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Complex crane installations completed in Low-Activity Waste Facility

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Richland, Wash. -- Recently, crews working at the Hanford Waste Treatment Plant, also known as the "Vit Plant," completed four complex jib crane installations in the Low-Activity Waste (LAW) Facility. The 3-ton-capacity cranes will be used to place lids on filled LAW containers at the end of the vitrification process. This lidding procedure will take place in the southeast corner of the LAW Facility, commonly known as the "finish line."

A team of LAW employees worked together to develop a rigging and installation plan that enabled them to safely navigate the cranes through doorways, transport them inside the finish line area and anchor them into place.

The plan included carefully rotating the 12-foot-long cranes–vertically and horizontally–within very tight spaces multiple times during the installation process. The finish line area measures 15 feet wide, 12 feet tall and 110 feet in length. Rotations were done using chain hoists that were manually operated by four skilled craft.

A specially designed cart was also used to transport the cranes within the area. The cart, which runs on permanently installed rails, continues to be used for equipment installations in the finish line area. The rails will be used to transport the filled LAW containers when the facility is operational.

"These were very challenging installations that required careful and detailed planning," Joe Jacoby, assistant area superintendent for the facility, said. "The cranes not only needed to be rotated to get into the area, to maintain a center of gravity on the cart and to be transported, but they were designed to fit so close to the ceiling that conventional rigging would not work. All of this required extensive collaboration between our craft, field engineers, rigging engineers and supervision."

The crane sits just six inches from the ceiling and required workers to use special low-headroom rigging attachments and customized short rigging components.

"The jib cranes had to be installed before we could install the major equipment in the finish line area," Gary Olsen, DOE area project manager, said. "Now, we can install the equipment–such as the decontamination robot and the lidding arms–that will prepare filled containers for removal from the LAW Facility."

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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 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 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 59 percent complete. Construction is scheduled to be complete in 2016 and operational in 2019.

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