WIPP shipments resume
SRS ships first transuranic waste since New Mexico facility reopening

This month
STEM opportunities • Transfer Bay improvements • Preservation Program • Safety awards • United Way
Welcome to the April 2017 edition of SRNS Today

Savannah River Nuclear Solutions delivers on its promises and commitments. This month’s edition of SRNS Today highlights some of the ways we are meeting our obligations to our country, our state, our employees and our community.

We are keeping our promises to our country. A number of improvements in L Area are helping us process materials at a consistent rate, ensuring nonproliferation goals are met. We are also watching as NASA’s Cassini spacecraft, powered by plutonium-238 from SRS, makes its final dives between Saturn’s rings. This space exploration would not have been possible without us.

We are keeping our commitments to our state. This month saw the resumption of shipping transuranic waste out of South Carolina to the Waste Isolation Pilot Plant in New Mexico. We are also seeing great results to a passive method of groundwater cleanup.

We are delivering on our promises to our employees. We put safety at the forefront of all we do, and being honored by both the South Carolina Chamber of Commerce and the S.C. Department of Labor, Licensing and Regulation for our safety performance proves that we are making sure that commitment is met.

Finally, we are committed to our community. This month, a number of SRNS employees spent their time off to work for the United Way and helping our neighbors in need. Plus, SRNS is helping fund innovative learning through Project Lead the Way at Jackson Middle School, ensuring that our community has students educated in the fields of science, technology, engineering and math, or STEM.

SRNS makes the world safer. That’s not just a slogan, but a promise we keep every day.

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 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
EM program helps SRNL build its workforce

Last summer, Bryt’Ni Hill arrived at SRNL for an internship after graduating from South Carolina’s Newberry College. She hoped to gain experience and skills for her career — but the internship also gave her a head start on her career. Hers is just one success story from SRNL interns made possible by the DOE Environmental Management’s (EM) Minority Serving Institutes Partnership Program (MSIPP).

Working in the lab’s Analytical Development division, Hill and another intern worked together to improve a method to measure plutonium concentrations. By the end of the 10-week internship, their work was used in the F and H Area Lab at SRS, and SRNL offered Hill a position as associate scientist in the Materials Science and Technology directorate.

Hill said her internship was a unique opportunity, providing valuable training, education and skills.

“Internships are very competitive, but MSIPP bridges that gap by offering Hill a position without the internship.”

Success stories such as Hill’s are considered great achievements for MSIPP, according to Vivian Cato, MSIPP’s program manager.

“Bryt’Ni is a perfect example of the great opportunities created through MSIPP,” Cato said. “This program fosters a ‘win-win’ situation for both student interns and EM.”

Hill echoed Cato’s sentiment.

“MSIPP helps minority students get internship opportunities in STEM (science, technology, engineering and math) fields,” she said. “Internships are very competitive, but MSIPP bridges that gap by having research presentations throughout the year and hands-on research for students to apply their classwork.”

In her current role, Hill helps determine corrosion chemistry control limits for the radioactive liquid waste stored in large carbon-steel tanks at SRS and EM’s Hanford Site near Richland, Wash. She prepares and runs electrochemical and immersion tests to measure the need for inhibitors in tank waste solutions to reduce corrosion in the underground tanks.

MSIPP’s goal to increase the number of minority students in STEM fields aligns with EM’s need for STEM professionals to accomplish its cleanup missions. MSIPP gives students experience at laboratories across the DOE complex. At SRS, MSIPP is managed by SRNL, with oversight from EM headquarters.

SRNS was presented with awards from the South Carolina Chamber of Commerce for safety performance excellence at a banquet held in Columbia, S.C., on March 30.

SRNS’ Operations and Construction divisions were recognized for their commitment to conducting work safely during calendar year 2016. For a large company that conducts highly technical and hazardous work, SRNS safety performance is considered to be “world class” based on industry standards.

“Safety is an ingrained culture at SRS and our employees deserve all the credit for this award,” said SRNS President and CEO Stuart MacVean. “They demonstrate their dedication and personal accountability to safety every day.”

Combined, the SRNS Operations and Construction divisions worked more than 9.7 million hours during the calendar year with two injuries that required a day away from work in Operations, while Construction completed the year without a single lost time injury. When compared to similarly-sized companies in industry, SRNS safety culture rises to the top of the class.

