

● JUNE 2018

SAVANNAH RIVER NUCLEAR SOLUTIONS



SRNS Today

Passive tech, active success

SRNS saves
millions in
groundwater
cleanup



This month

Eye in the sky • Visitors of note • Golden Harvest fundraiser • Summer interns





Stuart MacVean
SRNS President and CEO

Welcome

to the June 2018 edition of

SRNS Today

Savannah River Nuclear Solutions has established itself as a leader in innovation, continuous improvement, safety and sustainability. The Savannah River Site's activities this month have upheld these claims by putting them into action.

We are always looking for new ways to continually improve SRS operations, as proven by our 10 years of success in maintaining sustainable groundwater remediation. We've increased cleanup effectiveness and saved millions of dollars by implementing more passive and energy-efficient treatment technology. We also have seen success using drones to assist the site's cleanup mission and we are finding more uses for them. This reduces safety hazards for employees doing these tasks and also reduces costs.

In June, we continued our leadership by receiving the National Safety Council's 2018 Occupational Excellence Award for the 10th consecutive year. Our employees raised a record-breaking \$60,000 for the Golden Harvest Food Drive. And, we reinforced our workforce pipeline by welcoming 157 summer interns to SRS.

SRNS hosted many visitors this month including the Department of Energy's Assistant Secretary for Environmental Management Anne Marie White. Career Counselors from Bamberg, Barnwell and Allendale County Public Schools took a tour developed to help them answer student questions about careers at SRS. We also welcomed sixth graders from Tall Pines Academy for a three-day program about endangered birds.

We're looking forward to a successful summer while keeping safety in the forefront during the hot months. I hope you enjoy this month's edition of SRNS Today.



**Savannah River
NUCLEAR SOLUTIONSSM**
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Savannah River Nuclear Solutions, a Fluor-led company with Newport News Nuclear and Honeywell, is responsible for the management and operations of the Department of Energy's Savannah River Site, including the Savannah River National Laboratory, located near Aiken, S.C. The SRNS corporate and community offices are located in the renovated 1912 "Old Post Office" building in Aiken. 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



Jimmy Winkler (right) of SRNS shows Assistant Secretary for EM Anne Marie White (second from right) the H Canyon Outside Facilities during the Assistant Secretary's visit to SRS. Joining them on the tour were (from right) DOE Savannah River (DOE-SR) Manager Michael Budney; DOE-SR Nuclear Materials Programs Manager Maxcine Maxted; DOE-SR Assistant Manager for Nuclear Materials Stabilization Michael Mikolanis; and DOE-SR H Canyon Facility Representative Thomas Kohler.

Anne Marie White tours SRS

Two-day visit includes H Canyon and SRNL

Anne Marie White, Assistant Secretary for DOE Environmental Management (EM), visited SRS May 31-June 1 to tour and learn more about various site facilities and functions, including H Canyon and SRNL.

During her visit to H Canyon, White was given an overview of nuclear material processes at SRS and participated in a walking tour of the canyon and its Outside Facilities (OF-H). OF-H supports H Canyon operations by providing chemicals, recycling acid and solvent, down blending uranium and providing ventilation for the H Canyon building. The H Canyon tour was provided by Maxcine Maxted and Tom Kohler of DOE-SR and Jimmy Winkler of SRNS. They explained how H Canyon helps reduce liability for the government by processing nuclear materials, converting them into material that can be eventually turned into commercial power reactor fuel for electricity and aid in the nation's nuclear nonproliferation efforts.

In addition, the tour included an overview of infrastructure, equipment and control system upgrade needs to support the nonproliferation missions.

White spent the second day of her visit at Savannah River National Laboratory (SRNL), where she learned more about the lab's role providing technical leadership and support at EM complex sites. During a stop at SRNL's Aiken County Technology Laboratory, White received an overview briefing on the lab's decades of innovation and ongoing research in waste vitrification and cementitious materials.

In addition, she visited SRNL's Shielded Cells Facility, a special work area in the lab that provides the heavy shielding necessary for the safe examination and the analysis of highly radioactive materials. After seeing a demonstration of how operators use robotic manipulators to handle materials in the cells, White learned about the lab's innovative approaches to nuclear materials processing including the recovery of highly valuable isotopes from Mark-18A targets.

White also received a briefing on new applications of virtual reality and remote systems for safer, more effective environmental remediation, engaged in a discussion about advanced manufacturing methods and had lunch with SRS early career professionals.

Kent Spruill (from left) of Centerra; Nicole Nelson-Jean, NNSA-Savannah River Field Office Manager; Wallis Spangler, SRNS Senior Vice President for NNSA Operations and Programs; and Stuart MacVean, SRNS President and CEO, cut the ribbon to SRTE's first Argus door.



Tritium Enterprise inaugurates new security system

The Savannah River Tritium Enterprise (SRTE) took a big step toward the facilities' future by inaugurating the area's first access door to be connected to the new security system.

