

FREE THE NRC: DELEGATING AGENCY POWER TO FIX THE SPENT NUCLEAR FUEL STORAGE CRISIS

Arlington Schade*

Abstract

Nuclear power is an essential source of clean energy in the United States and necessary to restrict the country's fossil fuel emissions. However, each year 2,000 metric tons of expended radioactive fuel material must be removed from nuclear reactors. This spent fuel must be safely stored not only to protect human health, but also to allow nuclear reactors to continue functioning. The current storage procedure for spent nuclear fuel is not the safest option, causing some states to threaten halting construction of new reactors until a solution is achieved. Privately owned storage facilities located away from reactors are the most desirable storage solution. However, the current statutes controlling nuclear waste storage hinder efforts to license these facilities. This Note demonstrates that to increase public safety and ensure that the production of nuclear energy continues, Congress must amend the current statutory scheme to allow the development of private facilities. Rather than amending the National Waste Policy Act, as experts have suggested, this Note specifically argues that amending the Atomic Energy Act to empower the Nuclear Regulatory Commission to issue licenses for privately owned storage facilities best promotes safety and the continued production of clean energy.

* J.D. Candidate 2025 at Gonzaga University School of Law. The author would like to thank her family and friends for their support throughout the process of writing this Note, and most of all her 1L legal writing professor, Kevin Shelley.

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INTRODUCTION

The devastating impacts of climate change are becoming increasingly difficult to ignore. After dealing with everything from severe floods to raging wildfires, the United States (U.S.) is realizing it must take every step possible to slow global warming.¹ A crucial tactic in this race against time is minimizing the nation's use of fossil fuels.²

Nuclear energy is one of the main sources of clean energy in the United States.³ Due to its relative safety and large-scale efficiency, nuclear energy is one of the most promising options available for replacing the country's disproportionate reliance on fossil fuels.⁴ While the benefits of using nuclear energy are undeniable, the process must be conducted safely. Without safe procedures, the potentially devastating consequences might easily outweigh the advantages of nuclear power.⁵ Unforgettable historical examples, such as the disasters at Three Mile Island in Pennsylvania, Chernobyl in the former Soviet Union, or Fukushima in Japan, clearly demonstrate the far-reaching severity of consequences that nuclear accidents can produce.⁶ In the worst-case scenario, humans exposed to radiation can suffer cancer, genetic defects, or death.⁷ Some parts of spent nuclear fuel (SNF) will stay radioactive for thousands of years, thus making safety regarding SNF procedures of paramount importance in preventing future tragedies.⁸ However, because of the continuing accumulation

1. See *Extreme Weather and Climate Change*, NASA, <https://climate.nasa.gov/extreme-weather/> (last visited Feb. 26, 2024).

2. See *Responding to Climate Change*, NASA, <https://climate.nasa.gov/solutions/adaptation-mitigation/> (last visited Feb. 26, 2024).

3. See *5 Fast Facts About Spent Nuclear Fuel*, OFF. OF NUCLEAR ENERGY (Oct. 3, 2022), <https://www.energy.gov/ne/articles/5-fast-facts-about-spent-nuclear-fuel> (explaining that nuclear energy “generates nearly a fifth of America’s electricity and half of its clean energy”) [hereinafter OFF. OF NUCLEAR ENERGY].

4. See *How Can Nuclear Combat Climate Change?*, WORLD NUCLEAR ASS'N, <https://world-nuclear.org/nuclear-essentials/how-can-nuclear-combat-climate-change.aspx> (last visited Feb. 27, 2024) (“Experts have concluded that in order to achieve the deep decarbonization required to keep the average rise in global temperatures to below 1.5 degrees C, combating climate change would be much harder without an increased role for nuclear. Because nuclear power is reliable and can be deployed on a large scale, it can directly replace fossil fuel plants . . . the use of nuclear energy today avoids emissions roughly equivalent to removing one-third of all cars from the world’s roads.”).

5. See BLUE RIBBON COMM'N ON AMERICA'S NUCLEAR FUTURE, REPORT TO THE SECRETARY OF ENERGY 14 (2012), <https://www.energy.gov/ne/articles/blue-ribbon-commission-on-americas-nuclear-future-report-secretary-energy> [hereinafter BLUE RIBBON COMM'N].

6. *Id.*

7. *Id.*

8. *Id.*

of spent nuclear fuel at reactor sites, the operation of nuclear reactors could become unsafe if the United States fails to develop a more permanent storage site solution.

