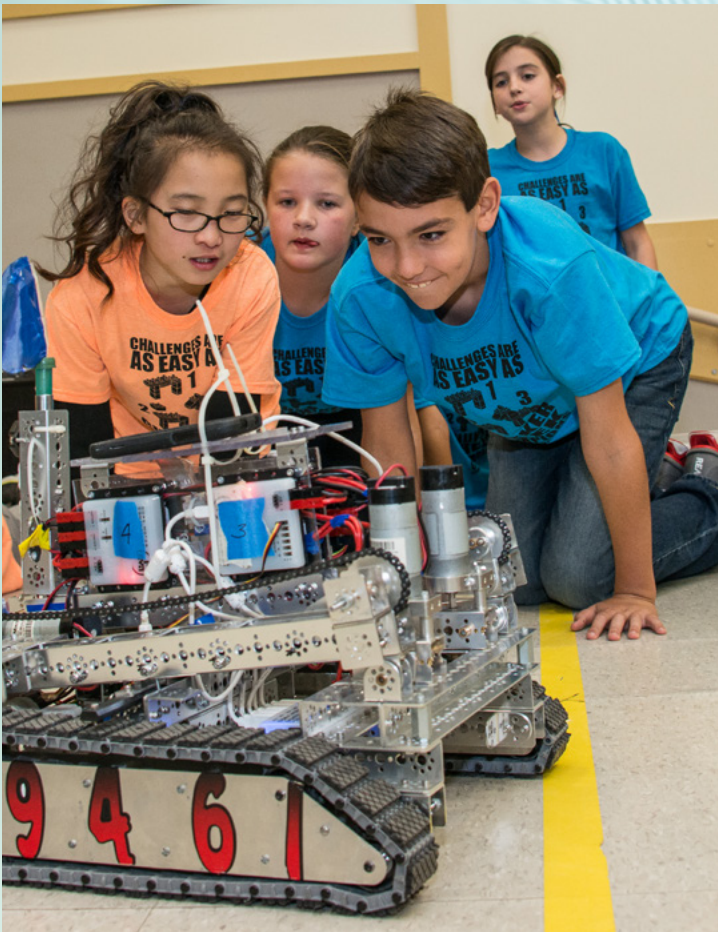
North Wind, a small business, helped SRNS treat groundwater plumes caused by historical operations at SRS using environmentally-friendly technologies. In FY17, North Wind will play a role in an environmental evaluation of the Lower Three Runs stream, which will ultimately support future remediation activities.

SRNS also awarded a contract to Hebbard Electric to replace circuit breaker switchgears. The small business has performed a variety of electrical contracting work across the site.

SRNS also surpassed its goals in all socioeconomic categories: woman-owned small businesses, small disadvantaged businesses, veteran-owned small businesses, service-disabled veteran-owned businesses and Historically Underutilized Business Zone businesses.



North Wind, a small business contractor for SRNS, treats groundwater at SRS.



SRNS funding and volunteers power up area students to get them on a roll with

Robotics

▲ PEP funding assists STEM, STEAM schools

SRNS has increased their annual funding of \$20,000 to Public Education Partners (PEP) with an additional \$9,000 to assist this non-profit organization in their efforts to further enhance academic excellence throughout Aiken County.

Since its inception in 1995, PEP has identified unmet academic needs in Aiken County public schools and has mobilized community resources to meet these needs. Diana Floyd, PEP Board Chair, noted that SRNS has financially supported several PEP programs and initiatives through this year's donation.

According to SRNS Education Outreach Program Coordinator Kim Mitchell, the additional \$9,000 in funding is being used by PEP to jump-start robotics programs at STEM (science, technology, engineering and math) and STEAM (science, technology, engineering, arts and math) magnet schools Jackson Middle (JMS) and New Ellenton Middle (NEM) in Aiken County.

"SRNS has a sincere passion for supporting education outreach initiatives," said Mitchell. "It's at the primary and secondary levels of education that our future SRS employees are prepared."

"STEM and STEAM programs work," said NEM Principal Shunte Dugar. "The impact STEAM-based curriculum has had on our faculty and students has been nothing short of amazing. We could not be more pleased with the results."

"Jackson Middle School recently earned national accreditation for our STEM program, one of only 54 in the world today," said Kishni Neville, JMS STEM Coordinator. "I believe a lot of the credit for this incredible accomplishment goes to SRNS for their long-time support, both financially and through their employees who regularly volunteer to help us."



"The impact STEAM-based curriculum has had on our faculty and students has been nothing short of amazing. We could not be more pleased with the results."



Shunte Dugar

▲ LEGO robots inspire student competition

Sponsored by a \$2,500 donation from SRNS, the FIRST LEGO League Qualifier recently took place at Chukker Creek Elementary in Aiken, S.C. About 200 fourth through eighth graders participated on 20 teams. The ProgrAnimals, an Aiken family/community organization, took the Champions Award, and along with Chukker Creek, Augusta Preparatory Day School and Kennedy Middle School, qualified for the next level of competition.

"The volunteers were amazing, and we could not have covered our many expenses without the much-appreciated donation from SRNS," said Tim Arnold, SRNS employee and tournament director, who, along with Chukker Creek teacher Alecia Kinard, ensured the event went smoothly.



Wallis Spangler, SRNS Senior Vice President, NNSA Operations and Programs, discusses robotics with students from Redcliffe Elementary, Beech Island, S.C.

▲ SRNS provides \$28,000 to assist local nonprofit Clarke and Concordia Engineering and Technology Initiatives

Jane Monroe has a vision that every school in the Central Savannah River Area will have a multi-team robotics program, which will in turn enhance and grow science, technology, engineering and math (STEM) studies throughout these same schools.

