Oak Ridge

Overview

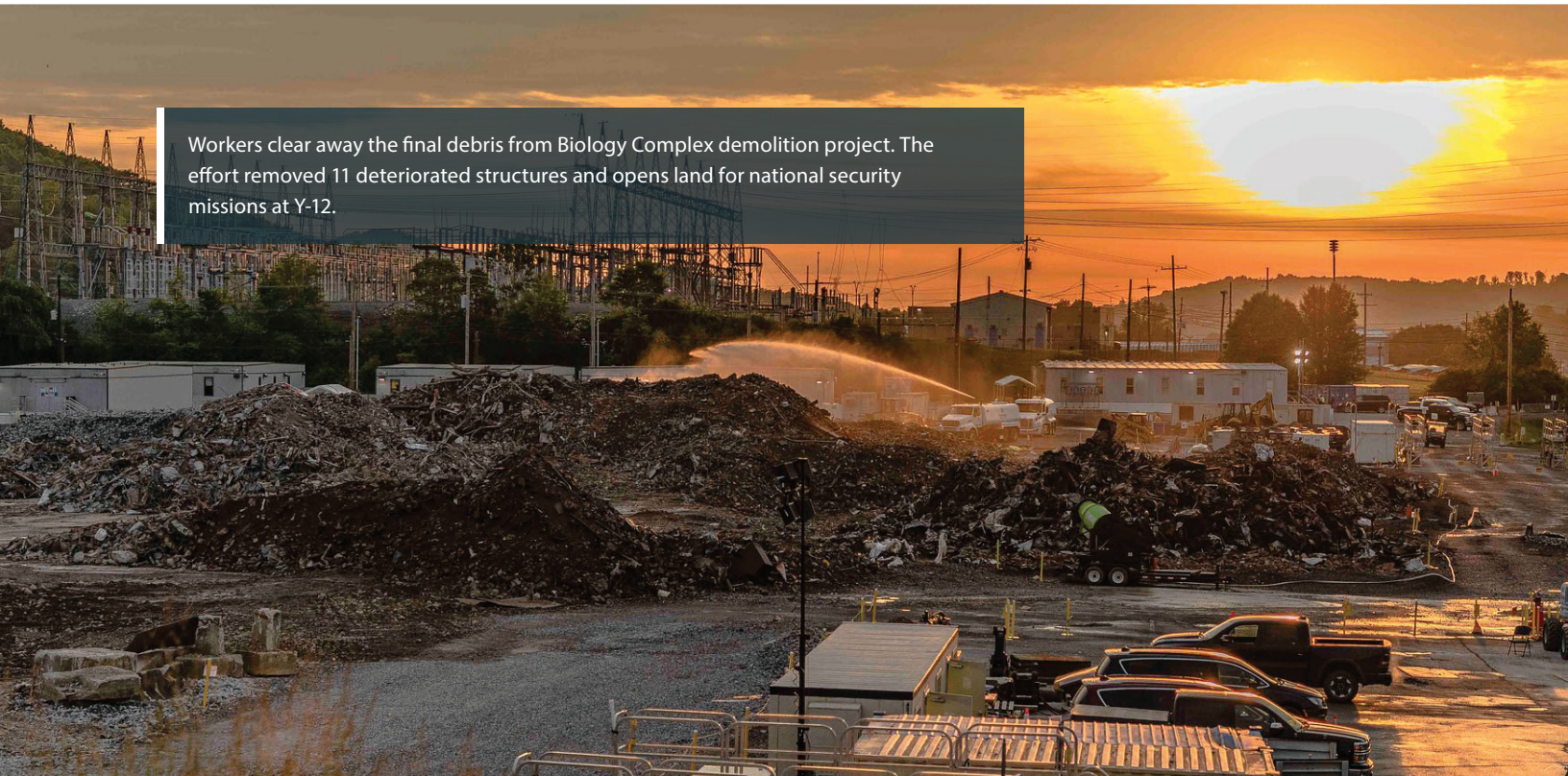
The Oak Ridge Site, located in eastern Tennessee, is one of the three original sites in the Manhattan Project. The U.S. Army Corps of Engineers began acquiring land in the area in October 1942. By March 1943, 56,000 acres were sealed behind fences and major industrial facilities were under construction. 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 methods for the production of plutonium.

Throughout the following decades, the three sites — K-25 (present day ETTP), X-10 (present day ORNL), and 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 EPA's National Priorities List in 1989.

The Oak Ridge Office of Environmental Management (OREM) is the landlord of ETTP, and it is responsible for the CERCLA cleanup at Y-12 and ORNL. OREM has achieved significant risk reduction across the Oak Ridge Reservation, including the removal of all facilities at ETTP. Now a new chapter of cleanup is underway in Oak Ridge.