The Argus system will be implemented in various locations around SRS as a replacement for a security access system that has been in place for many years. The activation of SRTE's new security access was the result of achievements by Design Engineering, Design Authority, Construction, Security and Security Maintenance personnel.

NNSA-Savannah River Field Office Manager Nicole Nelson-Jean and Wallis Spangler, SRNS Senior Vice President for NNSA Operations and Programs, cut a ceremonial ribbon at the access door, before Nelson-Jean became the first person to officially enter using the new access system.

Other, less visible milestones preceded the activation of the door. The SRTE Central Alarm Station was upgraded to be compatible with Argus, and the accountability system to be used during emergencies was converted to Argus. This door was the first SRTE access point in routine use to be converted.

Nelson-Jean noted during the ceremony that another milestone contributed to the successful activation: a pilot project that applied Agile methodologies to the design of the project, resulting in savings of both cost and time.

SRTE is a vital contributor to our nation's nuclear defense. The upgrade of the security access system, along with other planned facility upgrades, are intended to ensure that SRTE can continue fulfilling that vital role successfully into the future.

National Safety Council recognizes SRNS performance

SRNS Operations and Construction divisions, comprised of more than 5,400 employees, was recently awarded 2018 Occupational Excellence Awards from the National Safety Council (NSC) for their exemplary safety performance at SRS.

The NSC Occupational Excellence Award is bestowed upon employers that have reported injuries and illnesses involving days away from work equal to or less than 50 percent of the Bureau of Labor Statistics rating for their type of industry for the previous calendar year.

SRNS has received the NSC Occupational Excellence Award for 10 consecutive years and 35 safety awards from the organization since becoming the SRS management and operations contractor in 2008.

"SRNS employees continue to strive for safety performance excellence year-after-year. Safety has a long-standing legacy at SRS and our employees nurture a strong culture that serves as the foundation for all work performed by our diverse workforce," said

SRNS President and CEO Stuart MacVean. "Regardless of the work environment – office, field or nuclear facility - the employee-led safety culture dictates that safety remains the overriding measure of excellence in all that we do to support our missions."

During 2017, SRNS was also re-certified as a Voluntary Protection Program participant. This DOE-led program provides external validation of the health of safety programs and culture within contractor companies. Additionally, the workforce continued to earn safety awards from the S.C. Chamber of Commerce and the S.C. Department of Labor, Licensing and Regulation during the year.

Combined, the SRNS workforce has amassed more than 14 million work hours without an injury causing a missed day of work since February of last year, marking the third time the company has surpassed the 10 million safe work-hour milestone. They continue to build on that record, having completed 2017 with the lowest annual injury rate in the company's history.



Eye in the sky

New UAS program helps cleanup, supports national security

SRNL is establishing a Small Unmanned Aircraft System (sUAS) program at SRS, moving forward with the defense community on testing unmanned aircraft systems for national security uses as well as supporting the site's cleanup mission.

Previously, the use of UASs was not permitted at SRS. But over the last few months, following preparation of an operations manual and program plan, procurement of commercially available UASs, and training of personnel, SRNL has successfully flown several missions and is preparing to fly follow-up missions.

SRNL is testing the use of UASs for a variety of applications, including collecting field data, detecting radiation, and monitoring and inspecting remediated facilities.

"We are going very methodically, very cautiously and deliberately as we look at what's possible," said Todd Coleman, Program Manager for National Security Strategic Initiatives at SRNL. "It really is opening up many options to reduce risk to workers and reduce cost to perform difficult tasks or, in some cases, perform things we've never really been able to do."

SRNL is collaborating with the DOE-SR Office of Safeguards and Security, the DOE-HQ Office of Aviation Management, the Flight Readiness Review Board, the Federal Aviation Administration and the SRS Operations Center to conduct the missions.

Earlier this year, SRNL worked with SRNS to use a UAS to capture video of the roof tops of the entombed P Reactor building to view and record those areas. The flight provided approximately an hour

of finished video, enabling SRNS personnel to perform a clearer inspection of areas that might affect the integrity of the roof.

Michael Budney, DOE-SR Manager, praised the "successful partnering activities in support of the precision piloting of a drone at the closed P Reactor, which enabled a test survey/inspection of the roof."

As a result of this successful flight, SRNL is set to return with a special hexacopter equipped with a herbicide spray apparatus to target and spot treat unwanted vegetation on the roof of both P and R reactor buildings. SRNL is partnering with Virginia Tech, which already has such an aircraft as part of its Unmanned Systems Laboratory.

In January, SRNL joined with the Defense Threat Reduction Agency (DTRA) within the U.S. Department of Defense (DoD) and Virginia Tech to conduct a collection of field data using a modified UAV and ground robot, each with radiation detection. Two different offices in the DTRA Research and Development Directorate funded the exercise.

