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## New Mission for Savannah River Site Drones: Inspect Waste Sites with Engineered Protective Covers

AIKEN, S.C., May 20, 2021 – For the first time, camera-mounted drones recently hovered, dipped, and glided above remediated waste sites at the Savannah River Site (SRS) to ensure the structural integrity of the protective covers over them.

“This is a new use for our drones, and it’s had a huge impact on meeting the needs of our federal and state regulators who annually conduct site inspections,” said Juana Maddox, Project Lead for EM contractor Savannah River Nuclear Solutions (SRNS). “For a recent aerial inspection, ten engineered protective covers at waste facilities within SRS were inspected.”

Use of the drones for inspections is a shift from past practice in which teams of employees walked the cleanup sites — more than 100 acres of land combined — to inspect the covers that consist of geosynthetic material and soil, topped with grass sod.

The pandemic caused SRNS to think outside the box and come up with a safer way to demonstrate to the regulators that all is well with the protective covers, said Maddox. She added that the inspections also focus on the infrastructure of the cleanup sites, including signs, monitoring wells and fencing.

“Nearly every one of our regulators has been working from home and no one wants the increased risk of driving to the site and gathering to use traditional site inspection methods,” she said. “So, we’re meeting virtually and viewing aerial footage and photos. We have high expectations that this will work out extremely well for everyone.”

The advantages of using drones for the inspections are significant, according to Troy Lorier, Unmanned Aircraft Systems (UAS) Operations Manager and Aviation Safety Officer with the Savannah River National Laboratory (SRNL).



*Savannah River National Laboratory employees Dalton Hare, left, and Jeff Steedley prepare a drone for flight to inspect engineered protective covers at remediated waste sites at the Savannah River Site.*

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“We can quickly and efficiently ensure all aspects of the remediated waste site are in good condition in a fraction of the time required to walk the site,” Lorier said. “Plus, issues such as damaged fencing, erosion, or where hogs have rooted up the soil, can be quickly identified and the exact location passed on to maintenance crews.”



*A camera-mounted drone soars above the Savannah River Site as it inspects engineered protective covers at remediated waste sites.*

Lorier said the drones typically maintained a height of 10 to 12 feet above ground during the aerial inspections while occasionally soaring up to 150 feet for a broader perspective. Inspections ranged from 30 minutes up to five hours depending on the size of each protective cover.

Maddox noted that every closure project at SRS needed to be closely examined for a review that the SRNS environmental compliance department conducts every five years.

“We greatly appreciated SRNL’s drone team who helped us with this challenge,” Maddox said.

The SRS drone program launched in 2009. The site acquired the unpiloted aircraft with funds from the American Recovery and Reinvestment Act. Since then, the program has grown in scope and personnel.

“The SRNL UAS Program recently received DOE’s UAS Aircraft Unit Award for fiscal year 2020, an aviation safety award recognizing our program as the best in the DOE complex in 2020,” Lorier said.

Steve Shirley, the SRNS Manager of Area Completion Projects, noted that an environmental inspection of the Lower Three Runs watershed that occurs every five years is expected to begin in a year or two.

“We may be able to work with SRNL on how to use drones to cover that 25-mile stretch without having to depend on a large number of site employees working in a difficult environment all the way down to the Savannah River,” Shirley said.

Drones are used at SRS for a variety of missions, including emergency response surveillance, radiation detection, aerial photography and videography, as well as counter-UAS testing and training.

*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, including the Savannah River National Laboratory, located near Aiken, South Carolina.*

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