

CLEANUP PRIORITIES FOR THE OAK RIDGE NATIONAL LABORATORY



FACT: Oak Ridge National Laboratory (ORNL) is the largest science and energy national laboratory in the Department of Energy (DOE) system, performing research to find solutions to some of our country's most compelling energy and security problems. The site was first established to produce and separate plutonium for the Manhattan Project. These efforts, and other research over the decades, helped protect and advance our nation but resulted in contamination of ORNL's facilities and the environment.

CHALLENGE: Amid ORNL's modern facilities are a number of inactive, deteriorating, and contaminated buildings and stockpiles of legacy waste that pose potential risks to human health and the environment. They are costly to maintain in a safe and stable condition. The Oak Ridge Office of Environmental Management (OREM) must conduct cleanup and remediation activities while minimizing impacts to ongoing research missions at ORNL.

SOLUTION: OREM is coordinating the safe and efficient cleanup of the ORNL site – including building demolition, waste treatment and disposal, and soil and water remediation. This work eliminates risks, and it clears land for ORNL to conduct future research missions that can usher in the next big discovery.

CLEANUP GOALS

Completing cleanup efforts at ORNL will protect human health and the environment, reduce facility and maintenance costs, and modernize one of DOE's most valuable assets.



Treat, remove and dispose of legacy materials and waste



Demolish more than 200 excess facilities (30+ are high risk)



Remediate contaminated soil, water and infrastructure



Modernize ORNL to enable future science and energy missions



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CLEANUP PROJECTS



FACILITY DECOMMISSIONING AND DEMOLITION (D&D)

OREM expects to take down more than 200 structures at ORNL, including more than 30 that are categorized as high risk. These projects will enhance safety, modernize the site, and open land for future research missions.



ADDRESSING EXCESS CONTAMINATED FACILITIES

Major cleanup operations are underway to transform ORNL's central campus area. It is the oldest area at ORNL and houses many of the original structures built in the 1940s – 1960s, including former research reactors and isotope production labs. Crews are already making visible impacts at the site by taking down two former reactor facilities over the past year – the Bulk Shielding Reactor and Low Intensity Test Reactor. They are also deactivating numerous other facilities, including the Graphite Reactor support facilities, Isotope Row facilities, Oak Ridge Research Reactor, and the final Building 3026 hot cell. Together, these projects are paving the way for the next wave of demolitions that will remove risks and clear land for research missions at DOE's largest multi-program national laboratory.



REMOVING INVENTORY OF HIGHLY ENRICHED FISSILE MATERIAL

OREM has removed more than half of the inventory of uranium-233 stored in ORNL's Building 3019, which is the oldest operating nuclear facility in the world. This project is our highest cleanup priority at ORNL. The remaining material requires processing and downblending to convert it into a disposal-ready form, and that work is underway.

OREM completed the direct disposition campaign in 2017, which identified items that could support ongoing missions and disposing other containers as waste. From 2019 – 2021, employees downblended an inventory of low-dose material in gloveboxes for disposal. In 2022, employees began processing the high-dose inventory in hot cells for disposal, and that work is scheduled to continue through the late 2020s. Through a partnership with TerraPower, employees are also able to extract and provide rare nuclear isotopes during their processing operations for next-generation cancer treatment research.



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