JULY 2016

SAVANNAH RIVER NUCLEAR SOLUTIONS

SRNS Today

Innovation nation

New SRNS-developed monitoring tool shared with DOE sites

This month

Cleanup Technology • Equipment Transfer • SRSLA Award Winners • United Way Softball

Carol Johnson
SRNS President and CEO

Welcome
to the July 2016 edition of
SRNS Today

"Why SRS Matters"

To see the H Canyon segment of our video series "Why SRS Matters," please click here or visit www.savannahrivernuclearsolutions.com/annual/Why_H-AREA_Matters.mp4

Savannah River Nuclear Solutions takes pride in developing new technologies to improve operations at the Savannah River Site—and elsewhere.

As part of the U.S. Department of Energy complex, the Savannah River Site has the opportunity to work with other sites, laboratories and agencies to accomplish the Department's goals. In this edition of "SRNS Today," we spotlight some of those collaborations.

The SRNS Environmental Monitoring and Information Technology groups have developed a new technology—the Environmental Compliance Sampling Collection tool—to provide real-time environmental sampling data from hundreds of monitoring wells and sampling locations at SRS. We recently shared this technology with DOE's Portsmouth Gaseous Diffusion Plant, where it's now being implemented.

You'll see a great example of how equipment no longer needed for SRS missions has been sent to the Fermi National Accelerator Laboratory for their use in technology development, and for use in the legacy transuranic waste mission at Idaho National Laboratory. Sharing this useful equipment will free up space at SRS and help two national labs achieve their missions.

You'll also see how SRNS and the South Carolina National Guard (SCNG) have teamed up for a second summer to provide training for the SCNG and to benefit SRNS projects. This year, an estimated 4,000 cubic yards of ash from the 288-F Ash Basin were collected, moved and temporarily stabilized for future phases of completion. It's a great collaboration that's a win-win for all.

Sharing equipment. Sharing technology. Sharing projects. It's all about how we make the world safer.

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

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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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SRS transfers characterization equipment to other sites; reuse demonstrates commitment to waste reduction

Three pieces of characterization equipment used in the transuranic (TRU) waste mission at SRS have been transferred to other DOE sites for their use, saving taxpayer dollars and reducing waste.

The equipment included a Linatron x-ray machine and its related equipment, and two radiation counters that were used for non-destructive assay.

"This equipment is no longer needed for site missions. It is being removed from E Area to free up the space for low level waste disposal," said Dan Ferguson, DOE Waste Disposal Program Lead. "The equipment is free for release, which means it was never contaminated with radioactive materials."

The large Linatron x-ray equipment will be sent to the Fermi National Accelerator Laboratory in Batavia, Ill., for use in technology development on projects such as improving the lifetime of roadways, scanning cargo for homeland security, and irradiating medical products and food for sterilization. The equipment can also be used in commercial operations such as casting, power, aerospace, chemical, petro-chemical and automotive industries for nondestructive product examination purposes. These include industrial inspection and manufacturing quality control.

The two radiation counters are being sent to the Idaho National Laboratory to help them finish their legacy TRU waste mission.

"TRU waste consists of items normally found within an industrial setting that have become contaminated with long-lived radioisotopes, such as plutonium," said Ferguson. "Tools, protective clothing, containers, rags and other debris would be typical examples. The legacy TRU waste was left behind after the Cold War missions ended. SRS has finished its legacy TRU waste mission, with the remaining legacy TRU waste packaged, characterized and ready to be shipped upon the reopening of the Waste Isolation Pilot Plant (WIPP), the geological repository for this waste."

Workers prepare the Linatron x-ray machine for removal from E Area.

This equipment will help characterize the types and quantities of radionuclides present in materials without having to physically sample or disturb the source materials. This is necessary to make sure that the materials inside of TRU waste containers meet a certain criteria set by WIPP.

Ferguson said that SRS continues to be a conscientious steward of taxpayer dollars. "The reuse of this equipment not only shows that, but is an example of our commitment to reduce waste," he said. "If this equipment had not found reuse, it might have ended up being disposed here at the Site as waste."

S.C. National Guard at SRS

Nearly 100 South Carolina National Guard (SCNG) soldiers from the 1782nd Engineer Company recently began phase two of a multi-year effort involving environmental cleanup projects at SRS. The focus of the second annual collaboration was the collection of displaced coal ash and the installation of storm water prevention measures in the 288-F Area ash basin. "This is a tremendous opportunity for SRS and SCNG," said Geoff Reynolds, Director of SRNS Site Services. "I watched them work over the last two summers, and I am very proud of those folks who serve the country. I am also very thankful for their dedication to a job well done. The SCNG receives needed training while reducing our costs to the Site."

