

● APRIL 2014

SAVANNAH RIVER NUCLEAR SOLUTIONS



# SRNS Today



## National Laboratory celebrates over 60 years of putting science to work



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# Welcome

to the April 2014 edition of

# SRNS Today



**Dwayne Wilson**  
SRNS President and CEO



**“We put science to work.”**  
That’s the motto of Savannah River National Laboratory. For more than 60 years, that’s exactly what SRNL has done. And since being designated as a national laboratory 10 years ago, SRNL has put science to work locally, nationally and internationally.

It’s an impressive milestone. To mark the occasion, SRNL celebrated on April 23 with an SRNL Summit which featured speakers including DOE dignitaries, U.S. and state legislators, and leaders from the community and educational institutions. After the Summit, a ceremony was held for the 900 SRNL employees who work each day to develop new ways to put science to work. For more on the SRNL Summit and Anniversary Celebration, please see Pages 6-7.

Also in April, we were honored to host S.C. Governor Nikki Haley at the Savannah River Site. Providing the Governor with an aerial tour of SRS and overviews of major operations was an excellent way for the leader of our state to become even more familiar with SRS and the important work we do here.

For any state, education is the gateway to the workforce of the future. In April, SRNS was at the forefront of advancing the educational experience for students and teachers through the Mini Grants program, the annual Science Fair and the “Introduce a Girl to Engineering” program. We’re proud to sponsor many educational initiatives and hope that those who participate become even more inspired to excel in their academic future.

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

## About Savannah River Nuclear Solutions

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.

[www.savannahrivernuclearsolutions.com](http://www.savannahrivernuclearsolutions.com)



SRNS President and CEO Dwayne Wilson (from left); DOE-Savannah River Manager Dr. David Moody; S.C. Representative Bill Hixon, S.C. Representative Bill Taylor, S.C. Governor Nikki Haley, S.C. Senator Shane Massey and S.C. Senator Tom Young

## S.C. Governor Haley, state legislators visit Savannah River Site

S.C. Governor Nikki Haley and members of the Aiken (S.C.) Legislation Delegation visited SRS on April 21. SRNS President and CEO Dwayne Wilson and DOE-Savannah River Manager David Moody accompanied the Governor on a helicopter tour of the Site. Gov. Haley’s tour also included an overview of the Savannah River National Laboratory and the MOX Facility. While the Governor was on the aerial tour, Representatives Bill Hixon and Bill Taylor and S.C. Senators Shane Massey and Tom Young were given an overview of SRS security operations.



SRNS Executive Vice President and Savannah River National Laboratory Director Dr. Terry Michalske presents an overview of the Laboratory to Gov. Haley.



Gov. Haley is greeted at the Applied Research Center by Dwayne Wilson (right) and Dr. David Moody.

## Secretary of Energy recognizes SRNL for national, international accomplishments

SRNL researchers have been recognized by Secretary of Energy Ernest Moniz for three separate efforts supporting critical projects both in the United States and around the world.

The SRNL team members have received the Secretary of Energy Honor Awards, one of the highest forms of recognition given to DOE employees and contractors for outstanding accomplishments in support of the DOE mission. The SRNL honorees are:

**Global Nuclear Material Removal Team:** Steve Bellamy, Greg Chandler, John Dewes, Kerry Dunn, Mike Dunsmuir and Natraj Iyer of SRNL, and Beth Hackney of SRNS Engineering.

Along with representatives of federal agencies and other national laboratories, this team was recognized for contributions to the Presidential initiative to secure vulnerable nuclear material around the world for four years. This effort led to removal or elimination of a cumulative total of over 5,000 kilograms of highly enriched uranium and separated plutonium.

**SRS F Tank Farm Closure Team:** Greg Flach, Dan Kaplan and Glen Taylor.

In addition to personnel from DOE and Site contractor Savannah River Remediation, this team was recognized for their successful effort on the grouting and closure of four high level waste tanks.

