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**Highlights**

Highlights of [GAO-03-593](#), a report to the Chairman, Subcommittee on Oversight and Investigations, Committee on Energy and Commerce, House of Representatives

## Why GAO Did This Study

The Department of Energy (DOE) oversees one of the largest cleanup programs in history—the treatment and disposal of 94 million gallons of highly radioactive nuclear waste from the nation’s nuclear weapons program. This waste is currently at DOE sites in Washington, Idaho, and South Carolina. In 2002, DOE began an initiative to reduce the estimated \$105-billion cost and 70-year time frame of this cleanup. GAO was asked to determine the status of this initiative, the legal and technical challenges DOE faces in implementing it, and any further opportunities to reduce costs or improve program management.

## What GAO Recommends

GAO recommends that DOE (1) seek clarification of its authority to designate waste as other than high-level waste if a prolonged legal challenge occurs; (2) conduct integrated testing of waste separations components before completing a full-scale facility at the Hanford Site; and (3) ensure that DOE management practices include conducting rigorous analyses, following best practices for incorporating new technologies, and being cautious about using a concurrent design/build approach for nuclear facilities. In commenting on the report, DOE agreed to consider seeking clarification of its authority as appropriate, but said that its practices met the intent of the other two recommendations. GAO believes further improvements are needed.

[www.gao.gov/cgi-bin/getrpt?GAO-03-593](http://www.gao.gov/cgi-bin/getrpt?GAO-03-593).

To view the full product, including the scope and methodology, click on the link above. For more information, contact Robin M. Nazzaro at (202) 512-3841 or [nazzaror@gao.gov](mailto:nazzaror@gao.gov).

## NUCLEAR WASTE

# Challenges to Achieving Potential Savings in DOE’s High-Level Waste Cleanup Program

## What GAO Found

DOE’s initiative for reducing the costs and time required for cleanup of high-level wastes is still evolving. DOE’s main strategy for treating high-level waste continues to include separating and concentrating much of the radioactivity into a smaller volume for disposal in a geologic repository. Under the initiative, DOE sites are evaluating other approaches, such as disposing of more waste on site. DOE’s current savings estimate for these approaches is \$29 billion, but the estimate may not be reliable or complete. For example, the savings estimate does not adequately reflect uncertainties or take into account the timing of when savings will be realized.

DOE faces significant legal and technical challenges to realize these savings. A key legal challenge involves DOE’s authority to decide that some waste with relatively low concentrations of radioactivity can be disposed of on site. This authority is being challenged in court, and a prolonged challenge or an adverse decision could seriously hamper DOE’s ability to meet its accelerated schedules. A key technical challenge is that DOE’s approach relies on laboratory testing to confirm separation of the waste into high-level and low-activity portions. At the Hanford Site in Washington State, DOE plans to build a facility before integrated testing of the separation technology—an approach that has failed on other projects in the past, resulting in significant cost increases and schedule delays.

DOE is exploring proposals, such as increasing the amount of high-level waste in each disposal canister, which if successful could result in billions of dollars in additional savings. However, considerable evaluation remains to be done. DOE also has opportunities to improve program management by fully addressing recurring weaknesses GAO has identified in DOE’s management of cleanup projects.

Waste Storage Tanks under Construction at DOE’s Hanford Site, September 1947



Source: DOE.

Many of the waste storage tanks, such as those above, were built in the 1940s to 1960s. These tanks, now underground, are used to store high-level waste and have exceeded their design life of 10-40 years. Some have leaked waste into the soil.