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Hanford Waste Treatment Plant receives key equipment for High-Level Waste Facility air-filtration system

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Richland, Wash. -- The Hanford Waste Treatment Plant, also known as the "Vit Plant," recently received the first of 32 large nuclear quality dampers for the High-Level Waste Facility. The 1,350-pound dampers are part of the facility's extensive filter system and will be essential to maintaining contamination boundaries during plant operations.

Twenty of the 32 stainless steel dampers will isolate contaminated air flow during filter system maintenance using remote-operated vertical sliding doors. The doors will slide over two-foot-diameter openings that connect the dampers to one of two massive HVAC ducts, both which were installed early this year.

"These dampers are part of the High-Level Waste Facility's air-filtration system, which is essential to safely operating the Vit Plant and meeting strict air-emission requirements," Joe St. Julian, area project manager for the facility, said. "They are therefore being manufactured and tested to highest nuclear safety and quality standards by an internationally recognized leader in specialty dampers." The remaining 12 dampers will be used in other facility filtration systems.

As part of the quality-control measures, the dampers are being assembled and tested in a "clean room," which is accessed only through air-tight doors and closely monitored for airborne contaminants. In addition, anyone entering the clean room must be dressed in head-to-toe protective clothing.

Many of the damper pieces were cut using a precision laser, and the dampers are now being assembled, tested and shipped in pairs.

"By manufacturing and delivering the dampers in pairs, we can begin to install them and progress more quickly than if we waited for all of them," Gary Olsen, federal area project manager for the facility, said. "This allows us to steadily move toward construction complete in 2016, commissioning in 2019 and full operations in 2022."

Each assembled damper must pass functional and leakage tests that ensure it will operate as designed for duration of the Vit Plant's 40-year life span. Each damper is estimated to open and close up to 500 times during plant operations.

A prototype damper was subjected to life-cycle testing that involved opening and closing it more than 500 times. The damper was then disassembled, inspected and evaluated to confirm that all parts would meet or exceed the design life.

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Bechtel National, Inc. is designing and building the world's largest radioactive waste treatment plant for the U.S. Department of Energy at the Hanford Site in southeastern Washington state. The $12.2 billion Waste Treatment and Immobilization Plant, also known as the "Vit Plant," will immobilize the radioactive liquid waste currently stored in 177 underground tanks using a process called "vitrification."

Vitrification involves blending the waste with molten glass and heating it to high temperatures. The mixture is then poured into stainless steel canisters. In this glass form, the waste is stable and impervious to the environment, and its radioactivity will dissipate over hundreds to thousands of years.

The Vit Plant will cover 65 acres with four nuclear facilities -- Pretreatment, Low-Activity Waste Vitrification, High-Level Waste Vitrification and Analytical Laboratory -- as well as operations and maintenance buildings, utilities and office space.

Construction of the Vit Plant began in 2001 and is more than 60 percent complete. The project is scheduled to complete construction in 2016; will reach commissioning in 2019 and achieve full operations in 2022.

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