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SPENT NUCLEAR FUEL MANAGEMENT

Outreach Needed to Help Gain Public Acceptance for Federal Activities That Address Liability

GAO Highlights

Highlights of GAO-15-141, a report to congressional requesters

Why GAO Did This Study

DOE is responsible for disposing of commercial spent nuclear fuel. DOE entered into contracts with owners and generators of spent nuclear fuel to begin disposing of it beginning in 1998, with plans for disposal in a national repository. DOE, however, was unable to meet the 1998 date and, as a result of lawsuits, the federal government has paid out about $3.7 billion for storage costs. DOE proposed a new strategy in January 2013 to build consolidated interim storage facilities—starting operations in 2021 and 2025.

GAO was asked to review issues related to DOE's strategy for managing spent nuclear fuel. This report (1) describes the expected rate of spent nuclear fuel accumulation in wet and dry storage, (2) identifies the basis of federal liability for spent nuclear fuel management to date and of DOE's estimate of future liabilities, and (3) assesses challenges, if any, that experts and stakeholders have identified to the federal government's ability to meet DOE's time frames for managing spent nuclear fuel at consolidated interim storage facilities and potential ways for DOE to mitigate the challenges. GAO reviewed documents from DOE and other agencies, and interviewed experts and stakeholders from industry, federal and state governments, interest groups, and independent entities.

What GAO Recommends

DOE should implement a coordinated outreach strategy to better inform the public about federal spent nuclear fuel management issues. DOE generally agreed with the findings and recommendation in the report.

View GAO-15-141. For more information, contact Frank Rusco at (202) 512-3841 or ruscof@gao.gov.

What GAO Found

Spent nuclear fuel—the used fuel removed from nuclear power reactors—is expected to accumulate at an average rate of about 2,200 metric tons per year in the United States. This spent nuclear fuel is mostly stored wet, submerged in pools of water. However, since pools have been reaching their capacities, owners and generators of spent nuclear fuel (typically utilities and reactor operators) have been transferring it to canisters that are placed in casks on concrete pads for dry storage—which is an expensive and time-consuming process. When operating reactors' licenses begin to expire in the 2030s, the rate of spent nuclear fuel accumulation is expected to decrease, but the amount in dry storage will increase as the pools are closed and all spent nuclear fuel is transferred to dry storage. By 2067, the currently operating reactors are expected to have generated about 139,000 metric tons of spent nuclear fuel, nearly all of which is expected to be transferred to dry storage.

Federal liability for managing spent nuclear fuel has been based on costs that owners and generators of this fuel have paid because the Department of Energy (DOE) has not met its contractual obligation to dispose of spent nuclear fuel. DOE's estimate of future federal liability is based on how long DOE expects the federal government to continue to pay the costs for managing spent nuclear fuel to plant owners and generators. Generally, the damages paid—mostly for the costs of transferring spent nuclear fuel from wet to dry storage—have been for costs that owners and generators would not have incurred if DOE had begun disposing of the spent nuclear fuel. DOE's most recent estimate of future liability—$21.4 billion through 2071—assumes that DOE will begin taking title to and possession of spent nuclear fuel in 2021 and complete the process in 2071, thereby ending the federal liability. DOE has extended the expected date that the last of the spent nuclear fuel will be picked up several times, and each extension has added to the future federal liability.

Spent nuclear fuel management experts and stakeholders GAO spoke with identified several legislative, regulatory, technical, and societal challenges to meeting DOE's time frames for managing spent nuclear fuel at interim storage facilities. Although DOE has begun to take actions to address some of these challenges, officials noted that the department's strategy cannot be fully implemented until Congress provides direction on a new path forward. However, experts and stakeholders believe that one key challenge—building and sustaining public acceptance of how to manage spent nuclear fuel—will need to be addressed irrespective of which path Congress agrees to take. In this context, they suggested the need for a coordinated public outreach strategy regarding spent nuclear fuel management issues, including perceived risks and benefits, which would be consistent with the Administration's directive to be more transparent and collaborative. DOE officials stated they currently do not have such a strategy. Without a better understanding of spent nuclear fuel management issues, the public may be unlikely to support any policy decisions about managing spent nuclear fuel.