

# WSRC News

Washington Savannah River Company, Savannah River Site

June 21, 2007



Breaking ground are from left, Keith Wood (WSRC Director of Public Affairs); Chuck Campbell (WSRC Habitat Green Build Project Lead); Bill Poulson (WSRC Executive Vice President for M&O); Lessie Price (WSRC Manager, Community Assistance); Ronnie Young (Chairman, Aiken County Council); Jack DeVine (WSRC Senior Advisor and Aiken County Habitat for Humanity Board Member); and Richard Church (Executive Director, Aiken County Habitat for Humanity)

## WSRC to Construct 'Green Build' House

Aiken County Habitat for Humanity is teaming with the Washington Savannah River Company to construct a "green build" house. This new breed of homes uses ecologically responsible building methods, resulting in homes that are both healthier for the environment and those who live in them.

The Aiken County Habitat for Humanity and WSRC "Green" building program aims to reduce the operating costs of this home, conserve water and energy, improve resource-efficiency and minimize construction waste. These are all features that Habitat plans to incorporate into its future home construction projects while at the same time striving to keep the costs affordable for the low-income community that it serves in Aiken

A group of WSRC and Habitat members determined the specific features of this home to include extra insulation in the walls, roof overhangs to shield rooms from sun/heat, a sheathing system in the attic to reduce heat build up, Low-E windows to repel heat from sunlight, insulated siding, a passive solar water heating system, Energy Star appliances, cellulose (instead of fiberglass) insulation, low VOC paint on interior surfaces, laminated hardwood and ceramic floors, and a correctly sized HVAC system to account for the other energy saving components. The landscaping will include drought resistant plants and groundcovers to reduce watering and lawn maintenance requirements. The ground-breaking was held June 14 and volunteers from WSRC will begin working on June 22. To volunteer, contact Missy Byrne, 7-4406.

### What Counts?

800 Approximate number of employees who attended the recent SRS Safety Conference.

98 Number of canisters filled at DWPF, achieving a Minimum Performance Expectation three months ahead of schedule

# SRS To Construct New Energy Efficient Steam Plant

As part of a collaborative process among DOE, WSRC and Honeywell Building Solutions, SRS broke ground on a new clean energy efficient steam plant today, the first of two energy infrastructure upgrade projects.



With a ceremonial tossing of wood chips, a new energy efficient A Area Power House is ready to be built. Participating in the June event are, from left, Dr. Vince Adams, Office of the Groundwater and Soils for the Office of Environmental Management; DOE-HQ; Bill Poulson, Executive Vice President, M&O, WSRC; Jeff Allison, Manager, DOE-SR Operations Office; John Litton, Assistant Bureau Chief for Air Quality, SCDHEC; Beverly Banister, Division Director, Air, Pesticides, and Toxics Management Division, EPA Region 4; and Tom Bowen, General Manager, Honeywell Building Solutions SES.

In support of President Bush's initiatives to increase clean energy use at federal agencies, SRS will replace a 1950s vintage coal-powered steam plant with a clean, renewable plant powered by biomass that will provide an efficient, long-term, reliable source of steam to the Site's A Area. The new plant will contribute significantly toward the Department meeting President Bush's January 2007 Executive Order on Federal Environmental, Energy and Transportation Management.

"President Bush has made increasing the use of clean energy to power our homes, vehicles and business a priority. Today we're furthering the President's priorities by breaking ground on a facility that will provide steam to power industrial processes and provide heat/cooling to part of SRS using clean renewable biomass," said Jeffrey Allison, DOE's Savannah River Operations Office Manager. "The A Area energy improvement project and another one planned for D Area are among the largest within DOE and will contribute significantly toward the goals of the Department to lead by example in the areas of energy management and efficiency. The overall goal of the projects is to make it self sustaining by utilizing only renewable biomass waste products from within the SRS for its fuel sources."

Starting in 2008, the A Area plant will provide steam for industrial uses to the Savannah River National Laboratory, a few administrative facilities and the Dynamic Underground Stripping (DUS) Project, a groundwater cleanup technology.