**Salt Waste Disposal Technologies Team:** Joe Carter, Sam Fink, Fernando Fondeur, David Herman, David Hobbs, Thomas Peters, Robert Pierce, Michael Poirier, Michael Restivo, Major Thompson, Thomas White and Bill Wilmarth.

A team from multiple national laboratories, universities, contractor organizations and federal staff was recognized for the successful execution of a large-scale, multi-institutional effort to provide a new technology option for radioactive waste disposition.

# Shaping the future

SRNL hosts research workshop, poster session for 'Historically Black Colleges and Universities' students

"Our partnerships with colleges and universities are critical for our growth and the future of the Savannah River National Laboratory. We learn from one another. We ask questions and we ask about what we see. That's how we get better."

That is the challenge given by SRNS Executive Vice President and SRNL Director Dr. Terry Michalske to students participating in the 2014 Research Collaboration Workshop and Poster Session for Historically Black Colleges and Universities, hosted by DOE and SRNL.

The program is designed to provide resources and promote opportunities for minority students in technology fields of research that are critical to DOE. Approximately 150 students and school representatives attended the workshop on April 24 to present their research and to learn about the research of others.

The students represented nine South Carolina colleges and universities with research ranging from the evaluation of pine cones and egg shells to remove heavy metals from the environment, to the molecular modeling of graphene oxide.

"We are building a laboratory for the future. Our students of today will stimulate current research and solve the problems our nation faces in creating a cleaner environment, ensuring our national security and creating clean energy," said Dr. Michalske.

"I think this is a wonderful opportunity for all young people involved to have a hand in the environment. Growing up, I always had a love for nature and this gives us an opportunity to show the research we have been working on and allows us to network with scientists and bridge the gap in the community," said Clinton Junior College student Miguel Talford. "It's good to be around other students to bounce ideas off of one another and meet people we may be working with in the near future. It's a great program to get a lot of young people involved and the focus of being a diverse company is one of the best aspects they offer."



SRNS Executive Vice President and SRNL Director Dr. Terry Michalske and Faith Kibuye of Benedict College discuss her project at the Research Collaboration Workshop.



## Wilson speaks on leadership at SRSLA

SRNS President and CEO Dwayne Wilson described for the Savannah River Site Leadership Association (SRSLA) how he applied Gen. Colin Powell's 13 rules for life when addressing last year's budget crisis.

His talk, entitled "Leadership in Crisis," was part of SRSLA's monthly series of presentations on key aspects of leadership.

Wilson outlined the importance of maintaining a sense of optimism and confidence, along with the importance of remaining calm, communicating, and not allowing fear to take control.

SRSLA is the Savannah River Site chapter of the National Management Association, and is made up of members from the various SRS entities, including contractors and federal employees.

Keeping cell phones, tablets and laptop computers charged for longer periods of time and for less money is a first-world problem needing a high-tech solution.

Savannah River National Laboratory (SRNL) is helping conquer that challenge through the use of hydrogen. By combining a small fuel cell with a hydrogen storage device, power systems are being developed that provide higher energy storage capacity, longer run times, faster recharge and potentially lower operating costs. This technology is also being developed for use in commercial vehicles and in military applications.

The performance of traditional lithium ion batteries has not improved significantly in recent years. Although advances have been made in hydrogen technologies to provide an effective alternative, work is still needed to lower the cost of hydrogen fuel and improve the durability of fuel cells. Scientists at SRNL, in partnership with Ardica Technologies, Inc., are tackling this battery issue through the use of alane, or aluminum hydride.

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"Cooperative agreements with companies such as Ardica Technologies put the results of SRNL research into the hands of the consumer and the user."

Dr. Terry Michalske

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Instead of using traditional batteries, electronic devices would have a small fuel cell and a hydrogen storage material. This fuel system will last approximately four times longer than current technology. The fuel cell would operate like a continuous battery and could run for an extended period of time, providing electricity as long as fuel is provided. The fuel would come from the hydrogen storage material (alane) and oxygen from the air. The fuel cartridges are small, and could be swapped in an instant and recycled.