Photo: Joe Ormand (orange vest) of SRNS Site Services and DOE Liaison Tommy Stribling (left) describe the project scope to members of the SCNG.

Back to basics

Jeff Thibault (standing) and Harrel McCray work together to ensure an underground injection process is operating at maximum efficiency.

Mother Nature helps SRNS scientists and engineers with effective environmental cleanup technology

Some of the world's best solutions and inventions are simple in concept. Some of the toughest environmental cleanup challenges over the years at SRS were surprisingly simple to solve with the help of nature.

For example, one of the most recent cleanup achievements at SRS involves basic chemistry and particle charge.

Beginning in the early 1950s and for the next 33 years, during the nation's nuclear Cold War with the Soviet Union, the Site's F and H Canyon facilities produced materials for nuclear weapons. The process also created a form of waste consisting of diluted acid containing dissolved tiny charged particles (ions) of radioactively contaminated metals. As the approved methodology of that time, this waste was stored for decades in pond-like pools of water known as basins. This crude form of waste storage was expected to work because positively charged metal particles cling naturally to the negatively charged soil.

With major advances in waste processing, this outdated storage method ceased in 1988 when a new facility came on line at SRS using modern technology to remove these types of contaminants before releasing fluids back into the environment.

The last of the F and H Canyon basins were backfilled, capped and closed in 1991; however, 33 years of use had resulted in the contamination of the soil and groundwater beneath the basins.

This situation became an issue for some contaminants because the diluted acid from the basins eventually acidified the soil beneath them, which resulted in a change of soil particle charge from negative to positive. With this change, the contaminated metal particles began to break free from the soil and slowly migrate through the groundwater towards a nearby stream.

Realizing that the metals would eventually reach the Savannah River, though at levels low enough not to harm people or wildlife, a simple solution was developed, fully tested and implemented.

> *"This is another example of using inexpensive techniques and materials to harness basic geochemical principals to clean up an area environmentally impacted by chemicals or radioactive substances."*
>
> **Gerald Blount**

Though it would take years to complete, the solution was to reverse the charge of the soil back to being negative, to once again attract and hold the metals in place.

To accomplish this goal, SRNS employees have been periodically injecting environmentally harmless basic pH fluids into the affected portion of the groundwater, neutralizing the acid.

"Natural processes eventually clean up most contamination plumes in groundwater," said SRNL researcher Miles Denham. "Sometimes we have to speed the process along, and that is what we did here by neutralizing the acidified soil, returning the negative charge to soil particles and causing positively charged contaminants to, once again, stick to the soil particles."

"This is another example of using inexpensive techniques and materials to harness basic geochemical principals to clean up an area environmentally impacted by chemicals or radioactive substances," said Gerald Blount, SRNS geologist. "The water quality of the Savannah River has been protected."

Historically, acid was used in F and H Canyons to dissolve irradiated metal rods obtained from SRS nuclear reactors, the last of which was shut down in 1989. Once dissolved, another process was used to extract and purify plutonium. The basins received the diluted acid after ion exchange, a method used to significantly decrease the level of radioactivity in fluids.

Sharing innovation

New SRNS-developed environmental monitoring tool in use at DOE's Portsmouth Gaseous Diffusion Plant

SRNS continues to develop innovative technologies that improve safety, security and quality, and to make them available to other sites in the DOE complex.

Recently, SRNS shared one of those new technologies with DOE's Portsmouth Gaseous Diffusion Plant in Portsmouth, Ky., to help improve environmental sampling methods.

The Environmental Compliance Sampling Collection (ECSC) tool was developed by the SRNS Environmental Monitoring and Information Technology groups to provide real-time data from hundreds of monitoring wells and sampling locations at SRS. This new technology scraps the pencil-and-paper method that has been the tried-and-true method of data collection since the start of SRS environmental monitoring.

"This new tool is essentially a 'SmartPhone' for environmental samplers," said Chris Bergren, Director of SRNS Environmental Compliance and Area Completion Projects. "We no longer have to take notes and go back to desks to transfer data into systems. Now, we are able to upload data wirelessly making the data available instantly, without ever leaving the sampling location."