This construction is being funded and managed under a unique agreement that allows SRS to repay the project costs over a period of nine years. The estimated capital cost of the project is approximately \$14 million, with an average projected savings of \$1.5 million per year. Savings generated from the new system will be used to pay the total costs of the project.

Construction of the new plant is expected to begin prior to August 2007 with a projected completion date of August 2008. Until that time, the existing coal-fired boilers will continue to supply steam to the site's A Area. The second upgrade project in the D Area and K Area is scheduled for completion in late Fiscal Year 2009.

Honeywell has proposed the A Area Steam Plant replacement as an energy conservation measure, which involves the construction of two new 30,000 lbs/hr steam boilers to replace the existing coal-fired boilers. The current plant, installed in 1951, is too large for today's reduced A Area steam requirements, resulting in venting and reduced plant efficiency; the boiler plant is also past its useful life, requiring additional maintenance and repair.

It is the Site's intent that the biomass or wood-fired boiler will be primarily supplied from wood chips from waste generated by SRS forest management activities, under the direction of the U.S.D.A. Forest Service-Savannah River Site. The new system will result in lower environmental emissions, less energy consumption, lower operating and maintenance costs, and compliance with new Clean Air and Water Act Standards.

One of the new boilers will be wood-fired and will provide the majority of the steam required for the area. The other will be a standby, fuel-oil fired boiler that will operate during maintenance periods for the wood-fired boiler and during peak steam demand times.

But SRS is not stopping there and is continuing growing in the renewable energy initiatives. About 75 percent of our light duty fleet have been converted to alternative fuel (Ethanol). In 1999, we opened two ethanol fueling stations on site. All our alternative fuel vehicles are required to use ethanol when fueling onsite. In addition, the General Service Administration has allocated one of its first hybrid vehicles to SRS. A welcome step to help meet the president's goal to reduce gasoline use 20 percent in 10 years.

## SRNL Designs Electrolyzer to Produce Hydrogen



SRNL has reached a significant milestone in the development of an efficient, economical process for generating large quantities of hydrogen to fuel the nation's future. The laboratory successfully completed a 100-hour long demonstration of the sulfur dioxide depolarized electrolyzer, designed and fabricated by SRNL, to produce hydrogen from water. This demonstration showed that the electrolyzer can successfully operate continuously without significant loss of performance.

"Successful development of the Hybrid Sulfur Process could lead to sustainable, large-scale, economical hydrogen production using advanced nuclear reactors, with no greenhouse gas emissions," said Dr. William Summers, SRNL's program manager for nuclear hydrogen production programs.

This electrolyzer is a key component of the Hybrid Sulfur (HyS) thermochemical process, which is one of the leading candidates for using high-temperature heat from advanced nuclear reactors to generate hydrogen from water. In previous demonstrations, the electrolyzer had only been operated for short durations. The 100-hour demonstration, achieved approximately one month ahead of schedule, was an important milestone required by DOE's Office of Nuclear Energy, which funds

development of the Hybrid Sulfur Process in support of the Hydrogen Fuel Initiative.

An important factor in the efficiency of the Hybrid Sulfur Process is low-cell voltage required by the electrolyzer, which determines the amount of electricity needed. In the 100-hour test, SRNL's electrolyzer required about 0.8 volts per cell, leaving researchers optimistic that the commercial goal of 0.6 volts per cell can be achieved when operating the electrolyzer at higher temperature and pressure.

Future work will seek to further improve the cell performance and extend its operational durability. Plans call for beginning construction of an integrated lab-scale Hybrid Sulfur Process during the next fiscal year. The long-term goal is to build an engineering demonstration of the HyS Process that can be operated in conjunction with DOE's planned Next Generation Nuclear Plant, scheduled for operation after 2017 at the Idaho National Laboratory.

## Employee Development and You

Employee development comes through many avenues. One avenue discussed in the MRP 1.01 Procedure 2.20 is stretch assignments, which are defined as assignments for personal growth that are in addition to your regular functions. An employee may already have the skills required for the assignment but is applying them at a higher level or taking on a different role (examples include Leadership role on a team, United Way lead, special project, filling in for manager).

