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Melter assembly completed for the Hanford Waste Treatment Plant

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Richland, Wash. -- The Hanford Waste Treatment and Immobilization Plant (WTP) Project reached a major milestone when the first melter assembly was recently completed by Petersen Inc., a custom-steel fabricator, in Ogden, Utah. The melters are at the heart of the vitrification process, which turns radioactive and chemical wastes into a sturdy glass form that is impervious to the environment. The WTP will vitrify millions of gallons of hazardous waste currently stored at the U.S. Department of Energy Hanford Site in Richland, Wash.

When the WTP is complete, the melters will heat the mix of glass-forming agents and waste. The glass mixture will then be poured into stainless steel containers; the low-activity containers will be stored at the Hanford Site, and the high-level canisters will eventually be stored at a federal repository. The WTP will include four melters in two of its four major nuclear facilities: the Low-Activity Waste (LAW) Vitrification Facility and the High-Level Waste (HLW) Vitrification Facility.

Each melter assembly contains the melter base and walls. Once delivered to the WTP construction site, the melter's base and walls will be assembled, and its refractory brick interior will be constructed. Finally, it will be topped off with a lid and other components that will feed, stir and monitor the glass mixture. Then it will be installed in the facility. This first assembly is currently stored at Petersen Inc. until the WTP is ready to install the melter in the LAW Facility.

"We are excited to reach this milestone because the melters are the heart and soul of the vitrification process," Janet Roth, WTP Plant Equipment manager, said. "It was a tremendous team effort between WTP and Petersen Inc. staff. Because the WTP melters will be the first of their kind and the largest waste-processing melters ever built, we met many challenges, but the team really pulled together and worked their way through them."

The assembly components weigh approximately 225,000 pounds and measure 30 feet long, 21 feet wide and 13 feet tall. They include a one- to two-inch steel plate external barrier and nearly 44,000 pounds of high-nickel alloy that is capable of withstanding extremely corrosive conditions at high temperatures.

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) will immobilize the radioactive liquid waste currently stored in 177 underground tanks.

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 2002. The plant will be operational in 2019.