

Recovery Act workers use robotics to clean up DOE's Paducah Site

American Recovery and Reinvestment Act workers are using robotic equipment at the Department of Energy's Paducah Site to clean up old buildings more safely and efficiently.

A remote-controlled machine is removing contaminated piping and other systems from the "B" building, one of the five structures comprising the C-340 Metals Plant. Similar equipment has been used at some other DOE sites but never before at Paducah.

The machine's hydraulic arm can reach about 23 feet and uses cutters to snip materials loose.

"It allows workers to remain a safe distance when cutting out process systems," said Rob Seifert, DOE's Recovery Act Project Manager at the Paducah Site. "It also keeps them safely on the ground while reaching high elevations."

Workers previously stood on lifts and used metal saws to remove old equipment. The machine lessens worker fatigue because one person controls it with a portable box, Seifert said.

Crews plan to build a small Plexiglas enclosure and test using a negative air machine to remove any contaminants within. If successful, the process will allow demo machine operators to sit in a chair, see in all directions and work in a safer, cooler environment, although still wearing protective equipment.

The robotic machine could be used if needed on another Recovery Act project – cleaning up the C-410/420 Feed Plant – or for the long-term cleanup and demolition of the Paducah Gaseous Diffusion Plant after it closes, Seifert said.

The B building is expected to be razed this spring, following the 2010 demolition of two other Metals Plant structures. The two remaining buildings are being prepared for demolition in 2012.

The Metals Plant spanned roughly 65,000 square feet and operated from 1953-62 and 1968-73 to convert depleted uranium hexafluoride (UF₆) into uranium metal and uranium tetrafluoride. It is one of three contaminated, Cold War era complexes being cleaned up with nearly \$80 million in Recovery Act funding.

In September 2010, heavy equipment demolished the C-746-A East End Smelter a year ahead of schedule and \$10 million under budget. Those savings, plus unused reserve and contingency money, are funding about \$17.8 million in additional cleanup in the C-410/420 Feed Plant.

The Smelter was a 21,000-square-foot facility built in the 1950s as a storage facility and converted in the 1970s to smelt nonferrous ingots, primarily nickel. It closed in 1986.

Demolition of the eastern third of the Feed Plant – covering about a half-acre – is anticipated this spring. Placing debris in an on-site landfill will save about \$1.5 million in disposal costs.

Consisting of nine separate facilities spanning 200,000 square feet, the Feed Plant was used from 1957-1977 to manufacture UF₆ and fluorine. The rest of the facility is expected to be cleaned up in preparation for 2012 demolition.

More than 100 fluorine-generation cells previously were decontaminated and turned over to private industry for reuse, saving DOE about \$2.5 million in disposal costs. Recovery Act workers also removed over 60 tons of copper bus bars for reuse.

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Captions:

012 and 023: Heavy equipment operators gain hands-on training using a robotic demolition machine in the C-340 shipping and receiving area.

008: Two heavy equipment operators use a remote-control panel to steer a robotic demolition machine's 23-foot hydraulic arm to cut away old equipment and systems in the C-340 Metals Plant.