John Laukea, Melter Engineering Group, described the stretch assignment this way, "I was selected by my Chief Engineer in 2006 to serve as the Co-Chair of Tech Days '07. After informing me about my opportunity as the Co-Chair, he told me that I would also be able to serve and as the Chairman of Tech Days for '08. According to him, my involvement in the Traveling Science program here on site made me a perfect fit for this position. I must admit that at the time I was not overjoyed with this news. However, it did not take very long for me to realize that I was going to enjoy this growth opportu-

nity. The Tech Day Committee was composed of volunteers who were determined to make the outcome of Tech Days '07 event successful. I was able to meet many new people here on site and establish new contacts. I was encouraged by the support of WSRC management of Tech Days. I was able to see the public relations side of our business and how it affects our community. The real reward was watching how much the thousands of children from this area enjoyed meeting and learning from the engineers and scientist from SRS."

There are many ways to become a part of a stretch assignment. Identify an area for your own personal growth and discuss potential stretch assignments with your line manager or mentor. You can also look for volunteer opportunities that will give you opportunities to network with others or gain knowledge in other areas.

Employee development is about you. You can make an impact in that development by taking the action to explore your options.

# President's Award Winners *FY07 1st Quarter*

### Electrical Safety Leadership

David Mills has been the site Senior Electrical Review Board (SERB) and Electrical Technical Committee (ETC) chairman for the past several years. In his tenure in this capacity, he has provided the leadership, direction and motivation to the SERB and ETC in the application of electrical work practices (NFPA 70E) and electrical technical standards (NFPA 70 and NEC). This job has been extremely challenging because of incorporating the new requirements in NFPA 70E and adapting them to a large industrial site like WSRC. His involvement and interaction with numerous outside resources, other DOE sites and industry experts have enabled WSRC to be well informed on upcoming changes and to develop programmatic strategies to ensure full compliance. David is dedicated to protecting workers from electrical hazards and continually strives to improve the electrical safety programs by soliciting input from electrical workers and line management and applying lessons learned from events and incidents on and off site.

### Legacy of Stars

The WSRC VPP program has been awarded the DOE VPP Star of Excellence each year since 2002. The award is presented based upon two primary factors, site injury rates at least 75 percent below industry average and strong efforts in mentoring and outreach of other organizations pursuing VPP status. In addition, WSRC was presented with the "Legacy of Stars" award in November 2006, an accomplishment that was recognized by Glenn Podonsky and James Rispoli on visits to the Site.

Team members are Glenn Bishop, Feliciano Coretti, Annette Dickerson, Barbara Guenveur, James Hendrix, Tracy Higgins, Jackie Keenan, Barbara Key and Silvia Tate.

### NRIP Emergency Response Program

The SRS Environmental Bioassay Lab (EBL) participated in the NIST Radiochemistry Intercomparison Program (NRIP) Emergency Response program administered by the National Institute for Standards and Technology (NIST). While the NRIP standard is to report all results within eight hours, EBL was the only one out of six labs participating that completed actinides and strontium analyses in only six hours. The NRIP program is designed to evaluate the response (timeliness, accuracy) of select laboratories across the country to a radiological national emergency. NAREL-EPA Lab (Mobile, AL), Health Canada/Radiation Protection Bureau (Ottawa), WIPP (Carlsbad, NM), Fluor-Daniel (Hanford), CDC-Atlanta (urine only) also participated.

NIST commented that SRS has a "great team" and were impressed with improvements in report times. Reporting Sr-90 results for urine in less than four hours will likely set the standard for other participating labs. The improvement in actinides (some isotopes less than 5 hours) and gamma in water is also very significant.

Team members are Rebecca Chavous, Vanessa Cofer, Gene Cooke, Janice Duke, Sharon Fulton, Jack Herrington, Sherrod Maxwell, Tony Melton and Kenneth Mishoe.

### Accelerated FB-Line Deactivation Schedule by Ventilation Team

The use of Flame Retardant foam to isolate/blank supply ducts to process rooms eliminated the need to install duct blanks, build scaffolds, use plastic suits, and create, package and dispose of TRU waste. The use of Flame Retardant foam allowed the Ventilation Team to remain on a day schedule. Total Savings for labor and material is approximately \$125,000 for the Ventilation Team.

