Portsmouth

Overview

In August 1952, the AEC 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, 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 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 over 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 DUF6 conversion plants. DUF6 was a byproduct from the uranium enrichment operations at the three enrichment plants in Oak Ridge, Tennessee; Portsmouth, Ohio; and Paducah, Kentucky. DOE has a total inventory of approximately 67,000 steel cylinders at the Portsmouth and Paducah sites. At Portsmouth, the DUF6 conversion facility began operation in 2010.

Calendar Year 2020 Accomplishments

- **Advanced construction of key support systems in preparation for demolition of the X-326 Process Building**
- **Completed construction of DOE and Ohio Environmental Protection Agency co-located air monitors to provide parallel sampling data during building demolition**

Portsmouth Site workers survey a transite panel from the X-326 uranium enrichment process building. This is one of the many steps taken to ensure a safe demolition. EM's CY 2021 Mission and Priorities calls for transitioning from deactivation to demolition at Building X-326.

- Installed power utilities to support operation of the On-Site Waste Disposal Facility (OSWDF)
- Processed 1,623 metric tons of DUF6 at the conversion plant

Planned Cleanup Scope 2021–2031

Over the next decade, DOE plans to make significant progress in addressing the three former uranium enrichment process buildings at the site, with demolition of two to be completed in that time frame.

Preparations are underway to start demolition of the X-326 Building, the first of three process buildings. In 2021, DOE will demolish four of 10 sections of the building. By 2031, DOE will complete demolition of the X-326 and X-333 Process Buildings, and complete deactivation of the X-330 Process Building.

Next year, DOE expects to begin utilizing the OSWDF for demolition debris from the X-326 Process Building. In 2021, the haul road and the modular leachate treatment system will be completed to support operation of the OSWDF. Additionally, excavation of one of the groundwater plumes will provide fill for a portion of the X-326 demolition debris. Construction of the first three cells of the OSWDF are scheduled for completion by 2022 and will be used for all of the demolition debris from the X-326 Process Building.

Construction of the next three cells of the OSWDF, as well as the remaining infrastructure, is scheduled to begin in the 2025 time frame. This will support demolition of the X-333 Process Building. Based on capacity needs to support the demolition of X-330 and other remaining site facilities, four to six additional OSWDF cells will be constructed. Additionally, over the next decade, three landfills and an additional plume will be excavated and disposed at the OSWDF.

At the Portsmouth DUF6 conversion facility, DOE will convert 2,000 metric tons of DUF6 and complete planned plant safety upgrades. By 2031, approximately 56,000 metric tons of DUF6 will be converted and approximately 8.5 million gallons of hydrogen fluoride will be shipped off-site for commercial use.

Key Regulatory Milestones 2021–2031

- None

Post-2031 Cleanup Scope

Beyond 2031, 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 (RCRA) decision will be made regarding final soil remediation. Cleanup activities are anticipated to be completed in 2038, including the disposition of the entire inventory of DUF6 located at Portsmouth.

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