



Future Robotics Applications: Repackaging Nuclear Materials at the Fernald Environmental Management Project

The Project: The U. S. Department of Energy (DOE) Nuclear Weapons Complex has generated substantial amounts of uranium and transuranic-bearing materials that must be consolidated, stabilized, treated, and prepared for long-term storage or disposition. Significant quantities of these materials are currently stored in drums that need to be repackaged into DOE-approved shipping or storage containers. Manual repackaging of these materials subjects personnel to many hazards, including radiation exposure, contamination risk, and mechanical injury. The Material Extraction Recovery Line will greatly reduce these risks by using robotics and automation for material handling.

The Impact: Fernald Environmental Management Project has over six thousand drums of uranium waste material that need to be repackaged so they can be transported off site to meet closure requirements. These drums generally weigh 800 to 900 lb, with some exceeding 2000 lb. Repackaging these drums using manual labor would require personnel to spend considerable effort and time in anticontamination suits. This automated system that uses robotics will remove people from the physical and ergonomic risks of manual repackaging while helping to broaden the operators' training for postclosure employment.

Future Advances Through Rbx Initiative: The robotics crosscut initiative will bring together several technologies to enable this solution. These technologies have been developed in response to needs identified by various sites over the past few years. As closure activities continue, additional needs will be identified. The Robotics Crosscutting Program (Rbx) will help support technologies to address those needs. As those new technologies are developed, this automated system will evolve to incorporate them.

Rbx will play another important role in the life cycle of this project by identifying and facilitating reuse opportunities. The environmental management community is facing many repackaging problems that have a broad set of conditions and constraints. The Rbx provides a means to coordinate the development and use of technologies across the DOE.

For more information on this project, please contact:

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