Nuclear power plants use nuclear fission and uranium atoms to produce energy in the form of heat and radiation.⁹ Mined uranium is first enriched through various methods.¹⁰ The uranium is packed into pellets and then stacked inside tubes to form metal fuel rods.¹¹ The fuel rods inside the reactor trigger a series of nuclear reactions that release energy.¹² The energy creates steam, which moves turbines and generates electricity.¹³ Eventually, the fuel rods no longer efficiently power the reactions, and must be removed.¹⁴ Spent nuclear fuel consists of the depleted remains of those fuel rods.¹⁵ The government must properly store this radioactive spent nuclear fuel to protect both human life and the environment.¹⁶ Because the creation of spent nuclear fuel is simply inevitable with the industry's current technology,¹⁷ effective storage of spent nuclear fuel is essential for nuclear energy to continue.

9. *Nuclear Explained*, ENERGY INFO. ADMIN., <https://www.eia.gov/energyexplained/nuclear/#:~:text=All%20nuclear%20power%20plants%20use,form%20of%20heat%20and%20radiation> (Aug. 21, 2023).

10. BLUE RIBBON COMM'N, *supra* note 5, at 9.

11. *Id.* at 10.

12. *Id.*

13. *Id.*

14. *Id.*

15. *Id.*

16. *See id.* at 10–11 (stating that “each spent fuel assembly emits enough to deliver a fatal radiation dose in minutes to someone in the immediate vicinity who is not adequately shielded . . . to protect workers from the radiation, the spent fuel is transferred to a deep, water-filled pool”); *Keeping Waste Where It Belongs: Grain Size Explains How Spent Nuclear Fuel Enters the Environment*, OFF. OF SCI. (Sept. 14, 2021), <https://www.energy.gov/science/bes/articles/keeping-waste-where-it-belongs-grain-size-explains-how-spent-nuclear-fuel> (explaining when SNF compounds break down, radioactive elements are released that can contaminate the ground and water if the spent nuclear fuel is not properly contained).

17. *See* BLUE RIBBON COMM'N, *supra* note 5, at 11 (“Regardless of whether spent fuel is reprocessed or directly disposed of, every foreseeable approach to the nuclear fuel cycle still requires a means of disposal that assures the very long-term isolation of radioactive wastes.”); *Nuclear Fuel Cycle Overview*, WORLD NUCLEAR ASS'N, <https://world-nuclear.org/information-library/nuclear-fuel-cycle/introduction/nuclear-fuel-cycle-overview.aspx> (Apr. 2021) (stating that over time the concentration of fission fragments makes the fuel impractical to use so used fuel is removed from the reactor); BLUE RIBBON COMM'N, *supra* note 5, at 33 (“Storage in some form, for some period of time, is an inevitable part of the nuclear fuel cycle. This is simply because spent fuel, upon being removed from the reactor core, needs to be allowed to cool before it can be handled further.”).

Currently, the majority of spent nuclear fuel exists in safe storage mechanisms at the site of nuclear reactors.¹⁸ However, these storage methods were never intended to be permanent.¹⁹ Due to a combination of unfortunate factors, including political backlash, no attempt at a permanent solution to SNF storage has ever come to fruition.²⁰ Because the amount of spent nuclear fuel increases by roughly 2,000 metric tons each year, a permanent storage solution must be put into action as soon as possible for the United States to continue to produce and benefit from nuclear energy.²¹ Although the current storage mechanisms are relatively safe,²² the indefinite storage of accumulating spent nuclear fuel at reactor sites raises a myriad of concerns.²³

18. U.S. GOV'T ACCOUNTABILITY OFF., GAO-21-603, COMMERCIAL SPENT NUCLEAR FUEL: CONGRESSIONAL ACTION NEEDED TO BREAK IMPASSE AND DEVELOP A PERMANENT DISPOSAL SOLUTION 1 (2021) <https://www.gao.gov/assets/720/716710.pdf> [hereinafter GAO Report] (stating that as of 2019 roughly 86,000 metric tons of spent nuclear fuel were stored in thirty-three different states at seventy-five reactor sites, some of which were still operating and some of which were decommissioned); BLUE RIBBON COMM'N, *supra* note 5, at 14 (stating that as of 2012 about 75% of spent nuclear fuel was contained in wet pool storage and 25% in dry cask storage).

19. Richard B. Stewart & Jane B. Stewart, *Solving the Spent Nuclear Fuel Impasse*, 21 N.Y.U. ENV'T L.J. 1, 12 (2014) (pointing out that federal policy planned on the Yucca permanent repository for forty-five years and the Blue Ribbon Commission called for promptly developing a repository, and arguing that "any solution to the SNF impasse must include development of a deep geologic repository for permanent disposal").

20. Since the 1980s, Yucca Mountain in Nevada remains the only government-approved site for a permanent underground SNF storage facility. See Matthew James Braquet, Comment, *Stop Kicking the Can Down the Road: An Urgent Call to Save the United States from Nuclear Disposal*, LA STATE U. J. ENERGY L. & RES., 245, 246 (2019); Stewart & Stewart, *supra* note 19, at 9. However, due to scientific concerns as well as political backlash, the project failed to progress. In 2009, the Obama administration halted all funding for the Yucca project. *Id.*

21. GAO Report, *supra* note 18, at 1.

22. See Stewart & Stewart, *supra* note 19, at 27–28 (describing tests confirming that dry storage casks could survive explosives and crashing airplanes without releasing radioactivity, and highlighting the NRC's determination that dry cask storage is overall "safe and environmentally sound").

