

## Why GAO Did This Study

The Department of Energy's (DOE) Office of Environmental Management (EM) is responsible for storing and managing a total of about 13,000 metric tons of nuclear waste—spent nuclear fuel and high-level waste—at five DOE sites in Colorado, Idaho, New York, South Carolina, and Washington. Also, a joint DOE-Navy program stores spent nuclear fuel from warships at DOE's Idaho site. DOE and the Navy intended to permanently dispose of this nuclear waste at a repository planned for Yucca Mountain in Nevada. However, that plan is now in question because of actions taken to terminate the site. This report assesses (1) agreements DOE and the Navy have with states at the five sites and the effects a termination of the Yucca Mountain repository would have on their ability to fulfill these agreements; (2) the effects a termination would have on DOE's and the Navy's operations and costs for storing the waste; and (3) DOE's and the Navy's plans to mitigate these potential effects. GAO reviewed state agreements and DOE plans, visited waste facilities, and interviewed federal and state officials.

## What GAO Recommends

GAO recommends that DOE (1) assess existing nuclear waste storage facilities and the resources and information needed to extend their useful lifetimes and (2) identify any additional research needed to address DOE's unique needs for long-term waste storage. DOE agreed with the recommendations, but objected to some of GAO's findings, which GAO continues to believe are sound.

View [GAO-11-230](#) or key components. For more information, contact Gene Aloise at (202) 512-3841 or [aloisee@gao.gov](mailto:aloisee@gao.gov).

## DOE NUCLEAR WASTE

### Better Information Needed on Waste Storage at DOE Sites as a Result of Yucca Mountain Shutdown

## What GAO Found

Five states have agreements with DOE, and in one case with the Navy, regarding the storage, treatment, or disposal of nuclear waste stored at DOE sites. Only agreements with Colorado and Idaho include deadlines, or milestones, for removing waste from sites that may be threatened by a termination of the Yucca Mountain repository program. Under the agreements, DOE and the Navy are expected to remove their spent nuclear fuel from Idaho, and DOE is to remove its fuel from Colorado, by January 1, 2035. If a repository is not available to accept the waste, however, DOE and the Navy could miss these milestones. As a result, the government could face significant penalties—\$60,000 for each day the waste remains in Idaho and \$15,000 for each day the waste remains in Colorado—after January 1, 2035. These penalties could total about \$27.4 million annually. Navy officials told GAO, however, their greater concern is that Idaho might suspend Navy shipments of spent nuclear fuel to the state until the Navy meets its agreement to remove spent nuclear fuel, a suspension that would interfere with the Navy's ability to refuel its nuclear warships.

Terminating the Yucca Mountain repository would not affect DOE's or the Navy's nuclear waste operations on DOE sites in the near term, according to DOE and Navy officials. But it would likely extend on-site storage and increase storage costs, which could be substantial. For example, an EM analysis estimates that EM could need an additional \$918 million to extend storage, assuming a 20-year delay in a repository's opening. Since it is not known when an alternative to Yucca Mountain will be available, it is difficult to estimate the total additional storage costs stemming from terminating the repository. Although EM officials told GAO that DOE can extend storage of nuclear waste on DOE sites for some time, additional information is needed to plan for longer storage. For instance, DOE does not know how long the lives of existing storage facilities can be extended beyond estimates in current site plans. In addition, although research is being planned for long-term storage of commercial spent nuclear fuel beyond 120 years, DOE has no plan for comparable research focusing on its unique long-term waste storage needs.

DOE and the Navy have not yet developed plans to mitigate the potential effects of longer storage resulting from a termination of the Yucca Mountain repository. EM and Navy officials said they are waiting for recommendations from a Blue Ribbon Commission that DOE created in 2010 to clarify future nuclear waste management alternatives. Even after the commission's recommendations are available, however, DOE could face difficulties in planning how to mitigate the impact of a termination of the repository. For example, because it is not clear how specific the commission's recommendations will be, it may take time to develop the recommendations into a new nuclear waste management policy. Further, some recommendations may not lead to a solution soon enough to meet existing waste removal milestones. DOE and the Navy said it was too early to change existing plans since no final disposition path for the waste has been determined.