“It is important for our community to understand why safety is so important to the SRNS workforce,” said Kris McNeel, SRNS Senior Vice President, Environmental Stewardship, Safety and Health. “Not only do our employees care about the safety of their teammates, but they care about their families, neighbors and friends. They also hold in high-esteem the long-standing trust and support our community puts into them to deliver on our national missions safely.”

SRNS Operations and Construction divisions were awarded Palmetto Shining Star Awards from the S.C. Department of Labor, Licensing and Regulation at an awards ceremony held in Columbia in April.

“We’re proud of our employees earning this recognition” said Stuart MacVean, SRNS President and CEO. “Our culture is nurtured and sustained by frontline workers who are driven by a genuine desire to perform their work as safely as possible.”

The Palmetto Shining Star award is bestowed upon South Carolina companies that complete a calendar year without a recordable injury or illness, are at least 75 percent below the national incidence rate, or worked one million or more safe work hours without a lost-time injury.

S.C. Department of Labor names SRNS a ‘Palmetto Shining Star’ for safety

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Barbara Guenveur, the SRNS Employee Engagement Liaison, has worked at the Site for more than 30 years. “The energy and enthusiasm our team demonstrates every day, both on the job and in the community, is infectious. It becomes a personal core value that is shared from generation to generation. We are proud of that,” she said.
To help ensure efficiency, SRNS initiated a VSA. Part of the SRNSs safely and efficiently as possible. We want to minimize the time casks needed to find a way to ensure we would always be ready to meet which means an influx of shipments in the warmer months. We team lead. "Shippers don’t typically transport casks in the winter, EM Operations management became concerned that projected shipment. These improvements helped increase the Transfer Bay efficient dry casks removed from the Disassembly Basin prior to revising procedures to eliminate redundant and non-valued added items in parallel, in order to maximize Transfer Bay availability; procuring better absorbent material to more easily and efficiently dry casks removed from the Disassembly Basin prior to shipment. These improvements helped increase the Transfer Bay availability by 152 percent.

"We found that, in addition to being able to maximize Transfer Bay availability and the number of casks we can safely process, the VSA identified areas where we could make our challenging work easier for our employees in the field," Hendrick said. "Personnel at all levels of our team were involved with this process from the beginning. We have the Operator and Radiological Protection Inspector in the field in mind as we work to complete our identified improvements."

Improving L Area processes

Spent Fuel Management optimizes Transfer Bay use

Personnel in L Area recently began implementing a series of improvement actions that will optimize the use of the Transfer Bay in L Area’s Disassembly Basin. The L Area Transfer Bay is used to load spent nuclear fuel casks that are shipped to SRS’s H Canyon and to receive and unload casks containing research reactor fuel from around the world.

EM Operations management became concerned that projected cask shipping and receipt schedules could result in a backlog of casks to be loaded and unloaded. This could result in an impact to the timeliness of delivery, potentially escalating costs and negatively impacting global nuclear security.

"Spent nuclear fuel shipping schedules are dynamic and shipments aren’t spread evenly throughout the year," said Geoff Hendrick, L Area Deputy Facility Manager and Value Stream Analysis (VSA) team lead. "Shippers don’t typically transport casks in the winter, which means an influx of shipments in the warmer months. We needed to find a way to ensure we would always be ready to meet our cask handling demands."

Hendrick continued, "Our goal is to always be able to ship fuel to H Canyon to support their dissolution schedule, while at the same time to be able to unload and return empty casks to the shipper as safely and efficiently as possible. We want to minimize the time casks sit in L Area waiting to be unloaded and returned."

To help ensure efficiency, SRNS initiated a VSA. Part of the SRNS Focused Improvement Transformation (FIT) initiative, VSAs gather subject matter experts from multiple disciplines to share ideas and identify improvements in operational processes. "The VSA brings all the departments involved in a process together in one space, and allows the people performing the work to find cross-departmental solutions," said Blake Leaphart, the Continuous Improvement Productivity Specialist who guided L Area throughout this initiative. "It’s a big picture view of a shared problem."

