



Frequently Asked Questions About H.R. 3053 and Nuclear Waste

What is spent nuclear fuel (SNF) and high-level radioactive waste (HLW)?

- Spent nuclear fuel (SNF) is the result of the process of generating electricity at nuclear power reactors. What are known as “fuel assemblies” undergo the fission process, during which neutrons from uranium-235 elements are separated and collide with another uranium element, creating the same effect. This process, known as “criticality,” generates a significant amount of heat which produces steam to turn a turbine to generate electricity – the same way that coal or natural gas is burned to generate heat to create electricity. As a result of this process, the uranium is irradiated. The irradiated uranium, known as used fuel or SNF, still contains a considerable amount of energy and retains heat. Scientists have long agreed that the best method to dispose of SNF is to permanently isolate it in an underground geologic repository.
- [High-level radioactive waste](#) (HLW) is radioactive material that was created as a byproduct of our nation’s nuclear defense programs. As the Department of Energy was processing uranium and plutonium to develop and maintain a nuclear weapons deterrent, chemicals and other material became highly radioactive. This HLW is similarly best permanently disposed in a geologic repository.

Where is SNF and HLW located?

- SNF and HLW is currently located in 121 communities in 39 states. [Map of licensed and operating nuclear spent fuel storage installations.](#)

How is nuclear waste currently managed?

- When SNF is removed from an operating reactor, it is placed in a “[spent fuel pool,](#)” for at least five years as the SNF cools and its radioactivity is reduced. The water in the pool serves as a heat sink and safely protects the material during this time. Once the SNF is sufficiently cooled, it can be placed in what is known as “[dry cask storage.](#)” The fuel assemblies are carefully placed in large concrete containers that must meet stringent [safety standards required](#) by the Nuclear Regulatory Commission (NRC). The dry casks are placed on secure concrete pads where they are [monitored by the NRC](#) and remain until the Federal government can take ownership of the material for disposal, as required by the law. For additional information, see [NRC’s FAQ on spent fuel storage.](#)
- While SNF is safe on-site, monetary costs and lost opportunity costs are significant. For example, at [seven sites,](#) the dry cask storage pads are the only remnant of a nuclear reactor that has long since shut down and been disassembled. The storage installations limit the property owner from redeveloping the property and can severely impact the local community’s ability to recapture economic potential at the location.
- HLW is managed by the Department of Energy’s Office of Environmental Management at DOE sites, including several operations to prepare HLW for permanent disposal.

SNF and HLW will have to be transported across the country to get to a storage or disposal location. How is nuclear waste shipped and should I be concerned about nuclear waste getting transported through my hometown?

- Transportation of spent nuclear fuel is one of the most heavily regulated and secure transportation activities. There is a long track record of safety: the Nuclear Regulatory Commission (NRC) [notes](#), “Over the last 40 years, thousands of shipments of commercially generated spent nuclear fuel have been made throughout the United States without causing any radiological releases to the environment or harm to the public” and globally, the World Nuclear Association states there has [never been an accident](#) involving transporting nuclear waste that resulted in a transport cask with radioactive materials getting breached or leaked.
 - **VIDEO:** [Mr. Steven P. Nesbit of the Nuclear Infrastructure Council spoke to the safety and security of transporting spent nuclear fuel](#) at the Environment Subcommittee’s legislative hearing on the Nuclear Waste Policy Amendments Act
- The NRC, in conjunction with the Department of Transportation, oversees the transportation of radioactive materials. In addition to vigorous transportation canisters, [NRC and DOE impose security requirements](#), including armed escorts, coordination with law enforcement, background checks, and stringent route planning.
- Transportation casks have [multiple steel shells](#) and must be proven to withstand severe accident scenarios including a [sequential test consisting](#) of a “30-foot drop onto a rigid surface followed by a fully-engulfing fire of 1475 degrees Fahrenheit for 30 minutes. These very severe tests equate to the package hitting a concrete highway overpass at high speed, and being involved in a severe and long-lasting fire. The test sequence encompasses more than 99 percent of vehicle accidents.”
- Independent scientific review of transportation issues validates the safety of transporting SNF. In 2006, a [report](#) by the National Academies of Sciences found there are “no fundamental technical barriers to safe transport” of SNF and HLW, though steps could be taken to improve management of “social risks.” In 2014, a [comprehensive risk study by the NRC](#) found doses from routine transportation would “[be less than 1/1000 the amount of radiation people receive from background sources each year](#)” and “[there is less than a 1 in a billion chance that radioactive material would be released in an accident.](#)” More recently, DOE’s [Sandia National Laboratory completed](#) an eight-month, 14,500-mile experiment to gather data to inform safe transportation requirements. The experiment found transportation impacts are far lower than previously expected.
- For further information on issues associated with transporting nuclear material see the Energy and Commerce Subcommittee on Environment and the Economy hearing titled, “[Transporting Nuclear Materials: Design, Logistics, and Shipment.](#)”

Does the Nuclear Waste Policy Amendments Act of 2018 do anything to help facilitate transporting SNF and HLW?

