

January 2012

SAVANNAH RIVER NUCLEAR SOLUTIONS

SRNS Today



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Using hydrogen research to develop a source for portable power



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Dwayne Wilson
SRNS President and CEO



Welcome to the January 2012 edition of “SRNS Today.”

What a great start to the New Year!

This month was filled with new starts and fresh faces. From the historic SRS H Canyon's new mission to new generations eager to shape their futures, I'm proud of SRNS efforts to produce results both on Site and in the community.

At SRS, H Canyon and HB Line will take on a new role. The two facilities will begin preparing plutonium for use as feedstock for the SRS Mixed Oxide facility. H Canyon will also safely and significantly increase the number of transuranic waste containers processed, allowing completion of this task sooner than originally expected. This is great news locally and nationally, and increases the enterprise value of SRS. Please see the story and photos on Pages 6 and 7.

Students of all ages were also in the spotlight in January. SRNS has contributed \$50,000 to the SRNS Scholars Program at USC Aiken. This worthy program has helped 41 students to date with financial assistance in the pursuit of their college education. Please see the story on the next page. The towns of tomorrow were the focus of students participating in the SRNS-sponsored Future Cities competition (Page 8). A local team from Kennedy Middle School in Aiken, S.C., and mentored by an SRNS engineer, took top honors and will go on to national competition. I'm sure they will represent us well. Finally, a dozen children of SRNS employees were winners of the annual Safety Art Contest (Page 4). This competition teaches the kids of our SRNS family one of life's most important lessons—that safety begins with each of us doing our part.

If January is any indication, 2012 is off to a good start. You have my pledge that SRNS will use this year to raise the bar even higher on our safety excellence, our operational accomplishments and our community commitment. As always, thank you for your interest in Savannah River Nuclear Solutions.

Company donates gift of \$50,000 to USC Aiken's SRNS Scholars Program



Photo: SRNS Scholars recipients gather to watch SRNS President and CEO Dwayne Wilson (center left) present USCA Chancellor Tom Hallman a \$50,000 check for the program.

SRNS has donated \$50,000 to USC Aiken in support of the “SRNS Scholars” program.

The SRNS Scholars program was created in 2009 and provides scholarships for academically talented students. Since the program's creation, 41 students have been named SRNS Scholars.

“Savannah River Nuclear Solutions recognizes the fundamental importance that a quality education plays in the life of every student,” said Dwayne Wilson, SRNS President and CEO. “We are proud to provide assistance to these deserving students and to contribute to the quality education that they will receive at USCA.”

“As tuition costs increase and state support decreases, USCA relies on the generosity of individuals and companies such as SRNS to make competitive financial awards for our students. The continuance of this gift is vitally important as it has made a tremendous difference in the lives of the 41 scholars who have been helped since the program's inception,” said USC Aiken Chancellor Dr. Tom Hallman.

We are proud to provide assistance to these deserving students and to contribute to the quality education that they will receive at USCA.

Dwayne Wilson
President and CEO,
SRNS

The newest group of SRNS Scholars (all from South Carolina)

Timothy Boerste, North Augusta

Sommer Farmer, Aiken

Amanda Jones, Clarks Hill

Shelbey Bunker, Aiken

Wilson Haddock, Cordova

Stetson Turner, North Augusta

Bradley Carson, Williston

Krista Herndon, Graniteville

Shelby Weathersbee, Aiken

Morgan Enlow, North Augusta

Michael Hornsby, Aiken

In the community

SRNS accepting proposals for 2012 Innovative Teaching Mini Grants

SRNS is now accepting applications from educators within the Central Savannah River Area (CSRA) for the 2012 Innovative Teaching Mini Grants program. This program provides an opportunity for area educators to compete, by submitting grant proposals, for classroom supplies and equipment that will enhance and promote science, technology, engineering and math (STEM) lesson plans. Elementary and middle public school educators in the seven-county CSRA (Aiken, Allendale, Bamberg, Barnwell, and Edgefield counties in South Carolina, and Columbia and Richmond counties in Georgia) are eligible to receive monetary grants. Teachers may obtain applications from their school principal or SRNS Program Coordinator Gladys N. Moore, (803) 952-9450. Applications are also available and can be downloaded by visiting the SRS web site: http://www.srs.gov/general/outreach/edoutrch/ed_home.htm. Grant proposal applications must be received at SRS by March 2. Applications cannot be hand-delivered by non-SRS employees.