The team identified a number of process, procedure and tool improvements to help achieve these goals. Some of these solutions included modifying preventive maintenance schedules on Transfer Bay equipment to perform multiple maintenance items in parallel, in order to maximize Transfer Bay availability; revising procedures to eliminate redundant and non-valued added steps; and procuring better absorbent material to more easily and efficiently dry casks removed from the Disassembly Basin prior to shipment. These improvements helped increase the Transfer Bay availability by 152 percent.

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Lessons from the past

SRS program offers a look into the “Atomic Workplace”

At the onset of the Cold War, “Site Number 5” in South Carolina was one of 114 locations in the United States considered for the production of weapons-grade plutonium, tritium and other materials essential to national defense. E.I. du Pont de Nemours and Company, which had been tasked with this project by the federal government, narrowed it down from 114 prospective sites to four areas, one each located in Texas, Illinois, Wisconsin and South Carolina. They ultimately selected Site Number 5 in Barnwell and Aiken Counties southeast of Augusta, Ga. Beginning in 1950, 310 square miles were transformed from rural agrarian towns into the Savannah River Plant.

Today, the Cold War Preservation Program at SRS works towards documenting this uncertain time in U.S. history and making the stories of previous generations accessible to Site employees, retirees and the general public.

"Future generations will be so far removed from the tensions of the Cold War," said Andy Albenesius, SRNS Cold War History Manager. "Our program puts into perspective the effort involved with building the Site and its advanced technology for its time, how instruments and machines were designed and how they worked successfully. Ground was broken in February 1951, and all five reactors were up running critical by March 1955."

In 2016, the curation facility accepted 60 new artifacts to add to its vast collection that ranges from blueprints and safety slogans to an entire control room from an experimental physics laboratory, 777-M, and an 8,000-pound vault door that once guarded plutonium and tritium in F Area.

The curation facility staff also scanned 20,000 historic negatives in 2016 as part of the effort to provide long-term archival storage for the photos depicting the employee culture of the atomic workplace, construction of buildings and various types of equipment used in laboratories and nuclear facilities. The entire collection contains 590,000 negatives.

To date, seven thematic studies, grouped by function and geography, have been completed. The eighth and final thematic study on Savannah River National Laboratory Research and Development is set to be completed by the end of 2017.

"Because of the layers of secrecy during the Cold War, people may not know what actually happened at the Site," said Parodio Maith, Community Assistance Manager, Department of Energy-Savannah River. "Our Cold War Preservation program has been highly successful in preserving artifacts and buildings to better tell our story, ensuring that employees and members of the public don’t lose important pieces of our past."
Vegetable oil used to clean up groundwater at SRS; passive method accelerates process, saves $30 million

A common household product—vegetable oil—is being used by SRNS to harness and accelerate nature’s own abilities to clean up chemically-contaminated groundwater found at one location beneath SRS. When highly concentrated amounts of oil are injected into the ground at SRS, the oil mixes with naturally occurring bacteria, along with the chemicals in the groundwater. Unable to differentiate between vegetable oil and the now-oxicloded chemicals, the bacteria rapidly eat both. This treatment of groundwater also results in a population explosion for the bacteria, further accelerating the cleanup process.

The chemicals found beneath the area at SRS known as TNX are industrial cleaning products known as organic solvents. Historically, these solvents played an important role towards preparing materials for use during the Cold War within several nuclear facilities at SRS, most of which are now closed.

Today, only green fields can be found where many TNX structures once stood; however, removal of the buildings did not eliminate the solvents that leached into the soil below the once productive industrial complex.

“Bergren further explained that the cost savings with this new process has been enormous over the previously used “pump and treat” technology involving a system that uses highly mechanized air strippers. In the mid-1990s, an air stripper was constructed and operated at TNX to environmentally clean up the underground solvents.

“Though the method was effective, it cost about $1 million a year to operate, plus the unit had to be shut down and rebuilt about three times,” said Bergren. “Our modeling indicated it would require 30 years to complete the cleanup process at TNX using this technology for a cost of at least $30 million. Avoiding the expense, that’s a significant savings.”

Since the start of the alternate, less expensive method, injecting vegetable oil down multiple wells across the former TNX plant, recent testing indicates that the area is now approximately 98 percent free of organic solvents.

