

GAO Highlights

Highlights of [GAO-23-106151](#), a report to congressional committees

Why GAO Did This Study

DOE is legally required to retrieve and treat approximately 54 million gallons of radioactive waste held in 177 aging and leak-prone underground storage tanks, grouped in tank farms, at the Hanford site in Washington State. Due to delays and escalating costs of starting waste treatment, DOE is negotiating with the U.S. Environmental Protection Agency and the State of Washington on alternatives for treating the waste. The selection of an alternative will likely have significant effects on Hanford tank farms plans and management, including schedule and budget.

Senate Report 117-39 includes a provision for GAO to evaluate cleanup efforts at Hanford. This report examines the extent to which DOE has developed specific plans for storing, preparing, staging, and transferring tank waste based on the various waste treatment alternatives DOE is considering and what barriers exist to implementing such plans.

GAO reviewed key DOE planning documents and reports and interviewed agency officials. GAO also examined DOE's tank farms risk management program and reviewed certain DOE analyses to identify tank farms barriers associated with waste treatment alternatives.

What GAO Recommends

GAO recommends that DOE consider, in consultation with the State of Washington, supplementing the scenarios in the next System Plan revision to include those that may allow expedited treatment of tank waste. DOE concurred with GAO's recommendation and plans to implement it by December 31, 2025. View [GAO-23-106151](#). For more information, contact Nathan Anderson at (202) 512-3841 or andersonn@gao.gov.

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HANFORD CLEANUP

DOE Should Consider Including Expedited Nuclear Waste Treatment Alternatives in Upcoming Analysis

What GAO Found

The Department of Energy (DOE) has developed plans for storing, preparing, staging, and transferring a portion of the radioactive liquid waste from decades of nuclear weapons research and production held in tanks at DOE's Hanford site. The plans cover the first phase of waste treatment and disposal at Hanford's Low-Activity Waste (LAW) facility, including means of identifying and managing barriers to the plans' implementation. The plans also identify potential cost and schedule effects to the tank waste management and treatment mission from such barriers, which DOE refers to as risks not addressed. The following table shows some of the most likely (i.e., 90 percent chance or greater) and significant risks DOE identified during the first phase of treatment operations.

Selected High Level Risks and Potential Effects on Tank Farms That DOE Considers Very Likely to Occur During the First Phase of Waste Treatment

Facility/system risk	Risk description and potential effect on tank farms	DOE estimated range of costs and schedule impacts
Low-Activity Waste (LAW) facility	The facility might not operate at designed capacity. This risk includes waste processing rates that are lower than expected, facility shutdowns or slowdowns, and other performance-related issues. These issues could delay retrieval of tank waste.	\$338.1 million to \$1.8 billion 9 to 48 months
LAW Facility and waste treatment startup	The LAW Facility might not be ready to receive tank waste when treatment support projects are ready to start operations. Delays could limit tank waste retrieval and extend the cleanup schedule.	\$225.4 million to \$1.6 billion 6 to 42 months
Waste transfer lines	Potential extensive corrosion and moisture in the pipes transferring waste between tanks might cause them to fail.	\$5.8 million to \$10.5 million (per line failure) 3 to 12 months

Source: GAO analysis of Department of Energy (DOE) information. | GAO-23-106151

Note: These are rough order of magnitude estimates based on available information and subjective judgment and should not be interpreted as statistical forecasts.

DOE is considering alternatives for treating the waste remaining after the first phase of waste treatment starts. However, DOE is not planning to evaluate certain alternatives that may shorten the treatment mission in its upcoming revision to its System Plan. This is a required planning document that models and evaluates different scenarios for tank waste management and treatment. DOE expects to issue a System Plan revision in December 2023. According to DOE officials, the revision will include an updated version of the current planning waste treatment scenario, along with several scenarios that include grouting LAW (i.e., immobilizing the waste in a concrete-like mixture) beginning by 2050. However, in other studies, DOE has been analyzing alternatives that would potentially enable it to begin grouting LAW much sooner, as early as 2027. Given the potential cost and schedule implications for managing tank waste associated with this and other expedited treatment alternatives analyzed in DOE studies, the alternatives may merit inclusion in the next revision of the System Plan.