Savannah River Nuclear Solutions, LLC, is a Fluor partnership with 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.

For additional information about SRNS, please visit our website at savannahrivernuclearsolutions.com.

Children of SRNS employees learn about safety through annual contest

In the community

Community Reuse Organization Forum

Leaders from DOE, the National Nuclear Security Administration and the heads of most contractors at SRS, including SRNS, participated in a forum in January intended to give community leaders a better understanding of the activities going on at the Site.

The forum, hosted by the SRS Community Reuse Organization, addressed the current state of projects on-site, partnerships between contractors and plans and projections for the future of the site.

DOE-Savannah River Operations Office Manager Dave Moody said that, compared to other sites around the country, SRS is better positioned to impact the nuclear future of the U.S.

"I do believe that SRS is uniquely poised to resurrect the nuclear industry in this country," Moody said, emphasizing particularly SRS' plans to bring small modular reactors to the Site. "Other sites have pieces of that, but nobody puts that together with the nuclear expertise that we have at SRS."

SRNS President and CEO Dwayne Wilson highlighted the projects completed through American Recovery and Reinvestment Act funding and the new mission identified for the Site's H Canyon. Wilson also spoke about SRNL as the "engine for growth" for the Site. SRNL has increased its workload by 50 percent over the past five years.

SRNS recently announced the winners of the first SRNS Annual Safety Art Contest. Twelve winners were recognized during the special celebration held at SRNS' Corporate Office in Aiken, S.C.

Stephanie Munie, daughter of SRNS employee Mike Munie, earned first place by depicting the dangers of texting while driving. Her artistic efforts to help others recognize the importance of safe behaviors earned her first place and a \$300 gift card. The other eleven winners were each rewarded with a \$100 gift card.

"Developing a value for good safety practices in the hearts and minds of our children at an early age is essential, preventing needless injury," said Dwayne Wilson, SRNS President and CEO. "We realize that instilling these ideals begins in the home."

During the contest, the children of SRNS employees are encouraged to work with their parents to develop a specific safety message that can be expressed through their child's imagination and favorite art medium, usually crayons, colored pencils and paper.

"In addition to the monetary award, each winning artist was asked to sign a poster-sized copy of their work, which will initially be placed on display within the SRNS Corporate Office and then distributed to buildings across SRS," said Alice Doswell, Senior Vice President for Environment, Safety, Security and Health, which sponsored the contest.

Photo: Ten of 12 SRNS Safety Art Contest winners are shown with their artwork at the SRNS corporate office.



And the winners are:

- First Place:** Stephanie Munie, "Stay Alive, Don't Text and Drive"
- Honorable Mention:** Tristen Nguyen, Kristen Howard, Zoe Krenz, Kailee Holley, Nathaniel Miller, Rachel Kestin, Trevor Hope, Travis Hope, Shane Brightharp, Taylor Baptiste, Shikem Wright

2012 outlook for SRNS' accelerated TRU waste program: Safely "fast forward"

SRS can see the light at the end of what was once a very long tunnel with the completion this year of an accelerated program to prepare 5,000 metric tons of transuranic (TRU) waste for shipment to a DOE facility in New Mexico.

"By the end of 2012, we will have remediated, repackaged and certified for shipment all but 200 cubic meters of transuranic waste at SRS, meeting a vitally important milestone for our sitewide cleanup program," said David Moody, DOE's Savannah River Operations Office Manager. "This means that over 95 percent of our legacy TRU waste will be gone from South Carolina and in long-term storage at the DOE Waste Isolation Pilot Plant (WIPP) in Carlsbad, N.M., leaving a very small amount that will require some special treatment."

TRU waste processing enters new phase According to SRNS Solid Waste Director John Gilmour, the key to success has involved several factors. First, new and larger TRUPACT-III shipping containers eliminate much of the need to manually reduce in size numerous, large pieces of TRU waste, saving time and minimizing employee exposure to radioactive materials, primarily plutonium-238. Plutonium-238 was once used as a heat source to generate power for deep space missions, some of which are still active.