“Our desire is to avoid electrical power and move towards more natural, passive methods during environmental cleanup work.”

Angelia Holmes

Newly hired SRNS engineer Jordan Weininger reviews metallurgical test data with engineer and mentor Jean Plummer, SRNS Research and Development Program.

Development program for new SRNS engineers combines practical experience with knowledge transfer

Newly hired SRNS engineers don’t just get a desk, a computer and placement into the next opening within one of numerous facilities at SRS. For their first six months, they experience the advantages of the Engineering Leadership Development Program (ELDP), easing the transition from college student to professional.

“We at SRNS have a genuine interest in making sure our new engineers are ready, in all respects, for their first full-time engineering position,” said David Bugg, SRNS Manager, ELDP. “It’s in the best interest of all involved. We want to heavily invest in each new hire, with the desire to keep them for the full length of their career.”

According to Bugg, for many years now, recruiting and retaining engineers has become a challenge for nearly every major corporation throughout the U.S.

The core of the ELDP at SRNS involves technical engineering and operational training, combined with a series of short-term work projects in a variety of facilities and processes across the site. To further enhance this diverse training and orientation, an emphasis is placed on one-on-one quality time with experienced engineers who act as mentors. Mentoring ensures these new employees and future site leaders gain skills and confidence in their new role.

A small group of engineers recently hired by SRNS participated in training and development that took a separate but parallel path to the traditional ELDP.

“Our coworkers within the Savannah River National Laboratory (SRNL) offered several potential ELDP assignments that could last up to a couple of months, versus the normal few weeks,” said Bugg. “Though, only one evolved into a long-term assignment, in this case lasting four months, it was a highly interesting research and development project that required skills in design engineering, training and development that took a separate but parallel path to the traditional ELDP.”

Newly-hired SRNS engineer Jordan Weininger reviews metallurgical test data with engineer and mentor Jean Plummer, SRNS Research and Development Program.

We had not anticipated this possibility of such a long assignment, but welcomed the promising opportunity it offered Jordan Weininger who, with assistance from SRNL engineer and mentor Jean Plummer, became deeply intrigued with the laboratory’s Research and Development Program.

According to Plummer, during the trial run Weininger quickly became an integral part of the team resulting in the offer of a full-time engineering position within SRNL.

“Initially, I had several needs that were perfect for the pool of ELDP engineers available for use, said Plummer. “They provided enthusiasm, energy and new ideas at no cost to our organization.”

Bugg said that this alternative for new ELDP engineers was a success and will continue to be explored on a case-by-case basis.

Cassini nears end of mission

After almost 20 years in space and powered by plutonium created at SRS, NASA’s Cassini spacecraft is preparing for the end of its mission. H Canyon and HB Line restarted the plutonium-238 oxide to produce the material for the mission in 1991. This oxide was housed inside three radiotisotope thermoelectric generators (RTGs), which take the heat from the radioactive decay of plutonium-238 and convert it into 700 watts of electrical power for Cassini’s instruments, cameras, computer and communications.

C Reactor at the Savannah River Site
SRNS volunteers step up to help others during annual United Way Projects Care and Serve

More than 100 SRNS employees volunteered to work at multiple United Way agencies located throughout the greater Augusta area as part of this year’s Project SERVE.

Employees committed to work during their day off to take on projects that will improve the living conditions of disadvantaged children, low-income senior citizens, the disabled, single-parent homeowners or specific United Way partner agencies.

“United Way funding is not used for brick and mortar. It’s specifically for the programs, so a lot of these agencies don’t have the funding to provide much-needed repairs,” said Rita Powell, Senior Director of Resource Development, United Way of the CSRA. “We really appreciate the hard work of all the volunteers from SRNS. It’s amazing how much gets accomplished in just one day.”

Team projects typically include painting, repairing flooring, putting up drywall, building fences and wheelchair ramps, replacing rotten boards, fixing faulty plumbing and performing yard work.

One of the locations for this year’s Project SERVE was the Graniteville Farmers Market, where volunteers cleared the land of debris and worked on restoring a 15,000 square foot barn, cleaning and painting the interior and exterior of the structure.

