

GAO Highlights

Highlights of [GAO-15-354](#), a report to the Committee on Armed Services, U.S. Senate

Why GAO Did This Study

The WTP is a key part of DOE's strategy for treating 56 million gallons of radioactive waste held in underground tanks at the Hanford site in Washington State. The WTP is being constructed under a design-build contract and has a history of technical and management challenges. DOE stopped construction in 2012 on parts of the WTP, including the Pretreatment facility, pending resolution of these challenges and has stated that several milestones will likely be missed.

In September 2013, DOE proposed a waste treatment strategy that may allow some waste to be treated before resolving WTP's technical issues, including construction of two new facilities. Senate Report 113-44 accompanying the National Defense Authorization Act for Fiscal Year 2014 included a provision for GAO to examine the status of construction and operations at the WTP. This report examines (1) how DOE's two new proposed facilities help achieve Hanford's waste treatment mission and how they were selected, (2) the extent to which DOE's estimated costs and schedules for constructing the facilities meet best practices for reliable estimates, and (3) the extent to which technical and management challenges continue to affect the WTP. GAO reviewed DOE and contractor data and documents.

What GAO Recommends

GAO recommendations include that DOE (1) broaden the facilities' statements of mission need to allow for a full analysis of alternatives, (2) revise the facilities' cost and schedule estimates in accordance with industry best practices, and (3) enlist the services of an external entity to assist with oversight of the WTP contractor. DOE generally agreed with GAO's recommendations but not some of the conclusions. GAO continues to believe its conclusions are fair and well supported.

View [GAO-15-354](#). For more information, contact David C. Trimble at (202) 512-3841 or trimbled@gao.gov.

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HANFORD WASTE TREATMENT

DOE Needs to Evaluate Alternatives to Recently Proposed Projects and Address Technical and Management Challenges

What GAO Found

The Department of Energy's (DOE) two proposed facilities may help achieve Hanford's waste treatment mission by expediting treatment of some waste and addressing some technical challenges within the Waste Treatment and Immobilization Plant's (WTP) Pretreatment facility. However, DOE selected the facilities based on past proposals and excluded other potential alternatives from consideration. One facility is a low-activity waste pretreatment system to treat some of the low-activity waste in the tanks, and the other is a tank waste characterization and staging facility to stage, mix, sample, and characterize high-level waste from the tanks prior to delivery to the Pretreatment facility. The proposed facilities are at the initiation phase of DOE's project management process. During this phase, under its project management order, DOE is to develop statements of mission need that do not identify a particular facility or technology solution in order to preserve the flexibility to explore alternatives. DOE, however, developed narrow statements of mission need based on facilities it had proposed in prior years but never constructed. Without revising these statements to allow DOE flexibility, the scope of alternatives DOE analyzes will exclude consideration of other potentially viable alternatives.

DOE's preliminary cost and schedule estimates for constructing the two proposed facilities are not reliable because they do not meet industry best practices for reliable cost and schedule estimates. DOE estimates that constructing the two proposed facilities could, together, cost at least \$1 billion and take 6 to 8 years to construct. These cost and schedule estimates, however, cannot be considered reliable, in part because the department excluded from its estimates some costs of major activities that will be needed to construct the facilities, such as costs to support feeding low-activity waste directly, and did not sequence activities to complete them in accordance with best practices. Without reliable estimates that reflect best practices, DOE may be committing to courses of action that will require undisclosed future resources and will commit DOE to project time frames it may be unable to meet.

Significant technical and management challenges continue to affect the WTP and hinder its completion. According to DOE commissioned reviews, technical challenges continue to affect the Pretreatment facility and the facilities intended to treat low-activity and high-level waste. DOE has increased its technical oversight, but it has not fully developed aggressive risk mitigation strategies that address all technical uncertainties, as required by its project management order. Furthermore, design management challenges continue. The contractor's design management program is to ensure that WTP's design meets nuclear safety requirements. However, contractor data indicate that significant, unresolved design issues remain, and recent internal and external reviews show that some facilities may require extensive and expensive rework. Under the WTP construction contract, and as recommended by a DOE advisory group, DOE can employ an owner's agent to assist the department in reviewing the contractor's approach to design management and mitigating design challenges. Enlisting the services of an external entity to assist in this way may help DOE mitigate some long-standing challenges.