"By May, we'll have six TRUPACT-III shipping containers on Site and the shipping process to WIPP will be almost continuous," said Gilmour. "Our highly trained and talented workforce has learned to quickly recognize and respond to variables found when working with legacy radioactive waste materials." Each TRUPACT-III container can hold up to 6.6 cubic meters of TRU waste.

New mission for SRNS TRU waste program The most recent new mission awarded to SRS involves SRNS personnel working safely together within a formerly unused portion of H Canyon to successfully process and repackage a select amount of plutonium (Pu) oxide.

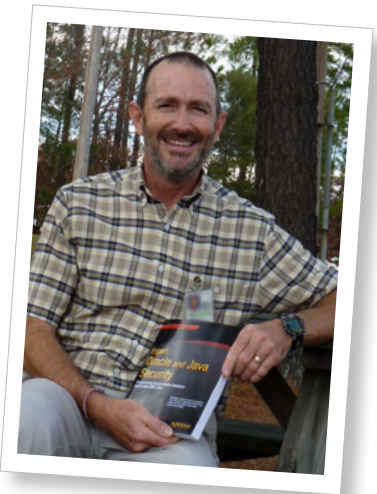
Most of the Pu oxide in our nation, which has been consolidated at SRS, will eventually go to U.S. commercial power reactors in the form of new fuel rods. However, the relatively small percentage of Pu oxide at SRS that does not have the properties needed for use as commercial reactor fuel will be placed in small amounts within carefully designed and rigorously tested containers and prepared for shipment to WIPP by SRNS Solid Waste personnel in 2012.

According to Gilmour, once the project moves from demonstration mode to full production this year, he expects to see three to four shipments of unusable PU oxide leave the Site each week bound for WIPP.



Photo: A TRUPACT-3 container at SRS

Publications



Coffin publishes IT book

SRNS' David Coffin recently had a book published explaining skills he has applied during his 18-year career at SRS in Information Technology. The book, *Expert Oracle and Java Security: Programming Secure Oracle Database Applications with Java*, covers Oracle and Java security best practices, end-to-end encryption, single sign-on, two-factor authentication, secure password storage, encoding, obfuscation, application authorization and a variety of related topics. Coffin spent a year writing the book, most of it before knowing if it would ever get published. He finished more than 10 chapters before submitting it to the SRS intellectual property counsel to see if they would claim intellectual property rights for the book. They declined and let him pursue publication. "My family is happy to see me finally finish the book because I spent many evenings, days off, weekends and even holidays and vacations working on it," he said.

H 2012

Transuranic waste remediation and new mission work will be the year's focus for H Canyon

The SRS H Canyon chemical separations facility has gone from preparing to be primarily in a “cold runs” mode to having new life breathed into this historic building that helped win the Cold War.

“After a history of primarily dissolving and separating materials found in irradiated reactor fuel rods, H Canyon continues to diversify its scope of work,” said David Moody, DOE’s Savannah River Operations Office Manager. “H Canyon is a huge and dynamic production facility that continues to service the nation’s nuclear needs and does it safely. It is one of the key facilities in the Site’s Enterprise-SRS strategic vision.”

New mission for H Canyon

Excess plutonium in the U.S. has been consolidated at SRS and is currently stored within a highly secure structure at SRS. This plutonium will eventually be processed at the Site’s Mixed Oxide Facility (MOX), which is currently under construction. The MOX production process will remove impurities from the stored plutonium and mix it with uranium oxide to form MOX fuel pellets for reactor fuel assemblies. When operational, this facility will be capable of turning 3.5 metric tons of plutonium into reactor fuel assemblies annually.

According to SRNS H Canyon Facility Manager Mike Lewczyk, studies are under way to determine the optimum means to provide feedstock for the MOX plant.

H Canyon and HB Line (a sister facility also located in H Area) are scheduled to soon begin dissolving and purifying a quantity of the stored plutonium to demonstrate the capability of producing oxide material that meets MOX feedstock specifications. This new mission for H Canyon, once under way, will produce approximately one metric ton of acceptable plutonium oxide annually after an initial two-year period to “ramp up” production levels. The scope of this mission is expected to be completed in five years.

