

In WTP Project facilities, there's more than meets the eye

Concrete buildings are giant maze of metal, piping and infrastructure

The workforce of the Bechtel National-led Waste Treatment Plant Project believes it's always what's inside that counts — especially when it involves building the world's largest nuclear waste treatment plant atop Hanford's central plateau.

Most will only see the buildings' massive concrete exteriors; few will ever see the intricacies and craftsmanship involved in this decade-long construction project.

Since construction began in October 2001, the thick concrete foundations of the plant's High-Level Waste and Low-Activity Waste facilities have been completed, and basement walls are now going up. Placing the foundation concrete for the Pretreatment facility, which will separate Hanford's tank waste into high-level and low-activity streams for glassification, began last month.

"Extensive design, procurement and planning efforts, as well as the effort of skilled craft workers are required for each concrete placement," said Carl Wagner, the High-Level Waste facility's lead civil field engineer. "Reinforcing steel, embed plates, ductwork, piping and wiring are a few of the components encased in concrete placements."

The majority of material inside each building foundation and wall is a vertical and horizontal maze of thick reinforcing steel bars known as rebar. "The rebar and concrete work together, to resist any lateral earthquake forces and transfer them into the building's surrounding soil," explained Phil Schuetz of the High-Level Waste project. "Steel embed plates are secured to rebar or formwork and encased in concrete. We position the embeds where we plan to anchor structural steel beams, tanks, plant equipment and instruments."

Another hidden maze of infrastructure rests inside each facility — stainless-steel piping and ductwork. Construction crews must also secure piping and structure ductwork before each concrete placement.

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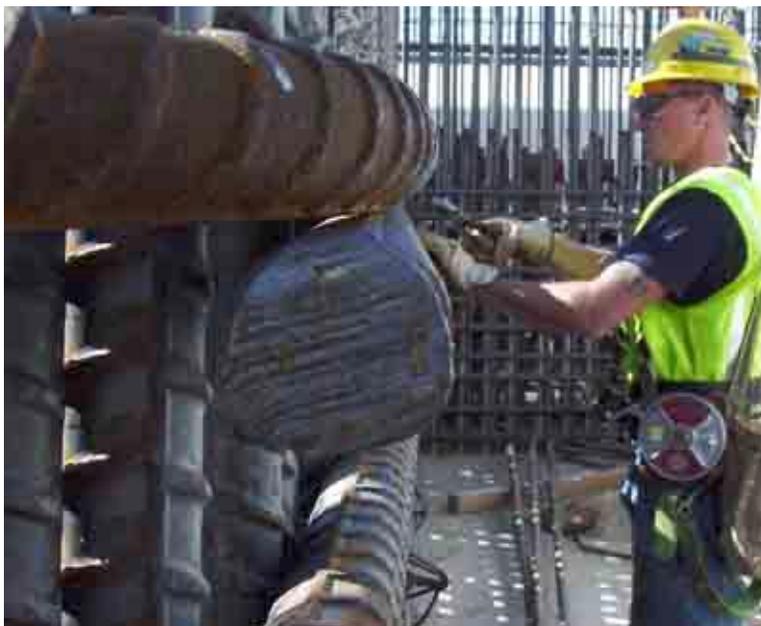
The Low-Activity Waste Vitrification facility is one of three major processing buildings under construction by Bechtel Hanford as part of Hanford's Waste Treatment Plant Project. With the foundation and outer basement walls complete, the construction crews' efforts are now focused on placing the concrete for the facility's interior basement walls.

In WTP Project facilities, there's more than meets the eye, cont.

“We make sure each segment of piping is properly attached to rebar and embeds before every concrete placement,” Wagner said. “If they are not fastened down, it's like trying to hold a beach ball underwater — it floats to the top.”

Extensive field surveys and engineering inspections take place before each concrete placement to ensure all components are aligned correctly and the concrete meets nuclear quality specifications. WTP construction crews prepare for a concrete placement by erecting formwork to safely hold the concrete in place until it hardens.

Workers remove the formwork when the concrete solidifies into a foundation or wall segment, bringing the WTP and Hanford's cleanup mission one step closer to completion. ■



Ironworker Justin Sorenson of the Hanford Site Waste Treatment Plant Project fastens thick reinforcing steel bars atop the High-Level Waste Vitrification facility foundation. The rebar is the infrastructure for one of the facility's interior basement concrete walls.