DECEMBER 2013

SAVANNAH RIVER NUCLEAR SOLUTIONS

SRNS Today

IN THIS ISSUE

Welcome

to the December 2013 edition of

SRNS Today

Dwayne Wilson
SRNS President and CEO

Hundreds of volunteers. Thousands of toys.
Over a million dollars in contributions.
And the communities of two states benefit
from the generosity of our SRNS employees.

United Way. Toys for Tots. Deer hunts for wounded veterans and mobility-impaired hunters. Although the holidays bring their efforts into a sharper focus, SRNS employees offer the gifts of their time, monetary contributions and talents non-stop.

Although I could spend hours telling you about our employees' efforts, the agencies and recipients of these gifts say it best:

From La Verne Gold, President and CEO of the United Way of the CSRA: *"Employees at SRNS represent a giving community and know what it means to give back."*

From Major Angie Repass, Salvation Army of Aiken: *"In my 15 years with the Salvation Army, I've never seen one company give to the extent that they have."*

From U.S. Army Sgt. Sean Falcon, participant, Wounded Warrior Deer Hunt: *"This is amazing. You just don't find organizations that are willing to help wounded soldiers, any soldiers for that matter, to hunt at no cost. It makes you feel real good inside to know that people care so much for you."*

So, to our employees who embody the spirit of giving, I offer my admiration and my thanks.

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

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About Savannah River Nuclear Solutions, LLC

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

Over $1 million was raised during the recent SRNS Employee United Way fundraising campaign used to assist nine United Way agencies located throughout the greater Central Savannah River Area.

More than a million acts of caring

SRNS Employee United Way Campaign raises $1.02 million; SRNS parent companies add $200,000 as corporate match

Savannah River Nuclear Solutions employees are celebrating the exceeding of their goal by more than $43,000, raising $1.02 million in donations for area United Way agencies during this year's SRNS Employee United Way Campaign.

SRNS donation checks were presented by Krissy Zeigler, this year's Chair of the SRNS Employee United Way Campaign, to representatives from nine United Way agencies.

SRNS Executive Vice President and Chief Operations Officer Fred Dohse presented an additional $200,000 to the campaign as part of a corporate match supported by SRNS' parent companies.

"The results of the 2013 campaign were inspiring. Even with the effects of a recession and significant financial pressure on nearly everyone, our employees and retirees chose to continue to give from the heart," said Zeigler.

Nine United Way agencies designated to receive campaign contributions include Aiken County; Allendale County; Bamberg, Colleton and Hampton Counties; Barnwell County; Edgefield County; Midlands; McDuffie County; Screven County; and the United Way of the CSRA.

"Our deepest thanks to all the wonderful Savannah River Nuclear Solutions employees for your generosity and faithful support of United Way," said Sharon Rodgers, President, Aiken County United Way. "Despite difficulties and obstacles throughout the year, your care and concern for less fortunate folks in our community remained steadfast, and you exceeded an ambitious goal with ease. We are grateful for your contributions that help provide funding for over 50 critical-need programs."

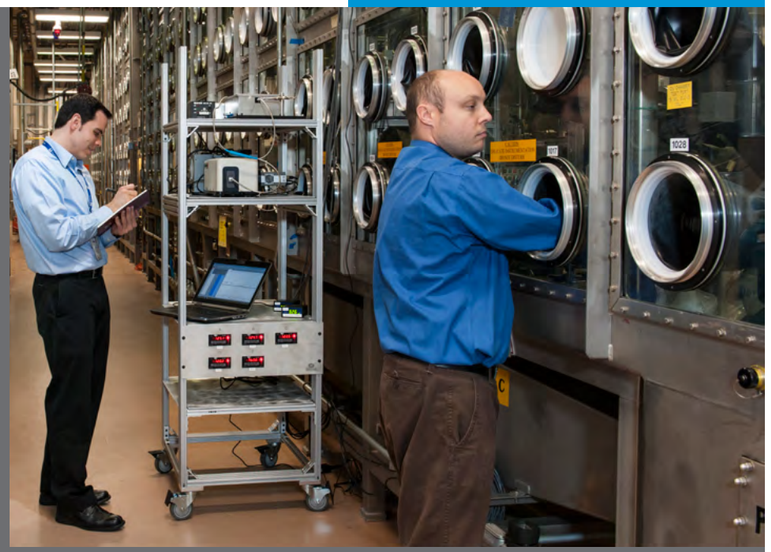
La Verne Gold, President and CEO, United Way of the CSRA, said, "United Way of the CSRA is very thankful for the contributions provided by employees at Savannah River Nuclear Solutions. As the largest single contributor to the United Way campaign, we depend on their generosity to help us advance our mission and vision. Employees at SRNS represent a giving community and know what it means to give back."

