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NUCLEAR WASTE CLEANUP

DOE Should Use Available Information to Measure the Effectiveness of Its Groundwater Efforts

GAO Highlights

Highlights of GAO-25-106938, a report to congressional requesters

Why GAO Did This Study

EM is responsible for addressing hazardous and radioactive waste from nuclear weapons production and energy research at DOE sites. Contaminated groundwater at these sites poses threats to public health and the environment, making groundwater cleanup critical to EM's mission.

GAO was asked to review EM's groundwater cleanup efforts. This report examines (1) the groundwater cleanup requirements at selected EM sites; (2) the scope, cost, and schedule for groundwater cleanup; and (3) the extent to which EM measures groundwater cleanup progress.

GAO examined four sites selected to represent a variety of facility types at different stages of the cleanup process governed by different regulatory frameworks. GAO examined relevant laws and regulations and reviewed agency documents on groundwater cleanup. GAO interviewed officials from EM, the U.S. Environmental Protection Agency, and state regulators.

What GAO Recommends

GAO is making three recommendations, including that EM headquarters collect and use comprehensive information on groundwater cleanup scope, cost, and schedule for all EM sites to enhance technical and policy support provided to sites and inform resource allocation decisions; and develop and use performance metrics to monitor progress toward cleanup goals. DOE concurred with all of GAO's recommendations.

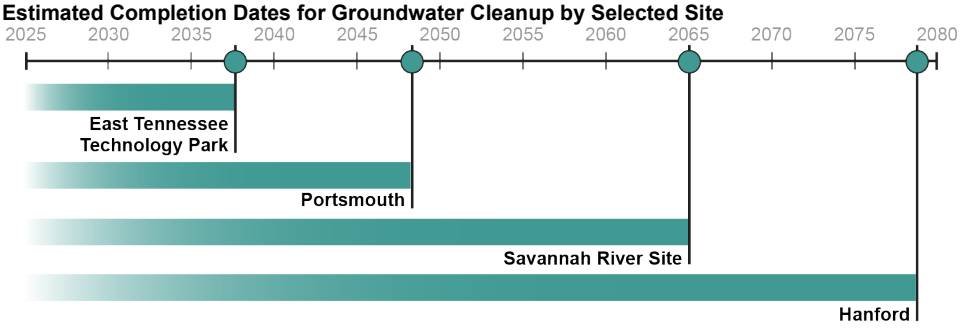
View GAO-25-106938. For more information, contact Nathan Anderson at (202) 512-3841 or andersonn@gao.gov.

What GAO Found

The U.S. Department of Energy's (DOE) Office of Environmental Management (EM) is responsible for cleaning up groundwater contamination at 13 sites. The four sites GAO examined are cleaning groundwater to meet drinking water standards based on the intersection of several laws that drive cleanup requirements, including the Safe Drinking Water Act, as amended. In cases where it is technically impractical to meet the standards, EM could seek a waiver. Two of GAO's four selected sites are exploring the use of such waivers, but none have been used as of September 2024.

The four sites GAO examined have an estimated groundwater cleanup cost of at least $10 billion over the next 5 decades. However, EM headquarters was unable to identify comprehensive information on the scope, cost, and schedule of groundwater cleanup for all 13 sites because the database combines groundwater and soil cleanup information together. EM protocol states that EM headquarters is responsible for providing technical and policy support for groundwater cleanup. Access to comprehensive scope, cost, and schedule information for groundwater cleanup would enable EM headquarters to better understand the resources needed to meet cleanup requirements.

Estimated Completion Dates for Groundwater Cleanup by Selected Site



Source: GAO analysis of Office of Environmental Management information. | GAO-25-106938

The four sites assess groundwater progress using metrics that attempt to measure the effectiveness of cleanup. However, EM headquarters' performance metrics do not provide useful information on EM's overall groundwater cleanup progress. For example, EM tracks the number of groundwater wells as a progress metric. However, sites may install new wells for a variety of reasons, such as to replace decommissioned wells. Thus, there is not always a direct relationship between new wells and meeting cleanup requirements.

EM protocol states that results from performance evaluations should inform EM's planning, budgeting, and execution activities, as well as provide lessons learned for improving management processes. EM is developing new qualitative groundwater performance metrics to consistently track progress at all sites. However, until EM aligns performance metrics with groundwater cleanup goals, decision-makers cannot assess whether billions of dollars in cleanup investments are achieving the desired results. Additionally, by leveraging available site-level performance information, decision-makers could draw useful conclusions about cleanup progress and derive valuable lessons learned.