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HANFORD'S CRITICAL MASS LAB DEMOLISHED

One of the Most Hazardous Facilities at Hanford Comes Down Following Two Years of Safety Preparations

Note: Photos are available for downloading on our website at this link: <http://ow.ly/7Zk7p>

RICHLAND, WASH., December 14, 2011 – The demolition of a former nuclear laboratory marks significant progress in the [U. S. Department of Energy](#) (DOE)'s cleanup of highly contaminated buildings on the Hanford Site in Washington State. The laboratory was one of the most contaminated buildings at the site.

“The Department of Energy’s goal is to remove any buildings that are no longer of service on the site,” said Al Farabee, DOE federal project director. “The safe demolition of the 209-East Critical Mass Laboratory is a key part of our strategy to significantly reduce long-term surveillance and maintenance costs and shrink the Hanford Site cleanup footprint to 75 square miles or less by 2015.”

Contractor [CH2M HILL Plateau Remediation Company](#) (CH2M HILL) safely demolished the 8,979-square-foot nuclear facility after nearly two years of preparations. CH2M HILL is responsible for demolition and remediation of facilities and waste sites across the Hanford Site. The laboratory is one of the most contaminated of the 118 buildings the contractor has removed since its contract began in 2008.

Preparations for demolishing the nuclear facility included developing and testing techniques for safely removing the facility’s unique hazards and complex structures.

For example, to remove tanks once used for storing radioactive liquids at the laboratory, CH2M HILL employees developed a “cutting shroud” to protect workers and the environment from radioactive contamination while cutting up the tanks. Workers first practiced with the actual tools and techniques in a controlled “mock-up” environment before performing the task over the summer.

Built in 1960 during the height of the cold war, the 209-East Critical Mass Laboratory was one of three buildings of its type in the DOE Complex. The laboratory was run by Battelle for years to identify controls for criticalities, the term used for the dangerous condition when fissile material can sustain a reaction by itself. The facility housed experiments to test the criticality limits of uranium and plutonium solutions.

After operations at the facility ceased in the 1980s, the bulk of the radioactive material was removed, and tanks and pipelines were flushed. Before the building could be demolished, several hazards had to be removed, including:

- Large pieces of equipment used for handling materials, called glove boxes, contaminated with plutonium
- Highly radioactive tanks
- Two underground storage tanks beneath 2.5 feet of concrete
- A 3-foot thick vault door made of steel and reinforced concrete
- 5-foot-thick concrete walls
- Piping insulation containing asbestos

“Due to the history of the facility and the contamination of the remaining structure, additional controls were put in place to protect the environment and the workforce such as enhanced dust suppression, continuous perimeter air sampling and fixative applications,” said Kurt Kehler, CH2M HILL vice president of decommissioning and demolition. “Even with the recent inclement weather we faced during the demolition phase, the work force performed the work safely and efficiently.”

Due to the level of contamination, some of the waste removed from the facility was packaged for shipment to the Waste Isolation Pilot Plant in New Mexico. The building debris was disposed of at the Environmental Restoration Disposal Facility, Hanford’s onsite, engineered landfill for low-level (radioactive) waste.

Headquartered near Denver, Colo., employee-owned CH2M HILL is a global leader in engineering, procurement, construction, management and operations for government, civil, industrial and energy clients. With \$7 billion in revenue and more than 30,000 employees, CH2M HILL is an industry-leading program management, construction management and design firm, as ranked by Engineering News-Record (2008). The firm’s work is concentrated in the areas of energy, water, transportation, environmental, nuclear and industrial facilities. The firm has long been recognized as a most-admired company and leading employer, including being named by FORTUNE as one of the 100 Best Companies to Work For and one of America’s Most Admired Companies. Visit us at www.ch2mhill.com, www.twitter.com/ch2mhill and www.facebook.com/ch2mhill.

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CH2M HILL crews finish demolition of the 209-E Critical Mass Laboratory. The project took two years to safely prepare the nuclear facility and workers for the demolition.



Crews demonstrate procedures on a “cutting shroud” that would be used to tackle the last major hazard in the 209-E Critical Mass Laboratory prior to demolition -- highly contaminated tanks that had to be cut up and removed before the building could be demolished.



CH2M HILL workers tear away at the 5-foot-thick concrete walls of the 209-E Critical Mass Laboratory. The laboratory was run by Battelle for years to identify controls for criticalities, the term used for the dangerous condition when fissile material can sustain a reaction by itself. The facility housed experiments to test the criticality limits of uranium and plutonium solutions.



Workers remove the east end of a highly contaminated tank in the Criticality Assembly Room of the 209-E Critical Mass Laboratory to provide access to two storage tanks as part of demolition.