U.S. DEPARTMENT OF ENERGY | OFFICE OF ENVIRONMENTAL MANAGEMENT

Surface Barrier Shields Hanford's Groundwater from Contamination

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RICHLAND, Wash. – Crews with the EM Office of River Protection (ORP) at the Hanford Site have completed construction of a 144,100-square-foot interim surface barrier over a group of underground waste-storage tanks.

"Interim surface barriers are one critical part of reducing risks to groundwater under our storage tanks for radioactive and chemical waste," said Becky Blackwell, EM program manager for the Tank Farms Programs Division. "The barriers prevent surface water from getting into soil above the tanks and driving contamination in the soil deeper toward the groundwater."

An impermeable asphalt barrier at Hanford's U Tank Farm is sloped, diverting rain and snowmelt to a lined basin, where it evaporates.

Surface barriers are temporary structures constructed under terms of the Tri-Party Agreement and will remain in place until a final farm closure plan is determined.

Crews operate compactors to level and compress surface barrier asphalt in tight areas around infrastructure at the U Tank Farm on the Hanford Site.

An aerial of the Hanford Site's U Tank Farm and its runoff basin before workers installed the surface barrier.

A new interim surface barrier recently installed over the Hanford Site's U Tank Farm.

Workers started paving the barrier in August, but preliminary work on the project started more than two years ago when Hanford Site tank operations contractor Washington River Protection Solutions (WRPS) designed the barrier and its companion evapotranspiration basin.

“These projects are engineering intensive,” said Ruben Mendoza, WRPS deputy manager of Production Operations Engineering. “We analyze soil samples to identify areas of possible contamination and establish the size of the barrier to cover those areas, while also ensuring the construction process.”

Specialized asphalt is required for this kind of work, and it has to be trucked to the tank farm from off-site.

“This is much more complicated than a road paving project,” said Tom Sackett, WRPS manager of Tank Farm Projects. “The proprietary asphalt mixture is stickier than standard asphalt and there are logistical challenges because the asphalt has to be mixed away from the site. However, our subcontractors, as well as the asphalt supplier, all worked well together, allowing us to complete the fieldwork a few days ahead of schedule.”

Workers used motorized equipment to level and compress the asphalt in open areas, and hand-operated equipment in tighter spots around tank farm infrastructure. In all, approximately 3,765 tons of asphalt were used to construct the interim surface barrier at U Farm, marking the fifth Hanford tank farm to have a barrier installed.

The next interim surface barrier projects are already on the schedule. Crews will remove a demonstration barrier at T Tank Farm, installed in 2008, and replace it with an asphalt barrier. The first step for the removal and replacement project will be design work scheduled to begin in 2024. Then teams will construct an asphalt barrier over the B Tank Farm.