Hanford Tank Farms

Fact Sheet – January 2024

Underground Waste Storage

Hanford is home to 177 underground waste storage tanks: 149 single-shell tanks (SST) and 28 double-shell tanks (DST), ranging from 0.055 to 1.265 million gallons in capacity. Those tanks are organized into 18 different groups, called farms.

During the nation's defense effort in World War II, Hanford was built with secrecy and speed while workers did their best to safeguard the environment by building nuclear-waste storage tanks.

The first SSTs were put into service in 1944 and were designed to be in use for about 20 years. They were built with a carbon-steel liner surrounded by a layer of thick, steel-reinforced concrete and buried 10 feet below the ground. In the 1950s some of the SSTs began leaking waste into the surrounding soil. The waste in the tanks has now been stabilized by removing all free liquid from it, minimizing the chance of further leakage.

Tank Farms under construction.

Hanford Tank Farms (cont.)

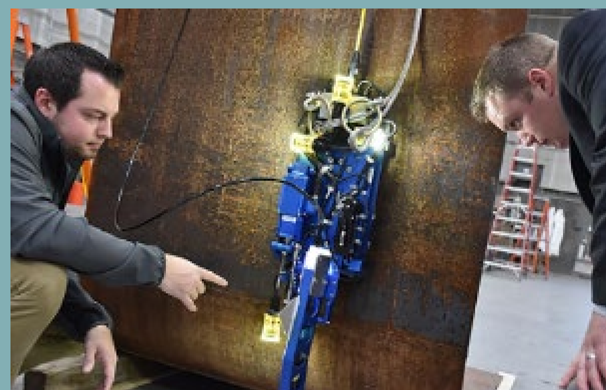
Underground Waste Storage (cont.)

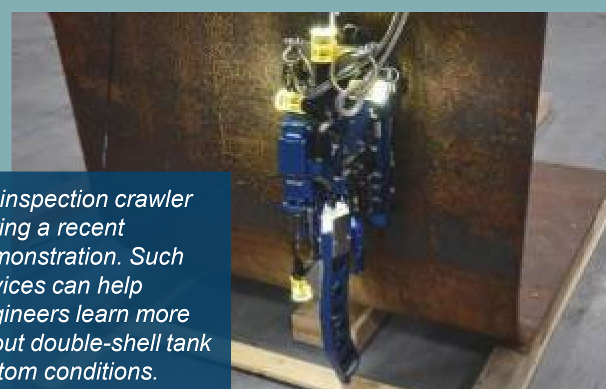
Construction of DSTs began in 1968. Each DST has a carbon-steel inner tank with a separate steel liner surrounding it to prevent leaks to the environment. The tank liners are separated by an air space of about 30 inches, equipped with a leak-detection system.

Tank Integrity Program

As part of the Hanford Tank Integrity Program, a team of engineers, supported by a group of independent experts, regularly reviews pertinent information regarding construction and operation of Hanford's waste-storage tanks. These experts monitor the integrity of the tanks by examining waste chemistries, corrosion rates, storage histories and changing conditions. Periodic tank inspections are performed with ultrasonic testing, visual inspection and waste sampling. These inspections alert engineers to any potential issues regarding the structural integrity of the tanks.

Additionally, program is constantly evolving by developing and deploying cutting-edge technologies, such as the crawler pictured to the right, to help ensure the tanks are able to safely support Hanford's waste treatment mission.





An inspection crawler during a recent demonstration. Such devices can help engineers learn more about double-shell tank bottom conditions.

Tank Storage Space

A critical part of managing the waste relates to the amount of available storage space in the tanks. Hanford's 242-A Evaporator is critical to managing tank space. The evaporator takes in waste from the DST system and boils it. The water vapor from the boiling waste is collected, condensed, filtered, and sent to another Hanford facility for treatment, resulting in a reduced volume of tank waste. The remaining concentrated waste is transferred back to a DST.

In the last several years, the 242-A Evaporator has undergone major upgrades. Workers have modernized the ventilation, monitoring and control systems, have rebuilt systems, and have procured critical spare parts.

The 242-A Evaporator is the workhorse that frees up space in the DSTs and allows for waste to be transferred from the older SSTs to the newer DSTs.

A worker reinstalls a part on 242-A Evaporator ductwork.