SRNS employees continue to support a long-standing tradition of caring for the less fortunate and providing a better future for our communities through the support of the SRS Employee United Way Campaign as well as other charitable organizations.

SRNS Executive Vice President and Chief Operations Officer Fred Dohse unveils the grand total of contributions from both SRNS employees and corporate parent companies.

"Despite difficulties and obstacles throughout the year, your care and concern for less fortunate folks in our community remained steadfast."

Sharon Rodgers
President, Aiken County United Way



The PDRD program funds innovative research and development in support of SRTE operations, like this Tritium Instrumentation Demonstration Station (TIDS). Jonathan Wright of SRTE Engineering and Ricardo Torres of SRNL check the calibration on the sensors before testing their ability to analyze gases.

Program brings innovative technologies to SRS tritium work

The SRS Plant Directed Research, Development and Demonstration (PDRD) program, which in the past has helped make possible Savannah River National Laboratory (SRNL) innovations such as a secure wireless tritium air monitoring system and porous-walled hollow glass microspheres, has selected nine innovative technology projects for fiscal year 2014.

The SRS PDRD program is designed to address technology needs in the Savannah River Tritium Enterprise (SRTE), but its projects often prove to have benefits well beyond their original use. A technology that SRNL developed years ago with PDRD funding to separate tritium from deuterium and hydrogen is now being examined to determine if further development would enable this technology to help remove tritium from contaminated water in other applications. Such applications could include domestic uses, such as reactor cooling water, or international applications, such as at the Fukushima Daiichi nuclear facility impacted by the earthquake and tsunami in Japan.

Each of the National Nuclear Security Administration's four production sites is permitted to set aside a portion of their Defense Programs funding for PDRD initiatives to investigate and advance technology vital to NNSA's missions.

"What makes the SRS PDRD program unique," says Dennis Donati, SRNS Senior Vice President for NNSA Operations and Programs, "is our close integration between Tritium Operations and SRNL. It's a great advantage to have SRNL, a leader in tritium research and technology, working within the operating facilities as engaged members of the SRTE team."

Each year, SRTE's Technology Management Council receives PDRD proposals from SRNL researchers, then selects projects for their potential to enhance safety, cost-effectiveness, environmental protection, or some other element of SRTE's operations to handle the nation's tritium, the radioactive form of hydrogen that is vital to the national defense.

One project, begun under the FY12 PDRD program and continuing for FY14, produced the Tritium Instrumentation Demonstration Station (TIDS), which gives SRTE new tools for analyzing gases quickly without interrupting ongoing processes. At the same time, it allows SRNL to move new sensors from development into full use by providing a way to demonstrate them in an operating environment. The ability to prove these newer sensors is becoming increasingly important, as replacement parts and vendor support for some of the older instruments used by SRTE are becoming harder to find.

TIDS was designed, fabricated and installed in SRTE facilities over the past two years. In FY14, the first SRTE process gas sample will be introduced to the TIDS for analysis.

Other FY14 projects include initiatives to reduce equipment footprint, simplify maintenance, reduce energy consumption, reduce solid radioactive waste, reduce the opportunity for employee radiation exposure, develop new materials that don't harden when exposed to tritium, and demonstrate the practicality of a new, easier-to-maintain type of hydride bed.

Student intern Bo Baker (right) discusses with his mentor and SRNL engineer, Jean Plummer, how he is assisting a team of SRNL employees to design and test a hand-held unit capable of identifying the strength and location of radiation-emitting sources to be used by law enforcement officers at large public events.

Students travel to SRNL for unique intern experience

How many college interns can say they've worked at a Department of Energy National Laboratory on a Federal Homeland Security project to develop handheld, mobile devices used to detect radioactivity at large gatherings of people? California Polytechnic State University student Robert ("Bo") Baker may be the one and only.

In development at the Savannah River National Laboratory (SRNL), this futuristic device is planned to be made available to law enforcement and security officials who will be working to ensure the safety of those attending large, highly attended events. Examples of such events would include the Super Bowl, presidential inaugurations and Olympic athletic competitions.