With demolition complete at ETTP, OREM transitioned the skilled, experienced workforce from there to address the many high-risk facilities at ORNL and Y-12. Demolition prep and deactivation work is already underway at 23 buildings at those sites. OREM's work will address DOE's largest inventory of high-risk, excess contaminated facilities (former research reactors, isotope production facilities, and former process buildings considered to be the worst of the worst); eliminate the site's remaining inventory of uranium-233; remediate areas with dense mercury contamination; and provide valuable real estate for NNSA and SC missions.

Throughout all this work, OREM works to keep the surrounding communities in Anderson and Roane counties and the city of Oak Ridge safe and informed. The program also fosters and maintains strong partnerships by involvement with organizations focused on economic opportunities including the East Tennessee Economic Council, Energy Technology and Environmental Business Association, Chamber of Commerce, and the Community Reuse Organization of East Tennessee. Additionally, OREM leadership provides updates and is available to answer the public's questions at monthly Oak Ridge Site Specific Advisory Board meetings and at other organized public events. OREM representatives also regularly correspond with local city and county officials.



Workers clear away the final debris from Biology Complex demolition project. The effort removed 11 deteriorated structures and opens land for national security missions at Y-12.

Calendar Year 2021 Accomplishments

- **Met an EM priority by completing demolition at Y-12's Biology Complex, which eliminated large high-risk structures and opened land for the new Lithium Processing Facility**
- **Demolished the Radiological Development Lab's West Cell Bank at ORNL**
- **Processed and disposed the remaining low-dose portion of Oak Ridge's uranium-233 inventory that was stored at ORNL. This project also provided medical isotopes for next-generation cancer treatment research**
- **Demolished the Tritium Target Preparation Facility at ORNL**
- **Completed land restorative work at the former Centrifuge Complex and Powerhouse areas at ETTP for transfer and future use**
- **Completed 100th shipment of transuranic waste from Oak Ridge since waste disposal resumed at WIPP**
- **Awarded the Oak Ridge Cleanup Contract, which will lead cleanup for the next decade**
- **Completed an EM priority by completing multiple real property and land transfers at ETTP**

Planned Cleanup Scope 2022–2032

Over the next 10 years, OREM expects to make significant progress on cleanup activities at Y-12 and ORNL to help support the important missions of NNSA and SC, as well as eliminating one of the largest remaining security risks at ORNL.

OREM successfully completed demolition at ETTP in 2020 and made significant progress addressing areas with impacted soil in 2021. OREM is slated to complete remaining soil remediation at ETTP by 2024. It also reached agreement with Tennessee state regulators to complete necessary RODs for groundwater remedies at ETTP by 2026 with remedies expected to be in place by 2028. Much of land is expected to be transferred to the community for industrial redevelopment.

With cleanup nearing the finish line at ETTP, large scale cleanup operations are ramping up at ORNL and Y-12. In 2021, EM demolished high-risk structures that eliminated risks and opened land for ongoing missions at both sites. Crews tore down the remaining buildings in Y-12's massive Biology Complex, and workers also demolished the Tritium Target Preparation Facility (Building 7025) and West Bank Hot Cell at the former Radioisotope Development Lab (Building 3026) at the Oak Ridge National Laboratory (ORNL).

In 2022, OREM will complete soil remediation at the former Biology Complex site to enable the transfer of 18 acres for NNSA to construct a new facility to support national security missions. Deactivation will also continue at numerous facilities located at Y-12 and ORNL, preparing them for future demolition. By 2023, OREM is scheduled to complete deactivation and demolition of the East Cell Bank at the former Radioisotope Development Lab. That effort removes the last of the building's six hot cells and eliminates highly contaminated structures in the heart of ORNL.

In 2023, OREM is scheduled to complete mockup testing for sludge processing. This involves finishing construction on the Sludge Processing Mock Test Facility and operating that facility to assist in technology testing and maturation related to future processing of Oak Ridge's inventory of sludge TRU waste. OREM will also complete demolition of two former research reactors – the Bulk Shielding Reactor (Building 3010) and Low Intensity Reactor (Building 3005) – located in the central campus of ORNL that year. These projects eliminate hazards and enhance accessibility to the Graphite Reactor, which is a component of the Manhattan National Historical Park.

In 2025, the Outfall 200 Mercury Treatment Facility is expected to be operational at Y-12. 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.