"When combined with a fuel cell, chemical hydrides operate much like a battery that is used and recycled and not directly recharged," explained SRNL researcher Dr. Ragaiy Zidan. "These materials have some of the highest hydrogen storage densities and show great potential for many near-term applications, but still require lower cost and more efficient regeneration and recycling methods to make them practical. That is where SRNL and Ardica Technologies are focusing their efforts."

Alane can store five to 10 times more hydrogen than similar materials. Dr. Zidan, SRNL and Ardica, Inc. have been working closely to apply this new technology to make alane and alane reprocessing less expensive. Once successful, this will open the door for a new line of portable devices that may only need to be charged once a week instead of once a day.

Funding for this project comes from the DOE Office of Energy Efficiency and Renewable Energy. "As part of the cooperative agreement, SRNL is developing two promising methods—a dry mechanical alane synthesis method and an electrochemical method—to reduce the cost of alane production."

The ability to have this material created in an affordable and safe manner is expected to revolutionize portable energy storage systems. "This research and innovation will have an immediate and direct impact on our nation's energy needs," said Dr. Terry Michalske, SRNS Executive Vice President and SRNL Laboratory Director. "Cooperative agreements with companies such as Ardica Technologies put the results of SRNL research into the hands of the consumer and the user, and encourage novel solutions to world-wide problems."



# charging up the future

SRNL scientists look for way to make portable device batteries that last longer, stay stronger



# SRNL Celebrates!

More than 900 employees and special guests gathered April 23 to celebrate more than 60 years' worth of accomplishments at the Savannah River National Laboratory, and to look toward a future of technological innovation and collaboration.

The celebration marked SRNL's 10-year anniversary as a national laboratory, and "putting science to work" for more than six decades. In addition to the large crowd of employees, dignitaries from DOE Headquarters, members of the South Carolina legislative delegation, and local government, community and education leaders were on hand for the event.

The day began with an SRNL Summit, which provided an opportunity for local, state and national stateholders to express their interest and support for increasing investment in the future of SRNL.

Check out the new web site for Savannah River National Laboratory at <http://srnl.doe.gov>

Dr. Terry Michalske, SRNS Executive Vice President and Director, SRNL, introduced a distinguished group of speakers including David Klaus, DOE Deputy Under Secretary for Management and Performance; Dave Huizenga, Senior Advisor for DOE- Environmental Management; S.C. Senator Tom Young; Bruce Stanksi, President, Fluor Government Group and Chair, SRNS Board of Directors; Dr. Susan Wood, Emeritus Lab Director, SRNL; Dr. David Moody, DOE-SR Manager; Dr. Sandra Jordan, Chancellor, USC Aiken; and David Jameson, President and CEO, Greater Aiken Chamber of Commerce.

Following the Summit, the participants joined employees for a public ceremony. Speakers included Mr. Klaus; SRNS President and CEO Dwayne Wilson; Senators Lindsey Graham and Tim Scott, and Representative Joe Wilson.

"This is a time to appreciate our history, celebrate who we are today, and perhaps most importantly, look forward to our future as a vital asset in the network of national laboratories," said Dr. Michalske. "I am genuinely excited by the new initiatives that this laboratory is leading and by the increasingly important role it is playing for the nation."



DOE Deputy Under Secretary for Management and Performance David Klaus speaks at the SRNL Summit. Also pictured are Bruce Stanksi, President, Fluor Government Group and Chair, SRNS Board of Directors, and Dr. Susan Wood, SRNL External Advisory Board Member and former SRNL Director.

SRNL is making an impact on more than just South Carolina. "SRNL innovations in technology will have a much broader impact as the U.S. moves to be a global technology competitor," said Klaus. "SRNL is vital in addressing not only the nation's waste challenges, but in developing technology for the rest of the world."

