GAO Highlights

Highlights of GAO-20-363, a report to congressional committees

May 2020

HANFORD WASTE TREATMENT PLANT

DOE Is Pursuing Pretreatment Alternatives, but Its Strategy Is Unclear While Costs Continue to Rise

Why GAO Did This Study

The Hanford Site in Washington State contains large quantities of nuclear waste. EM has been building the Waste Treatment and Immobilization Plant—which consists of multiple facilities, including a key pretreatment facility—to treat a large portion of the nuclear waste at Hanford. Under way since 2000 and costing over $11 billion to date—$3.8 billion of that spent on the pretreatment facility—the plant has faced technical challenges, cost overruns, and schedule delays. In late 2012, work on the pretreatment facility stopped until technical challenges could be resolved. In 2018, the U.S. Army Corps of Engineers reported that at current annual funding levels, completing the pretreatment facility on time would not be possible.

Senate Report 116-48 accompanying the National Defense Authorization Act for fiscal year 2020 included a provision for GAO to review this project. This report examines (1) the cost of pretreatment efforts from fiscal year 2013 through fiscal year 2018, (2) the status of the technical challenges facing the pretreatment facility, and (3) the steps EM is taking to start treating waste by 2023 as required, among other things. GAO toured the facility, analyzed EM documents and expenditure data, and interviewed EM officials.

What GAO Recommends

GAO is making two recommendations, including that DOE ensure that its analysis of alternatives for pretreatment of high-level waste include a mission need statement and a life-cycle cost estimate for the baseline alternative. DOE concurred in principle with both recommendations.

View GAO-20-363. For more information, contact David C. Trimble at (202) 512-3841 or trimbled@gao.gov

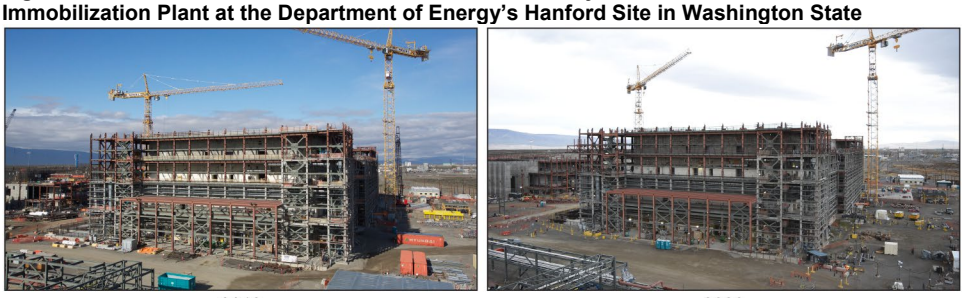
What GAO Found

The Department of Energy's (DOE) Office of Environmental Management (EM) spent $752 million in fiscal years 2013 through 2018 on the pretreatment facility at the Hanford Site in Washington State. This facility was to separate nuclear waste into two streams for treatment in other site facilities. However, EM stopped design and construction of the facility in 2012 due to technical challenges. According to expenditure data, over half of the $752 million EM spent was for overhead, oversight, procurements, and facility maintenance. The rest was spent resolving the technical challenges. DOE's fiscal year 2020 budget request states that EM plans to continue "limited activities"—such as maintaining the existing facility and storing uninstalled equipment—while construction remains on hold.

After working to address pretreatment facility technical challenges since 2012, EM and its contractor consider these challenges—ranging from facility ventilation concerns to preventing explosions during waste treatment—to be conceptually resolved. However, EM has not yet designed, engineered, or tested solutions to the challenges. In addition, the Defense Nuclear Facilities Safety Board—an independent agency that provides analysis, advice, and recommendations regarding safety at DOE's defense nuclear facilities—does not consider the challenges resolved pending additional information and, in some cases, additional design and engineering work by EM.

To begin treating waste by 2023 as required, EM has been pursuing alternatives to the pretreatment facility. Since 2013, EM has spent over $400 million pursuing alternatives for low-activity waste pretreatment capabilities originally planned for the pretreatment facility. However, as GAO reported in May 2015, EM did not properly define a mission need statement or a life-cycle cost estimate prior to selecting its preferred alternative for treating low-activity waste, consistent with analysis of alternatives best practices and DOE policy, and GAO recommended EM revise its analysis. In April 2019, EM began an analysis of alternatives for treating high-level waste, which EM expects to be completed in September 2020. However, as of February 2020, EM had not yet defined a mission need for this new analysis of alternatives and did not have a life-cycle cost estimate for its baseline alternative. Without these, decision makers will not have the information they need to make the best decisions for pretreating high-level waste, and EM cannot assure decision makers that alternative approaches meet mission needs.

Figure: Status of Construction on the Pretreatment Facility, Part of the Waste Treatment and Immobilization Plant at the Department of Energy's Hanford Site in Washington State



2013 2020

Source: Department of Energy. | GAO-20-363