

PROJECT FACT SHEET

D&D Toolbox – Technology Demonstration of Fixatives Applied to Hot Cell Facilities via Remote Sprayer Platform

FIU's Applied Research Center (ARC) is supporting the U.S. Department of Energy Headquarters in its mission to develop a D&D Toolbox Program to limit uncertainty within D&D operations.

Deactivation and Decommissioning (D&D) work is a high priority across the DOE Complex. The D&D Toolbox Program is an integrated systems approach to develop a suite of D&D technologies that can be readily used across the DOE complex to reduce technical risks, improve safety, and limit uncertainty within D&D operations. The D&D of a hot cell facility requires that each of the hot cells be cleaned and stabilized to allow demolition to occur while maintaining worker radiation exposure ALARA and without spreading radioactive contamination. Dozens of hot cell facilities across the DOE complex, containing over a hundred highly contaminated hot cells, will require safe and effective D&D. One decontamination step typically consists of applying a fixative coating (or similar material) to all hot cell surfaces to hold contamination in place during hot cell demolition. In support of the D&D Toolbox, FIU performed a technology demonstration of a remote sprayer platform to apply fixatives to a hot cell facility mock-up.

Project Objectives

The overall objective of this project is to support the D&D Toolbox by identifying and demonstrating new technologies and approaches to support the D&D of facilities across the DOE complex.



Remote sprayer platform applying fixative to hot cell mock-up facility at FIU Testing Facility.

Project Benefits

Benefits of developing and implementing the D&D Toolbox include:

- Protecting workers and minimizing dose in hostile environments during D&D activities,
- Meeting the gap between a high-priority need and currently available technologies,
- Saving costs by supporting D&D activities that will reduce S&M needs,
- Reducing environmental risk by fixing loose/transferable contamination which will reduce risk of spreading contamination.

Project Accomplishments

- Researched and selected commercially available fixatives,
- Researched potential vendors and identified a commercially available remote crawler,
- Completed the technology demonstration test plan,
- Constructed a hot cell facility mock-up,
- Demonstrated the remote crawler technology spraying fixatives on the interior of a hot cells facility mock-up,
- Completed technology demonstration report