“As a resident of Graniteville, I wanted to take advantage of the opportunity to volunteer in my own neighborhood,” said Brian Vining, SRNS General Certification Official. “It’s been hard work, but I’ve been working with a great team.”

According to Phin Hitchcock, agency director of Fireside Ministries & Industries, Horse Creek Trust bought the Graniteville Farmers Market property with goal of reviving the community. “Right now we’re working on converting the old properties into something environmentally-friendly,” said Hitchcock. “We’re repurposing this red barn that’s over 100 years old for an indoor farmers market. Outside, we plan to have several raised beds and a greenhouse, a picnic area, woodshop and amphitheater.”

Fireside serves at risk families in Augusta, including job-skills training and financial counseling. They also coordinate renovation projects for Heritage Academy and plant neighborhood gardens throughout the CSRA.

Other Project SERVE teams from SRNS worked at the Augusta Family Counseling Center, Heritage Academy and the Salvation Army Store.

Project CARE was held the same day as Project SERVE and provided assistance for Barnwell County. Thirty volunteers from SRNS worked on cleaning up Barnwell State Park from damage caused by a recent tornado.

SRNS employee Melanie Lepard volunteers as a board member of Barnwell County United Way, and she coordinated activities during this year’s Project CARE. “I have lived in Barnwell County for 30 years, and I first got involved with United Way to simply help people in the community because that’s what living in Barnwell is all about: helping each other,” Lepard said.

SRNS volunteering efforts not only improve the lives of those in need but also bring a sense of community and pride to the volunteers.

SRNS funds innovative learning at Jackson Middle

Learning in middle school in this day and age isn’t like it was when today’s adults once sat at classroom desks. Teachers are now facilitating the learning process while students take on more responsibility to investigate and explore concepts and information leading to discovery. And Aiken County’s Jackson Middle School is blazing new academic trails to further improve comprehension and retention through tools like Project Lead the Way (PLTW).

PLTW is a comprehensive program schools can implement, which includes innovative curriculum for students and highly progressive professional development for teachers. Schools can purchase PLTW classes on a wide range of topics—the more rigorous and complex the class, the higher the cost.

“Jackson Middle School has purchased the ‘Science and Technology’ class, funded by SRNS,” said Kirthi Neville, STEM Coordinator, Jackson Middle School, Jackson, S.C. “Giving the materials and information provided through this class, our seventh and eighth graders explore principles of applied chemistry, nanotechnology and physics. It’s a semester-long class.”

Specifically, the funding provided by SRNS through Aiken County’s Public Education Partners (PEP) organization has paid for the PLTW teacher registration and professional development, as well as all the materials, including software, for the “Science and Technology” class at Jackson Middle.

“They’re building robotic arms to better understand the properties of physics and creating real blue prints as a part of the unit involving floor design,” said Neville. “The PLTW program is giving our students a completely new perspective and is generating interest in areas of education, like physics and chemistry, subjects a large percentage of our student population often struggle with, it’s definitely working.”

To date, Jackson Middle School has received approximately $4,000 from SRNS in support of this education program.

“We are so thankful,” said Neville. “We could not have taken this important step forward without the financial help received from SRNS.”

Aiken County Public Schools (ACPS) Superintendent Dr. Sean Alford and 16 members of the Aiken County School District Cabinet recently toured SRS with the objective to learn more about SRS missions and the extent of the site’s educational outreach programs.

“Our programs directly impact a large percentage of Aiken County students every year,” said Candice Demody, SRNS Manager, Education Outreach. “We felt that honoring Dr. Alford’s request for a tour of SRS would improve our ability to collaborate and communicate with his staff, creating an even more effective team to reach students throughout Aiken County and, for that matter, the region.”

Two of the more visual demonstrations involved 3D printing and virtual reality, functions with a wide range of potential application throughout today’s industry and commercial businesses.

“The tour was an excellent opportunity for my staff and I to see what lies behind the gates at SRS,” said Dr. Sean Alford, Superintendent, Aiken County Public Schools. “The immensity and complexity of the site and its various missions was intriguing. The visit affirmed my faith in the important role SRS plays in our community and the limitless opportunities for hands-on, STEM-related learning our continued partnership with the site provides.”
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