23. Although wet pools are relatively safe, each pool can only hold a limited amount of spent nuclear fuel and many existing wet pools have already reached capacity. See Jason Hardin, *Tipping the Scales: Why Congress and the President Should Create a Federal Interim Storage Facility for High-Level Radioactive Waste*, 19 J. LAND, RES. & ENV'T L. 293, 299 (1999). In contrast, dry casks can be continually made and added, so capacity is less of an issue with that method. However, housing them at the reactor sites, rather than away from reactors, still brings specific problems such as a potentially higher risk of damage from natural disasters and community controversy when the dry casks are left at decommissioned reactor sites. See BLUE RIBBON COMM'N, *supra* note 5, at 38 (explaining that away-from-reactor facilities are safer because they can be located where there is a much lower probability of

While a permanent repository is ultimately necessary, it could take decades to site and build.²⁴ Because the process is currently at a standstill, building a permanent repository will likely take much longer. Therefore, with the goal that ultimately the spent nuclear fuel will be transferred again to a permanent site many years in the future, experts are seeking an interim solution that could last longer and be safer than the temporary storage at the reactor sites.²⁵ Without sufficient storage, there are two possible outcomes. Either the nuclear energy industry will be forced to halt production, thereby eliminating the advantages of this clean energy source and potentially initiating a scramble to find alternatives that would be less environmentally friendly.²⁶ Or, alternatively, the temporary storage at reactors will continue to accumulate—at best, increasing public displeasure, and at worst, increasing safety risks.²⁷ This concern is not far-fetched. Some states have already instituted “moratoriums” that prevent new reactors from being built until progress is made on the waste disposal issue.²⁸ Because most reactors were built in the 1960s and 1970s, they will soon reach the end of their licensing lifespans.²⁹ If states refuse to build new reactors, partly in reaction to the unsolved SNF storage deadlock,³⁰ nuclear energy may be

extreme events); Stewart & Stewart, *supra* note 19, at 10 (describing that communities with decommissioned reactors are resentful when they must continue to store spent nuclear fuel at shutdown sites).

24. *The Elusive Permanent Repository*, UNION OF CONCERNED SCIENTISTS (Sept. 23, 2013), <https://www.ucsusa.org/resources/elusive-permanent-repository>.

25. BLUE RIBBON COMM’N, *supra* note 5, at 38 (“The Commission has concluded that siting and developing one or more consolidated storage facilities would improve prospects for a successful repository program.”); *see also id.* at 39 (“Considering current uncertainties about long-term degradation phenomena in dry storage systems, it would be prudent to initiate a planned, deliberate, and reliable process for moving spent fuel from shutdown reactor sites to a central facility before any issues arise and where problems can be dealt with much more easily. . .”).

26. For example, if nuclear reactors were no longer functioning, states might implement fossil fuel combustion (like coal plants) to generate the needed energy. *See* WORLD NUCLEAR ASS’N, *supra* note 4 (explaining that nuclear energy “can directly replace fossil fuel plants . . . the use of nuclear energy today avoids emissions roughly equivalent to removing one-third of all cars from the world’s roads”).

27. *See* Emily Casey, *Waist-Deep in Nuclear Waste: How the NRC Can Rebuild Confidence in a Stalled Waste Management Program*, 33 J. NAT’L ASS’N ADMIN. L. JUDICIARY 723, 728 (2013) (“Some nuclear reactors are now storing up to five times as much SNF in their containment pools as was initially subscribed by their operating licenses. Packing more SNF assemblies into these pools impairs the circulation of water and increases the risk of fire.”); Stewart & Stewart, *supra* note 19, at 10 (“Host communities have grown increasingly resistant to indefinite SNF storage at reactor sites.”).

28. Stewart & Stewart, *supra* note 19, at 12.

29. GAO Report, *supra* note 18, at 11.

30. Stewart & Stewart, *supra* note 19, at 12.

stopped in its tracks. Unknown but potentially catastrophic consequences might follow the erasure of such a fundamental American industry.³¹

Many experts have suggested the use of privately owned and operated storage facilities, located away from reactors, as a solution to the at-reactor storage strain.³² However, licenses for such facilities have been attacked and often stagnated in court for years.³³ Debate continues to rage over whether such facilities are even allowed under the interaction of two key federal statutes—the Atomic Energy Act (AEA) and the National Waste Policy Act (NWPA).³⁴ In order to develop these private storage facilities, which would be a step in the right direction in this high-stakes dilemma, the Nuclear Regulatory Commission (NRC) must be allowed to license the facilities.

