

CLEANUP PRIORITIES FOR THE Y-12 NATIONAL SECURITY COMPLEX



FACT: Y-12 National Security Complex (Y-12) plays a key role in strengthening our country's national security by retrieving and storing nuclear materials, fueling the country's naval reactors, and reducing global threats. Formerly, Y-12 operated uranium enrichment and lithium separation facilities during the Manhattan Project and Cold War-era that protected our country but resulted in contamination of its facilities and the environment.

CHALLENGE: Contaminated and deteriorating facilities on the Y-12 site pose potential risks to employees and the environment, and they are costly to maintain. The Oak Ridge Office of Environmental Management (OREM) must conduct large-scale cleanup and remediation activities while minimizing impacts to ongoing national security missions at Y-12.

SOLUTION: OREM is coordinating the safe and efficient cleanup of the Y-12 site – including building demolition and soil and water remediation. This enables Y-12 to continue its national defense missions, achieve a smaller, modernized footprint, and create a safer environment for employees and the community.

CLEANUP GOALS

Completing cleanup efforts at Y-12 will protect human health and the environment, reduce facility and maintenance costs, and support future missions.



Remove and dispose of legacy materials and waste



Demolish more than 80 excess facilities (25+ are high risk)



Address mercury in the soil and water



Modernize Y-12's footprint



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CLEANUP PROJECTS



FACILITY DECOMMISSIONING AND DEMOLITION (D&D)

OREM is expected to remove nearly 80 structures at Y-12 in the decades ahead, including more than 25 that are categorized as high risk. Three buildings will be decontaminated/deactivated and kept for historical preservation, while the remaining buildings will be demolished to remove risks, enable modernization, and open land for important missions.



ADDRESSING EXCESS CONTAMINATED FACILITIES

OREM is setting the stage for the next wave of demolitions with several deactivation projects at Y-12. The next big demolition projects will remove two Manhattan Project-era enrichment facilities, Alpha-2 and Beta-1, that have a combined footprint of more than half a million square feet.

Once two crucial infrastructure projects are completed – the Mercury Treatment Facility construction project and West End Protected Area Reduction project – OREM will be able to address the largest and highest risk structures at Y-12. Those facilities include Alpha-4, Alpha-5, and Beta-4. Crews have performed projects to retrieve mercury and deactivate old equipment outside of Alpha-4 to prepare it for future cleanup. Those efforts captured nearly 15,000 pounds of mercury and prevented a large release into the environment.



WATER TREATMENT

Construction of the Outfall 200 Mercury Treatment Facility is underway and moving forward. This vital piece of infrastructure is the linchpin for OREM's cleanup strategy at Y-12. It is designed to safeguard against mercury releases in the Upper East Fork Poplar Creek during demolition of Y-12's large, deteriorated, mercury-contaminated facilities and subsequent soil remediation. When operational the facility will be able to treat up to 3,000 gallons of water per minute and help the site meet regulatory limits in compliance with EPA and State of Tennessee requirements.



CHANGING THE LANDSCAPE

OREM's demolition projects are altering Y-12's skyline, removing hazards, and enabling modernization. In 2021, OREM finished removing the 11 structures that comprised the Biology Complex. That project cleared away vacant, deteriorating buildings and opened 18 acres for NNSA to construct its new Lithium Processing Facility. In 2022, crews tore down the former Criticality Experiment Laboratory, another high-risk excess contaminated facility.

Now, teams are preparing large Manhattan Project-era uranium enrichment buildings for demolition. Workers recently completed major deactivation inside Alpha-2, a multi-story facility spanning nearly 325,000 square feet. The building is co-located with other active facilities at Y-12, requiring utilities to be rerouted prior to demolition. Demolition is scheduled to begin in 2024. Deactivation is also underway at Beta-1, and demolition is expected to begin on that facility in 2026.



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