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Use of Successful Decontamination Technology Expanded at Savannah River Site, Accelerates Cleanup

High Heat Removes Tritium from Contaminated D-Area Soil and Concrete

Aiken, S.C. - After a successful pilot project, DOE's Savannah River Site (SRS) will expand the use of new decontamination technology funded by the American Recovery and Reinvestment Act. The process will rid soil and concrete debris of tritium contamination, and help the site meet its Recovery Act cleanup goals years ahead of schedule.

"This new technology will continue to be utilized in D Area at SRS and possibly other DOE sites with similar cleanup challenges, resulting in additional cost savings from transportation and disposal of contaminated soils and concrete," said Diana Hannah, SRS D-Area Federal Project Director.

Pilot testing of the process to remove tritium using a high heat source, called a "thermal detritiation unit," was successfully completed at the Site's D Area on June 24, 2010. Installation of three new units is underway and will be completed in October by Navarro Research and Engineering, Inc., an environmental services contractor with an office in Aiken. The pilot unit treated 100 cubic yards at a time, while the three new units will each be able to treat 200-cubic-yards at a time.

Together, the four units will treat a total of 3,500 cubic yards of contaminated concrete and soils, which can then be returned to D-Area excavation sites rather than being sent offsite for disposal, reducing transportation and disposal costs and accelerating cleanup.

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<http://sro.srs.gov/index.html>

The contaminated soil and concrete resulted from heavy water production in D Area from the 1950s to the 1990s.

“Spills were well-documented during that period,” said Tom Kmetz, the SRNS project manager overseeing the detritiation unit. “Those spills resulted in contamination on concrete pads and eventually into the soil that has leached into the groundwater at the Site. With an expected completion date of September 2011, the cleanup will occur six years ahead of schedule, thanks to Recovery Act funding.”

Each Thermal Detritiation Unit is a concrete block structure with a tin roof, housing an array of commercial heating elements at its base. The detritiation process begins when contaminated concrete and soil excavated from D-Area locations are loaded into the unit.

The soil is then heated to a temperature of 212 degrees Fahrenheit and concrete is heated to 1,500 degrees Fahrenheit in order to evaporate the water. Once the target temperatures are reached, they are maintained for about a week.

During the heating process, the tritium is released into the atmosphere at negligible levels and is monitored within the Site’s air permits. Once the material is allowed to cool, the roof is removed, and hand augers are used to obtain samples to confirm that the tritium has been effectively removed. The treated soil then is returned to the excavation site. The treated concrete, now without moisture, is brittle enough to be hand-crumbled into fine powder and returned to the excavation site with the treated soil.

“The D-Area Thermal Detritiation Unit is a prime example of using emerging technology to take care of half-century old problems. Through Site resources, this process was identified and determined to be the best solution to rid D Area soils and concrete debris of tritium contamination,” said Garry Flowers, SRNS president and chief executive officer.

Additional information on the Department of Energy’s Office of Environmental Management and the Savannah River Site can be found at <http://www.em.doe.gov> or <http://www.srs.gov>. For more information about the SRS Recovery Act Project, please visit www.srs.gov/recovery and for more information about awarded contracts, please see www.srs.gov/recovery/procurement-contracts.

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