This Note argues that first, utilizing traditional canons of construction demonstrates that the NWPA does not necessarily prohibit the NRC from licensing private away-from-reactor storage facilities for spent nuclear fuel. However, using the canons also demonstrates that the AEA never clearly delegated the right to license such facilities to the NRC in the first place. Because of this flaw, U.S. Congress should amend the AEA to clearly delegate the authority to license private away-from-reactor storage facilities to the NRC. Because private facilities currently offer the most realistic solution to deal with the serious crisis of SNF buildup, adjusting the federal statutory scheme in this manner is not only beneficial but necessary.

Part I of this Note presents background concerning the SNF storage crisis. First, it describes spent nuclear fuel itself, as well as the potential permanent

31. Jennifer Chu, *Study: Shutting Down Nuclear Power Could Increase Air Pollution*, MIT NEWS (Apr. 10, 2023), <https://news.mit.edu/2023/study-shutting-down-nuclear-power-could-increase-air-pollution-0410> (describing how researchers from the Massachusetts Institute of Technology used a complex “energy grid dispatch model” to analyze the effects of shutting down every existing American nuclear reactor, which resulted in an estimate of 5,200 premature pollution-related deaths within one year).

32. See Stewart & Stewart, *supra* note 19, at 55–56 (describing that the Blue Ribbon Commission, Department of Energy Strategy and economist Cliff Hamal’s study all reached similar conclusions advocating for a consolidated interim storage option); GAO Report, *supra* note 18, at 34 (“Regarding interim storage, nearly all of the experts we interviewed cited advantages of consolidated interim storage.”).

33. There are multiple examples where a private company sought a license from the Nuclear Regulatory Commission to develop a private SNF storage facility and disputes over such licenses eventually reached circuit courts. See, e.g., *Bullcreek v. Nuclear Regul. Comm’n*, 359 F.3d 536, 538–39 (D.C. Cir. 2004); *Texas v. Nuclear Regul. Comm’n*, 78 F.4th 827, 831 (5th Cir. 2023).

34. Compare *Bullcreek*, 359 F.3d at 537–38 (holding that the Nuclear Regulatory Commission may issue licenses for private away-from-reactor SNF storage facilities), with *Nuclear Regul. Comm’n*, 78 F.4th at 844 (rejecting the Nuclear Regulatory Commission’s claim of licensing authority under both the AEA and NWPA).

repository storage method, the wet pool storage method, and the dry cask storage method. Second, it compares the risks and benefits of each method and explains why dry cask storage away from reactor is the safest and most desirable option. Part II provides an overview of the multi-faceted legal landscape surrounding SNF storage by (1) discussing the boundaries of the AEA, the section of the Code of Federal Regulations promulgated by the NRC, as well as the NWPA, and (2) analyzing the recent circuit split on the NRC's scope of authority. Part III argues that Congress should amend the AEA to most efficiently resolve the SNF storage dilemma. Specifically, while the NWPA does not prevent the NRC from licensing away-from-reactor private facilities, the NRC is nonetheless currently prohibited due to the AEA's text. Ultimately, this Note argues that an amendment to the AEA, rather than the NWPA, fits best with the statutory scheme and preemptively thwarts other potential court holdups.

I. SPENT NUCLEAR FUEL STORAGE

Spent nuclear fuel (SNF) consists of the remaining materials removed from nuclear reactors once the fuel can no longer power the chemical reactions.³⁵ Spent nuclear fuel immediately enters cooling pools built at the site of nuclear reactors.³⁶ After it cools, there are a variety of potential options for storing spent nuclear fuel. It could be moved to a permanent repository, allowed to remain in wet pools, or transferred to dry cask storage.³⁷ Each method has particular advantages and disadvantages. However, weighing all these factors against each other illustrates that dry cask storage, especially when located away from reactors, is the most desirable choice for safety and cost efficiency.

A. Options for Spent Nuclear Fuel Storage

The vast majority of nuclear reactors are powered by uranium fuel.³⁸ Natural uranium must undergo a purification and enrichment process, after which it is encased within metal tubes.³⁹ These fuel rods power the chemical reactions within a nuclear reactor for approximately four to six years.⁴⁰ Once the rods begin to fail, they are removed from the reactor and become spent nuclear fuel.⁴¹

35. BLUE RIBBON COMM'N, *supra* note 5, at 10.

36. *Id.* at 11.

37. *See* Stewart & Stewart, *supra* note 19, at 9, 23.

38. *See* BLUE RIBBON COMM'N, *supra* note 5, at 9.

39. *Id.* at 9–10.

40. *Id.* at 10.