From an ALARA standpoint 300 millirem total effective dose equivalent (TEDE) was saved because of foaming verses other means of blanking the duct during Vent Mod Deactivation. Also, there was unrealized dose saved through minimizing duct access throughout the F Button Line (FBL) Facility and minimizing entrances into other rooms. This saved hundreds of hours of exposure in preps/wrench time/and clean up. Per Radcon, the site uses the estimate of \$1,000 per mrem, but it cannot be used in a cost savings proposal.

Completing the Ventilation Mod Schedule one month early, allowed team members to be reassigned to other facilities and to accelerate a reduction in surveillance & maintenance costs.

Team members are as follows Kenny Burkhart, Jeffery Hall, Shawn Holley, James Mansfield, Michael Mitchell, Jim Mullner, Stuart Neal and George Young.

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# President's Award Winners *(cont from page 4)*

### MCU Process Performance Issue Resolution

From December 2005 till July 2006, this team lead a group of engineers dedicated to resolving key performance issues associated with the Modular Caustic Side Solvent Extraction (CSSX) Unit (MCU). The assembled team was made up of personnel from WSRC, BSRI, SRNL, Argonne National Laboratory, Wright Industries, Costner Industries Nevada Inc. and Machine Design of Carson City, Nevada, representing a wide range of expertise including mechanical design, chemical separations technology, contactor equipment design and operation. The team conducted four test protocols ranging from water to chemical operations using simulated salt waste solutions spiked with nonradioactive cesium and the organic solvent. The team met all performance measures established, including organic carryover, decontamination factor and concentration factor. Successful resolution of these significant process performance issues puts the MCU project back on track as a centerpiece of the SRS Liquid Waste Disposition Plan.

Team members are Earl Brass, Seth Campbell, Joe Carter, Bill Narrows and Doug Walker.

### Performance Excellence ~ Tank 5 Sludge Sampling Project

This team was instrumental in the design and deployment of a sample system used to obtain a sludge sample from Tank 5. These individuals developed unique tools containment equipment and work techniques that significantly reduced personnel exposure associated with the sampling effort. The maximum dose rate on the sample was 386 rem/hour. The use of a specially designed glove bag and extended tools reduced the working dose rate to 20 rem/hour extremity, 10 rem/hour skin and 800 mrem/hour whole body working dose rate. The total estimated exposure for all personnel was 61 mrem. This project was successful due to the teamwork among F Tank Farm operations, RadCon, Equipment Engineering and the glovebag fabrication facility (ROSC). The efforts of these individuals resulted in the development of techniques that will be employed on similar future sampling efforts.

Team members are Joe Biggerstaff, Douglas Dowds, Mike Harrell, James Lyons, Cynthia Mays, Julius Myers, Phillip Owens, Henry Smith and Nick Vrettos.

### MilliWave Thermal Analyzer

Researchers Gene Daniel and Don Miller of the Savannah River National Laboratory, along with team members from the Massachusetts Institute of Technology (MIT) and the Pacific Northwest National Laboratory, developed the MilliWave Thermal Analyzer, which uses millimeter-wave electromagnetic radiation for non-contact, real-time measurements of temperature, amount of energy emitted, and physical changes of materials under extreme temperatures or corrosive environments. The MilliWave Thermal Analyzer is currently the only thermal characterization technology that can monitor the properties of materials in the extreme conditions inside a glass melter or process reactor. This technology was designed to withstand previously inaccessible conditions created by high temperatures, corrosive fluids, melting materials, and radioactive or biologically contaminated environments.

This team was also named 2006 winners of an R&D 100 Award for this invention for the second time for a development that resulted from a single long-term research project. An invention disclosure and a joint patent application are being pursued.



The following are Project VISION volunteers that were inadvertently left off the list:

**Linda Bauer, Mal Collins, Harold Conner, DeeDee Kaney, Tom Monahon and Marilyn Turknett.**

## Procurement & Materials Management Receives P2 star Award

The Chemical Commodity Center (CMC) within LWO's Procurement & Materials Management (PMM) organization was recently recognized by DOE when they received an Honorable Mention Award for pollution prevention practices. SRS was the only site to receive a P2 Star Award within the Office of Environmental Management.

