

The Savannah River Ecology Lab: a vital part of SRS's history, future

The University of Georgia's Savannah River Ecology Laboratory has been serving an active role at the Savannah River Site for more than 60 years. As a university partner under a cooperative agreement with the U.S. Department of Energy, SREL provides an independent evaluation of the ecological effects of the site's operations.

SREL's overall mission is to enhance understanding of the environment by acquiring and communicating knowledge of ecological processes and principals that contribute to

sound environmental stewardship. That mission is fulfilled through research, education and outreach.

SREL's research on the site assures the community that an objective, credible, and independent evaluation of environmental impacts and risks associated with nuclear missions is ongoing.

Additionally, SREL provides input to DOE and Savannah River Nuclear Solutions, the site's management and operations contractor, on environmental issues relevant to the safety

and health of the local community.

That input is built upon a foundation of research data collected since before the first shovel of earth at the site was turned and ranges from molecular genetics to landscape assessment.

SREL has a strong education component that provides hands-on advanced learning opportunities for local undergraduate students, as well as advanced training in radioecology to graduate students. To date, more than 400 M.S. and Ph.D. students have completed

graduate studies at SREL.

The lab's outreach program brings ecology to life as it teaches environmental awareness, stewardship and justice to the K-12 population in surrounding communities. The program also reaches out to adult audiences through off-site presentations and on-site presentations. The outreach program conducts approximately 450 presentations a year.

SREL is embedded in the site's past, invested in its present, and committed to its sound future.

Best way to dispose of radioactive liquid waste

Even after resting in the harsh conditions of the ocean floor for almost 2,000 years, samples of ancient glass have been found in essentially "like new" condition.

Now, scientists have developed a more durable type of glass and are using it to turn radioactive wastes into a stable solid borosilicate glass as a highly effective way of treating and preparing it for permanent disposal.

Known as "vitrification" — the immobilization of a material in glass — it is usually accomplished by mixing the highly radioactive waste with specially formulated glass-forming materials consisting of sand and/or similar materials, heating the mix to high temperatures, then letting it cool in a steel container until it hardens.

Since the hazardous components of the waste are not simply encapsulated in glass but actually bonded at the molecular level within the glass structure, vitrification produces durable waste forms that are very stable and will protect the environment for thousands of years.

It is suitable for nuclear wastes from both the production of materials for America's nuclear weapons as well as from recycling used nuclear fuel from power reactors.

The Savannah River Site has been vitrifying radioactive waste at the Defense Waste Processing Facil-



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ity for 18.5 years, safely producing more than 15 million pounds of glass.

The Savannah River National

Laboratory's highly skilled and internationally recognized glass scientists and ceramics experts continue to develop improved

processes and technologies for the vitrification of nuclear waste. While these scientists continue to look for even better materials and methods

for preparing nuclear waste for disposal, turning it into glass remains the "gold standard" here and around the globe.