

Nuclear Waste:

DOE Needs to Improve Transparency in Planning for Disposal of Certain Low-Level Waste

GAO-22-105636

Fast Facts

The Department of Energy is responsible for disposing of certain low-level nuclear waste from medical equipment, metals in nuclear reactors, and cleanup sites. The Energy Policy Act of 2005 required DOE to assess the potential environmental effects of various disposal options. No legal options currently exist.

DOE's assessments were extensive but didn't give rationales for preferring certain disposal options. They also weren't clear on the amount of waste that will need disposal—key information for decision makers.

We [recommended](#) ways to improve transparency. We also suggested that Congress consider addressing legal barriers to waste disposal.

Ongoing cleanup at the [West Valley site](#) in New York, a major source of certain low-level nuclear waste



Source: Department of Energy. | GAO-22-105636

Highlights

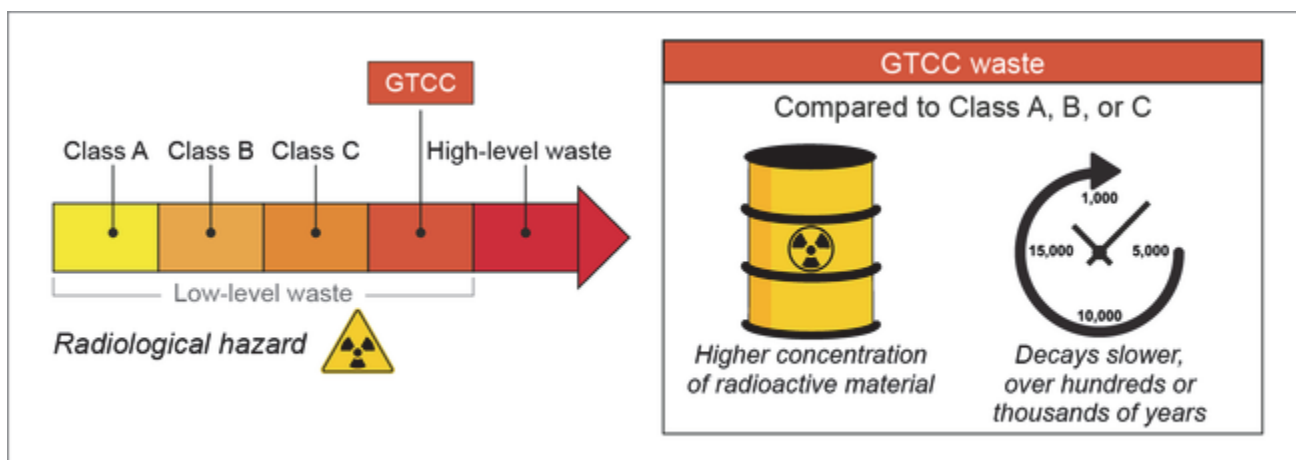
What GAO Found

The Department of Energy (DOE) is responsible for disposing of greater-than-Class C (GTCC) waste, a type of commercial low-level nuclear waste from decommissioned nuclear reactors and disused medical and industrial equipment. It is also responsible for disposing of government waste with similar characteristics, which it calls GTCC-like waste. In a 2016

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environmental impact statement, DOE used its most recent estimates of the volumes and radiological characteristics of these wastes to evaluate the potential environmental impacts of various disposal alternatives. Specifically, DOE estimated that 12,000 cubic meters would be generated through 2083 and require disposal. Of this amount, 1,100 cubic meters were already in storage. However, GAO found that DOE did not quantify uncertainties in its estimates, and DOE guidance does not include quality assurance steps related to quantifying uncertainty. Adding such steps would better ensure the agency provides stakeholders with needed information.

Comparative Radiological Hazard of Greater-than-Class C (GTCC) Waste



Source: GAO analysis of Nuclear Regulatory Commission documents. | GAO-22-105636

In its environmental impact statement, DOE selected three preferred options for GTCC and GTCC-like waste disposal: (1) the Waste Isolation Pilot Plant in New Mexico, the nation's only geologic repository; (2) commercial land disposal facilities; or (3) both. However, DOE did not explain the rationale for its selection in the statement. GAO reviewed DOE guidance for environmental analyses and found that it did not include specific steps to ensure the agency implements regulatory provisions related to transparency, such as explaining the rationale for its selections. By adding such steps to its guidance, DOE would better ensure its future environmental analyses are transparently documented. This may give stakeholders more confidence in DOE's decisions.

DOE faces both regulatory and statutory barriers to disposing of this waste. The Nuclear Regulatory Commission (NRC) has taken steps to address certain regulatory barriers, including (1) preparing to update its regulations that restrict near-surface disposal of GTCC waste and (2) planning to clarify whether NRC can relinquish regulatory authority related to GTCC waste disposal to states. However, without clarification of NRC's statutory ability to relinquish this authority, NRC could face litigation. This could delay disposal and lead to continued costs and risks. Additionally, DOE is required by statute to await congressional direction before proceeding with a decision on GTCC disposal.

Why GAO Did This Study

GTCC and GTCC-like waste currently do not have a legal pathway for disposal. NRC is responsible for regulating disposal of GTCC waste, but not GTCC-like waste because it is not a legal category and no regulations specifically govern its disposal. DOE is responsible for identifying a pathway for and carrying out disposal of both types of waste. DOE developed an environmental impact statement to evaluate various options for disposing of the wastes; this statement



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does not include a final decision on which option DOE will use.

The Senate report accompanying the National Defense Authorization Act for Fiscal Year 2022 includes a provision for GAO to review several aspects of GTCC waste disposal. This report examines, among other things, (1) DOE estimates of GTCC waste, (2) alternatives DOE has identified for GTCC waste disposal, and (3) barriers to GTCC waste disposal. GAO reviewed laws, regulations, and DOE's environmental impact statement; and interviewed agency and state officials.

Recommendations

GAO recommends that Congress consider (1) clarifying regulatory authority over GTCC disposal; and (2) providing direction to DOE, so that it can proceed with a decision on GTCC waste disposal. GAO also recommends that DOE update its guidance for environmental analyses to (1) quantify uncertainty and (2) enhance transparency. DOE agreed with GAO's recommendations.

Recommendations for Executive Action

Agency Affected	Recommendation	Status
Department of Energy	The Assistant Secretary for Environmental Management should update the guidance and associated procedures DOE and contractors use to implement NEPA reviews to include quality assurance steps on quantifying and reporting on uncertainty. (Recommendation 1)	Open When we confirm what actions the agency has taken in response to this recommendation, we will provide updated information.
Department of Energy	The Assistant Secretary for Environmental Management should update the guidance and associated procedures DOE and contractors use to implement NEPA reviews to include quality-assurance steps on transparency in analyses, including steps to ensure DOE's selection of its preferred alternative is transparently explained and traceable. (Recommendation 2)	Open When we confirm what actions the agency has taken in response to this recommendation, we will provide updated information.

Highlights Page: <https://www.gao.gov/assets/gao-22-105636-highlights.pdf>

Full Report: <https://www.gao.gov/assets/gao-22-105636.pdf>