

Welcome to the June 2011 edition of the SRNS News.

This month, I'm proud to announce that the Savannah River National Laboratory has won a prestigious R&D 100 award (see story at right). SRNL boasts some of the top scientists in their field, and it's exciting and gratifying to see their work recognized as one of the top 100 most technologically significant products of the past year. Congratulations!



A message from
Garry Flowers
SRNS President and CEO

Technology was also in the forefront this month when SRNL hosted a demonstration of its On-Dock Rail system for representatives of two Department of Homeland Security agencies and congressional staffers (see Page 6). This prototype system was developed as a potential way of detecting radioactive material in cargo containers unloaded from ships.

Historical technology was remembered this month, as a time capsule was sealed into the soon-to-be closed P Reactor (see Page 5). Technology from today will ensure the safe closure of this remnant of the Cold War.

While P Reactor played its part in keeping our nation safe, our SRNS Emergency Response Organization helps keep our skills sharp in case of emergencies today. "This is a drill" announcements echoed across SRS on June 8 as an emergency drill was held in K Area (see Page 4). Working with groups throughout the Site and agencies in the two-state area help ensure ready responses and good communications should there be a need.

I hope you enjoy this month's edition of the SRNS News.



SRNS works with Golden Harvest to alleviate hunger

Please see Page 7 for the story.

SRNS news

SAVANNAH RIVER NUCLEAR SOLUTIONS

SRNL wins R&D 100 award

An SRNL-led research team has been selected to win a prestigious 2011 R&D 100 award in an annual competition conducted by R&D Magazine. The award recognizes the SRNL-invented Porous Walled Hollow Glass Microspheres as one of the 100 most technologically significant products of the past year.

Porous Walled Hollow Glass Microspheres have potential for use in targeted drug delivery, hydrogen storage and other applications. SRNL's partners in the winning technology include Toyota, the Georgia Health Sciences University (GHSU), and Mo-Sci Corporation, a Rolla, Missouri, specialty glass provider that has been licensed by SRNL to manufacture and market the microspheres.

The SRNL research and development team included Dr. George Wicks, Dr. Leung Heung, Dr. Ray Schumacher, Dr. Steven Serkiz, and Dr. David Peeler. Other honorees included Dr. Rana Mohtadi of Toyota;



The SRNL research and development team pictured here are Dr. George Wicks, Dr. Leung Heung, and Dr. Ray Schumacher. Also on the team, but not pictured are Dr. Steven Serkiz, and Dr. David Peeler.

Dr. Bill Dynan of GHSU; and, Ted Day of Mo-Sci Corporation.

"I want to congratulate this year's R&D 100 award winners. The Department of Energy's national laboratories and sites are at the forefront of innovation, and it is gratifying to see their work recognized once again," said Energy Secretary



More on Page 2 ►

SRNL wins prestigious R&D 100 award

Porus walled hollow glass microspheres have potential for safe method for material handling, storing or transporting

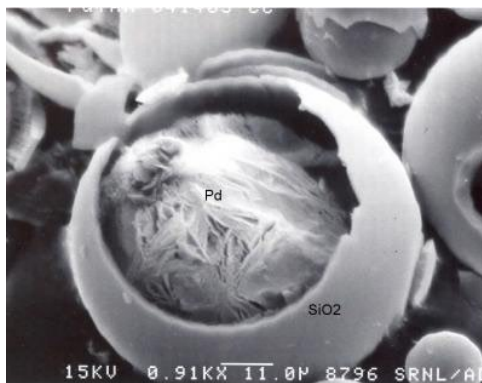
► Continued from Page 1

Steven Chu. "The cutting-edge research and development done in our national labs and facilities is helping to meet our energy challenges, strengthen our national security and enhance our economic competitiveness."

Hollow glass microspheres have been used for years in lightweight filler material, insulation, abrasives and other applications. SRNL's Porous Walled Hollow Glass Microspheres are unique because of a network of interconnected pores in the microsphere walls, which allow the tiny microspheres to hold and release gases and other materials. Because the glass microspheres provide a protective environment, or cocoon, for their contents, they can be used to hold reactive or flammable absorbents or stored materials, including solids, liquids or gases. This has the potential to provide a safe method of handling, storing or transporting a variety of materials.

