

GEORGIA TECH RESEARCH

News Release

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TECH STUDIES USE OF FISSION
BYPRODUCT FOR WASTEWATER TREATMENT

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ATLANTA, GA -- Nuclear wastes may be useful in cleaning up at least one hazard to the environment if researchers at Georgia Tech can find a safe, economic^{al} approach.

The Savannah River Laboratory has funded Tech's School of Nuclear Engineering to design a system for killing disease-spreading organisms in sewage sludge with Cesium-137, a product of nuclear fission generated at the Savannah River Plant's nuclear reactors.

If sludge can be sterilized, it can be converted from a pollutant into a safe agricultural fertilizer.

"The idea of using radiation to treat sludge has been around for about 20 to 30 years," says project director Dr. Geoffrey Eichholz, a regents' professor of nuclear engineering at Tech. "But the problem is doing this economically."

The Savannah River Plant already incurs considerable expense in storing the radioactive Cesium-137. Using it to sterilize sludge could help to offset these costs, until permanent nuclear waste disposal mechanisms are in place.

An additional benefit is that radiation treatment of sewage could pose fewer environmental problems than large-scale conventional chlorination.

Chlorine effectively kills pathogenic organisms in sludge, but if the chemical is introduced into surface water in large amounts, it can damage or destroy other aquatic life. Substances exposed to nuclear wastes do not themselves become radioactive.

Tech began a one-year study last July to develop a conceptual design for a Cesium sludge treatment system. The project will determine what radiation dosage is needed as well as the most practical configuration for the process.

In any event, the Savannah River Plant is in the process of solidifying the Cesium-137 into glass bricks, which would then become available for use in such a system. Tech's challenge will be to design a system which optimizes use of the radiation while economically processing sludge through the system.

Eichholz' research team hopes to create a workable design then win a followup contract to build a prototype to demonstrate the concept.

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