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FOR IMMEDIATE RELEASE

SRS Works with University of Georgia Laboratory to Address Challenging Groundwater Contamination

AIKEN, S.C., January 31, 2022 – Savannah River Nuclear Solutions (SRNS) has turned to a local laboratory to address a challenging contaminated groundwater plume that resulted from Cold War operations at the Savannah River Site (SRS).

“We have some of the most creative and innovative engineers and scientists in the world tackling these issues, and we’re asking them to apply their expertise and knowledge to this new task, working with the University of Georgia’s Savannah River Ecology Laboratory (SREL) to make it a reality,” said Jeff Thibault, an SRNS Engineer.

During the Cold War, wastewater containing trace amounts of radioactive iodine-129 was released to pond-like basins near two nuclear fuel processing facilities at SRS. The wastewater slowly migrated down through the soil and into the water table.

SRNS has developed highly effective remediation techniques to treat a variety of chemical and radioactive contaminants at SRS, and many of these technologies have been adopted by other sites across the Department of Energy complex. However, a new technique is needed for the latest groundwater contamination challenge.

“The cleanup technology currently used binds the iodine radionuclides to earthen sediment within the aquifer, effectively locking them into place,” Thibault said. “Unfortunately, that same technology can’t be used to treat the leading edge of the plume, which has reached a large marshy area at SRS. This presents a new cleanup challenge for us as the contamination surfaces in the marshlands.”

The goal is to identify a material that can be placed underground at the edge of the marsh, creating a permeable barrier to immobilize the iodine underground before it rises to the surface in the marsh.

“We want to create a solid treatment barrier that will allow the groundwater to pass through, but not the iodine-129,” he said.



Savannah River Ecology Laboratory soil scientists Jeffrey Lott, left, and Christina Logan monitor experimental test equipment used to remove iodine-129 from groundwater at the Savannah River Site. The equipment is part of a one-of-a-kind system developed at the site for this study.

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John Seaman, a research professor at SREL, tested 11 promising materials for the permeable barrier. SREL scientists are working with SRNS engineers to test four of those materials in the field using contaminated water from the aquifer. The materials are zero-valent iron, porous iron composite, granular activated carbon and a mixture of iron and carbon.

“We hope to get positive results out of this first phase of testing. We also have funding in our budget for next year to test other sorbents or other combinations of sorbents,” said Thibault. “I’m very interested in the mixing of materials. Zero-valent iron may be good. But zero-valent iron with carbon may be fantastic.”

In addition to providing guidance and strategies for remediation technologies, SREL provides research expertise on wildlife ecology, disease ecology, biogeochemistry and forestry and conservation.

Savannah River Nuclear Solutions, a Fluor-led company with Newport News Nuclear and Honeywell, is responsible for the management and operations of the Department of Energy’s Savannah River Site located near Aiken, South Carolina.

SRNS-2021-1121

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