

Oak Ridge



EM completed demolition of the Poplar Creek facilities at the East Tennessee Technology Park in 2019.

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Overview

The Oak Ridge site, located in eastern Tennessee, was one of the three original sites in the Manhattan Project. The U.S. Army Corps of Engineers began acquiring land in the area in October 1942. By March 1943, 56,000 acres were sealed behind fences and major industrial facilities were under construction. The K-25 and Y-12 plants were built to explore different methods to enrich uranium, while the X-10 site was established as a pilot plant for the Graphite Reactor and to explore how to produce plutonium.

Throughout the following decades the three sites – K-25 (present day ETTP), X-10 (present day Oak Ridge National Laboratory (ORNL)), and Y-12 (present day Y-12 National Security Complex (Y-12)) – purified isotopes, conducted advanced research, manufactured weapons components and enriched uranium. These activities created environmental legacies that placed the Oak Ridge Reservation on the U.S. Environmental Protection Agency's National Priorities list in 1989.

The Oak Ridge Office of Environmental Management (OREM) is the landlord of ETTP, and it is responsible for environmental cleanup at Y-12 and ORNL. OREM has achieved significant risk reduction across the Oak Ridge Reservation and is nearing the completion of environmental cleanup at ETTP. This accomplishment will save millions of dollars in annual landlord, maintenance, and oversight costs that could be redirected to accelerate future cleanup.

With completion in sight at ETTP, OREM is currently laying the foundation for ramping up major cleanup operations at ORNL and Y-12. These projects will address

DOE's largest inventory of high-risk excess contaminated facilities (former research reactors, isotope production facilities, and former process buildings), eliminate the site's inventory of uranium-233, remediate areas with dense mercury-contamination, and provide valuable real estate to SC and NNSA missions.

Cleanup accomplishments include:

- **Demolished all Poplar Creek Facilities. These were the most contaminated buildings remaining at ETTP and were the last support facilities associated with the former gaseous diffusion process.**
- **Demolished Building K-1037; at 380,000 square feet it was the largest remaining building at ETTP.**
- **Prepared the remaining uranium-233 inventory stored at ORNL for disposal.**
- **Commenced construction of the Outfall 200 Mercury Treatment Facility. This vital capability will open the door for the demolition of Y-12's large, deteriorated, mercury-contaminated facilities and subsequent soil remediation by providing a mechanism to limit potential mercury releases into the Upper East Fork Poplar Creek.**
- **Retrieved nearly 10,000 pounds of mercury from old equipment at Y-12, preventing a potential environmental release.**

Cleanup Highlights 2020-2030

DOE is on the cusp of completing all remaining demolition work at the ETTP. Over the next 10 years, DOE will also continue to make significant progress on cleanup activities at Y-12 and ORNL to help support the important missions of the NNSA and SC, as well as eliminating one of the largest

remaining security risks at ORNL.

By the end of 2020, all major demolition projects will be completed at ETP. This will account for the removal of nearly 13 million square feet of buildings, and it will mark the first time in the world an entire enrichment complex has been removed. DOE is slated to complete any remaining soil and groundwater remediation at ETP in 2024. The majority of land will be transferred to the community for industrial redevelopment, while the smaller stewardship areas will be transferred to LM.

In 2021, demolition will be completed on the remaining buildings in Y-12's Biology Complex, which span more than 320,000 square feet. This project will eliminate five high-risk excess contaminated facilities from the DOE national listing, and will open land for national security missions. In 2022, DOE is scheduled to complete mockup testing for sludge processing. This involves constructing a Sludge Processing Mockup Test Facility that will assist in technology testing and maturation related to future processing of Oak Ridge's inventory of sludge TRU waste.

By 2024, OREM will resume deactivation of major facilities at ORNL and Y-12. These projects will eliminate risks and clear land for science and national security missions to meet the needs of the nation. Currently, those two sites have approximately 220 excess, contaminated facilities.

In 2025, construction of the Outfall 200 Mercury Treatment Facility will be completed. When operational, the facility will be able to treat 3,000 gallons of water

per minute, and it will include a two-million-gallon storage tank to collect stormwater. Also in 2025, OREM will finish processing, downblending, and disposing the remaining inventory of uranium-233 stored at ORNL. Finishing this removal is EM's highest priority at ORNL because it constitutes a Category I quantity of highly enriched fissile material and drives the security posture of the site. The completion of this project will significantly reduce risks and security costs, and it will enable deactivation of a Manhattan Project-era facility located in the heart of ORNL.

By 2026, all of the processing and shipments of Oak Ridge's inventory of legacy TRU debris waste to the WIPP will be completed. This inventory includes both CH and RH waste.