"We were able to bring together a unique blend of technical assets, leading edge UAS developments and SRNL's radiological expertise for DoD in a way that had not been done before," Coleman said. "Both vehicles worked autonomously and communicated to each other to detect and home in on radiation sources on the ground."

SRNL and SRNS are working to identify more opportunities to use UASs to support the cleanup mission and site infrastructure.

Photo: A UAS provides a birds-eye view of the top of the closed P Reactor at SRS.

SRNS wins awards at DOE Small Business Forum

The SRNS Supply Chain Management (SCM) team was recently presented with three awards at DOE-Savannah River’s 17th Annual Small Business Forum & Expo.

During fiscal year 2017, SRNS allocated \$36 million to new small businesses, with \$10 million going to local small businesses.

SRNS Procurement Director Jay Johnson received the Facility Management Contractor (FMC) Procurement Director of the Year Award for his commitment to maximizing use of small businesses.

Alex Agyemang, SRNS Procurement Manager of Small Business Programs and Supplier Partnering, received the FMC Small Business Program Manager of the Year award for nearly doubling outreach efforts with small businesses.

SRNS supplier KAMO, a family-owned business providing sustainable janitorial supplies on site, received the Small Business of the Year award for being good stewards of taxpayer dollars and for their contributions toward the continuous improvement of SRS.

“One of our strategic goals in Procurement is to be active and progressive advocates for small businesses. We’ve exceeded our goals the past two years and are on track to exceed them again



Alex Agyemang



Jay Johnson, Procurement Director, addresses a group of representatives attending a recent small business leaders conference in Augusta

this year. These awards give us an indication that we’re heading in the right direction,” said Johnson.

American Red Cross honors SRNS employees as ‘Heroes’

SRNS employees Kelsey Schlegel and Bryan Ashe were recognized recently as American Red Cross “Heroes” at ceremonies held in Aiken and Augusta.

The awards recognize local citizens who go above and beyond to help others in need. Ashe was also recognized as a Good Samaritan Hero by the Red Cross Augusta Chapter.

Schlegel, an engineer in the SRNS Tritium Facilities, was recognized by the Aiken Chapter of the American Red Cross. She voluntarily sought out Red Cross certification in CPR and first aid through training offered at SRS. The day after becoming certified, Schlegel was a witness to a motorcycle accident that left the cyclist unresponsive and with severe injuries.

She responded to the incident just as she had been trained to do. She asked another bystander to call 911 while she checked for a pulse and breathing. She also held his helmet in place to reduce the cyclist’s neck movement to potentially prevent further injury. Once the cyclist regained consciousness, Schlegel coached him through the situation until paramedics arrived, keeping him calm and still.

Bryan Ashe, a radiological protection technician, was recognized for providing lifesaving care to a stranger with a medical emergency.

At an Augusta restaurant, Ashe noticed that the hostess looked unwell. He asked if she was OK and she explained that she was tired from running a 10K race the day before. Shortly afterward, shouts for help erupted from the front of the restaurant where



Bryan Ashe and Kelsey Schlegel

the hostess had collapsed to the floor, unconscious and with an undetectable pulse. Ashe began CPR as a bystander called 911, and with assistance from a retired firefighter, they continued the CPR until the woman regained consciousness.

SRNS sets new record with \$60,000 raised for Golden Harvest Food Drive

Saying “no” to child hunger in the Central Savannah River Area. To do just that, SRNS employees have worked together to raise more than \$60,000 in monetary donations and 1,000 pounds of food for the Golden Harvest Food Bank (GHFB) “BackPack” Program for children.

“The Golden Harvest Food Bank distributes \$9 of food with every \$1 donated,” said Travis Bradley, SRNS Food Drive Chairperson. “The efficiency and effectiveness of the system used by Golden Harvest mean this year’s monetary donations by SRNS employees will generate the purchase of enough food to create 12,000 bags of food to be loaded into back packs during the school year, feeding hundreds of local kids.”

According to GHFB Executive Director Travis McNeal, one in five children lives in a family at or below the federal poverty level in Georgia and South Carolina. These children often receive assistance from programs operating during the week, such as free or reduced-price lunches and after school programs. However, over the weekend, many of these children risk going hungry, often returning to school famished and weak on Mondays, thinking only of the free meal that will come at breakfast or lunch time.

The GHFB Backpack Program meets the needs of children facing hunger by providing them with a bag of nutritious, easy-open food every Friday during the school year. Each bag contains enough food for four meals to help recipients through the weekend, enabling the children to arrive at school on Monday well fed.