Designed to be attached to a police officer's utility belt, it will be used to deter and detect terrorists attempting to use radioactive material as a weapon. The unit is designed to identify the strength and location of radiation-emitting sources, as well as distinguish between different types of radioactive materials.

Baker's contributions and participation occurred during the testing phase. The tests involved simulating a multitude of different situations in which a police officer may need to use the device.

"Loyalty to America has always been important for my family and friends," said Baker. "When offered the opportunity to work at a national laboratory and be a part of an important national defense project, I couldn't pass it up. It's been a great experience that will help shape my career."

According to Jean Plummer, SRNL engineer, and Baker's intern mentor, Bo has been an exceptional asset to the Homeland Security team at SRS. "We did not bring Bo on board just to watch and learn," said Plummer. "He was essentially treated as a full-time employee and given a significant level of responsibility towards helping the team succeed during the testing of this new detection system."

"I was impressed with the employees and opportunities at SRNL," said Baker. "I'd highly recommend participating in an internship here to any student looking for a high quality experience."

According to Natalie Ferguson, Program Manager, SRNL University Relations, it's no longer unusual to receive intern applications from out-of-state students. "I'd like to believe our reputation as a national lab and the positive feedback we frequently receive from the students, are two of the primary reasons for the popularity of our intern programs."

Another of the several students who chose an internship with SRNL from a distant university was Megan Morse who attends Oregon Institute of Technology, Klamath Falls, Ore. Morse conducted original research to develop methods designed to remove radioactive contamination from liquids. Under the direction of Charles Nash, Ph.D., SRNL, she constructed an apparatus and ran an experiment that successfully removed over 99 percent of a simulated waste isotope in a chemical liquid stream.

"Ms. Morse is one of our inaugural SRNL Office of Science internship participants, and she set an excellent standard to follow," said Ferguson.

the JOY of a TOY

SRNS teams with Toys for Tots to brighten Christmas for area kids

Tim Richardson (left), SRNS management sponsor of the SRS Toys for Tots campaign, along with Fred Dohse, SRNS Executive Vice President and Chief Operations Officer, present Gregory Smith of the U.S. Marine Corps with a check for $5,000 from SRNS.

SRNS employees joined with other SRS personnel in celebrating more than 20 years of supporting the U.S. Marine Reserves Toys for Tots campaign with the collection of more than 15,000 toys this year alone and over 220,000 toys since the start of SRS Toys for Tots campaigns in 1991.

"Many families throughout the Central Savannah River Area have been hit hard by the continuing recession," said Julie Kirby, Chair, SRS Toys for Tots Campaign. "Our hearts and now our gifts go out to those in need, many of whom consist of the working poor and single mothers. We hope to brighten Christmas day for their children and lighten the burden they carry day to day."

An event held Dec. 12 marked one of the largest toy contributions to date at SRS, an effort requiring several large trucks and numerous volunteers.

In addition, SRNS demonstrated its support with a gift of $5,000 to further add to the success of this year's program.

The annual event is sponsored by SRS construction employees with the participation of the Department of Energy-Savannah River; National Nuclear Security Administration-Savannah River; SRNS and other site contractors. Employees contributed by donating unwrapped toys, adopting a "Christmas Angel" or making a monetary contribution.

To ensure the successful delivery of every item collected during the SRS toy drive, the SRNS Aspiring Mid-Career Professionals (AMP) group, volunteered to spend their day off from work on Dec. 13, to ensure each toy would reach its new owner. Hundreds of plastic bags filled with toys were opened, sorted, logged and designated for specific children with the oversight of the Salvation Army.

For the twelfth year, SRS construction employees also sponsored the Salvation Army's Angel Tree program, enabling SRS employees to adopt 575 area children.

Toys for Tots began in 1947, when a group of Marine Reservists in Los Angeles collected and distributed 5,000 toys to needy children. The 1947 pilot project was so successful that the Marine Corps adopted Toys for Tots in 1948 and expanded it into a nationwide campaign.

Photos (from top): One of Santa's SRNS elves, John Hook, lines up bikes destined for children in Aiken; a similar sea of bikes was also presented to Augusta area kids. A teddy bear was one of the thousands of toys donated by SRS employees, as volunteers load them into two trucks at an event at SRS on Dec. 12.

