



News from the Savannah River National Laboratory

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FOR IMMEDIATE RELEASE

SAVANNAH RIVER SITE PROJECTS RECEIVE POLLUTION PREVENTION HONORS

AIKEN, S.C. (February 24, 2010) – Two Savannah River Site (SRS) projects led by the Savannah River National Laboratory have been honored by the U.S. Department of Energy Office of Environmental Management (DOE-EM) for achievements in pollution prevention.

“SRS Constructed Wetlands Reduce Environmental Impacts” won DOE-EM’s Best In Class in the category of Sustainable Design/Green Buildings. As a Best In Class winner in the DOE-EM Pollution Prevention (P2) honors program, it will be submitted for consideration for DOE’s P2 Star honors, which recognizes achievements from across all of DOE’s program offices, as well as the White House Closing the Circle award, which recognizes achievements throughout the federal government.

In addition, the project “Detoxification of Outfall Water Using Natural Organic Matter Project” took Honorable Mention in the Waste/Pollution Prevention category.

Last year, SRNL and the SRS Defense Waste Processing Facility earned a White House Closing the Circle award for their project, New Gasket Removal & Replacement Tool.

The Constructed Wetlands were designed as a low-impact method of reducing pollution discharges to streams from two operational facilities at SRS. These self-sustaining wetland treatment systems eliminate toxicity and reduce the discharge of heavy metals into onsite streams. The real significance, however, is that they accomplish this in a way that represents the essence of sustainable design principles, requiring minimal maintenance and minimizing energy usage and pollutant discharges.

These systems eliminate the need for both power and chemicals normally associated with wastewater purification. The design uses gravity flow to move wastewater through the treatment system, eliminating the need for power-consuming pumps. Microbes and plants (specially selected to be unappealing to local animals) do the work of isolating and stabilizing the contaminants, eliminating the need for chemical treatment. The wetlands greatly reduced the construction, operating, and maintenance expenses associated with water treatment and produce no secondary waste that would require further treatment or disposal. Savings of over \$500,000 per year are being realized due to selection of the wetland systems over conventional water treatment facilities. Initial construction costs were several million dollars less than for any other viable alternatives.

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As the applied research and development laboratory at SRS, SRNL developed the concept and validated the technology for these applications, and worked with DOE and contractor personnel to get them approved and implemented.

Team members from SRS management and operating contractor Savannah River Nuclear Solutions, LLC are Eric Nelson, John Gladden (SRNL); Winona Specht (SRNL retired); Bill Payne, Dwight Jones, James Bell, Regis Strauss, and Mahesh Patel; honorees from DOE-Savannah River Operations Office are Anthony Towns, Robert Goehle, William G. Erickson and Lee Davis.

These projects also had significant contributions from Clemson and the University of South Carolina. Dr. John Rodgers of Clemson was instrumental in the final design and construction of the initial system, while Dr. Michele Harmon, then a graduate student at USC, conducted the pilot study that validated the concept. As a faculty member at USC-Aiken, Dr. Harmon is currently involved in monitoring the development of the more recently constructed wetland treatment system.

The Detoxification of Outfall Water project involved the development of an entirely new “detoxification” approach to address contaminants such as copper. This system amends outfall water with natural organic matter to bind copper and mitigate toxicity, protecting the sensitive species in the ecosystem. The amendments are commercial products that are commonly used in organic agriculture. For the SRS Outfall and similar facilities where this innovative “green” technology will be viable, the detoxification system protects and improves the environment while significantly reducing energy use, land disturbance, and costs, as well as eliminating generation of secondary waste treatment media. Cost avoidance is estimated at over \$10 million for the life of the project. The system was approved by state regulators and a patent application has been submitted.

Honorees from SRNS are Brian Looney, Nancy Halverson, Margaret Millings, Ralph Nichols, Jay Noonkester, Kevin Matthews, Cynthia Boler-Melton (all SRNL), Bill Payne, Sean Bohrer, and Dan Williams, along with DOE-SR’s Gary Borba.

SRNL is DOE’s applied research and development national laboratory at SRS. SRNL puts science to work to support DOE and the nation in the areas of environmental management, national and homeland security, and energy security. The management and operating contractor for SRS and SRNL is Savannah River Nuclear Solutions, LLC.

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