Each microsphere is about 50 microns in diameter, about half the width of a human hair. SRNL originally developed the microspheres as a solid-state storage method for hydrogen as part of the Lab's support of DOE's nuclear defense mission.

SRNL is partnering with Toyota to explore applications for storage and handling of hydrogen gas in hydrogen-based vehicles. The joint program with the Georgia Health



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Sciences University has investigated drug-delivery systems and Magnetic Resonance Imaging contrast agents. Overall, the research has already led to five separate patent filings. Other uses are expected to be identified as additional research projects are completed.

"This recognition underscores the world-class quality of the science being performed by our people," said Dr. Terry Michalske, Director of SRNL. "This is an excellent example of how fundamental knowledge at the National Laboratory can drive partnerships with industry and academia that have far-reaching implications in a variety of markets and applications. That's the value of a National Lab, and it's great for SRNL to be recognized in such a meaningful way."



P.K. Hightower of SRNS guides Kennedy Middle School students Zach Klein (from left), Brandon Morgan and Tanguy De Lamartinie during Camp Success, an engineering and technology day camp for area middle school students.

Camp Success helps lead students on career path

SRNS recently hosted "Camp Success," an engineering and technology day camp for area 7th and 8th grade students. Camp Success was held to expose today's youth to the advantages of a career in science, engineering or technology.

Sponsored by Aiken Technical College and the University of South Carolina Aiken, and held within the SRS Center for Hydrogen Research laboratory, the series of activities featured at the camp enlightened students to the fact that researchers, scientists and engineers invent technologies that benefit society.

SRNS professionals engaged the students with hands-on activities that simulated engineering projects and described careers in engineering, science and technology.

Students also participated in an overview presentation and demonstration of technologies involving alternative forms of energy conducted by Dr. Ted Motyka, a leading researcher in this discipline with SRNL.

National Safety Council honors SRNS for third year

SRNS was recently recognized with receipt of the National Safety Council's 2011 Occupational Excellence Achievement Award for both Operations and Construction performance.

The award is bestowed annually by the NSC to firms that demonstrate safety excellence.

The awards recognized SRNS for injuries and illnesses involving days away from work equal to or less than 50 percent for the Bureau of Labor Statistics rate compared to similar industries and having no fatalities for calendar year 2010. SRNS has received these awards for three consecutive years from 2008 to 2010.

SRNS Operations personnel had one lost workday case in 2010 which equated to a lost workday incidence rate of 0.02. SRNS Construction personnel achieved a perfect safety record with zero lost workdays and over one million work hours during 2010.

Allendale student competes in national spelling bee

Allendale's Jusuf Jenkins joined the best spellers in the United States and abroad for a shot at winning the Scripps National Spelling Bee, held in Washington, D.C., in June.

Jusuf earned the trip by winning The Allendale Sun Regional Spelling Bee, sponsored by SRNS. As regional champion, he also received a laptop computer, compliments of SRNS.

A 14-year-old student at Allendale-Fairfax Middle School, Jusuf correctly spelled "subito" and "apocalypse," but was eliminated in the third round with 234 other spellers.



On hand for the presentation of the CD set were student Shane Wood (from left), instructor Jean Palmer, Aiken Technical College President Dr. Susan Winsor, SRNS Executive Vice President Fred Dohse, Terry LaPoint of SRNS, and student Josh Byers.

Newport News Shipbuilding presents welding curriculum to technical colleges

Courtesy of Newport News Shipbuilding, one of SRNS' parent companies, several area technical colleges have the opportunity to supplement their academic curriculums at no cost. SRNS presented a 10-disk, 12-week computer based training welding course with an estimated development and validation cost of \$400,000 to Augusta Technical College, Aiken Technical College, Orangeburg-Calhoun Technical College and Denmark Technical College. The institutions are progressing their welding programs with this world-class, comprehensive instructional program.

SRS responders to appear in Graniteville film

It was January 6, 2005, when many area residents awoke to news bulletins warning of toxic clouds of chlorine gas emanating from the train derailment in downtown Graniteville. Nine people lost their lives in that disaster.

Now, a full-length documentary, "Graniteville: Past, Present, Future," captures and re-enacts the history of the town, the train disaster, and plans for the future.

