August 2016

NUCLEAR WASTE

Waste Isolation Pilot Plant Recovery Demonstrates Cost and Schedule Requirements Needed for DOE Cleanup Operations

GAO Highlights

Highlights of GAO-16-608, a report to congressional committees

Why GAO Did This Study

DOE's WIPP is the only deep geologic repository for the disposal of U.S. defense-related nuclear waste. In February 2014, waste operations were suspended following a truck fire and an unrelated radiological release. DOE estimated in February 2015 that it would complete recovery activities and restart limited waste operations by March 2016. To resume full operations, DOE planned to build a new ventilation system at WIPP. DOE completed an AOA to identify the best solution for this system in December 2015.

The Senate Report accompanying a bill for the National Defense Authorization Act for Fiscal Year 2015 included a provision for GAO to review WIPP operations. This report examines the extent to which DOE (1) met its initial cost and schedule estimates for restarting waste disposal operations, and (2) followed best practices in analyzing and selecting an alternative for the new ventilation system. GAO examined documentation on the WIPP recovery estimates. GAO compared DOE's February 2015 cost and schedule estimates and AOA with best practices GAO published.

What GAO Recommends

GAO recommends that DOE require cleanup operations to follow best practices for cost and schedule estimates and require projects, including the WIPP ventilation system, to implement recommendations from independent AOA reviews or document the reasons for not doing so. DOE concurred with the recommendations.

View GAO-16-608. For more information, contact David C. Trimble at (202) 512-3841 or trimbled@gao.gov.

What GAO Found

The Department of Energy (DOE) did not meet its initial cost and schedule estimates for restarting nuclear waste disposal operations at the Waste Isolation Pilot Plant (WIPP), resulting in a cost increase of about $64 million and a delay of nearly 9 months. DOE incurred this cost increase and delay partly because it did not follow all best practices in developing the cost and schedule estimates. In particular, DOE's schedule did not include extra time, or contingency, to account for known project risks. Instead, DOE estimated it would restart waste operations in March 2016 based on a schedule with no contingency that gave DOE less than a 1 percent chance of meeting its restart date. In January 2016, DOE approved new estimates that added 8.5 months to the schedule, extending the restart to December 2016; increased the estimated cost of recovery by $2 million; and resulted in an additional $61.6 million in costs for operating WIPP in fiscal year 2016. DOE's WIPP operations activity manager said the revised schedule included contingency. However, according to DOE officials, they did not follow other best practices. For example, DOE did not provide evidence of having an independent cost estimate to validate the revised estimate. DOE did not follow all best practices for cost and schedule estimates in part because DOE does not require that its cleanup operations, such as WIPP, follow these practices. Therefore, DOE cannot have confidence that its estimates are reliable. In contrast, DOE established new requirements in June 2015 that its capital asset projects, such as the new ventilation system at WIPP, follow these best practices. By also requiring cleanup operations to follow them, DOE would have more confidence in the estimates for cleanup operations and capital asset projects.

DOE did not follow all best practices in analyzing and selecting an alternative for the new ventilation system at WIPP. As a result, DOE's analysis was not reliable and DOE cannot be confident that the alternative it selected in December 2015 will best provide the needed capabilities at WIPP. The analysis of alternatives (AOA) process entails identifying, analyzing, and selecting a preferred alternative to best meet the mission need. Of the four categories of best practices for AOAs, DOE's process fully met the category for identifying alternatives. For example, DOE identified a broad range of ventilation alternatives. However, DOE only partially or minimally met the other three categories: general principles, analyzing alternatives, and selecting the preferred alternative. DOE did not follow the best practice to select the preferred alternative based on a cost-benefit analysis that assesses the difference between the life-cycle costs and benefits of each alternative. In addition, an independent review that DOE commissioned consistent with best practices found that DOE's AOA did not adequately document a cost-benefit analysis and that, as a result, the selection of the preferred alternative was not supported by compelling information. The independent review recommended that DOE conduct a cost-benefit analysis consistent with best practices. However, DOE did not conduct the recommended analysis and document it before selecting the final alternative because there was no requirement to do so. In June 2015, the Secretary of Energy directed DOE to develop guidance for conducting AOAs consistent with AOA best practices. A DOE official said the department expected to issue the new guidance by December 2016.