"The caliber of people who are willing to invest their time and energy to focus on SRNL's success speaks volumes about how the laboratory is regarded at the national level," said Dr. Wood.

SRNL began as the Savannah River Laboratory, designed to lead the then-named Savannah River Plant's role in the nuclear defense program. Today, SRNL is DOE's only designated Environmental Management laboratory, touching more than 50 foreign countries, engaged with over 90 private companies and universities, and supporting more than 20 federal agencies. SRNL focuses on national security, environmental stewardship and clean energy.



SRNL employees gather to hear the speakers at the public ceremony.



Prakash Nagarkatti, Vice President for Research at the University of South Carolina, comments during the Summit as Aiken Standard publisher Ellen Priest looks on.



On the podium at the public ceremony were (from left) Dr. David Moody, David Klaus, Sen. Tim Scott, Dr. Terry Michalske, Sen. Lindsey Graham, Dave Huizenga, Dwayne Wilson, and Rep. Joe Wilson.



David Jameson (left) and Sen. Tom Young were among the Summit panelists.



Lauren Walsh of Augusta, Ga., television station WAGT conducts an interview with Summit participants.

# Mighty Guardians

Despite sand, snow and tumbleweeds, SRNS security specialist lends skills to DoD force-on-force exercise



Matt Melton and friends during the Mighty Guardian exercise

After three weeks supporting the Department of Defense's annual force-on-force exercise, much of it spent outdoors in subfreezing weather, Matt Melton had this to say about his experience: "I have never had so much fun being miserable."

Melton, a security specialist with the SRNS Savannah River Tritium Enterprise, was one of 15 DOE employees and contractors who joined 73 full-time military personnel as controllers for the annual Mighty Guardian exercise, which evaluated the adequacy of DoD security policies, manning, training, tactics and equipment. This year's exercise was conducted at Kirtland Air Force Base in New Mexico in January and February.

Making use of his prior military experience and experience with force-on-force exercises, Melton was assigned as a controller to a four-man fire team with an armed HUMVEE.

"What impressed me the most was the dedication and professionalism these young men and woman displayed during the course of the exercise under extreme conditions," Melton said. "We were assigned to a fixed post that required us to be outdoors for sometimes up to 10 to 12 hours a day. We experienced days of subfreezing temperatures with winds up to 30 miles per hour, snow, sandstorms, and were constantly dodging tumbleweeds. We worked 20 straight days with very little down time, but I never heard a complaint from anyone other than when they got hit by a tumbleweed."

Controllers provide direction and control of an exercise. It is their job to incorporate realism into the exercise by using smoke grenades and ground burst simulators, determine vehicle and personnel "kills," and enforce the rules of engagement. Their first and foremost responsibility is safety by ensuring no live ammo is introduced into the exercise, enforcing vehicle safety and ensuring exercise participants comply with safety rules.

"I'm glad I volunteered and look forward to working the next exercise," Melton said. "The experience I gained was relevant to my position at SRS and also gave me an even greater appreciation for the sacrifices our military personnel make each and every day to ensure our nation's security. I would volunteer to participate in another exercise without a moment's hesitation."



**Barnwell Chamber of Commerce Visit:** SRNS and DOE welcomed members of the Barnwell County Chamber of Commerce Board of Directors, who visited SRS on April 3. The group heard overview presentations on SRNS, Savannah River National Laboratory and toured the Defense Waste Processing Facility, as well as other Site operations. Pictured from left are SRNS Senior Vice President for Environmental Operations Paul Hunt; Chamber Board members Laura McKenzie and Dorothy Creech; Chamber Executive Director Daniel Harvey; Chamber Board member Andrew Bush; and SRNS Executive Vice President and Chief Operations Officer Fred Dohse.

## Big excitement for mini grants

SRNS awards \$75,000 to innovative teachers at annual reception

Grants totaling \$75,000 were awarded by SRNS in April to more than 100 Central Savannah River Area educators as part of this year's "Innovative Teaching Mini Grants Program."