- Yes. Under current law, Section 180 (c) of the Nuclear Waste Policy Act directs the Department of Energy to provide “technical assistance and funds to States for training for public safety officials” of local governments in which there is planned transportation of nuclear waste. However, DOE has interpreted this section to apply solely “[for training](#)” which would limit the funding resources available for State, local, and tribal official for activities associated with the actual transportation of nuclear waste.

- To improve transportation support, Section 603 of H.R. 3053 amends the NWPA to explicitly provide funding for transportation safety activities. This will increase the preparedness of all stakeholders to assure SNF and HLW is transported safely.

How do we know if Yucca Mountain can safely function and protect the public health and environment?

- Under the NWPA, while DOE is responsible for development of the site, NRC has specific statutory responsibilities to establish safety regulations and performance criteria the site must meet to assure long term safety for the public and the environment. As part of the licensing process, NRC completes an independent scientific evaluation of the Yucca Mountain repository’s proposed design to answer whether the site would meet the regulations. [A five-volume scientific and technical evaluation](#) was completed in January 2015 and found the site would meet the regulatory safety requirements for the 1-million-year period following closure of the site.

Why is completing the licensing process so important?

- NRC’s licensing process provides an [independent technical assessment](#) of the safety of the proposed design and operational plans for the Yucca Mountain site followed by court-like proceeding in which recognized parties, such as the State of Nevada, can object to certain portions of DOE’s proposed repository design and plan. The objections are adjudicated by panels of impartial judges and ultimately the “best science” prevails. This process assures a fair, independent review of the facility, and authoritative answers on all relevant technical and safety questions.

I have seen reports that H.R. 3053 “expedites” the Nuclear Regulatory Commission’s review of the Yucca Mountain license. What does the bill do with respect to this critical licensing and regulatory review process?

- The bill provides ample time for completion of the licensing process, which essentially will pick up where it left off in the previous Administration.
- In 1987, Congress amended the Nuclear Waste Policy Act to establish a defined Nuclear Regulatory Commission (NRC) review process for DOE’s license of the Yucca Mountain repository.¹ This included a requirement the NRC “shall issue a final decision approving or disapproving [the Yucca license] not later than 3 years” from when the NRC receives the license, but may extend the deadline by “not more than 12 months” if the Commission notifies Congress. On September 8, 2008, the [NRC formally accepted](#) the license for review. Under this statutory deadline, the Commission had until September 8, 2012 to issue a final decision on the license.
- The previous Administration’s termination of the Yucca Mountain project meant the NRC did not meet this deadline. However, the courts ruled that this provision required the NRC to continue its review of the license. NRC’s subsequent work included completion of the most critical and time-consuming licensing step: its independent scientific and technical assessment of the project, or [Safety Evaluation Report](#), which found the design would meet the one-million-year regulatory standard.
- H.R. 3053 amends the existing 4-year deadline to establish a new deadline 30 months from enactment of H.R. 3053, which is ample time to complete the remaining licensing steps.

Nevada’s Governor and Senators say that no one in Nevada wants this dump. Is the entire State opposed to the Yucca Mountain repository?

¹ Section 114 of the Nuclear Waste Policy Act, as amended.

- No. Many local communities support the repository. In point of fact, nine counties support completion of the licensing process.² This includes Nye County, which hosts the Yucca Mountain site, and composes the majority of Nevada’s 16 counties.

The legislation increases how much material can be shipped to the repository, but I’ve heard the repository is already full, even though it isn’t open. How do you square those different statements?

- When Congress designated the Yucca Mountain, Nevada site as the location of the first geologic repository for nuclear waste in 1987, the law set a cap of 70,000 tons of SNF to be disposed of in the facility.³ This cap would require the eventual development of a second repository. Since the first commercial power plants began operation over 60 years ago, [about 80,000 tons of SNF has been generated](#). The total amount would cover a football field to a [depth of less than 10 yards](#).
- The current capacity represents a legal or statutory limit, not a geological or technical limit. The Electric Power Research Institute analyzed the technical capacity of the Yucca Mountain site and found the technical capacity is [“four to nine times the current legal limit”](#) or up to 630,000 tons of SNF.
- Because we have not yet opened the disposal repository and the Federal government is decades behind schedule on fulfilling its legal obligation, H.R. 3053 increases the statutory cap on the Yucca Mountain repository to 110,000 metric tons. This would provide for enough repository space for all SNF generated through about 2035, which would allow for the first repository to become operational prior to starting work on another repository.
- In 2008, the Department of Energy submitted the Yucca Mountain license application for the first 70,000 tons of SNF. Nothing in the legislation alters DOE’s license or NRC’s review of the design for the first 70,000 tons. Should Congress raise the legal limit and NRC authorize construction of the Yucca Mountain repository, DOE would still be required to get NRC’s regulatory approval to dispose of more than the 70,000 ton limit.