Five members of the SRS Fire and Rescue

team - current or former SRS employees Ed Schuler, Dwain Smith, Bill Elliot, Kevin Faircloth and Greg Bailey - who responded to the disaster are included in the film.

The film will be shown July 9 at the Imperial Theatre in Augusta. For more information on the documentary showing, visit <http://www.imperialtheatre.com>, or <http://www.brytonentertainment.com>. Cost of tickets is \$15.



The WSI-SRS Team meets the SRNS Fire Department at the scene.



Emergency equipment was ready to go.



A firefighter is monitored for potential contamination during the drill.

'This is a drill...'

SRS emergency exercise keeps response skills sharp

On a hot, humid morning, SRNS beat the heat and completed the FY11 SRS Emergency Response Organization (ERO) Emergency Preparedness Evaluated Exercise in K Area.

The June 8 drill featured a fictional scenario involving an engulfed transport truck fire with a drum of transuranic (TRU) waste on board. In the scenario, the truck driver tries to escape and falls, hitting his forehead and cracking a rib, which in turn caused a collapsed lung.

During the drill, K Area Operations, the SRNS Radiological Protection Department (RPD), and WSI-SRS Team were quickly involved, using their skills to care for what could have been a contaminated victim in critical condition, and making notifications to ensure the SRS Fire Department (SRSFD) and Emergency Medical Services were dispatched to the scene.

The Aiken Regional Medical Centers (ARMC) practiced their response as well. The ARMC Decontamination Team set up decontamination equipment in the ambulance bay. The "victim" was hosed down twice and the hospital staff was provided the opportunity to practice treating an open contaminated wound.

After the "fire" was extinguished, SRNS Hazardous Materials workers also practiced their environmental protection skills by preventing potential contaminated water from reaching an outfall that leads to waters of the state.

Despite the heat, the exercise was conducted safely and without incident.



The "victim" is placed in a waiting ambulance.

Responders

SRS Operations Center
SRS Emergency Response Organization
DOE-Headquarters Watch Office
DOE-SR Operations
SRS Environmental Protection Coordinator
Region III Radiological Assistance Program Team
SRS Environmental Monitoring and Assessment Team
Field Monitoring Teams
WSI-SRS Team Law Enforcement
SRS Infrastructure Services Operations Support Center
S.C. Emergency Management Division
Georgia Emergency Management Agency
S.C. Department of Health and Environmental Control
Aiken and Barnwell County Emergency Operations Centers
Aiken Regional Medical Centers

WE STOOD ON THE SHOULDERS OF THOSE WHO BUILT AND WON
THE COLD WAR WITH THIS REACTOR...

91 Long

Never worked
with a better team
Ray Han

Signed and sealed

*P Reactor workers place
time capsule inside
and weld final opening shut*

With investments from the American Recovery and Reinvestment Act (ARRA), DOE and SRNS have sealed the access to the historic P and R Reactors as part of footprint reduction and legacy cleanup at SRS.

During a ceremony at P Reactor in June, Dr. David Moody, DOE's Savannah River Operations Office Manager and Marc Sharpe, a reactor operator at P Reactor, were the last people to exit the P Reactor before its final opening was welded shut.

"P and R Reactors have been instrumental to SRS's history for nearly 60 years. The Recovery Act provided the means to showcase proven and emerging technologies and to use the talents of our dedicated workforce," said Garry Flowers, SRNS President and CEO.

Inside the P Reactor's opening, Dr. Moody and Mr. Sharpe placed a time capsule, about the size of a five-gallon paint bucket, containing items that depict both the history of SRS, as well as items that show current events in the region and the nation.



Marc Sharpe signs his name to the wall, as did many others to commemorate their time in P Area.



Marc Sharpe, SRNS ACP D&D worker (from left); Zack Smith, DOE-SR Deputy Site Manager; Garry Flowers, SRNS President and CEO; David Williams, EPA Remedial Section Chief of the Federal Facilities Superfund Branch; and Dr. David Moody, DOE-SR Manager pose with the time capsule, which contained some of the "moment in time" items pictured below.



Workers close the last opening on P Reactor.



Visitors at the On-Dock Rail VIP Day watch a demonstration of how large cargo containers could be scanned for radioactive material using the Straddle Portal Prototype.