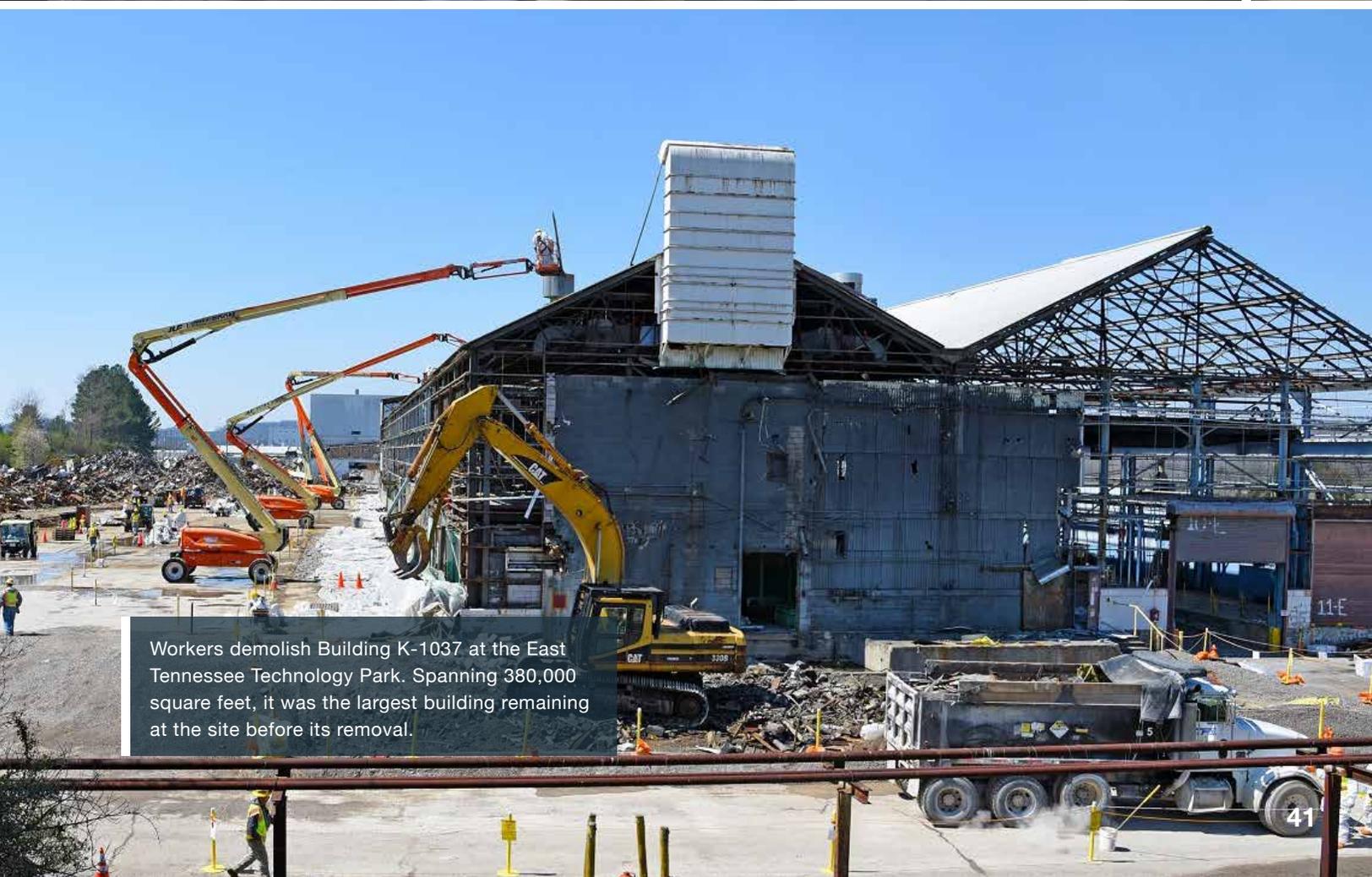
Currently, DOE is scheduled to complete construction on the first phase of the Environmental Management Disposal Facility in the mid-2020s. This crucial capability will provide the onsite waste disposal capacity for lower activity level waste and is needed to complete cleanup in Oak Ridge. It will accept the LLW generated from cleanup at ORNL and Y-12, and it is anticipated to avoid more than \$700 million in costs that would be required if all of the waste is disposed of off-site.

Remaining Cleanup Scope Post-2030

At Oak Ridge, the remaining work will focus on completing cleanup at ORNL and Y-12. That includes deactivating and demolishing all of the remaining excess, contaminated facilities, remediating soil and groundwater, and addressing source contamination. OREM will also work to complete the processing of 530,000 gallons of TRU sludge and operate the program's waste treatment and disposal facilities.



Fissionable material handlers open a canister containing uranium-233 to begin the extracting medical isotopes that will be used for cancer research.



Workers demolish Building K-1037 at the East Tennessee Technology Park. Spanning 380,000 square feet, it was the largest building remaining at the site before its removal.