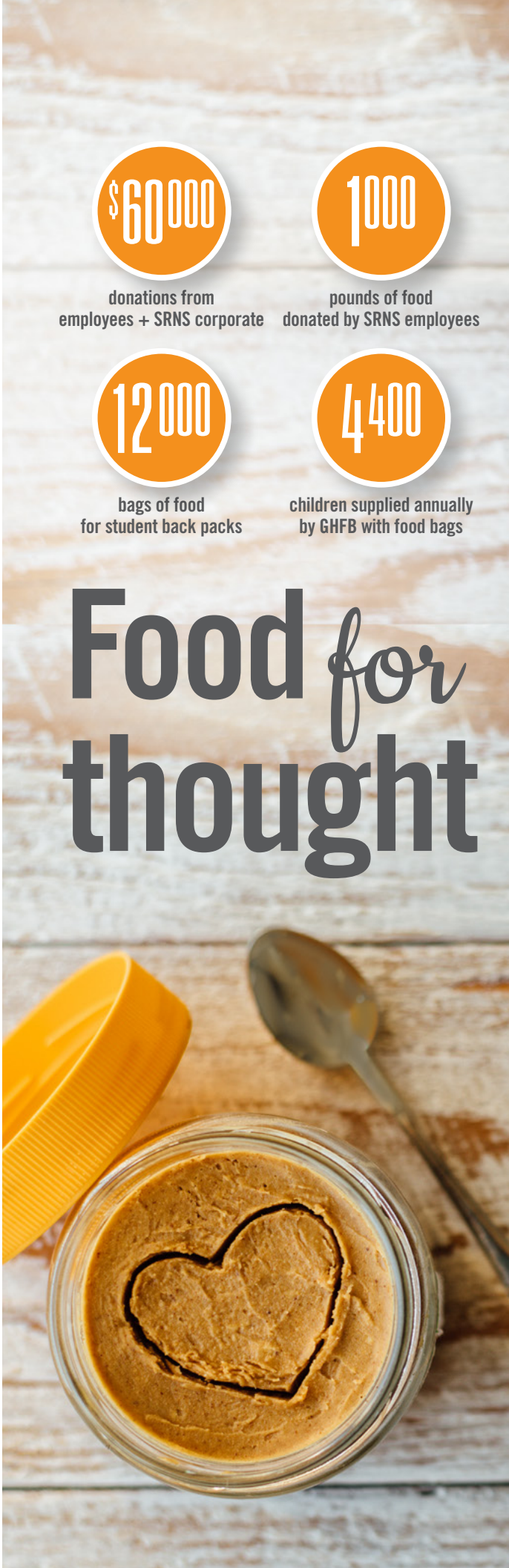
“We are so thankful to have SRNS as a partner,” said McNeal. “It speaks volumes about the character and heart of an organization that supports our community with so much enthusiasm.”

Bradley added that several SRNS volunteers assisting Golden Harvest have sons and daughters who are teachers. As educators in local schools, they have witnessed first-hand the importance of this program. “There’s so much more demand than food available for those in need. We’re doing our best to help close that gap,” said Bradley. “And what our employees and volunteer helpers have achieved through this year’s food drive will have a significant impact on children in the communities surrounding SRS.”

“The SRNS company itself contributed \$5,000 to this very important program,” added Bradley. “In fact, SRNS contributes approximately one million dollars each year to the charitable needs found in so many areas throughout the region.”

“We are especially grateful that SRNS—for a second consecutive year—has put their annual food drive focus on children,” said McNeal. “The employees were extremely responsive and demonstrated their belief in the value of the Backpack Program through their highly appreciated gifts.”

More than 4,400 children are supplied with weekend food bags annually through the GHFB Backpack Program.



Operators
Tony Craps (left) and
Mathew Easily sample
a Microblower unit.



Active success in passive cleanup

SRNS saves millions
over past 10 years
through energy-efficient
groundwater remediation

In the 10 years since SRNS began managing groundwater remediation at SRS, the widespread implementation of more passive, energy-efficient treatment technology has increased the effectiveness of the cleanup while saving millions of dollars each year.

Since 2008, more than 60,000 pounds of non-radioactive contaminants have been removed from the groundwater beneath SRS at a cost savings of more than \$5 million, adding to the total of 1.6 million pounds of non-radioactive material removed beneath SRS since the initiation of site cleanup programs.

SRNS has improved and expanded technologies to capture and manage radioactive contaminants in the subsurface as well, using underground barriers in F and H Areas to result in a cost avoidance. This was achieved by coupling the underground barriers with periodic injections of special materials to adjust groundwater chemistry and promote natural conditions where contaminants adhere to underground sediments.

“The cleanup of the groundwater at SRS is one of our most important missions,” SRNS President and CEO Stuart MacVean said. “We’ve been able to do more cleanup for less money and we’ve done it safely. This is a testament to both our partnership with DOE and our commitment to continuous improvement.”

An important part of the success of the SRS groundwater cleanup program over the last decade has involved implementing a strategy to fully transition from active, highly mechanized systems to innovative, passive technologies requiring little or no electricity. Working in partnership with SRNL, all but one of the active remedial systems still in place are projected to be phased out within five years.

