April 4, 2011

Vit Plant engineers complete civil design of High-Level Waste Facility

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Richland, Wash. -- Engineers at the Hanford Waste Treatment Plant, also known as the "Vit Plant," recently completed the civil, structural and architectural design for the High-Level Waste Facility. When complete, the building will consist of more than 87,000 cubic yards of concrete and more than 10,000 tons of structural steel.

"The High-Level Waste Facility is the most structurally complex of the Vit Plant's four major nuclear facilities," Tom Patterson, manager of engineering for Bechtel, said. "It contains a significant number of rooms and non-traditional civil structures that are designed to provide radiological protection and comply with seismic and other critical design criteria."

The High-Level Waste Facility is 270 feet wide by 440 feet long and will stand 96 feet tall. It will house the two 90-ton melters that will heat the waste and glass-forming agents to 2,100 degrees Fahrenheit before they are poured into stainless steel canisters for permanent storage. The civil, structural and architectural design for the facility comprises approximately 3,000 drawings, calculations and data sheets.

"The design has been reviewed by the Department of Energy, the Defense Nuclear Facilities Safety Board and other regulatory agencies to ensure the utmost safety and quality standards are upheld," Jeff Trent, Department of Energy area project manager for the facility, said. "Completion of the High-Level Waste Facility civil design is a significant step towards completing construction in 2016 and achieving operations in 2019."

The High-Level Waste Facility design is currently 86 percent complete, and the overall Vit Plant design is currently 80 percent complete.

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 (WTP), 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.

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The WTP 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 WTP began in 2001 and is now 58 percent complete. Construction is scheduled to be complete in 2016 and operational in 2019.

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NR11-05 ###