Plutonium Finishing Plant

The U.S. Department of Energy and contractor CH2M HILL Plateau Remediation Company are demolishing the Plutonium Finishing Plant, one of the most complex nuclear decommissioning and demolition projects at the Hanford Site in southeast Washington state.

Demolition of the four main buildings that make up the Plutonium Finishing Plant began in 2016.

History
The Plutonium Finishing Plant, also known as Z-Plant, operated from 1949 to 1989 and represented the final step in plutonium production at Hanford. At this facility, plutonium was processed into solid, hockey-puck sized “buttons” and plutonium oxide powder that could then be safely shipped to the country's weapons production facilities. The plant produced nearly two-thirds of the nation’s plutonium stockpile.

A worker holds a plutonium “button” produced at PFP.

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After nearly 70 years in service, the Plutonium Finishing Plant's 200-foot-tall ventilation stack was demolished in July 2017.

Background
Fifty years of plutonium production left the Plutonium Finishing Plant (PFP) heavily contaminated with chemical and radiological hazards. Demolishing PFP eliminates a significant hazard on the Hanford Site and frees up resources that may be used for additional cleanup. PFP is considered one of the most at-risk facilities on the Hanford Site in the event of a natural or man-made disaster. The cost of keeping the antiquated facility safe for employees, the public and the environment is considerable.

Mission
After operations ended in 1989, crews spent many years stabilizing and removing the remaining plutonium, decontaminating and removing the processing equipment and preparing the complex for demolition. Of the more than 90 structures that once made up PFP, only the Main Processing Facility (234-5Z) remains and is partially demolished. Waste from demolition activities remains to be packaged for disposal.

Aerial views of PFP from 2010 (left) and 2018 (right) show footprint reduction from demolition progress.
**Waste Disposal**

The Plutonium Finishing Plant components have been thoroughly measured for radiological and chemical hazards. The most hazardous items were removed from the building prior to demolition and packaged for eventual off-site disposal.

When it wasn’t possible to safely remove high-hazard items from the building prior to demolition, like large glove boxes, the items were carefully prepared to be removed during demolition.

Low-level waste is disposed of in the regulated landfill on the center of the Hanford Site.

**Progress**

The only remaining structure at PFP, the Main Processing Facility (234-5Z), is partially demolished. Demolition is expected to be complete on that building in late 2018.

Since demolition began in 2016, crews have adjusted demolition practices, expanded radiological boundaries and added additional monitoring devices to control contamination to ensure employee and environmental safety.

A fogger is used to suppress dust during Plutonium Finishing Plant demolition.

**Future**

Demolition of the remaining portions of the main processing facility and cleanup will continue through 2018, with sampling and cover cap installation occurring in early 2019. The cover cap will remain in place, as will a robust fence surrounding what once was the footprint of the complex, until decisions are made on cleanup of soil and piping beneath the PFP building.

This conceptual illustration shows the Plutonium Finishing Plant after demolition.