“Early active groundwater cleanup projects at SRS concentrated on using more aggressive methods to separate and remove the contaminants from tens of millions of gallons of groundwater,” said Mike Griffith, Project Manager, SRNS Area Cleanup Projects. “Examples of active technologies include steam injection and air

stripping, requiring the power of large electric pumps, support facilities and monitoring equipment.”

Once these “pump-and-treat” systems have effectively removed a high percentage of subsurface chemicals at SRS, passive remediation technology has been determined to be the more cost-effective means to complete the cleanup process.

The primary advantage for passive cleanup is best represented in its ability to harness natural properties to protect, manage and remediate groundwater.

Solar-powered soil vapor extraction units known as MicroBlowers are an example of passive cleanup. MicroBlowers are designed to generate a vacuum that exhausts contaminants from designated wells. Each unit requires only 20 and 40 watts of power, easily produced by a small solar panel.

Griffith explained that a single MicroBlower removed 234 pounds of volatile organic compounds from chemically contaminated subsurface at SRS during a 10-month test. Griffith added that SRNS would eventually like to rely primarily on a technology called BaroBalls™, which operate completely on natural changes in barometric pressure to pump contaminants from the subsurface. “No energy is used and excellent results are obtained,” Griffith said.

Another passive cleanup system being used at SRS is bioremediation, which relies on feeding naturally occurring microbes found in soil to accelerate the cleanup process. The microbial “bugs” eat contaminants covered with vegetable oil that is injected into wells within an impacted area.

Cumulatively, these technologies are proving to be a cost-efficient means of reducing risk to human health and the environment, and are shortening the time for site cleanup.

“Overall, we currently have 39 groundwater remediation systems operating at SRS,” said Karen Adams, DOE Infrastructure and Area Completion Division. “It’s a carefully researched, planned and comprehensive approach to environmental remediation at SRS we’d like to share across the DOE complex.”

Technical Lead Jeff Ross checks a BaroBall well.



in total cost savings
since 2008



pounds of non-radioactive
contaminants removed since 2008



pounds of non-radioactive material
removed since SRS cleanup began



watts of solar power
produced to run 1 MicroBlower



pounds of compounds removed
by 1 MicroBlower in a 10-month test

SRNL, TEPCO deepen relationship

Collaboration benefits U.S.
and Japan cleanup programs



Photo above: SRNL views progress of cleanup on the Fukushima Daiichi Nuclear Power Station in 2016.

Photo at right: Tomoaki Kishimoto, chief associate for TEPCO's International Relations and Strategy Group, has been working with researchers at SRNL to evaluate technologies and remediation strategies for the power station.



As Tokyo Electric Power Co. (TEPCO) continues cleanup of the Fukushima Daiichi Nuclear Power Station, the Japanese utility is deepening its relationship with SRNL to help evaluate cleanup technologies and remediation strategies.

SRNL has been engaged in the response to the Great Japan Earthquake, tsunami and nuclear power station explosions since the immediate aftermath of the combined disasters on March 11, 2011. For example, as part of the U.S. government's mobilization of emergency assistance, SRNL analyzed hundreds of soil and air filters, including samples collected at the U.S. Embassy and American military bases in and near Japan, for radioactive material. SRNL has since engaged with Government of Japan agencies and other institutions in Japan to support disaster recovery both on and beyond the power station.

Since 2012, SRNL and Pacific Northwest National Laboratory (PNNL) have partnered to provide technical support directly to TEPCO, the nuclear power station operator responsible for cleaning up the reactor site. TEPCO seeks the experience and expertise of SRNL and PNNL to evaluate the likely effectiveness of specific cleanup technologies and waste management approaches at the Fukushima Daiichi site.

"SRNL has really been able to help in the 'honest broker' role, utilizing our experience in the EM world," said SRNL Associate Laboratory Director for Environmental Stewardship, Dr. Jeff Griffin. "TEPCO is doing water cleanup, decontamination, waste management, disposition pathways—all the things we've been dealing with in EM for thirty years. Prior to Fukushima, Japan hadn't really been doing this kind of cleanup work. They had to jump into it overnight."

SRNL's collaboration with TEPCO strengthened even more a year ago when SRNL and TEPCO agreed to embed a senior TEPCO engineer in SRNL at SRS full-time. Tomoaki Kishimoto, chief associate for TEPCO's International Relations and Strategy Group, will continue his assignment in SRNL for at least a few more months.

"We've had much to learn about decommissioning and cleanup," Kishimoto said. "SRNL, SRS and the rest of DOE have been able to share many lessons learned and evaluations of technology that have helped us significantly. The relationship has been even more effective now that I'm here at SRNL to communicate our needs directly."

Griffin agreed, adding that Kishimoto's presence at SRNL has been "tremendously" helpful: "He knows what they need and is getting to know our capabilities. He's embedded with us and is plugged in to their emerging needs in real time."

