

Beyond Nuclear

working for a world free from nuclear power and nuclear weapons



The challenge: As of 2021, about 90,000 metric tons of highly radioactive and toxic nuclear waste (or “spent fuel”) generated from commercial nuclear power reactors have accumulated at U.S. reactor sites over the past 65 years, with 2,000 more metric tons generated each year.

The worldwide, scientific consensus: Nuclear waste cannot be stored safely on the earth’s surface for the millions of years it remains dangerous. Deep geologic disposal is the most effective strategy for providing long-term protection of human health and the environment from contact with this extremely dangerous material.

This conclusion was first reached by the U.S. National Academy of Sciences in 1957, and carried forward in the Nuclear Waste Policy Act of 1982, as Amended (NWPAA) (42 U.S.C. § 10101 *et seq.*) and the findings of the President’s Blue Ribbon Commission on America’s Nuclear Future in 2012.¹

The U.S. repository law: The NWPAA sets federal policy and procedures for the siting and licensing of a federally-owned, permanent geologic repository

The Challenge of Effectively Isolating Highly Radioactive Nuclear Waste

Will the U.S. take the road to development and siting of a permanent repository?

Or will it go down the dangerous dead-end detour of “consolidated ‘interim’ storage”?

for highly radioactive nuclear waste. The Act requires reactor licensees to pay for construction and operation of the repository (including costs of transporting nuclear waste) through a Nuclear Waste Fund. Nuclear reactor licensees must retain ownership of and liability for the waste in their possession until the repository is operational. Under the NWPAA, the U.S. Department of Energy (DOE) may not take ownership of the fuel until it is ready to be transported to the repository.

Failure of Yucca Mountain: In 1987, after numerous failed efforts, Congress designated Yucca Mountain as the sole site to be studied and considered for the first U.S. permanent geologic repository for highly radioactive nuclear waste. Chosen without the consent of the State of Nevada or the Western Shoshone Indian Nation (whose claim to the Yucca Mountain region was recognized in the 1863 “Peace and Friendship” Treaty of Ruby Valley), the Yucca project was bitterly opposed. Not surprisingly, government attempts to ram through the project by tailoring environmental standards to fit the geologically unstable site also failed. After decades of delay, including a lack of Congressional appropriations or DOE action on the project since 2010, the Yucca Mountain project has effectively been canceled.

¹National Research Council, *The Disposal of Radioactive Waste on Land* (National Academies Press 1957), available at <https://doi.org/10.17226/10294>; *Blue Ribbon Commission on America’s Nuclear Future* –

Stalled on the Road to a Repository

The NWPA does not provide for consideration of alternative sites, and thus no search for a new repository site is underway. And while the federal government has collected \$40 billion of the \$100 billion estimated cost of a repository, it has halted continued collection of the fees. The President's Blue Ribbon Commission has reaffirmed the need for permanent geologic disposal of highly radioactive nuclear waste, and Congress has maintained its commitment to the NWPA.

Congress is at a crossroads where it must choose the best path for achieving its goal of a permanent geologic repository for nuclear waste.

Consolidated 'Interim' Storage: the dangerous dead-end detour.

The nuclear industry is mounting pressure on Congress to allow DOE to take federal ownership of nuclear waste for "consolidated storage" at surface storage sites *before* a permanent geologic repository becomes available. While consolidated storage is billed as an "interim" step on the path to a repository, *in fact it is a dangerous dead-end detour*. As Congress knew when it passed the NWPA, once the federal government takes ownership of nuclear waste and relieves the nuclear industry of all responsibility, momentum to site and license a permanent geologic repository will evaporate.

Without this momentum, it is likely that nuclear waste will become stranded in these surface sites, without hope of ever being transferred to a permanent geologic repository. Highly radioactive waste stored indefinitely at these sites on the earth's surface would pose a grave and unacceptable risk to human health and the environment.² Sending the U.S. government down this dead-end detour would not only be extremely dangerous, but would also upend settled law that was established to avoid exactly this outcome.

Permanent Geologic Repository: sticking to the path of long-term protection of human health, the environment, and communities.

The NWPA provides the strong framework needed to move the nation towards a permanent geologic repository, and its essential elements and structure should be preserved.

But, Congress should heed the warning signs of the failed Yucca Mountain project, and strengthen the NWPA by:

- Establishing stringent, protective, and equitable scientific criteria and standards for repository siting and operation, that are in place *before* a repository site is chosen.³
- Requiring meaningful informed consent and oversight by potential host communities, including express regulatory authority for state and tribal governments to set stricter-than-federal standards, similar to the authority provided by the Clean Air Act, Clean Water Act, and other environmental statutes.

"Before Congress takes any actions on nuclear waste . . . we must make sure we are not repeating our mistakes from the past. If we don't, our country may well find itself 30 years from now in the same dead-end situation we face today. . . ." -- Delaware Senator Tom Carper

Opening Statement, Senate Committee on Environment and Public Works Hearing, May 1, 2019, <https://www.epw.senate.gov/public/index.cfm/press-releases-democratic?ID=85347177-C0F3-4ECC-BBBB-E24E6C42F687>.

²See Declaration of Dr. Arjun Makhijani Regarding the Waste Confidence Proposed Rule and Draft Generic Environmental Impact Statement (Dec. 20, 2013), <https://www.nrc.gov/docs/ML1402/ML14024A296.pdf>.

³A list of criteria is presented in *Beyond Nuclear, Stringent Criteria for a Highly Radioactive Waste Geologic Repository*, <http://www.beyondnuclear.org/repositories/2020/5/26/stringent-criteria-for-a-highly-radioactive-waste-geologic-r.html>. These criteria include legality under all state and federal statutes and treaties, consent by host communities, scientific suitability, environmental justice, regional equity, mitigation of transport risks, intergenerational equity, ensured non-proliferation, and prohibition of pre-disposal reprocessing.

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