Julian Hill of DNDO (second from right) talks with SRNL Director Dr. Terry Michalske (left) during the On-Dock Rail VIP Day.

VIPs visit SRNL to view On-Dock Rail demo

The Savannah River National Laboratory is winding down the initial phases of testing of prototype systems for detecting radioactive material in cargo containers unloaded from ships. Next, the systems head for the Port of Virginia in Norfolk for testing in a real-world setting. This testing is being conducted by the Department of Homeland Security (DHS) Domestic Nuclear Detection Office (DNDO) as part of the On-Dock Rail (ODR) program.

A group of VIPs, including congressional staffers and representatives of two DHS agencies, recently visited SRNL to see a demonstration of the system and its testing procedures first-hand. "The visit was held primarily to demonstrate testing activities associated with this new radiation detection capability, but it also gave us a chance to show off the great team we have hard at work on this important effort," said Al Goodwyn, SRNL's Director of Homeland Security Programs.

SRNL is being funded by the DNDO to develop and test the ODR system as a potential alternative for enhancing the capability for scanning intermodal cargo containers that are moved directly from ship to rail at seaports, to prevent the entry of illicit radiological and nuclear materials. DNDO is conducting an analysis of alternatives to determine whether a technology or suite of technologies advances radiological

and nuclear scanning capabilities, reduces the time that containers are sequestered for scanning, and/or reduces the number of container movements required to permit scanning.

This project is one in a number of campaigns that SRNL has conducted for DNDO in recent years, testing numerous different kinds of radiation detectors for DNDO in different traffic environments, whether on land or water.

One component of the ODR is the Straddle Portal Prototype (SPP). SRNL is responsible for the design, fabrication, integration and testing of this system, which uses stacks of empty cargo containers to form a portal. The large (40 feet high) straddle carriers that are used to move cargo containers from the ships to the rail would drive through this portal, where they would be scanned by one of two types of detectors. Depending on which type was used, the detector would either alarm at any radiation above background, or alarm and identify the isotopes. Because the portal is assembled from empty cargo containers – which are inexpensive and readily available at seaports - this design is a less expensive mounting platform than designing, building and anchoring a structural frame.

SRS employees donate food to Golden Harvest Food Bank

The Savannah River Site (SRS) recently donated nearly \$22,000 and over 1,000 pounds of food during its annual food drive for the Golden Harvest Food Bank.

Several SRS organizations participated in this food drive—Savannah River Nuclear Solutions, Savannah River Remediation, the U.S. Forest Service-Savannah River, the WSI-SRS Team and the U.S. Department of Energy.

The SRS food drive is one of Golden Harvest Food Bank's largest, local fund-raisers.

According to SRNS President and CEO Garry Flowers, the Site's past food drives have collectively yielded over 262,475 pounds of food for Golden Harvest. "We're proud to support organizations like Golden Harvest in their efforts to end hunger in the Central Savannah River Area. Unfortunately, hunger is more widespread in the CSRA than most people realize. As employees at SRS, we want to do our part to provide relief to those in need," Flowers said.

Mike Firmin, Executive Director for the Golden Harvest Food Bank was pleased to receive the checks and food. "The recession has been very hard on area families, especially the working poor who, just a few years ago, did not typically need our services," said Firmin. "SRS's contributions greatly help us meet the constantly growing need for assistance we've been experiencing. We appreciate the generosity of our friends at SRS."



SRS employees, including SRNS President and CEO Garry Flowers (center right) presented Golden Harvest Food Bank representatives with a check for \$22,000 and over 1,000 pounds of food collected during the Site's food drive.

"We're proud to support organizations like Golden Harvest in their efforts to end hunger in the Central Savannah River Area. Unfortunately, hunger is more widespread in the CSRA than most people realize. As employees at SRS, we want to do our part to provide relief to those in need."

- Garry Flowers, SRNS President and CEO

Founded in 1982, Golden Harvest Food Bank is a private, nonprofit organization whose mission is to fight hunger by feeding hungry adults and children. Serving more than 30 counties in Georgia and South Carolina, the food bank has local warehouses in Aiken and Augusta.

Golden Harvest Food Bank distributed more than 12.4 million pounds of food in 2010 to more than 530 partner agencies, including: soup kitchens, food pantries, shelters for abused women and children, and other nonprofit charities such as day care centers, senior citizens programs, and group homes for the disabled.