"This new technology saves tremendous time in data collection and information sharing over previous methods. The time saved correlates to cost savings for the taxpayer. It's a win-win for all," said Bergren. "Continuous improvement is an important element in remaining cost-conscious and quality-driven, and that is exactly what this technology provides."

"Now that we have had the opportunity to test this new tool in the field and confirm its benefits, we are confident that this technology can be of benefit across the DOE complex, starting with Portsmouth, where it is now being implemented," said Bergren.

In a DOE memorandum, Portsmouth Site Lead Joel Bradburne credits Angelia Adams, DOE-Savannah River Operations Office Deputy Assistant Manager for Infrastructure and Environmental Stewardship, for her support in ensuring that this technology is being shared with other sites like Portsmouth, stating that the sharing of technologies across the complex is invaluable.

The new system was also featured at the 2015 Waste Management Conference where it received attention for its innovation in the field of environmental stewardship.

SRNS' Ashley Shull uses the Environmental Compliance Sampling Collection tool to record data from samples taken at SRS.

Carol Johnson

Michael Gilles

SRS Leadership group honors Johnson, Gilles during annual awards

The Savannah River Site Leadership Association (SRSLA) recently hosted the 2016 Annual Awards Banquet at Newberry Hall in Aiken, S.C.

The event featured presentations for awards including SRSLA Executive of the Year and Leader of the Year, among others. SRNS honorees included:

SRSLA Executive of the Year
Carol Johnson, SRNS President and CEO, recognized for her leadership, professional accomplishments, community involvement and management principles.

SRSLA Leader of the Year
Michael Gilles, SRNS Director of F Area Operations, recognized for leadership characteristics displayed throughout the year.

SRSLA President Byron Bush noted that this event is a great opportunity to recognize outstanding leadership and for SRS employees to collaborate and celebrate leadership. "It was exciting to witness employees from all levels engaging each other and celebrating leadership," said Bush. "SRSLA is an organization that seeks to maximize the potential of its members, sponsoring organizations, SRS and the community."

The SRSLA is the SRS chapter of the National Management Association (NMA) – The Leadership Development Organization. NMA is a worldwide partnership of people and businesses inspiring outstanding leadership and cultivating highly productive workplaces.

Batter up!

SRNS hits a home run for local United Way agencies

Summer and softball go together like SRNS employees and fundraising.

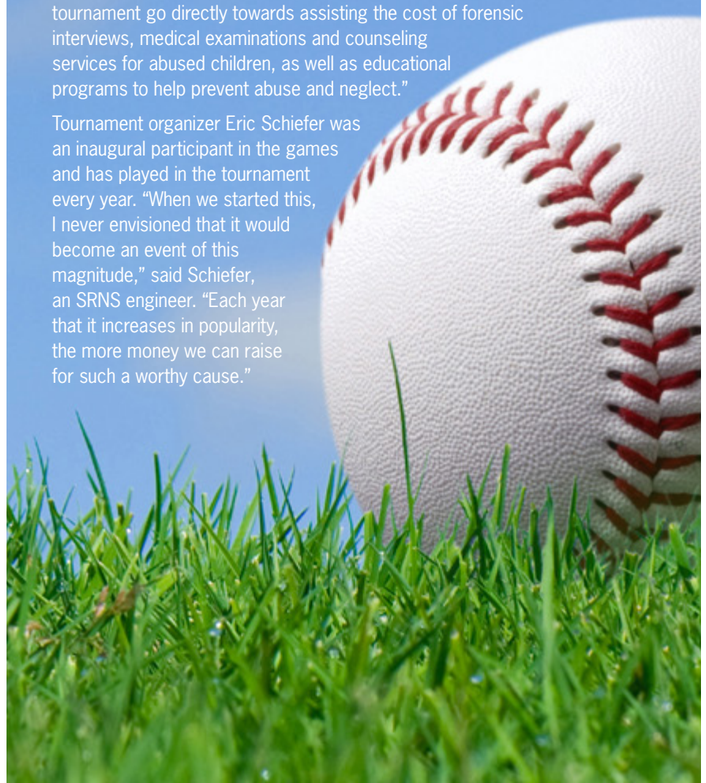
The SRS Softball Tournament made its 12th annual appearance in a tradition that benefits area United Way agencies. Coordinated by SRNS, the tournament featured friendly competition among four major SRS contractors.

SRNS raised $9,550 of the $19,647 total raised by tournament participants and sales from concessions.