Mobility-impaired hunters, Wounded Warriors aim for success during SRNS-managed annual SRS deer hunt

Thirty physically disabled hunters participated this past weekend during the thirteenth annual "Deer Hunt for Mobility-Impaired Hunters" and fourth annual "Wounded Warriors Deer Hunt" held at SRS.

Mobility-impaired hunters, typically from throughout the southeast, and wounded veterans, most from a local veterans' hospital, met Dec. 6 to pursue the chance of a lifetime.

"SRS is an excellent location to conduct this type of hunt," said Claudia Jones, SRNS program manager for the Site's deer hunts. "This event provides a unique opportunity for physically-impaired hunters, all within a safe, highly controlled environment containing a very large deer population."

SRNS manages the hunt and provides sponsorship in conjunction with DOE, the USDA Forest Service–Savannah River, the Rocky Mountain Elk Foundation and the Wheelin' Sportsman National Wild Turkey Federation.

"This is amazing," said Purple Heart awardee and U.S. Army Sgt. Sean Falcon of Jackson, S.C. "You just don't find organizations that are willing to help wounded soldiers, any soldiers for that matter, to hunt at no cost. Many soldiers and veterans just can't afford it or are not physically capable without assistance."

It was during his second deployment in Afghanistan, serving with the Graniteville Route Clearance Unit that Falcon was severely wounded. Falcon had just arrived at a location where improvised explosive devices (IEDs) had exploded and injured several soldiers when another IED was detonated. The concussion and shrapnel resulted in traumatic brain damage, several herniated discs and nerve damage to his right arm. After two years of medical treatment and extensive therapy at the Eisenhower Army Medical Center in Augusta, Falcon has returned to a normal lifestyle as a firefighter and medical technician for a fire department in Waynesboro, Ga.

"It makes you feel real good inside to know that people care so much for you. Everything was perfect," added Falcon. "I'm so grateful for this opportunity. You couldn't ask for anything better."

Falcon was rewarded on the first day of the hunt with the harvesting of a large eight-point buck.

According to SRNS Executive Vice President & COO Fred Dohse, this program gives disabled hunters an opportunity to participate in a sport they are passionate about but may no longer be able to participate in as freely as they once could. Participants are escorted by a volunteer who ensures their safety and provides assistance as needed. "The volunteers work closely with each hunter to ensure an enjoyable and successful experience," said Dohse. "We greatly appreciate the individuals who volunteer their time. Their concern and desire to help these wounded warriors and physically impaired hunters is admirable."

SRS offers over 150,000 acres of pristine, government-owned forest to be hunted each year, benefiting not only the hunter, but the DOE site as well. The hunt helps control the site's deer and hog population in an effort to reduce the potential for deer/vehicle collisions.

"Our goal is to provide an enjoyable and successful experience. We've found that conducting a 'still hunt' improves their chances of harvesting a deer," said Jones. In a still hunt, a corn feeder is placed near the hunter's stand prior to the event. Each feeder, provided by the Rocky Mountain Elk Foundation, is intended to increase the number of deer moving within the area near the hunter.

Photo: SRNS employee and Aiken County resident Tom Bolton assists Vietnam veteran Robert Graham of Westminster, S.C., aim his gun for a shot during this year's SRS Mobility Impaired and Wounded Warrior Deer Hunt.

Dr. Patrick's work opens doors for environmental remediation

One of the country's leaders in providing the groundwork for modern environmental science is being remembered for her many contributions. Dr. Ruth Patrick died in September at the age of 105. Her lifetime of work helped establish new fields of research and a robust legacy of environmental stewardship. Part of this legacy began in Aiken County at the Savannah River Site. In the 1950's, Dr. Patrick was contracted by the Atomic Energy Agency to create baseline information on the water quality and wildlife at SRS prior to startup of nuclear activities.

Dr. Patrick's pioneering studies opened the door for new generations of research in environmental sciences by demonstrating that even subtle changes in the environment can have a significant impact on the ecology of an area. Her work showed that these changes may be both harmful and beneficial. "These changes can have a profound effect on an entire ecosystem," said researcher Charles Turick with the Savannah River National Laboratory (SRNL).

"The role that mankind has on the environment is now recognized as a substantial one," he added. "Dr. Patrick's work helped us understand that and that the effects are interrelated in a chain of events. As a result, we at SRNL are involved in trying to understand how environmental distress effects the overall environment and how pollution events can be prevented or how we can restore polluted areas."