SRS chemical management team has developed and implemented a comprehensive program that establishes chemical management as an integral business strategy and a cornerstone of the Site's Environmental Management System (EMS). Cost avoidance from CMC operations during the past two years was over \$7.5 million.

The SRS CMC was also recognized as a model program for chemical management. Using SRS experience, a team of DOE Complex Stakeholders developed and published a comprehensive "Chemical Management Handbook." The SRS CMC Team's effective management of on-site chemicals and the team's on-going desire to share its "best practices" and "lessons learned" represent the letter and spirit of "EMS Leadership."



## Keith Morrell Appointed to Nuclear Quality Committee

The Board of Nuclear Codes and Standards has appointed Keith Morrell, WSRC Technical Advisor, Site Chief Engineer's Staff, to serve on the American Society Of Mechanical Engineers (ASME) Nuclear Quality Assurance (NQA) Main Committee for a period of five years. The Main Committee is limited to 35 members from across the Nuclear Industry. The WSRC Quality Assurance and Software Quality Assurance uses ASME NQA-1 as one of the standards for the basis of WSRC programs. ASME-NQA-1 is referenced in DOE Orders as the preferred standard.

The purpose of the ASME organization is to develop, manage and coordinate quality assurance and quality assurance related codes and standards applicable to siting, design, construction, operation and decommissioning of nuclear facilities.

## Career Achievement Award Winners

The SRS Career Achievement Award was established in the fall of 2005 to honor individuals for their accomplishments and success in their specific field of expertise. This award is presented to individuals who have repeatedly demonstrated, over a period of years, significant contributions. The following individuals were winners of the 2007 SRS Career Achievement Award:

### BUSINESS SERVICES

Robert A. Pedde, Past President of WSRC  
Willie J. Bryant, Employee Counselor, OFP

### OPERATIONS

Jim Stafford, Manager Radiological Protection Services, M&O  
Judy Fuller, Accounts Payable Voucher Auditor, OFP

### TECHNICAL

George Wicks, Consulting Scientist, SRNL  
Gary Meadows, Machinist, M&O

## Dr. Dave Dunn appointed to AMSC

Dr. Dave Dunn of SRNL has been appointed to the Charleston Area Maritime Security Committee (AMSC) by Capt. John Cameron, Captain of the Port of Charleston. The members of each AMSC are tasked with collaborating on security and contingency plans to secure maritime sea ports so that the resources of an area can be best used to deter, prevent and respond to terror threats. Dr. Dunn will serve the Port of Charleston AMSC as a science and technology advisor and as a maritime radiation detection subject matter expert.

## LWO Meets First Minimum Performance Expectation at DWPF

Liquid Waste Operations recently met their first Minimum Performance Expectation having poured the 98th canister of this calendar year.

DWPF employees should be recognized not only for this important achievement, but also for several other impressive accomplishments as well:

Over 1 million gallons of sludge, 13 million curies of radioactive material and 270 kilograms of plutonium, americium/curium and neptunium have been vitrified.

To accomplish this task, over nine million pounds of molten glass mixed with waste have been poured into over 2,300 canisters.

Hard work and a dedication to safety and innovation have made these outstanding achievements possible.

## Liquid Waste Operations Celebrates Milestone Achievements



DWPF

More than halfway through the fiscal year, Liquid Waste Operations paused recently to recognize and celebrate employees for their significant work accomplishments. Gathering in F Tank Farm, Saltstone, H Tank Farm and DWPF, management teams served their employees a barbecue luncheon and thanked them for their support and achievements.

During the celebrations, LWO Executive Vice President Dave Olson, along with Operations Manager Kim Hauer, Facilities Projects Manager Mark Lindholm and the respective facility managers, extended their thanks and appreciation to the groups for their contribution toward the organization's overall mission of safely dispositioning legacy waste.