I keep hearing people talk about “taxpayer liability” and that we are all paying for nuclear waste storage today. Why is that?

- When Congress passed the Nuclear Waste Policy Act, it required that all utilities that operated a licensed reactor must sign a legally binding contract with the Department of Energy (DOE).⁴ The fundamental parameters of the contract were that the utility would pay DOE a fee to dispose of SNF and in exchange DOE would pick up the SNF for disposal by January 31, 1998. When 1998 came and went with no operational repository, the utilities sued DOE for failure to fulfill its legal obligations. The courts sided with the utilities and awarded what is known as a “partial breach of contract.” In other words, DOE was in violation of the agreement and ordered to financially compensate the utilities for continued storage on site.
- The payments made to utilities come from a taxpayer funded account known as the Judgment Fund. This fund is established through a “permanent, indefinite appropriation” to pay legal costs for parties that successfully sue the Federal government. It is not subject to annual appropriation or Congressionally-established budget caps. In recent years, the amount that taxpayers have had to reimburse utilities is about \$800 million annually. [One report](#) stated that these costs account for about one third of the entire Judgment Fund payments. Cumulatively, it is estimated taxpayers [are liable for over \\$34 billion](#) and that number escalates every day we delay opening the Yucca Mountain repository.

² Nye, Lander, Esmerelda, Mineral, Lincoln, White Pine, Elko, Humboldt, and Churchill Counties all passed resolutions of support.

³ Section 114(d) of the Nuclear Waste Policy Act, as amended.

⁴ Section 302(a) of the Nuclear Waste Policy Act

There are military bases close to the Yucca Mountain site. Will the repository impact our national security interests?

- The Yucca Mountain site is located on land owned by the Federal government and adjacent to the Nevada National Security Site (formerly known as the Nevada Test Site, which was the home to historic testing of nuclear weapons) and the Nevada Test and Training Range. As DOE was examining how to best transport SNF and HLW to the repository site, DOE issued a [“Record of Decision”](#) (RoD) on the transportation routes for disposal of SNF and HLW at the repository. The RoD selected a rail corridor specifically to avoid any negative impact on those sites’ critical national security activities. Nothing in H.R. 3053 would affect the previous agreement governing transportation through DOD and DOE facilities.

What exactly is interim storage and how would it work under H.R. 3053?

- Consolidated interim storage (CIS), known as “monitored retrievable storage” in the Nuclear Waste Policy Act, are facilities that would temporarily house SNF until the repository is operational and able to receive the material for disposal.
- H.R. 3053 provides for two CIS pathways: DOE could contract with a non-Federal entity that is licensed by the NRC as a CIS facility or DOE could license and construct its own facility. Two private entities have [submitted an application to the NRC](#) to receive the necessary regulatory approval.
- The legislation authorizes DOE to pursue the first CIS facility while DOE and NRC complete the licensing process for the repository. The first CIS is intended to take title to SNF from sites which no longer host an operating nuclear power plant. This would enable the Federal government to begin the process of fulfilling its legal obligations while providing those communities the opportunity to redevelop those sites.

What is the Nuclear Waste Fund and who has paid for the disposal of nuclear waste?

- Congress set up a “fee for service” model under the Nuclear Waste Policy Act, where ratepayers that consumed nuclear energy paid a fee to the Department of Energy to dispose of the resulting spent nuclear fuel. In exchange for the payment of the fee, Congress accepted the legal responsibility to dispose of the material. The fee was deposited into an account known as the “Nuclear Waste Fund” (NWF). The NWF was managed by the Secretary of Energy and annual fees in excess of what was appropriated on an annual basis were invested in U.S. Treasury bonds to accrue interest. The interest allowed DOE to recognize the time value of money to fund a project that would need funding for over 100 years.
- Ratepayers in [34 states](#) have paid into the Nuclear Waste Fund.
- Over time, the amount of money ratepayers paid ever year, plus the interest on previously collected funding, has rapidly accumulated, particularly over the last eight years in which Congress did not appropriate any NWF money. The current balance of the NWF is over \$39 billion.

For more information visit:

energycommerce.house.gov/nwpaa