41. *Id.*

When it first leaves the reactor, spent nuclear fuel is highly radioactive.⁴² Spent nuclear fuel is first stored and cooled in water-filled pools located on-site at the reactors.⁴³ After roughly five years, spent nuclear fuel can either remain in storage pools or be transferred to an alternative storage mechanism.⁴⁴

Ideally, in the future, spent nuclear fuel could be transported to a permanent repository where it would then remain for the long-term. The Blue Ribbon Commission confirmed that underground disposal is realistically the only permanent solution for ultimate disposal of spent nuclear fuel.⁴⁵ In 1987, out of a handful of options, Congress chose Yucca Mountain as the most suitable location for a permanent storage site.⁴⁶ Plans for the site involved constructing tunnels deep underground where radioactive material could be packaged and placed.⁴⁷ A permanent facility such as Yucca Mountain would utilize both man-made and natural geological barriers.⁴⁸

Because the realistic possibility of a permanent repository any time in the near future has failed, the most rational alternative to wet pool storage is currently dry cask storage.⁴⁹ For this method, cooled SNF is transferred into steel cylinders that are welded shut and surrounded by additional layers of steel or concrete to prevent radiation emission.⁵⁰ Inert gas surrounds the spent nuclear

42. *Id.* at 10–11.

43. *Id.* at 11.

44. *Id.*

45. *Id.* at 27, 29 (“The conclusion that disposal is needed and that deep geologic disposal is the scientifically preferred approach has been reached by every expert panel that has looked at the issue and by every other country that is pursuing a nuclear waste management program . . . deep geological disposal is the most promising and accepted method currently available for safely isolating spent fuel and high-level radioactive wastes from the environment for very long periods of time.”).

46. Braquet, *supra* note 20, at 250 (“[C]ongress amended the NWPA and designated Yucca Mountain as the sole location for a repository site.”); *see also* 42 U.S.C. § 10172(a).

47. *What is the Yucca Mountain Repository?* U.S. ENV’T PROT. AGENCY, <https://19january2021snapshot.epa.gov/radiation/what-yucca-mountain-repository.html> (Sept. 20, 2023).

48. *Id.*

49. Yoana Cholteeva, “Wet” vs “Dry”: the Pros and Cons of Two Storage Methods for Nuclear Waste, *POWER TECH.* (Dec. 21, 2020), <https://www.power-technology.com/features/wet-vs-dry-the-pros-and-cons-of-two-storage-methods-for-nuclear-waste/?cf-view> (quoting Prakash Narayanan, chief technical officer of multi-national dry nuclear storage company Orano, as saying, “Wet storage capacity at nuclear power plants is limited and cannot be significantly increased. Dry storage offers an important advantage with modular, expandable storage to support the continued, long-term operation of the nuclear energy facility.”).

50. *Dry Cask Storage*, U.S. NUCLEAR REGUL. COMM’N, <https://www.nrc.gov/waste/spent-fuel-storage/dry-cask-storage.html> (June 16, 2023).

fuel within the container.⁵¹ The casks are then transported to and placed within concrete vaults, which provide additional shielding.⁵² Dry storage systems can be located at the reactor site to provide additional storage when wet pools are near capacity.⁵³ They can also be located away from reactors, which the NRC refers to as consolidated interim storage facilities.⁵⁴ At the time of the Blue Ribbon Commission Report in 2010, less than a quarter of American spent nuclear fuel was stored in dry casks.⁵⁵ However, the Commission anticipated that the fraction would steadily increase.⁵⁶ As each option carries its own unique costs and benefits, the debate over the most advantageous method of SNF storage—and whether to hasten a transition from wet pool to dry cask storage—continues.

B. *Risk and Benefit Comparison*

Experts and scientists have identified some key risks involved with away-from-reactor SNF storage.⁵⁷ One inevitable peril with this method is the necessity of physically transporting the spent nuclear fuel to a secondary location. Transportation, especially over long distances depending on the location of the facility site, unavoidably risks leakage or an accident.⁵⁸ Environmental groups and communities along the route may oppose such methods.⁵⁹ SNF transport would also bring financial costs. The exact amount is hard to calculate, however, because of the uncertainty of site locations.⁶⁰ Upfront, dry cask storage itself is more expensive than wet pool storage even when the casks remain at the reactor, which eliminates secondary transportation costs.⁶¹ Additionally, history suggests that proposals for away-from-reactor sites

51. *Id.*

52. *Id.*

53. *Storage of Spent Nuclear Fuel*, U.S. NUCLEAR REGUL. COMM'N, <https://www.nrc.gov/waste/spent-fuel-storage.html> (June 16, 2023).

54. *Id.*

55. BLUE RIBBON COMM'N, *supra* note 5, at 34.

56. *Id.*

57. *See* Stewart & Stewart, *supra* note 19, at 43–44 (“Transferring SNF from pools to casks would also present some worker exposure and accident risks . . . the SNF will have to be transferred to a different kind of cask for transportation or ultimate disposal of the SNF, thus necessitating repackaging of the waste at a later point . . . increasing costs and risks to workers.”).

58. *See id.* at 51.

59. *Id.*

60. *Id.* at 52.

