



News from the Savannah River National Laboratory

August 22, 2002 For immediate release
Contact: Angeline French (803) 725-2854, angeline.french@srs.gov

Savannah River Labs to Study Potential Role of Pigment in Environmental Cleanup

AIKEN, S.C. – Two research laboratories at the Savannah River Site are undertaking a study to better understand how scientists can encourage certain bacteria to produce more of a type of melanin – a pigment similar to the one that makes humans' skin darker – which could then be used to clean up metals and radionuclides in the environment.

The Savannah River Technology Center (the site's applied research and development laboratory) and the Savannah River Ecology Laboratory (operated by the University of Georgia) have received \$85,700 from the Natural and Accelerated Bioremediation Research Program (NABIR) for the study. Oak Ridge National Laboratory, a U.S. Department of Energy laboratory in Tennessee, has also received funding to participate in the study. NABIR, part of the DOE's Office of Science, funds research to serve as the basis for the development of cost-effective bioremediation of radionuclides and metals in the subsurface at DOE sites. Bioremediation is the use of living things, such as microbes, to clean up environmental contamination.

The study begins from the knowledge that a group of bacteria known as *Shewanella*, commonly found in subsurface soils, produce melanin, which is similar to the pigment found in humans, other animals and plants. This melanin has been shown to accelerate the rate at which microbes transform metals and radionuclides in the soil. Researchers hope to stimulate the bacteria to produce more melanin by providing them certain nutrients. That, in turn could speed up the rate at which metals and radionuclides currently in the environment are detoxified and/or immobilized.

Each laboratory is responsible for specific aspects of the study. SRTC is conducting microbiological and biogeochemical studies, and SREL is performing chemical characterization. Oak Ridge will perform genetic studies. The first year of the work will involve understanding to what degree *Shewanella* rely on melanin for metal transformations.

The proposal team, which includes Chuck Turick and Amy Ekechukwu from SRTC and Gary Mills, Brian Jackson and Chris Romanek from SREL, envisions a three-year study. The current grant funds the first year of that study. If this first year produces the expected results, additional funding may be provided for the second and third years.

WSRC-02-37

WASHINGTON SAVANNAH RIVER COMPANY