



U.S. DEPARTMENT OF
ENERGY

OFFICE OF
ENVIRONMENTAL
MANAGEMENT

DOE Fellows Help Demonstrate Robotic Monitoring of EM Waste Site

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DOE Fellow Brendon Cintas presents a robot he modified to better serve EM's mission at the Hanford Site after adding multiple cameras, data-collection technology and remote-control capability, during a recent demonstration at Hanford.

RICHLAND, Wash. – [EM](#) has partnered with Florida International University (FIU) to build DOE's workforce while furthering the [Hanford Site](#) cleanup mission.

EM collaborates with [FIU](#) to offer paid research opportunities and summer internships for minority-student scientists and engineers across the cleanup program's facilities.

EM [Office of River Protection](#) (ORP) contractor Washington River Protection Solutions (WRPS) sponsored one such opportunity by sending a robot that it had previously purchased for radiation mapping to FIU in March 2023 so students could explore enhancing the robot's capabilities and potential uses. Brendon Cintas, a mechanical engineering graduate student and [DOE Fellow](#), went to work repurposing the technology to enhance the tools available for monitoring Hanford's large underground waste tanks.

“Rather than it being specifically a tool for surveying and radiation mapping, we wanted it to be a multifunctional tool that could be deployed with a variety of uses,” said Cintas. “We basically hit the reset button and rebuilt the robot from the ground up.”



A robot used on the Hanford Site is remotely controlled and can be equipped to complete various tasks in conditions that might be hazardous for humans.



EM partners with Florida International University to offer paid research opportunities and summer internships for minority-student scientists and engineers across EM facilities, like this robot Brendon Cintas is developing to help monitor large underground waste tanks at the Hanford Site.

Working with WRPS engineers, Cintas and his team adapted the tool to better serve the Hanford mission, adding multiple cameras, data-collection technology and remote-control capability. The base vehicle was built to be compatible with a variety of plug-and-play components, allowing for multiple options to tackle different objectives.

Cintas and his team recently demonstrated the robot at Hanford.

“Brendon’s commitment to advancing technology for nuclear facility monitoring has greatly contributed to achieving both safety and excellence,” said Doug Reid, a WRPS mechanical engineer who advised Cintas throughout the project. “WRPS’ continued support for sponsoring DOE-FIU Fellows has been instrumental in fostering young talent and driving groundbreaking advancements in the field. I am proud to be a part of this work.”

Cintas and other students will continue developing the robot at FIU. Planned improvements include adding more data-gathering technology, improved cooling, weatherproofing, radiation shielding, additional cameras, and a more agile base. These modifications will enable the robot to generate radiation maps with greater precision, monitor air quality and traverse more challenging terrain.