U.S. DEPARTMENT OF ENERGY

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NEW TESTING PLATFORM WILL CONFIRM HANFORD WASTE TREATMENT PLANT MIXING TECHNOLOGIES

The components for a new Waste Treatment Plant (WTP) testing platform are arriving in Richland, Wash. The M3 Mixing Test Platform will be used to confirm the effectiveness of pulse jet mixers (PJMs), an essential waste mixing technology that will be used to process tank waste for treatment in the WTP at the U.S Department of Energy's (DOE) Hanford Site in southeastern Washington State.

Composed of six large components, the M3 Mixing Test Platform will be 36 feet long, 24 feet wide and stand more than 12 feet tall when fully assembled.

When operational, the WTP will use PJMs to mix the waste being processed through the Pretreatment (PT) Facility and High-Level Waste (HLW) Vitrification Facility. Mixing is essential to the waste treatment process to ensure the movement of waste from vessel to vessel and to prevent solids from settling to the bottom of the vessels.

"This M-3 Mixing Test Platform, in conjunction with the flume testing program to be conducted at Washington State University later this summer, will allow us to confirm that the WTP pulse jet mixers will function as designed," said Gary Brunson, DOE's WTP Engineering Division Director. "Test data from both of these testing programs will be used for confirmation purposes to ensure that the PJMs will adequately mobilize the waste solids to be processed at WTP."

Fabricated in Carlsbad, N.M., by the same company that manufactured the Pretreatment Engineering Platform (PEP), the M3 Mixing Test Platform includes two utility and four process components. The process skids include five vessels and two clusters of PJMs as well as supporting equipment such as agitators, pumps and instrumentation.

Clusters of PJMs will be installed in each of the 34 vessels in the PT Facility, as well as four in the High-Level Waste Vitrification Facility. The number of PJMs in a cluster will range from one to a dozen, depending on the purpose and size of the vessel. Vessels used early in the pretreatment process require more PJMs, due to the nature of the waste, than those used later in the process, and larger vessels require more than smaller ones.

The M3 Mixing Test Platform, like the PEP, is being built in response to a comprehensive independent review of WTP conducted by the External Flowsheet Review Team (EFRT) in 2006. The team was composed of fifty experts from national laboratories, universities, the nuclear waste complex, the chemical processing industry and the glass industry, including members from the National Academy of Engineers and the National Academy of Science. The EFRT recognized the operability of the PJMs but felt further confirmatory testing was needed to ensure the PJMs provided the necessary mixing for the WTP. The platform testing will resolve one of the last technical issues identified.

The remaining process skids will be delivered by the end of April, and platform commissioning will begin later this spring. Testing is scheduled to be completed this fall by WTP subcontractor Energy Solutions.

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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 (WTP), also known as the vit plant, 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.

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