Increasing H Canyon’s ability to process TRU waste

H Canyon is also scheduled in 2012 to increase the amount of transuranic (TRU) waste being handled and remediated within the H Canyon TRU Waste Program. A slight broadening of acceptable limits regarding the level of plutonium content permitted within the waste is key to this change. “This revision will significantly increase the number of waste containers we can safely fill and process in H Canyon and, therefore, SRNS will be able to complete this important task sooner than originally expected,” said Fred Dohse, SRNS Executive Vice President and Chief Operating Officer.

Keeping currently unused process lines viable

H Canyon personnel will also continue in 2012 to perform cold runs and proficiency runs practicing the safe operation of major operating systems within production lines formerly used to dissolve and separate nuclear materials. These efforts will maintain employee proficiency and equipment viability for future missions, should these production lines once again be used to process used fuel or other nuclear materials.



Operators in H Canyon (pictured below), the nation’s only active hardened nuclear chemical separations facility



SRNS Senior Vice President and Deputy SRNL Director Dave Eyler (right) leads the Blue Ribbon Commission on a tour of H Canyon in 2011.



The Tomorrow Towns

Students imagine 'Future Cities' at annual competition sponsored by SRNS



On a rainy Saturday morning in January, over 175 students scrambled to keep their large city models dry, while hustling to register for the final phase of the 19th annual Regional Future City Competition held at USC Aiken.

Forty-eight teams from 22 middle schools located throughout the state of South Carolina, and the city of Augusta, competed head-to-head in the competition sponsored by SRNS and the USCA-Ruth Patrick Science Center. This year's theme is *Fuel Your Future: Imagine New Ways to Meet Our Energy Needs and Maintain a Healthy Planet*.

The objective was to design a way of providing electricity for a city using an energy source that does not deplete natural resources and has limited impact on the environment.

"The amount of work, attention to detail and level of sophistication that goes into these projects is amazing," said Fred Dohse, SRNS Executive President and Chief Operating Officer. "The result of this contest for every team member is some important life lessons that will benefit each child throughout their careers."

The winning team from Kennedy Middle School will travel to compete in the national competition in Washington, D.C. Their teacher is Margo McDowell Gore and their mentor is Amanda Reedy, SRNS Spent Fuel Projects Engineering.

For information on the 2012-13 Future City Competition, visit www.futurecity.org or contact Kim Mitchell of SRNS at kimberly.mitchell@srs.gov or (803) 952-8782.

Photo: (Right) Lacie Leach from Aiken's Kennedy Middle School explains the merits of their team's model city. Team member Makenzie Cude (lower right) looks on with Amanda Reedy (upper right), the team's SRNS mentor.

Photo: (Top) USC Aiken Chancellor Tom Hallman and SRNS General Counsel Jennifer Curtis listen to the W.A. Perry Middle School team describe their model. The Columbia school took second place in the competition.

First place

Kennedy Middle School, "Neoterica," Aiken, S.C.

Makenzie Cude, Lacie Leach, Tyler Reedy

Second Place

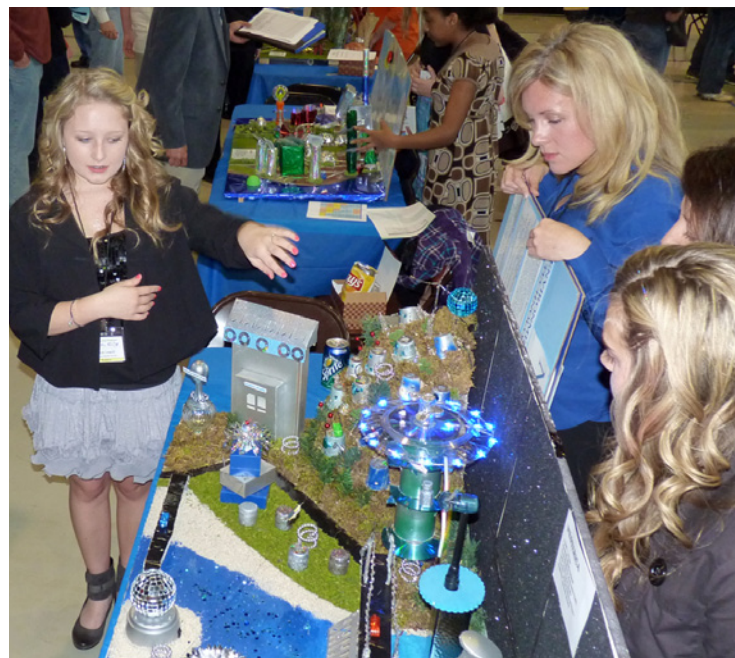
W.A. Perry Middle School, "Hydro-Utopia," Columbia, S.C.