Griffin noted that the U.S. and DOE benefit significantly from the partnership. "This is not just about SRNL and PNNL providing assistance—the work is truly a benefit to the EM program as well," Griffin said. "For example, TEPCO is deploying ion exchange technology for the cleanup of the water, which is the same technology we are deploying here at SRS with the Tank Closure Cesium Removal and at Hanford with Tank Side Cesium Removal. The experience in Japan is very relevant, so having the labs plugged in to what's going on in Japan in that area has been very helpful."



Dr. Chemar Huntley (right) is the first Postdoctoral Research Associate sponsored through DOE-EM's Minority Serving Institution Partnership Program. Dr. Aaron L. Washington II (left) is her SRNL mentor.

Postdoc scientist is first for MSIPP pilot program

A new postdoctoral scientist at SRNL is the first participant in a pilot program in the DOE Environmental Management (EM) Program's Minority Serving Institution Partnership Program (MSIPP).

Chemar Huntley of Sylacauga, Ala., with a PhD in Materials Science and Engineering from Tuskegee University, began working at SRNL in October as the program's first Postdoctoral Research Associate.

While MSIPP is a well-established mechanism for creating a pipeline for undergraduates, the postdoctoral program is a new component. SRNL administers both the postdoctoral pilot and the undergraduate program for EM.

Huntley says the experience is already living up to expectations. "Not only is this allowing me to build a bridge from educational experience to industrial experience, this has already been a great

self-improvement opportunity. The leadership opportunities, the personal interactions and networking, and the opportunity to work with a mentor—all of those things have really educated me and helped get my career off to a solid start," she says.

Huntley works with other researchers in a variety of areas: chemical testing of dyes for potential radiation detection application, development of a beta radiation sensor that could convert radiation into power, and development of applications for gamma-voltaic systems. Projects have also taken her beyond the laboratory, including a training opportunity with a university partner—Georgia Tech's Institute for Electronics and Nanotechnology.

MSIPP supports STEM activities at minority-serving institutions (Historically Black Colleges and Universities, Hispanic Serving Institutions, and Tribal Colleges and Universities).

Formula for success

SRNS-led Education Outreach programs reach thousands

Since SRNS became the SRS management and operating contractor in 2008, more than 200,000 students and teachers in the eight counties near the site have benefitted from the company's dedication to enhance learning.

"For many years now, we have benefited from the partnership of SRNS in our efforts to provide real-world application of scientific processes and concepts to the students and families we serve," said Dr. Sean Alford, Superintendent, Aiken County Public Schools. "Their education outreach programs enhance the classroom experience for educators and students alike."

As the 2017/2018 school year closes, SRNS has reached nearly 30,000 students and educators as a result of 14 comprehensive education outreach programs and events provided throughout the region.

"Supporting our local education system is investing in the future of SRS as we continue to pursue local residents to fill job openings throughout our company," said SRNS President and CEO Stuart MacVean. "It's this kind of synergistic relationship between industry, education and students of all ages that helps guarantee a bright economic future for the entire Central Savannah River Area."

The goal of SRS education outreach programs is to stress the importance of science, technology, engineering and math (STEM). These STEM-intensive initiatives include the Traveling Science Demonstration Program, Science & Technology Enrichment Program, Innovative Teaching Mini-Grants, Introduce a Girl to Engineering and workshops, tours and demonstrations.

Many programs offered annually are based on learning through friendly competition, testing the depth of their knowledge and experience. These include the S.C. Regional Science Fair, DOE Savannah River Regional Science Bowl and the Regional Future City Competition.

An event that reaches the most students each year is CSRA College Night in Augusta, Ga. Last year, 5,000 high school students and parents participated, with 130 colleges and universities manning information booths. Coordinated by SRNS, the event has provided more than \$290,000 in scholarship funding over the years.

SRNS also offers an annual "mini grant" program to provide financial assistance to area teachers through corporate funding. This competitive program provides grants to CSRA public and private elementary and middle school teachers for innovative teaching ideas. During the past school year, grants totaling \$50,000 were awarded to 76 teachers. To date, more than \$500,000 has been contributed to area educators.

At the collegiate level, SRNS has strengthened ties with many colleges and universities in South Carolina and Georgia by providing scholarships, funds for critical STEM-related equipment and mentoring opportunities.

In December 2017, SRNS made an investment in the region's developing workforce with a \$100,000 installment of a \$550,000 commitment for an endowed engineering professorship at the University of South Carolina Aiken.

"We are extremely grateful for the tremendous support of SRNS," said Dr. Sandra Jordan, USC Aiken Chancellor. "SRNS has been an invaluable partner to the university—not only through its financial gifts but through its scientists' expertise in the development of many programs, mentorships, generous scholarships and internship opportunities."

To better reach adults pursuing two-year degrees locally, SRNS has signed Memoranda of Understanding with area technical colleges, documenting the partnerships with these colleges, DOE and SRNS, while helping create advisory boards to oversee curriculum and course management related to SRS work scope.