61. *Id.* at 23 (“Industry resists the move [to dry cask storage] because it is cheaper to place more SNF in existing pools at operating reactor sites than to buy casks and develop ISFSI [independent spent fuel storage installation] facilities.”).

are likely to generate public controversy and disfavor.⁶² For example, when a storage site was proposed in Andrews County, Texas, hundreds of citizens, as well as the governor, submitted comments on the environmental impact statement.⁶³ The comments expressed concern about environmental risks, potential leaks during transport, or the facility becoming permanent if no repository was built within fifty years.⁶⁴

However, there are also significant issues with continuing to store spent nuclear fuel at reactor sites. Similar to the public hostility facing private storage companies attempting to use their facilities as away-from-reactor sites, the communities currently hosting growing amounts of spent nuclear fuel at nuclear reactor sites also resent the burden.⁶⁵ In some locations, the nuclear reactors have been decommissioned, but the spent nuclear fuel remains on site. This is frequently referred to as “stranded fuel.”⁶⁶ These communities are no longer benefitting from the production of nuclear power but are nonetheless stuck bearing the costs of housing spent nuclear fuel.⁶⁷ Although safety risks are minimal, the presence of spent nuclear fuel prevents communities from utilizing the sites for new uses that could benefit the economy.⁶⁸

Siting consolidated storage facilities through a volunteer or consent-based system is fairer to host communities than leaving stranded fuel at decommissioned reactors.⁶⁹ Communities currently hosting stranded fuel most likely never anticipated that spent nuclear fuel would remain when the reactors shut down. The Blue Ribbon Commission points out that where such

62. *See, e.g., Texas v. Nuclear Regul. Comm’n*, 78 F.4th 827, 834 (5th Cir. 2023) (describing the controversy surrounding the Andrews County storage facility application that led to the lawsuit); *see also* Stewart & Stewart, *supra* note 19, at 16 (describing the Skull Valley application, where the NRC did issue the license for a private away-from-reactor facility but the private company eventually terminated the project after “protracted litigation and continuing failure to obtain needed permits”); *see also* Erin Douglas, *West Texas is on Track to get Even More Nuclear—Thanks to the Federal Government*, TEX. TRIB. (Feb. 10, 2021, 4:00 AM), <https://www.texastribune.org/2021/02/10/nuclear-waste-government-rules/> (describing how local residents fear groundwater contamination from a private facility, but experts emphasize that the likelihood of accidents is extremely low).

63. *Texas v. Nuclear Regul. Comm’n*, 78 F.4th 827, 833, 833–34 (5th Cir. 2023).

64. *Id.* at 834.

65. Stewart & Stewart, *supra* note 19, at 10.

66. BLUE RIBBON COMM’N, *supra* note 5, at 35.

67. *See id.*

68. *Id.*

69. *Id.* (pointing out that besides the economic burden, stranded fuel is simply unfair because “these communities were never asked about, and never contemplated or consented to, the conversion of these reactor sites into indefinite long-term storage facilities”); Stewart & Stewart, *supra* note 19, at 50 (“These communities are forced to play caretaker to SNF indefinitely, something to which they never agreed . . .”).

communities missed a chance to bargain for special rights or benefits in exchange for managing spent nuclear fuel, a host community of a new dedicated storage facility would have that chance, resulting in a fairer overall arrangement.⁷⁰ Additionally, in contrast to the stereotypical image of public outcry at the suggestion of housing radioactive waste, some communities actually desire SNF storage facilities for economic reasons.⁷¹

Besides the aspect of fairness, most experts also believe away-from-reactor dry cask storage is generally safer than on-site wet pool storage.⁷² Because dry systems do not rely on water circulation for cooling, they are generally “less vulnerable to system failures.”⁷³ Additionally, away-from-reactor facilities are not required to be near a large body of water, like a reactor must be, which allows greater flexibility in the identification of the safest physical location.⁷⁴ The private facilities can be placed where natural disasters are rare,⁷⁵ therefore lowering the risk of potential catastrophes similar to the tragedy at Fukushima, which was triggered by an earthquake and tsunami.⁷⁶ Continuous electricity is needed to cool the water in the wet pools.⁷⁷ Plants in the United States have backup power that can last up to a week.⁷⁸ But if a plant were to lose backup power as well—which happened to some units at Fukushima—catastrophic consequences might ensue.⁷⁹ The loss of electricity necessary for cooling could

70. BLUE RIBBON COMM’N, *supra* note 5, at 35.

71. *See, e.g.*, Richard H. Dolgener, Barney Fowler, Brad Young, Jeneanne Anderegg & Jim Waldrop, *A Resolution in Support of Establishing a Site in Andrews County for Consolidated Interim Storage of Spent Nuclear Fuel and High-Level Radioactive Waste*, COMM’R CT. OF ANDREWS CNTY, TEX. (Jan. 20, 2015), <https://curie.pnl.gov/system/files/documents/not%20yet%20assigned/wcresolution.pdf> [hereinafter *Andrews County Resolution*] (the community resolution in support of establishing private SNF storage facilities in Andrews County concludes that the county “greatly benefits directly and indirectly from the economic activity associated with disposal of radioactive materials” and “five percent of the gross receipts from waste disposed of at the two low-level radioactive waste disposal facilities . . . are expected to total more than \$3 million per year in the future”).