Throwing the ceremonial opening pitch to kick off the two-night tournament was Gayle Lofgren, the Director of the Child Advocacy Center of Aiken County, a United Way of Aiken County member agency. Founded in 2005, the nonprofit provides a safe environment and supportive services that promote healing to abused children and their families through intervention, treatment and prevention. The Child Advocacy Center serves residents of Aiken, North Augusta, Edgefield, Saluda, Barnwell and Bamberg counties.

"I felt like it was important to cheer from the stands and let the players know how much the Child Advocacy Center appreciates their support towards United Way member agencies," said Lofgren. "We had 450 children through our doors last year. The funds raised from this tournament go directly towards assisting the cost of forensic interviews, medical examinations and counseling services for abused children, as well as educational programs to help prevent abuse and neglect."

Tournament organizer Eric Schiefer was an inaugural participant in the games and has played in the tournament every year. "When we started this, I never envisioned that it would become an event of this magnitude," said Schiefer, an SRNS engineer. "Each year that it increases in popularity, the more money we can raise for such a worthy cause."

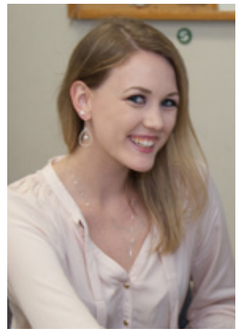


The business of science

SRNS intern gets an early start in education, work experience

SRNS intern Ashlee Kay graduated high school just three days before starting her internship for the Project Controls and Management Systems group.

Kay's final year at South Aiken High School was primarily spent outside of the high school classroom. For the majority of the 2015-16 academic year, she was enrolled at University of South Carolina Aiken taking classes such as Calculus 3 and Chemistry 2.



"I'm experiencing the business side of engineering. I get to learn the business before I learn the science."

Ashlee Kay

Kay has always been proficient in school; in the seventh grade she was asked to take eighth grade math. This progression allowed her to stay a year ahead in school, and enabled her to graduate with enough credits to qualify as a sophomore when she enrolls at Pennsylvania State University in the fall.

Her decision to attend Penn State was largely affected by her familiarity with the campus and surrounding town of State College; her father is an alumnus. "I was born and raised a Nittany Lion," added Kay.

Kay supports the Project Controls staff in planning and scheduling for specific projects, including cost and time forecasts. Her duties as an intern include creating spreadsheets for cost forecasting and running labor reports, where she calculates the amount of hours employees have worked and helps determines the overall labor cost for the project.

When she enrolls at Penn State, she plans to declare chemical engineering as her major. Kay has always had a passion for chemistry and math. She is particularly interested in hydrogen fuel cell research, something that the Savannah River National Laboratory is currently researching.

"A lot of the people who work in project controls went to school for engineering, and their understanding of the controls processes help them have a practical outlook on deadlines and costs related to projects," said Kay. "I'm experiencing the business side of engineering. I get to learn the business before I learn the science."

Johnson addresses WIN national conference

SRNS President and CEO Carol Johnson spoke during the closing session at the U.S. Women in Nuclear (WIN) National Conference on July 12. Her presentation, "Managing the Nuclear Legacy at the Savannah River Site," was part of a panel discussion titled, "Decommissioning: What's Going On?"

The first female president and CEO at SRS, Johnson began her presentation by telling attendees, "If I can do it, you can do it too."

She went on to discuss decommissioning activities at SRS during the American Recovery and Reinvestment Act (ARRA), including the K Area cooling tower implosion, the Heavy Water Test Reactor demolition, transuranic (TRU) waste cleanup work and the in-situ decommissioning of the P and R reactors.

"ARRA challenged us to meet specific goals, including reducing the Site footprint by 75 percent, remediating 5,000 cubic meters of legacy TRU waste, creating jobs to stimulate the local economy, and to do it all within the scope, schedule and budget laid out for us," she said. "Through the use of highly effective project management, teamwork and a strong safety culture, the team successfully managed these projects safely to surpass DOE's objectives for the $1.4 billion project that spanned about four years."