SRNS management welcomes summer interns

SRNS has welcomed 157 interns this year, providing students and recent graduates with opportunities to develop their skills while contributing fresh perspectives to SRS. A reception was held on June 4 for interns to network with executives and fellow rising professionals, while receiving advice on how to maximize their experience. Recent Augusta University graduate Tia Foster said, "I feel like SRS is a good opportunity for growth. There's a lot of different areas that I could use my degree in and have new learning experiences." According to SRNS President and CEO Stuart MacVean, many site employees are retiring, so future employment opportunities are increasing for interns. "If you want to do something that makes a difference on a global level, this is where you want to be," MacVean said.



SRNS Executive Vice President and Chief Operations Officer Dave Eyler (second from right) talks with a group of interns during the 2018 Intern Reception.

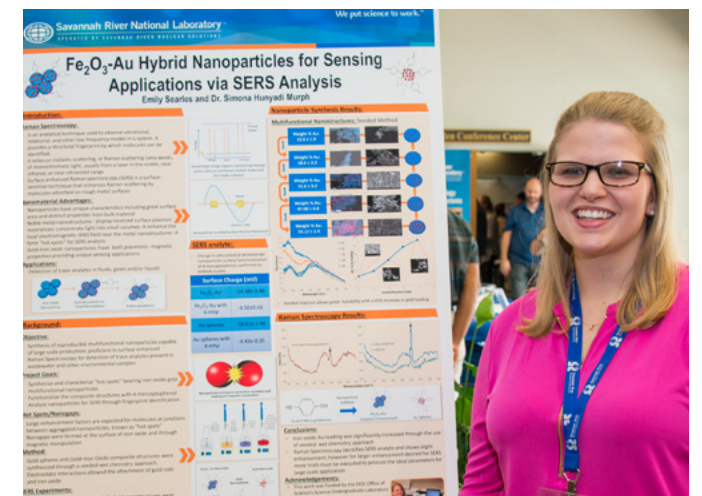
SRNL internship inspires student to pursue doctoral degree

When Emily Searles, a senior at Roanoke College, spent the summer of 2017 as an intern at SRNL, all she wanted was to better understand real-world research. However, when the DOE Science Undergraduate Laboratory Internships (SULI) intern left, she was inspired to take the next step in her career path.

"I went into my summer project wishing to better understand what real-world research looked like to determine if I wished to pursue a career in the field of chemistry," said Searles. "After my experience at SRNL I knew I wanted to pursue a doctorate in chemistry following graduation from Roanoke College."

As an intern under Dr. Simona Murph, a Principal Scientist in the National and Homeland Security directorate and the founder of the Group for Innovation and Advancements in Nano-Technology Sciences (GIANTS), Searles created multifunctional iron oxide-gold nanoparticles and used them for the detection of ultra-low levels of chemical species in environmental samples through the technique of Surface Enhanced Raman Spectroscopy.

Searles describes her internship at SRNL as meaningful: "SRNL provided an internship experience that fostered an open environment of learning through real-world, hands on experiences that allowed for a depth in knowledge in a particular project of meaningful science."



Emily Searles stands with her research conducted at SRNL as an intern at an SRNL poster presentation. Her research and experience at SRNL have led her to pursue a doctorate degree in chemistry.

In addition to changing the trajectory of her career objectives, the research Searles conducted at SRNL was one of three projects selected for presentation at Roanoke College's Enrichment Program in Chemistry lecture series.

Natalie Ferguson, Program Manager, SRNL Workforce Management, and Lab Education Director for SULI Internships, added, "Outstanding research mentors, like Dr. Murph, and the structure of our SULI internships combine to give our interns a valuable competitive edge in becoming highly successful researchers for our future workforce."

After graduation, Searles plans to attend graduate school in chemistry, concentrating on physical chemistry and nanotechnology.

200,000

students and teachers served
in eight counties since 2008

30,000

students and teachers
reached in 2017-2018

\$290,000

in College Night
scholarships since 2008

\$500,000

in Mini-Grant funding
to area educators

\$550,000

commitment to USC Aiken
engineering professorship



Cristie Shuford (center), SRNS Radiation Protection Training Manager, discusses the training qualifications needed for those applying for jobs at SRS related to radiation protection to a large group of career counseling professionals from Bamberg, Barnwell and Allendale County Public Schools.

Career counselors learn about SRS hiring needs

Career counselors from Bamberg, Barnwell and Allendale County Public Schools recently attended a special tour of SRS, developed to help them answer student questions about careers at the site. The counselors visited several site facilities and participated in a driving tour.

"You really have to tour the site and get involved in presentations, employment statistics and discussions to begin to grasp just how great the potential is for a career at SRS," said Kimberly Mitchell, SRNS Education Outreach.

Mitchell explained that the first step is to raise local educators' level of knowledge about SRS, who then act as conduits to reach area students. "It's not just the careers within nuclear operations," said Mitchell. "We want them to know we have research scientists, mechanics, accountants, electricians, administration professionals, crane operators, lab techs, engineers, human resources and computer science professionals."