SRNS has helped fuel that dream financially with a recent donation of \$28,000 to Monroe's Clarke and Concordia Engineering and Technology Initiatives, Inc., a nonprofit organization. Monroe is the founder and Executive Officer of the organization, and is also a teacher at North Augusta High School.

"Education outreach continues to be important to employees at SRNS," said Wallis Spangler, SRNS Senior Vice President, NNSA Operations and Programs. "Investing in our children's education and providing additional support to our teachers and school administrators is an investment in our local communities, industry and our future workforce. We are pleased to assist Clarke and Concordia in their commitment to help students throughout the greater Aiken-Augusta area."



"Investing in our children's education and providing additional support to our teachers and school administrators is an investment in our local communities, industry and our future workforce."

Wallis Spangler



"Kids learn best through hands-on, investigative challenges, and I believe robotics is a very effective method to reach and retain students who otherwise would not have found interest in STEM-related classes," said Monroe. "We are grateful to SRNS for partnering with us."

Monroe said that 15 teams are participating within eight schools in South Carolina and two schools in Georgia. Home base for Clarke and Concordia is currently in two locations: North Augusta High School for new high school teams and Chukker Creek Elementary in Aiken for elementary and middle schools.



SRS Fire Captains Mark Redd (left) and Bryan Kneee

SRS Fire Department captains assist Aiken Sheriff's Office

Two captains with the SRS Fire Department (SRSFD) have been voluntarily assisting the Aiken County Sheriff's Office (ACSO) in fire investigations for the past two years, a mutually beneficial relationship for the captains and for the ACSO.

ASCO Sheriff Michael Hunt asked Fire Captains Mark Redd and Bryan Kneee to join his team with a dual purpose: to augment ASCO capabilities and give more fire investigation experience to the captains.

"The SRSFD is very proud to be able to share a needed resource with our site neighbors," said SRSFD Fire Chief Rob Still. "It speaks volumes for the dedication of our site workforce, and more specifically, of our captains who voluntarily maintain their Fire

Investigator certification and freely donate their time in support of their community. It is an honor to be part of such an awesome team."

The SRSFD is tasked with the responsibility of maintaining the capability to investigate all fires, to determine the origin and cause of each fire, and to recognize fires of a suspicious nature. Thus far, the captains have assisted the ASCO in the investigation of several double fatalities, a commercial building fire and an incendiary fire.

"We are proud to say that many SRS employees volunteer and are invested in the communities they live in," said Rick Sprague, SRNS Senior Vice President for Technical Services. "We are especially thankful to Captains Kneee and Redd, for the excellent relationship they have developed between SRS and the ASCO."

Leadership Aiken County visits SRS



The 2017 Leadership Aiken County class recently spent an afternoon learning about SRS history, economic impact and environmental commitment. The group was also given an opportunity to experience virtual reality at SRNL's 3D Lab before touring the site.



Team Virdeca of St. Mary on the Hill School works to persuade Future City Competition judges that their entry deserves first place during the final round of the event.

Students envision cities of the future during annual regional competition

Teams of middle school students from across South Carolina and throughout the greater Augusta area have been striving to build complex and highly creative tabletop models that best represent the most innovative and practical city of the future. Their goal: winning this year's Regional Future City® competition recently held at the University of South Carolina Aiken.

"This is a long-term commitment over the course of several months beginning in late August or early September. Each team of students typically works hundreds of hours to participate in this competition, which is managed by SRNS," said Kim Mitchell, SRNS Education Outreach. "Again and again, as an end result, we see students become excited about learning in their efforts to solve real world problems. Our hope is that they will be inspired by this rewarding effort to later pursue careers in the fields of science, technology, engineering and math."

In January, a team from Augusta, Ga.—St. Mary on the Hill—took first place, while a strong finish by Paul Knox Middle School, North Augusta, S.C., led to a second place trophy. Westview Middle School from Westview, S.C., came in third. The first place team will travel to the Future City National Finals in Washington, D.C., Feb. 18-21.

The student teams, along with an educator and volunteer mentor, research and design a solution to a city-wide challenge that changes each year.

Celebrating its 25th anniversary in 2016-17, this year's Future City Competition asked students to address "The Power of Public Space" and challenged them to design innovative, multiuse public spaces that serve a city's diverse population.

Working as a team, students are first challenged to design a virtual city using SimCity™ software. Next, they research today's public spaces and write an essay about their solutions and city design. And finally, students bring their ideas to life by building a tabletop scale model of their city using recycled materials on a budget of \$100 or less and give a brief presentation about their city to a panel of judges.



SRNS puts ATC education 'Within Reach' for Aiken County students

SRNS recently donated \$50,000 to the Aiken Technical College Foundation for "Within Reach" scholarships to help increase the number of Aiken County residents receiving a post-secondary education. Scholarships are awarded to recent graduates of the Aiken County Public School District who are attending ATC. Each recipient is awarded \$1,000. Pictured with SRNS Executive Vice President and Chief Operations Officer Dave Eyler is Sarah Bickford, one of this year's recipients.



Technical Services hosts Safety Kickoff for SRS employees

SRNS Technical Services' 10 Local Safety Improvement Teams hosted their annual three-day Safety Kickoff, showcasing topics geared toward employee safety, security and the company's Standard of Excellence. The event was open to all SRS employees. In the photo above, SRNS President and CEO Stuart MacVean joins employees in one of the many safety activities offered.



Savannah River
NUCLEAR SOLUTIONS™

FLUOR • NEWPORT NEWS NUCLEAR • HONEYWELL

SRNS

SAVANNAH RIVER NUCLEAR SOLUTIONS

We make the world

safer.

Environmental stewardship

Supplying tritium

*Securing and transforming
nuclear materials*

SAVANNAHRIVERNUCLEARSOLUTIONS.COM