OREM is expected to finish processing, downblending, and disposing the remaining inventory of uranium-233 stored at ORNL by 2027 based on the contractor's planned approach. This is EM's highest priority at ORNL because it 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 2028, all of the processing and shipments of Oak Ridge's inventory of legacy TRU debris waste will

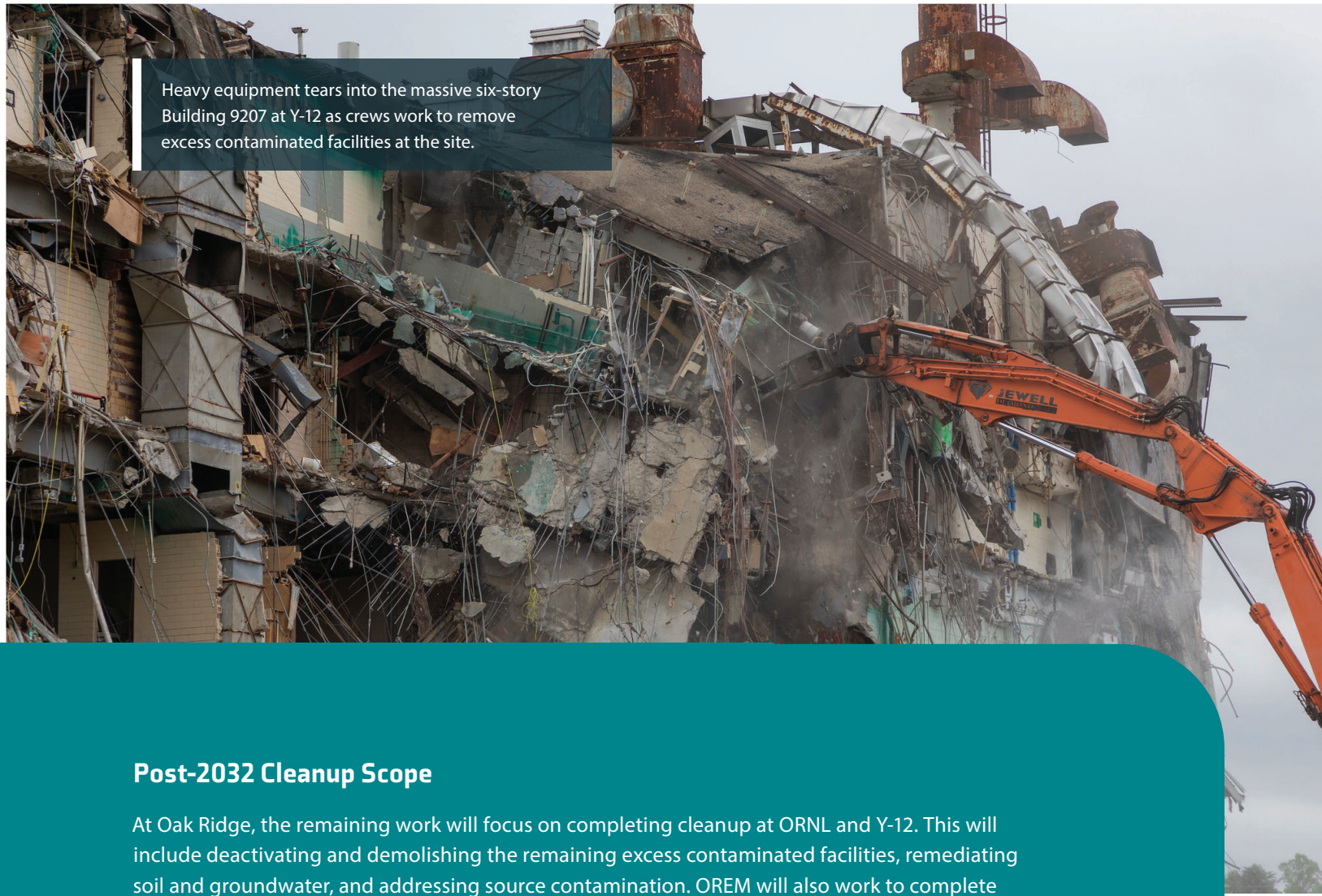
be completed. This inventory includes both contact-handled and remote-handled waste.

By the late 2020s, OREM expects to complete construction on the first phase of the new Environmental Management Disposal Facility. This crucial facility will provide the on-site waste disposal capacity for low-level waste generated from completing cleanup at ORNL and Y-12.

Key Regulatory Milestones 2022–2032

Cleanup of the Oak Ridge Reservation is governed by a Federal Facility Agreement between DOE, EPA, and the Tennessee Department of Environment and Conservation. This agreement establishes the guidelines and milestones for cleanup in Oak Ridge in accordance with CERCLA and other laws.

- **Complete soil remediation at the Exposure Unit 5 area (former Biology Complex Area) of Y-12 — 2022**
- **Complete the Record of Decision (ROD) for Final Soils Actions in Zone 1, ETTP — 2022**
- **Complete ETTP Main Plant Area groundwater interim ROD — 2022**
- **Preparing for demolition of ORNL Central Campus Research Reactor Complex — 2023**
- **Complete demolition of Building 3005 and Building 3010 — 2023**



Heavy equipment tears into the massive six-story Building 9207 at Y-12 as crews work to remove excess contaminated facilities at the site.

Post-2032 Cleanup Scope

At Oak Ridge, the remaining work will focus on completing cleanup at ORNL and Y-12. This will include deactivating and demolishing 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.