Michael Bannister, Jarquis Pope, Justin Simmons

Third Place

North Augusta Middle School, "Nova Vita," North Augusta, S.C.

Jordan Houston, Catherine Powell, Sara Tyrrell



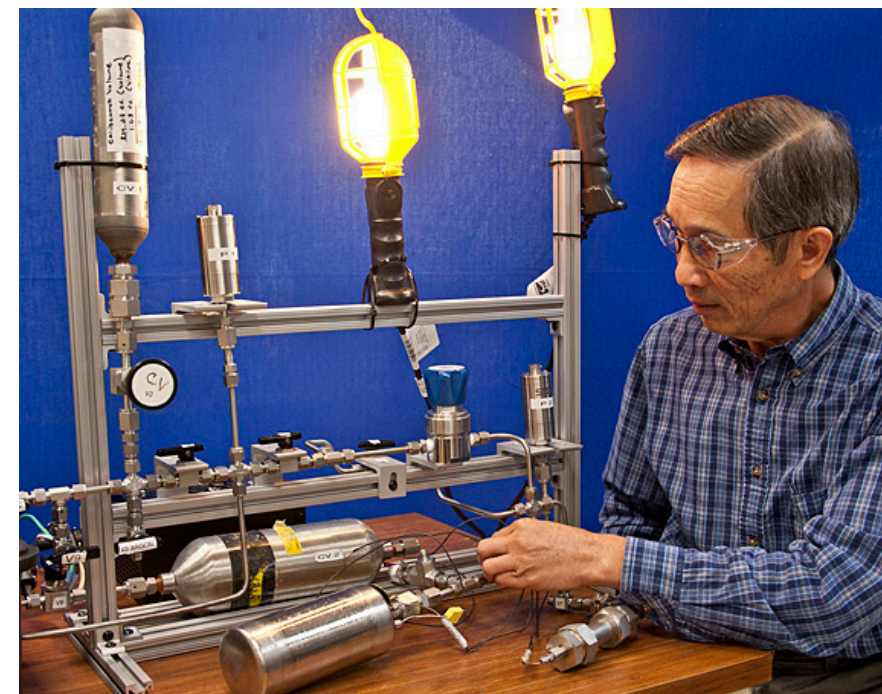
SRNL shines a light on portable power systems research

Developments by hydrogen researchers at SRNL are paving the way for the successful advancement of portable power systems with capacities that far exceed the best batteries available today. SRNL's advances in the use of alane, a lightweight material for storing hydrogen, may be the key that unlocks the development of portable fuel cell systems that meet the needs for both military and commercial portable power applications.

SRNL has demonstrated a practical path to portable power systems based on alane and similar high capacity hydrogen storage materials that provide the sought-after high specific energy, which means the amount of energy per weight. Their accomplishments to date include developing a lower-cost method of producing alane, developing a method to dramatically increase the amount of hydrogen it releases and demonstrating a working system powering a 150 W fuel cell. Portable power equipment manufacturers are looking for systems that can provide specific energies greater than 1000 watt-hours per kilogram (Wh/kg); that's more than two to three times the capacity of the best primary lithium batteries today. "Higher specific energy means more energy per weight," said SRNL's Dr. Ted Motyka. "The goal is to provide sufficient energy to a system that is light enough to be carried by a soldier or used in unmanned aircraft and other applications where weight is a factor."

Dr. Motyka, Dr. Ragaiy Zidan and Dr. Kit Heung, all of SRNL, led a team to characterize and optimize alane as a hydrogen storage material, develop a small hydrogen storage vessel containing alane, and demonstrate hydrogen release at delivery rates suitable for powering small commercial fuel cells. The results of that work are attracting interest from several commercial companies working in the area of portable power systems.

