Portsmouth

Overview

In August 1952, the Atomic Energy Commission selected a tract of land in the Ohio Valley along the Scioto River in Pike County, Ohio, for the site of the Portsmouth Gaseous Diffusion Plant (GDP), the third of three GDPs in the United States. In 1956, construction of the plant was completed, and the plant began enriching uranium for nuclear weapons. In the 1960s, Portsmouth's mission changed to focus on producing fuel for commercial nuclear power plants and other national security applications.

An extensive environmental cleanup program began at the 3,777-acre site in 1989, with deactivation and decommissioning activities initiated in 2011. The DOE's near-term focus is the deactivation and decommissioning of 415 facilities, including the three former uranium enrichment process buildings (X 326, X-333, and X-330), each measuring more than 50 acres of floor area. The site also continues to maintain utility operations, monitor air and water emissions, and operate several groundwater treatment facilities to address legacy groundwater contamination caused by former plant operations.

The Portsmouth Site is also home to one of DOE's two depleted uranium hexafluoride (DUF6) conversion plants. DUF6 was a byproduct from uranium enrichment operations at Oak Ridge, Tennessee; Portsmouth, Ohio; and Paducah, Kentucky. DOE is safely converting the DUF6 material from approximately 67,000 steel cylinders at the Portsmouth and Paducah sites to more stable and usable compounds.

Calendar Year 2023 Accomplishments

- **Completed disposal of debris from X-326 Process Building demolition at the On-Site Waste Disposal Facility (OSWDF)**
- **Completed excavation of 180,000 cubic yards of, and initiated backfill at, the X-231A Oil biodegradation Plot landfill for use at the OSWDF**
- **Completed structural demolition of the X-626 Recirculation Water Pump House and Cooling Tower**

Planned Cleanup Scope 2024–2034

DOE expects to complete the demolition of the two remaining process buildings over the next decade.

In 2024, deactivation work will be completed on the second process building to be addressed, the X-333 Process Building. This will include disposal of deactivation debris in the OSWDF and removal of bulk asbestos containing material. The X-333 Process Building is scheduled to be demolished by 2031. Also, by 2031, DOE expects to complete deactivation of the third and final process building, the X-330 Process Building, followed by demolition by 2034.

The first of three new cells at the OSWDF will be ready to accept waste in the 2025 timeframe to support demolition of the X-333 Process Building. The 5th and 6th cells of the OSWDF will begin accepting X-333 Process Building waste in the 2026 timeframe. Based on capacity needs to support the demolition of the X-330 Process Building and other remaining site facilities, four-to-six additional OSWDF cells will be constructed. Additionally, over the next decade, two landfills and an additional plume will be excavated and disposed of at the OSWDF.

At the DUF6 facility in Portsmouth, DOE plans to continue steady state conversion operations, complete plant improvement modifications and process infrastructure upgrades supporting uranium oxide disposal.

In 2024, the DUF6 conversion facility will reach a total of 52,000 metric tons converted to date. DOE will also complete shipments of railcars and continue progress on infrastructure upgrades supporting uranium oxide disposal. By the end of 2034, approximately 95,000 metric tons of DUF6 will be converted and approximately 148.5 million gallons of hydrogen fluoride will be recycled into commerce.

Key Regulatory Milestones 2024–2034

- **None**

The X 326 Process Building slab (top), now tinted blue with fixative, has been cleared at the Portsmouth Site with all building debris placed in the On Site Waste Disposal Facility. Crews continue to work the 5 unit soil excavation (bottom left) both remediating a groundwater plume and providing fill for the On Site Waste Disposal Facility.

Post-2034 Cleanup Scope

Beyond 2034, the last three OSWDF cells are expected to be constructed to support demolition of the X 330 Process Building and remaining balance of plant facilities. In addition, a Resource Conservation and Recovery Act decision will be made regarding final soil remediation. Cleanup activities are anticipated to be completed in the 2039 2043 timeframe, including the disposition of the entire inventory of DUF6 located at Portsmouth.

As cleanup reaches its end state at the Portsmouth Site, DOE will continue to transfer land for economic development. Through a grant with Ohio University, a multi faceted community outreach program was conducted to understand the community's future use vision for the Portsmouth Site, which led to community interest in an industrial style future use of the site. A consensus vision to reindustrialize appropriate portions of the Portsmouth Site property has been created through the PORTS Future Project in coordination with the Southern Ohio Diversification Initiative, and with input from the Portsmouth Site Specific Advisory Board, elected officials, economic development professionals, and others.