All applicants were honored at a reception held April 17 in Aiken, S.C., where the monetary awards were officially presented. Nearly 300 grant proposals were submitted by teachers from schools located in five local counties.

The Innovative Teaching Mini Grants Program recognizes and supports projects that enhance elementary and middle school science, mathematics and technology programs.

According to SRNS President and CEO Dwayne Wilson, the program's impact on area students has been impressive. "The creativity and ingenuity found within the grant proposals is remarkable," said Wilson. "We are pleased to help these teachers by providing the funding needed to purchase new and innovative teaching tools."

"With the continued community support of SRNS, our students have had the opportunity to investigate and understand math concepts, reaching peaks in learning that have surprised even us," said Nan Croft, Warrenton Elementary School, Warrenton, S.C. "Our hats are off to SRNS and their nurturing presence in our educational environment." Mrs. Croft's 2013 Mini Grant award made use of special teaching aids to help students better understand the principles of fractions.

Educators from all CSRA elementary and middle schools (public and private) are eligible to apply for a Mini Grant in one of three 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).

"During the award ceremony hopes are high as names are announced and grants are presented," said Candice Dermody, SRNS Manager, Education Outreach and Talent Management. "The excitement in the air is tangible."



Teacher Tonya Gordon, Byrd Elementary, Graniteville, S.C., was the winner of a special door prize at this year's 2014 SRNS Innovative Mini Grants competition.

## Students named as 2014 SRNS Family Scholarships recipients

Fifteen sons and daughters of SRNS employees have received a 2014 SRNS Family Scholarship. The scholarships are granted based on the students' ability, leadership, scholastic assessment and achievement. An award ceremony will be held in May to recognize the students and their families.

The recipients are:

- Victoria Brown, daughter of Yolanda Brown
- Nichole Fuller, daughter of Kenneth Fuller
- Donovan Godbee, son of Kendra Godbee
- Natalie Gorensek, daughter of Maximilian Gorensek
- Carter Hunt, son of Paul Hunt
- Patrick Judd, son of Derron Judd
- Spencer King, son of Pamela King
- John Monahan, son of John Monahan
- Anand Murugappan, son of Ravi and Meena Murugappan
- Andrew Poirier, son of Michael Poirier
- Sterling Robertson, son of Sterling Robertson
- Anna Tovo, daughter of Laura Tovo
- Avery Tyrrell, son of Mark Tyrrell
- Amanda Wolfe, daughter of David Wolfe
- Anna Zecha, daughter of Donald Zecha

# hands-on science

Local girls find the science in problem-solving skills



Nicole Valle (left) and Jasmine Brown, both from Williston-Elko (S.C.) Middle School, participated in the annual Introduce a Girl to Engineering event.

In partnership with the Society of Women Engineering and The Ruth Patrick Science Education Center, SRNS recently extended invitations to middle schools throughout the greater Aiken-Augusta area to select young women to participate in this year's "Introduce a Girl to Engineering Day."

Held at the Ruth Patrick Science and Education Center, on the University of South Carolina Aiken campus, each participating school selected and sent three students who have shown an interest in a career involving engineering to this event.

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“Our program typically consists of a series of hands-on activities and intriguing demonstrations that prove to these young ladies that being a scientist or engineer can be interesting and even, at times, exciting.”

Candice Dermody

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According to SRNS Manager of Talent Development and Education Outreach Programs Candice Dermody, the Introduce a Girl to Engineering program is designed to emphasize the National Engineers Week message of encouraging students to consider careers in engineering, science and technology.

“Our program typically consists of a series of hands-on activities and intriguing demonstrations that prove to these young ladies that being a scientist or engineer can be interesting and even, at times, exciting,” said Dermody. “These activities also show how natural problem-solving abilities form the basis for many engineering skills.”

During the day-long event, the participants also had an opportunity to interact with women currently working in various fields of science, technology and engineering.