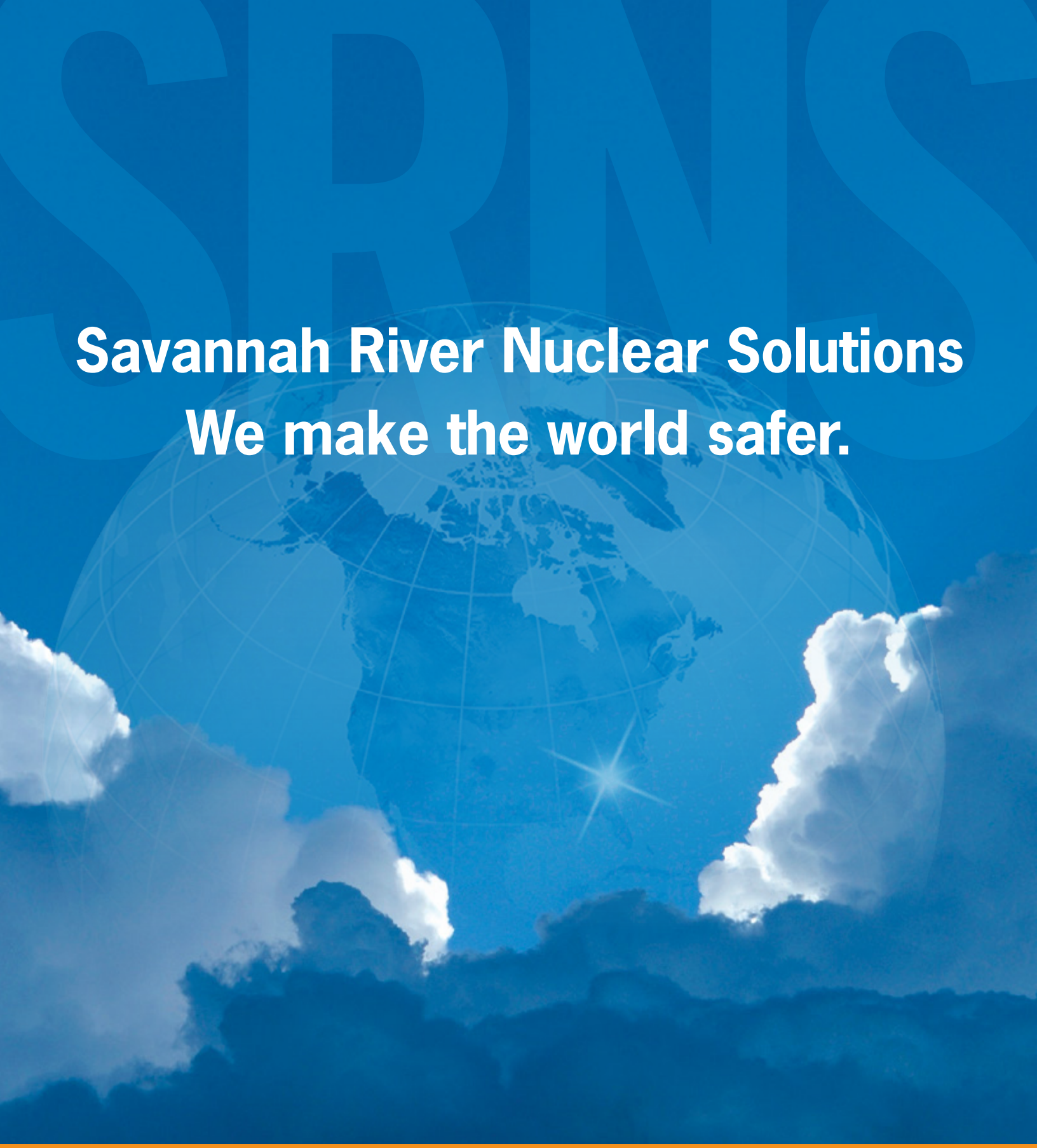
The U.S. Women in Nuclear National Conference was held July 10-13 in Charlotte, N.C. U.S. WIN is the premier network of nearly 8,000 women and men who work in nuclear- and radiation-related fields around the country.

Save the date: College Night

High school students will have an opportunity to meet recruiters from more than 130 colleges and universities and win scholarships at this year's CSRA College Night, Thursday, Sept. 15, from 5-8:30 p.m. at the James Brown Arena in Augusta, Ga. Admission is free and open to the public.

To qualify for a College Night scholarship, students must be high school juniors or seniors and graduate with a GPA equal or above 2.5 on a 4.0 scale (or equivalent). Students must attend and register in person at CSRA College Night to be eligible.

For more information, visit www.srs.gov. Click on Outreach, then Educational Outreach Programs, and then CSRA College Night.



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