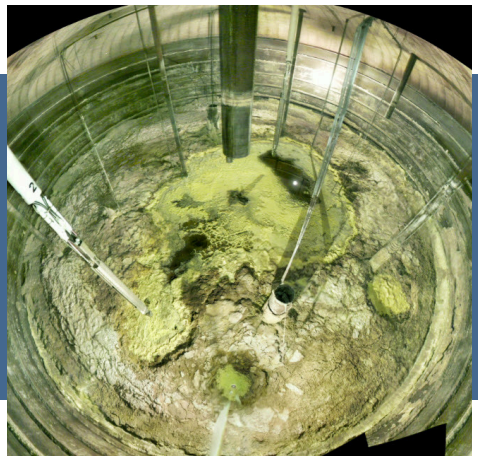
DEPARTMENT OF ECOLOGY
State of Washington

HANFORD'S TANKS: FROM CONTAINMENT TO CLEANUP



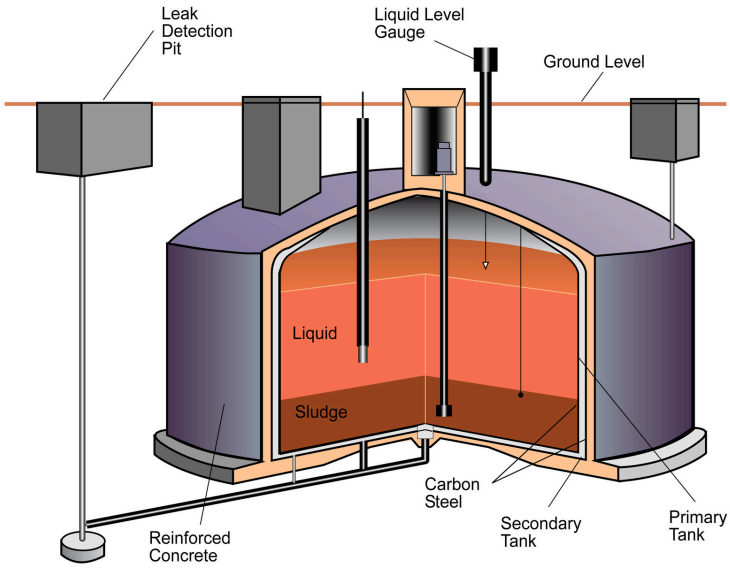
OVERVIEW OF TANKS

There are 177 large underground tanks in Hanford's Central Plateau in the middle of the site, that hold the most dangerous waste. This waste was created over four decades of plutonium production in Washington.

All of these tanks are past their 25-year design life. The oldest are the 149 single-shell tanks which only have one wall encapsulating the waste. The other 28 are double-shell with two layers of protection.

An estimated 56 million gallons of mixed hazardous and radioactive waste remain. One of our top priorities is to ensure the safe retrieval, treatment, and appropriate disposal of tank waste.

Double-Shell Waste Tank



Graphic of a double-shell tank

WHY IT MATTERS

If Hanford doesn't receive funding to meet its tank waste mission obligations, waste will remain untreated in the degrading tanks, will leak out, seep through the soil into the groundwater, and eventually reach the Columbia River.

CURRENT STATUS

At least 57 tanks are assumed to have leaked in the past, and three single-shell tanks are leaking at this time. One double-shell tank leaked from its inner wall, but the tank's waste has since been retrieved and the tank has been decommissioned.

We have an Agreed Order and addendum with the U.S. Department of Energy (Energy), that defines a plan for how to respond to the three leaking tanks.

The order also requires Energy to develop a plan for how to respond to any future single-shell tank leaks at Hanford. This plan will be included as part of the Hanford Sitewide Permit.

We're also working with Energy to implement an agreement finalized in 2025 for keeping tank waste cleanup on track through at least 2040.

Under this agreement retrieval of tank waste will continue, low-activity waste treatment will begin in 2025, and treatment of high-level waste will begin in 2033.

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Hanford's tanks: From containment to cleanup

HOW WE GOT HERE

Hanford's tank waste is a byproduct of processing more than 100,000 tons of uranium into just 75 tons of plutonium.

The tanks contain a mixture of liquid, saltcake (crystallized salt structures), and sludge, that is both highly radioactive and chemically hazardous. The sludge is made up of liquid mixed with solids and is similar to peanut butter in consistency.

In the late 1980s to mid-90s, much of the liquid waste was pumped from single-shell to double-shell tanks in hopes of reducing the risk of leaks. The remaining waste in the single-shell tanks is largely saltcake and sludge.

Workers at a tank

In the early 2000's Energy began retrieving the rest of the waste from the single-shell tanks and moving it into the double-shell tanks. So far 21 single-shell tanks have been emptied.

Retrieving waste is a difficult process because the radioactive and chemical content can vary widely from tank to tank.

We work with Energy to ensure that these retrievals follow environmental regulations. Waste from the double-shell tanks will eventually be treated and disposed of appropriately. Ultimately, closure plans for the tanks will be included in the Hanford Sitewide permit

OUR ROLE

We enforce regulatory compliance and ensure Energy's safe management of tank waste. We do this through:

- The Tri-Party Agreement - the binding legal document that governs cleanup.
- A federal court-ordered consent decree outlining retrieval and treatment deadlines.
- The Hanford Sitewide Permit, which is one of our most important tools for regulating cleanup of the Hanford Site.
- The Hanford Air Operating Permit, which ensures the air emissions at Hanford follow state and federal laws.

WHAT'S THE PLAN

Energy is continuing to retrieve waste from single-shell tanks and move it to safer double-shell tanks. Waste needs to be removed from double-shell tanks and treated. This will free up space and allow more waste from single-shell tanks to be retrieved.

Much of this waste will be pretreated and then solidified in a glass form through a process called vitrification. Vitrified low-activity waste will be disposed of at Hanford, while vitrified high-level waste will go to a deep geologic repository.

Low-activity waste from 22 tanks will be immobilized in a concrete-like mixture called grout. This grouted tank waste will be disposed of at off-site disposal facilities outside of Washington state.

Learn more about the tanks

Tank waste management page: Ecology.wa.gov/Hanford-tanks
Leaking tanks page: Ecology.wa.gov/Leaking-tanks

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