The primary goal of the SRNS Education Outreach programs is to enhance interest in science, mathematics, engineering and technology and to support improvements in education in the Central Savannah River Area by using the unique resources available at the Site.

## SRNS team pulls for charity

SRNS Leaders Emerging Among Young Professionals (LEAP) and Aspiring Mid-Career Professionals (AMP) “pulled” together for Ronald McDonald House Charities (RMHC) of Augusta’s sixth annual Plane Pull. The SRNS LEAP/AMP team pulled a FedEx Boeing 727 for a distance of 12 feet in 7.048 seconds, winning second place. LEAP is a peer-led organization whose members are full-time employees at SRNS and have earned at least an associate’s degree within the past seven years. AMP serves SRNS full-time employees who have between five and 20 years of work experience. RMHC Augusta is celebrating 30 years of providing a “home away from home” for the families of children who are seeking medical treatment for life-threatening illnesses or injuries.

## Golfers raise \$26K for United Way

SRNS Site Services raised funds on the fairway during the 11th annual United Way Golf Tournament on April 25. The event, which was held at Houndslake Country Club in Aiken, S.C., generated over \$26,000 for local United Way charities.

Thirty-three teams competed in the 18-hole, captain’s choice tournament. The winning team was the Site Quality Group, sponsored by Darlene Murdoch.

“Watching this tournament grow over the years has been a great experience,” said Kevin Heath, Site Services United Way Golf Tournament Coordinator. “A big round of thanks goes out to the volunteers, sponsors and golfers who have helped make this the largest fundraiser at SRS for the United Way during the past four years.”



High school students (from left) Thondiwe Brown, second place winner, Reese King, first place winner, and Israel Oluwasakin, third place winner, display their awards won during the recent 2014 Regional Science and Engineering Fair Competition.

# It’s Fair Time

Science Fair sparks interest in science and technology careers

With the support of the U.S. Department of Energy and SRNS, hundreds of Central Savannah River Area science-savvy students recently participated in the 2014 Savannah River Regional Science and Engineering Fair competition. More than 200 students representing schools from a six-county region located within the greater Aiken-Augusta area put their projects on display at the University of South Carolina Aiken (USCA).

Each year, approximately seven million high school students around the globe develop original research projects and present their work at local science and engineering fair competitions with the hope of making it to the Intel International Science and Engineering Fair.

With the support of co-sponsor USCA, SRNS coordinated the competition for the seventh year, ensuring an educational and rewarding experience for each student competitor.

“The Savannah River Regional Science and Engineering Fair gives young people from the area the opportunity to explore the world of science and technology and develop their scientific investigation skills by planning, developing their own ‘hands-on’ science projects,” said Kim Mitchell, Science Fair Coordinator and SRNS employee.

Projects were judged for scientific reasoning, creative ability, thoroughness, technical skill and clarity. This event promotes students’ interest in science and engineering by providing public recognition of outstanding work and by giving students the opportunity to interact with community scientists and engineers.

“We are pleased to provide a variety of initiatives and valued programs that create a definitive and positive impact on local school systems, including institutions of higher education throughout the Central Savannah River Area,” said Dr. David Moody, Manager, U.S. Department of Energy—Savannah River.

Forty volunteers from the Savannah River Site, USCA and the community typically participate as officials and judges for this competition.

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“The Savannah River Regional Science and Engineering Fair gives young people from the area the opportunity to explore the world of science and technology and develop their scientific investigation skills by planning, developing their own ‘hands-on’ science projects.”

Kim Mitchell

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# SRNS. Trusted.

*For diligent environmental stewardship*

For reducing the Savannah River Site's  
Environmental Management operational footprint by a remarkable 85 percent

For successful remediation of more than 5,000 cubic meters  
of legacy transuranic waste and its shipment out of South Carolina

For international leadership in the radiological cleanup  
of Japan's Fukushima Daiichi power plant



**Savannah River Nuclear Solutions.**  
**Trusted to get the big jobs done.**