Photo: Dr. Kit Heung demonstrates a system that includes a fuel cell and alane vessel powering 40 and 60 watt light bulbs.



Holland joins SRNL as Director of Development and Partnerships

Wendolyn Holland has joined SRNS as Director of Strategic Development and Technical Partnerships for SRNL.

In this position, her responsibilities will include the development of strategic programs and partnerships with public and private sector entities, and with academic institutions. She will report to the Office of the Laboratory Director.

"The partnerships that we forge with other institutions will be important for maximizing our ability to apply SRNL's expertise to address the nation's crucial needs," says Dr. Terry Michalske, Executive Vice President and SRNL Director. "We are fortunate to have enlisted someone of Ms. Holland's background to guide those engagements."

Ms. Holland comes to SRNL from her role as a Senior Advisor for Commercialization in the DOE Office of Energy Efficiency and Renewable Energy (EERE). In that position, she was responsible for identifying and implementing opportunities to accelerate the commercialization of renewable energy technologies from DOE's National Laboratories into the marketplace. She led both a Technology Commercialization fund and an Entrepreneur in Residence program for EERE, and has served as that program office's representative in DOE-wide efforts on matters involving Technology Transfer policy, exports, and asset revitalization.



Wendolyn Holland

SRNS ambulances employ critical time-saving technology

Marking a milestone



LEAP marks first anniversary

The SRNS Leaders Emerging Among Professionals (LEAP) recently marked its first year anniversary with a dinner at the Woodside Country Club. Attendees brought gifts in the form of canned goods, which were donated to the Golden Harvest Food Bank. LEAP was launched a year ago as a developmental program for professionals in the early stages of their careers. Its focus is professional development and business awareness specific to SRNS, and provides emerging professionals with career development tools, networking opportunities and increased visibility with management.

A medical emergency has happened to you. As the ambulance speeds towards the hospital, a million thoughts are running through your mind. “Why didn’t I exercise more? Why didn’t I follow my doctor’s advice better? Why didn’t I say goodbye?”

These emergency events happen suddenly, and you want the quickest treatment available. The fastest way to the hospital is by ambulance; however, you still have to be processed and diagnosed upon arrival. What if more time could be saved?

It can. All SRS ambulances are now operating with HeartStart Telemedicine, which sends critical data to hospitals, allowing a patient to bypass the emergency room and proceed straight to treatment.

A 12-lead electrocardiogram (EKG) system in the ambulance provides an electronic picture of the heart, which is then transmitted real-time from a cell phone in an ambulance en route to a select hospital. This system not only saves time, but also provides better communication and collaboration between the hospital team and Emergency Medical Technicians.

With this technology, hospitals receive advance notice of inbound critical care patients as well as legible and objective information. They have time to triage, summon specialists and pull patient histories. The reception team is better prepared and there is better utilization of resources in the catheterization lab, radiology, surgery and the Intensive Care Unit.

“In a situation where you have a heart event, saving time, having open lines of communication and collaboration between teams as well as a team awaiting arrival of the patient can be critical to survival,” said Rob Still, SRNS Fire Chief.

SRS ambulances serve all Site contractors and can transport to any area hospital, all of which have the capability to receive the 12-lead EKG from an en route ambulance. Patients having a cardiac event are normally transported to hospitals in Aiken or Augusta. The drive takes about 30 minutes, but with the HeartStart Telemedicine, critical time is potentially saved.

Photo: Paramedic Andrew Dockal tests out the HeartStart Telemedicine on Paramedic Mike Fulmer. The cell phone, which transmits the electronic picture, can be seen in the background.



Scenes of SRNS

An SRNS employee takes a sample from one of the many streams at the Savannah River Site. The sample will be used in environmental monitoring, performed routinely at the Site. (Photograph by Bruce Boulineau)

Savannah River Nuclear Solutions is creating
a new and exciting future at the Savannah River Site.



SRNS offers uniquely skilled people, diverse nuclear operations and research facilities, and first-of-a-kind technologies to spark business opportunities throughout the nation and beyond.



We're home to the Savannah River National Laboratory, an engine for growth in advanced environmental and national security technologies, as well as clean energy research.



Savannah River Nuclear Solutions.
Leading the way in innovative and creative solutions
for our nation's most pressing initiatives.