72. BLUE RIBBON COMM’N, *supra* note 5, at 34.

73. *Id.*; *see also* Stewart & Stewart, *supra* note 19, at 10 (“Dry cask storage is widely regarded as safer than storage in cooling pools, because storage pools may – as a result of natural disasters, accidents, or terrorist attacks – suffer loss of cooling water or circulation that could lead to dangerous releases of radioactivity.”).

74. BLUE RIBBON COMM’N, *supra* note 5, at 38.

75. *Id.*

76. Stewart & Stewart, *supra* note 19, at 24–25.

77. *Id.* at 24.

78. *Id.*

79. *Id.* at 24–25.

cause SNF meltdown and a major release of radiation,⁸⁰ which is a risk absent from dry cask systems. The chosen site for a dry cask storage could also be located far from densely populated areas.⁸¹ Thus, in a worst-case scenario, if the location had been wisely chosen then less people would be negatively impacted in the event of an accident.

Existing wet pool storage may theoretically reach capacity without transfer to an alternative storage method,⁸² in contrast, if private dry cask storage is properly incentivized there would likely be no shortage of space.⁸³ This gives the United States a workable interim solution to buy time for development of the permanent repository, which could easily take decades.

Although the debate between on-site storage and away-from-reactor storage cannot be simply or easily resolved, and neither option is perfect, private away-from-reactor facilities currently are the country's best choice to store spent nuclear fuel while awaiting a permanent repository. Dry cask facilities are fundamentally safer for the environment and the public than indefinite wet pool storage, and the flexible location possibilities when dry cask storage is off-site can also increase safety. Away-from-reactor facilities offer a solution for sites with stranded spent nuclear fuel. Although the canisters for dry cask storage and the new facilities themselves would both be expensive upfront⁸⁴ compared to wet pools on site, evidence suggests that transferring spent nuclear fuel to a newly built facility would save communities money in the long run.⁸⁵

80. *Id.* at 25 (“The SNF in pools could release radiation if the fuel rods are exposed to the air. This could generally happen in two different ways: through loss of circulation of the cooling water, or through loss of water through rupture of the pool structure or sloshing . . . This could result from natural causes, such as earthquakes . . . or from terrorist attacks.”).

81. BLUE RIBBON COMM’N, *supra* note 5, at 38.

82. Stewart & Stewart, *supra* note 19, at 23 (explaining that because pool capacity is limited but 2,000 metric tons are produced each year, the proportion of spent nuclear fuel in dry cask storage increases each year).

83. Dry cask storage capacity can be expanded. *See* Choltseva, *supra* note 49 (“Wet storage capacity at nuclear power plants is limited and cannot be significantly increased. Dry storage offers an important advantage with modular, expandable storage to support the continued, long-term operation of the nuclear energy facility.”); *see also* BLUE RIBBON COMM’N, *supra* note 5, at ix. (“[E]ncouraging communities to volunteer to be considered to host a new nuclear waste management facility . . . siting process for waste management facilities should include a flexible and substantial incentive program.”).

84. Stewart & Stewart, *supra* note 19, at 23 (“Industry resists the move [to dry cask storage] because it is cheaper to place more SNF in existing pools at operating reactor sites than to buy casks and develop ISFSI [independent spent fuel storage installation] facilities.”).

85. BLUE RIBBON COMM’N, *supra* note 5, at 35 (“Recent studies find that the operation and maintenance costs for spent fuel storage at shutdown sites range from \$4.5 million to \$8 million per year, compared to an incremental \$1 million per year or less when the reactor is

Therefore, the only significant disadvantage of private away-from-reactor storage is the inherent danger in the mass transportation of spent nuclear fuel. Although this is a valid concern, leaving spent nuclear fuel at the reactor, especially in wet pools, brings its own particular risks.⁸⁶ Notably, while the risk of transportation-related accidents will always exist, the likelihood is low and transportation thus far has been extremely successful.⁸⁷ Therefore, although both options carry some particular risks, private away-from-reactor storage brings additional benefits. As a result, the most sensible solution is arguably for the United States to pursue development of away-from-reactor facilities for the buildup of spent nuclear fuel.