E Area slit trench operations more than doubled productivity through process improvements

E Area Slit Trench Operations more than doubled productivity recently and enabled early schedule completion of closure work at P and R Areas, with approximately \$2 million in projected American Recovery and Reinvestment Act (ARRA) cost savings and with no impact on safety or conduct of operations.

Since the mid-1990s, low-level waste (LLW) slit trenches have been operated in E Area. Loose debris waste is dumped at the head of a trench (designated as a contamination area) from roll-off pans, pushed into the trench by a front-end loader and covered with earth. The group had achieved a record 26 pans dumped in one day in 2004, but typical daily production was around 15-20 pans per day. When it rained, however, no pans were dumped that day or the day after due to radiological control restrictions.

However, successes on ARRA milestones, such as disposal of waste from the P and R Reactor Disassembly Basin and the P007 Outfall ER project, required improved productivity to keep up with the demand increases from the higher waste volume. But doubling resources to accommodate the additional waste would have doubled cost too, and required simultaneous operation of two trenches.

Instead, key Solid Waste Operations and Engineering personnel improved productivity in one focused, simple way – by turning the zero-productivity days that followed rain into partial productivity days. They premised that any productivity is better than no productivity and came up with several innovations to make it happen.



Newly implemented innovations have increased slit trench production in E Area.

The team was able to reduce post-rain downtime by as much as 20 percent by scraping away wet soil in the Contamination Area (CA) on the side of the slit trench and replacing that soil with dry stockpile soil so trucks could dump their loads up to 10 percent sooner. They also began spreading plastic over the trench approach area to reduce preparation or repair work, which has to be done after a rain. The plastic also helps to avoid a shut down of operations by reducing the amount of mud picked up by the tires to allow quicker radiological release of the truck from the CA.

By working both ends of the trench (dump on one end, “push” waste into the trench on the other), they eliminated significant blocks of

“wait” time to get more done in the shift and to use all heavy equipment more fully. Digging a temporary water diversion system when a trench is excavated avoids excessive water in the trench or pooling in the CA.

Post-rain day production is now even higher than the 15-20 pan per day average of the old system. They also increased the typical daily pan per day average to 35-40 pans – double the old rate.

E Area's new record under the new system so far is 54 pans in one day, a 28 pan improvement, thanks to the ingenuity and teamwork of the Solid Waste Operations and Engineering personnel.

Displaced workers finding a new start at the SRNS Workforce Transition Center

On March 21, the SRNS Transition Center went into operation, and by June 13, had assisted in finding employment for 54 displaced workers.

The center is staffed with employees from SRNS, the Lower Savannah Council of Governments and the Department of Employment Workforce, South Carolina. They have worked with more than 236 displaced workers. By mid-June, there were 694 total cumulative visits, 536 of which were scheduled and 158 were walk-ins, and 80 total known job interviews.

Gary Perez, the Transition Center coordinator, said, "The Transition Center has really been a great example of teamwork - different organizations working together with the same goal."

For their initial visit, displaced workers get a copy of their training records and job descriptions to help in the résumé writing. Job opportunities bulletin boards and resource materials on companies that are recruiting are available at the center.

"From the beginning, we have focused on the displaced workers as being family. We have tried to the best of our abilities to not only help them find new employment, but to also be there for them holistically; providing financial counseling, personal counseling through our Employee Assistance Program (for both individuals and family) and instruction to compete for jobs through the various workshops," said Perez.

Workshops provided at the center include: Resume Writing, Interview Skills, Job Searches,

Workforce Investment Act briefing, How to Start a Business, Marketing, O-J-T Program under the Workforce Investment Act Workforce Initiative Act Briefing, Financial Assistance/Consultants and Stress Management and Change.

Services at the Center include: job searches, résumé placement in the Lower Savannah Council of Governments' Onestop Database, the Employee Assistance Program, unemployment services (recertification, etc.), Workforce Investment Act services and financial services.

One displaced worker told Perez, "I appreciate all the help you and the Transition Center have given me, especially on how to create a resume. I had not done a resume in over 22 years."

After interviewing with a new company, another displaced worker who attended the workshops offered at the Transition Center said, "Regarding the interview vs. the workshop - pretty much dead on. The refresher was well worth it. If I had any advantage, it was because of the Transition Center and the workshops offered."