Turick is leading a research project at SRNL that will provide real-time information in an effort to monitor subsurface conditions on a regular basis. The process uses electrochemical methods to monitor microbes under the ground and transmit that information immediately, eliminating the need to pull physical samples in areas of concern. By measuring the composition of soil, water, and microbes in a particular area, researchers will not only know how to specifically address immediate cleanup needs, they will also be able to generate a database to predict areas of future concern. This research and innovative new technology can be directly traced to Dr. Patrick's work with microscopic algae called diatoms.

"Her work with diatoms was especially well targeted, because diatoms are very common in many environments," Turick said. "Monitoring them and their shifts in population could be done in practically any environment. The idea of pollution shifting populations and the dynamics of any ecosystem could be addressed anywhere. While her work focused mostly on aquatic systems, the same concepts can also be applied to soils and even aquifers. In environmental biotechnology, we look to common types of microorganisms that can be studied and then used for environmental clean-up. This approach ties into some of the basis of Dr. Patrick's work."

One of the key missions at SRNL is to develop biotechnologies to clean up contaminated environments throughout the world. "Our approach can be viewed simply as learning how microorganisms function and then putting them to work to clean up the environment. Going back to Dr. Patrick's work, while she showed that some types of organisms, including diatoms and algae, decline during pollution events, she also showed that some other species are resistant to the pollution."

Science Fellow Charles Turick leads a field experiment to feed bacteria in an effort to stabilize potential soil contamination.

> "The role that mankind has on the environment is now recognized as a substantial one. Dr. Patrick's work helped us understand that and that the effects are interrelated in a chain of events."
>
> **Charles Turick**
> Savannah River National Laboratory

Microbiologists, molecular biologists, engineers, geochemists, and electrochemists at SRNL are working together to increase the depth of knowledge and impact of cleanup projects. This approach is the most cost effective when it comes to developing practical applications for environmental cleanup and environmental monitoring.

Turick is joined by SRNL researchers Charlie Milliken and Hector Colon-Mercado in developing the technology for long term, in place monitoring. Also contributing to the project are researchers from Greenway Energy and Oklahoma State University. The study is funded through the Department of Energy's Laboratory Directed Research and Development program.

SRNS holiday event nets donations for two area charities

At a recent holiday event hosted by SRNS, attendees donated monetary, clothing and personal care items to Area Churches Together Serving (ACTS) in Aiken, S.C., and "When Help Can't Wait" in Augusta, Ga. Pictured are Teresa Haas of SRNS (left) and Vicky Bukovitz, ACTS Executive Director, with a portion of the donated items.

Registration opens for 2014 SRS Public Tour Program

2014 SRS Public Tour Dates

January 16, 28
February 13, 25
March 11, 25
April 15, 22
May 6, 15
June 3, 17
July 8, 24
August 5, 21
September 9, 18
October 7, 23
November 11
December 9

Registration for the Savannah River Site's 2014 public tour program will begin Dec. 30. More than 1,000 seats will be available during 22 tours to be held throughout the upcoming year at the Department of Energy site near Aiken, S.C. SRS tours are free of charge.

Driving tours are offered each year at SRS to provide members of the public an opportunity to see many of the site's facilities and learn more about the site's history, current activities and future missions.

The first of the tours will be held in January. Each tour starts at the Aiken County Applied Research Center located off S.C. 278, near New Ellenton, and begins with an overview presentation about SRS and a safety briefing.

Each tour begins at 12:30 p.m. and typically ends at 4:30 p.m., accommodating about 50 people. Participants must be 18 years of age or older and citizens of the United States.

Note that reservations for spaces usually fill quickly. Interested individuals are encouraged to sign up as soon as possible, once the window for reservations opens.

To register, visit www.srs.gov/general/tour/public.htm. If you experience difficulty registering online, call (803) 952-8994.

Seats are limited to two individuals per reservation. Seats are filled on a first come, first served basis.

Participants board the bus during a past SRS public tour.

SRNS Scenes

Jessica Hall of SRNS Infrastructure Services chooses an angel from the 704-N building Salvation Army Angel Tree. The Salvation Army Angel Tree Program was started in 1979 and has expanded to a significant Christmas program for local children in need. (Photo by Bruce Boulineau)

In the world of business, our business is

safety and security.

Watching out for ourselves.

Watching out for our coworkers.

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