H Tank Farm



F Tank Farm

## LWO Recent Accomplishments

- ⇒ Completed Tank 25 to Tank 34 interstitial draining one month ahead of schedule
- ⇒ Initiated Tank 4 burkeite dissolution campaign
- ⇒ Completed 1F and 2F evaporator and diversion box outages
- ⇒ Removed more than 18,000 gallons of sludge bulk waste from Tank 6
- ⇒ Deployed specially-designed tool to obtain very difficult Tank 5 "snow bank" sample
- ⇒ Completed 2F Evaporator modifications
- ⇒ In March, returned all three evaporators in F and H Tank Farms to operable status and placed into operation, the first time all three systems have been operational concurrently since 2005
- ⇒ Completed simulant testing and initiated Phase I cold runs of the Modular Caustic Side Solvent Extraction Unit (MCU)
- ⇒ Completed all cold runs of the Actinide Removal Project (ARP)
- ⇒ Completed the 241-96H Dismantling and Removal work
- ⇒ Completed Phase II of the Control Room Consolidation Project
- ⇒ Developed a Control Room Simulator to exactly simulate the conditions of four H Tank Farm control rooms and the new ARP and MCU control rooms
- ⇒ Completed repairs to the Tank 37 transfer line
- ⇒ Completed Waste Transfer Line Project modifications in the 221-S building to support Interim Salt Disposition Project (ISDP)
- ⇒ Completed modifications and testing of the 512-S facility to support ISDP
- ⇒ Completed Saltstone classroom training for new Operators ahead of schedule to support enhanced facility operations

## Service Milestones

Congratulations to the following SRS employees, who are celebrating service milestones in **July**.

### 40 YEARS

John R. Greenquist

### 35 YEARS

Alvin S. Bolt  
Hans M. Geiger  
Robert E. Hajec  
Johnnie Larke  
Robert L. Myers  
Dennis D. Niehoff  
Daniel Olabuenaga  
Grover D. Price

### 30 YEARS

Grant A. Cook  
Lawrence Karnowski, Jr.  
Lesley Manuel  
Timothy C. Taylor

### 25 YEARS

Frances S. Alston  
Donnie W. Blankenship  
Kurt R. Breitinger  
Donna G. Demedicis  
James R. Matthews  
Lavanda Robinson

Loren D. Stephens  
James T. Tomac  
Arthur J. Ward  
James J. Yeager

### 20 YEARS

Robert M. Barbin IV  
Charles R. Bell, Jr.  
Lee D. Bellmer  
Donald W. Bickley  
Gary L. Cartrett  
Prabhudas V. Chande  
Glenn E. Cockrell  
Charles M. Colquitt  
John H. Conaway III  
Katrina E. Deal  
Lorne D. Debord  
Christopher W. Devore  
Kenneth A. Dukes  
James B. Gentry  
Tony D. Hall  
Melody K. Hicks  
Roger A. Hunnicutt  
Levern O. Jordan  
Donna J. King  
Kevin L. King

James W. Koch II  
Marc W. Loibl  
Jeffrey E. Micots  
Roger D. Mote  
Davis Nguyen  
Natalie M. Park  
Terry Roberts  
Annette Simpkins  
Lyle B. Stone Jr.  
Charles E. Vaughn  
Scott L. West  
Anthony P. Whatley  
James H. Williams, Jr.  
Kirkland J. Williams  
Stephen R. Willis

### 15 YEARS

Nitin N. Bhatt  
William E. Bruss  
Adela A. Chow  
Vera S. Gibson  
Marilyn L. McKie  
Sara H. Padgett  
James C. Paradis  
Charles S. Pemble  
Wilbur L. Wetzel

### 10 YEARS

Thad M. Adams  
Murray B. Baxter

### 5 YEARS

James M. Becnel  
Christopher DesRocher  
Douglas L. Durden  
Kevin R. Hera  
John W. Kilgore  
Dwayne A. Murray, Sr.



### Spotlight On Core Values

- ⊙ Safety
- ⊙ Integrity
- ⊙ Teamwork
- ⊙ Results

The *WSRC News* is published by WSRC's Public and Employee Communications Department, Office of the President.

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