Last year alone, SRNS hired more than 500 new employees. Hiring is expected to continue for many years as a large percentage of SRS employees become eligible to retire.

Data provided to touring counselors included SRNS employees hired last year by career field. "Projecting the hiring of a similar number of employees next year in each type of occupation is realistic," stated Mitchell. "This is practical information students can use to make an informed decision regarding the expected job market."

During the tour, SRS officials also provided information to ensure the counselors understood the partnership between SRS companies and local universities and colleges.

"Everyone at SRS is always so helpful and in tune with what high school students need to know," said Cathy Smith, Williston Elko High School. "SRNS completely laid out for us the specifics of what careers they are looking for, what the requirements are and how much of a demand there is."

14 SRNS teams take the field during annual softball fundraiser for United Way

SRNS held its 14th annual SRS Softball Tournament on June 18 and 20 to raise money for various local United Way (UW) agencies.

SRNS has raised more than \$18,500 through the efforts of volunteers from SRNS, United Way of the CSRA and United Way of Aiken County. A portion of the proceeds from the tournament will be donated to each team's UW agency of choice.

Participating in the tournament were 18 teams with more than 270 players and coaches representing multiple SRS contractors, including SRNS, Savannah River Remediation and Parsons. The Environmental Management Ops Team USA, who sponsored Area Churches Together Serving, defended their title as champions, defeating Engineering Purple Reign with a score of 20-5.

Tournament organizer Eric Schiefer stated, "As the tournament's popularity increases each year, the more money we are able to raise for such a worthy cause. This year we had 14 SRNS teams participating, which is the most ever. I would have never envisioned the tournament becoming an event of this magnitude when it first started 13 years ago," said Schiefer.



PMCS team members Karly Kinard (at bat), Curtis Crenshaw (pitcher) and David Weeks (catcher) warm up for one of the tournament games.



Tall Pines Academy sixth grade students (from left) Gabey Marshall, Maia Stefanakos, Caroline Kidd and Madison Rich, creatively explain the plight of the endangered red-cockaded woodpecker to classmates, all part of a three-day project conducted by SRNS Education Outreach personnel working with Ruth Patrick Science Center instructors.

SRNS-sponsored class teaches students about endangered species

The endangered red-cockaded woodpecker and threatened Bachman sparrow were the recent subjects of a three-day in-depth project based learning program for students held at SRS for sixth graders from the Tall Pines STEM Academy, a charter school located near Aiken, S.C.

A third day was dedicated to the creation and presenting of a media campaign. Each group of four to five students developed their own strategy on how to best communicate the plight of the red-cockaded woodpecker and Bachman sparrow to their classmates and others.

SRNS Education Outreach personnel working with Ruth Patrick Science Center instructors explained the plight of the birds to the inquisitive students during their visit to SRS.

Moving through the forests of SRS, the students investigated adaptations that allow for success of animals in diverse and changing environments. This was followed by a U.S. Forest Service presentation demonstrating how manufactured wooden nests are installed in longleaf pine tree trunks, a necessary nesting site for the woodpecker.

The project based learning program had already resulted in several Tall Pines students deciding to use the cause of the endangered woodpecker as a points-producing theme for their FIRST Robotics team during a special segment of the multi-part competition.

A local Girl Scout leader, visiting the same robotics competition, was impressed with the team's theme and presentation; enough so, that she asked them to give the talk to members of her troop.

"The ripple effect of something like this is always amazing," said Francine Burroughs, SRNS Manager, Education Outreach and Talent Management. "We appreciate that this program is so effective because it is not a 'learn for the sake of learning' opportunity, but instead, is a 'learn in order to teach' process. These students are now advocates for environmental stewardship."

Tall Pines sixth grade teacher Melissa Kidd stated that area schools are fortunate to have the educational value provided by the Ruth Patrick Science Center, SRS and all other community partners. "They make it fun, but there is real learning taking place. SRNS sought us out to ensure we had the opportunity to experience, for free, the high-quality instruction and activities this program has to offer. This is all invaluable to me as a teacher."



AMP volunteers with senior citizens

Volunteers from the SRNS Aspiring Mid-Career Professionals (AMP) have spent time this year making days brighter at several local assisted living centers, including HarborChase Assisted Living & Memory Care in Aiken, S.C., and Hammond Place Assisted Living Home in North Augusta, S.C. AMP members and the residents played games, gave manicures and visited with the residents. "It gives me great joy to volunteer at the assisted living residences," said AMP volunteer Angela Williams. "I love to see their faces light up when they have visitors spending just a little time reading, playing games, dancing or whatever I can do to make their day. It reminds me of my grandmother, who was my 'rock' and who was very instrumental in shaping me into the person I am today. I feel so good the rest of the day after I have spent time volunteering."

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