The center's staff interfaces with the displaced workers, e-mails notifications to all registered displaced workers about possible job positions, establishes one-on-one meetings between Workforce Services representatives and the displaced employees and works with other companies to ensure registration with the Onestop centers. So far, they have interfaced with over 30 different companies and firms,



Where have they gone to continue their career?

- 3 – Bechtel
- 4 – URS
- 1 – Invensys
- 1 – Club Car
- 5 – E2
- 1 – Parsons
- 1 – Consultant
- 12 – MOX
- 1 – Harley Davidson
- 1 – Cerner
- 2 – SRNS
- 2 – Unknown location
- 1 – Lifecycle Engineering
- 1 – Emergency Dispatcher- Bamberg
- 2 – Denuke
- 3 – SRR
- 1 – Federal Alliance
- 1 – Intermech
- 1 – Carolina Computers
- 1 – Quad Graphics
- 1 – Teacher
- 2 – LANL
- 1 – Vogtle
- 1 – Empyrian Serv
- 1 – Duke Power
- 1 – Konecrane
- 1 – Oak Ridge
- 1 – Ga. Health Science University

including Parsons, Newport News, Bechtel, E2, Honeywell, SRR and MOX.

One of the displaced workers they assisted said, "I can tell by your attitude that you really care. That means a lot." Many others, who receive steady "words of encouragement" from Perez and others at the center, share that sentiment.

Two SRS projects gain national recognition with EStar awards

SRS has received Environmental Sustainability (EStar) awards from DOE for two projects growing out of technology research, development and application at the Savannah River National Laboratory (SRNL).

EStar awards recognize excellence in pollution prevention and sustainable environmental stewardship. They are awarded for projects and programs that reduce environmental impacts, enhance site operations, and reduce costs.

One award, for Renewable Technology Development, Deployment and Education in South Carolina, is a collaboration between SRNL and the Economic Development Partnership of South Carolina. Through collaboration, SRNL has shared expertise and knowledge of renewable energy technologies with EDP, which in turn has leveraged existing relationships with industry to identify and evaluate specific opportunities. The results have ranged from emissions reductions (through deployment and staging of hydrogen and wind energy technology) to community education programs.

The second award recognized a project to remediate tritium-contaminated debris in an innovative, cost-effective way. SRNL identified and tested technology to remove tritium from contaminated concrete and soil by using a high heat source called a "thermal detritiation unit." Each unit is a concrete block structure housing an array of commercially available heating elements, effectively removing the tritium over a period of time. The treated soil and concrete debris can be disposed at an on-site excavation site rather than sent offsite for disposal, reducing transportation, packaging and disposal costs. Over \$1.6 million in transportation cost savings and an avoidance of 400,000 truck miles were realized from the deployment.

"These awards are hard to get, and we can all be justifiably proud that SRS has been recognized in this way," said Dr. David Moody, manager of DOE's Savannah River office. "This calls attention to the value of our National Laboratory as a technology engine, and the expertise we have in dealing with challenging cleanup issues."

DOE's Steve Mackmull is the federal lead for the site's Pollution Prevention program. John Harley of SRNS is the lead for the contractor organization.

The awards are among 15 granted by DOE out of 186 national entries.



Firefighter Jay Evans with Madison McKinsie (left) and Madde Carter

Firefighters from SRS teach team building to local students

"I didn't really want to be a firefighter before I came to this camp... but now I do," Madison said enthusiastically. "Or, at least a volunteer firefighter," Elijah added.

Madison, Elijah and Mercedes were just three of the Dare Essay Award winners invited to attend the Junior Fire Cadet School, funded by the North Augusta Department of Safety, free of charge last week. The children from Moss Creek, Our Lady of Peace, Hammond Hills and North Augusta elementary schools were split into "squads" to learn about team building throughout the week-long event.

The school began on Monday and ended on Friday, when they received their certificate of completion, and lasted over eight hours a day. "7:30 to 4 seems long, but it goes by really fast because we have a lot of fun," one child said. On Thursday, the cadets visited the SRS fire station on C Road, where they learned about the equipment used at a scene and the suits firefighters wear.

Approximately 15 SRS firefighters gathered that day to assist with the junior cadets.