Although away-from-reactor storage is clearly preferable, a question remains as to who or what entity is best equipped to operate such facilities. Development of a single federally operated away-from-reactor storage facility would theoretically have the same safety benefits as multiple privately operated away-from-reactor facilities. However, allowing privately-operated facilities in addition to federal facilities is beneficial because private operators have less hoops to jump through. For example, to develop a federal away-from-reactor facility, the Department of Energy must acquire congressional approval under the NWPA, comply with NWPA procedural requirements, and conform to specific capacity restraints.⁸⁸ As experts explain, “private development could be more efficient, less bureaucratic, more timely, and cheaper than federal development.”⁸⁹

Although various experts and government committees, like the Blue Ribbon Commission, recognize the potential benefits of such facilities, they must be established legally. The next Section discusses the history of control over the nuclear industry in the United States and its complication of the question of how, or whether, these facilities can obtain proper authorization.

still in operation . . . these cost estimates suggest that the savings achievable by consolidating stranded spent fuel at a centralized facility would be enough to pay for that facility.”).

86. Stewart & Stewart, *supra* note 19, at 26–27 (highlighting on-site wet pool storage’s heightened risks of being vulnerable to damage from natural disasters and potential terrorist attack(s)).

87. OFF. OF NUCLEAR ENERGY, *supra* note 3 (emphasizing that over the last fifty-five years, over 2,500 cask shipments of spent nuclear fuel have been safely transported across the country without incident because the spent nuclear fuel is shipped in specially designed transportation casks).

88. Stewart & Stewart, *supra* note 19, at 82.

89. *Id.*

II. THE UNCERTAIN LEGAL LANDSCAPE SURROUNDING STORAGE

From the beginning, the nuclear industry has been controlled by federal law rather than state law.⁹⁰ The AEA⁹¹ is the controlling federal law in this area. The AEA delegates an extensive list of powers to a government agency it created, which eventually became the NRC.⁹² Besides its explicitly enumerated powers, the NRC has assumed additional powers were implied within the AEA's grant of authority.⁹³ Consequently, the NRC promulgated its own set of rules for implementing its licensing powers, which became a chapter in the Code of Federal Regulations.⁹⁴

In the 1980s, the Nuclear Waste Policy Act (NWPA)⁹⁵ complicated matters by introducing another federal statute into the area of nuclear industry law. Because the NWPA was focused on nuclear waste in particular,⁹⁶ courts were unclear about whether NWPA provisions should preempt any existing law about nuclear waste, including the NRC's promulgated rules.⁹⁷

The friction between the AEA, NRC, and NWPA culminated in lawsuits concerning the NRC's authority to license private away-from-reactor SNF storage facilities. The holdings in two of these key cases have created a circuit

90. See *English v. General Elec. Co.*, 496 U.S. 72, 80–81 (1990) (stating that “until 1954, the use, control, and ownership of all nuclear technology remained a federal monopoly” and although the AEA was later amended to encourage the private sector to develop atomic energy, the private operations were still “under the strict supervision of the Atomic Energy Commission,” which had exclusive authority to license uses of nuclear material).

91. 42 U.S.C. §§ 2011–2296.

92. See 42 U.S.C. § 2201 (explaining, under section titled “General Duties of Commission,” that the NRC is authorized, for example, to establish by rule such standards to govern the possession and use of special nuclear material, source material, and byproduct material, prescribe orders to promote defense and security with regard to nuclear control of nuclear devices); see also Energy Reorganization Act of 1974, 42 U.S.C. § 5842(f); Exec. Order No. 11834, 40 Fed. Reg. 2971 (Jan. 15, 1975) (establishing the NRC).

93. *Bullcreek v. Nuclear Regul. Comm'n*, 359 F.3d 536, 538 (D.C. Cir. 2004) (“[W]hile the AEA does not specifically refer to the storage or disposal of spent nuclear fuel, it has long been recognized that the AEA confers on the NRC authority to license and regulate the storage and disposal of such fuel.”).

94. See generally 10 C.F.R. § 72 (2023).

95. 42 U.S.C. §§ 10101–10270.

96. See 42 U.S.C. § 10131(b) (“The purposes of this part are (1) to establish a schedule for the siting, construction, and operation of repositories . . . (2) to establish the Federal responsibility, and a definite Federal policy, for the disposal of such waste and spent fuel . . .”).

97. See discussion *infra* Sections II.B.1, 2.

split,⁹⁸ which threatens to worsen the legal confusion unless Congress takes decisive clarifying action.

A. The Existing Statutory Scheme

The AEA was originally passed in 1946 and amended in 1954.⁹⁹ The AEA was intended to function as the main body of federal law in the field of nuclear power by outlining a program to control “possession, use, and production of atomic energy and special nuclear material . . . so directed as to make the maximum contribution to the . . . national welfare.”¹⁰⁰ The 1954 AEA created the Atomic Energy Commission and gave the Commission authority as the “principal government agency” to regulate all aspects of the nuclear energy industry under the substantive mandates within the AEA.¹⁰¹ In 1974, the Atomic Energy Commission was essentially replaced by the NRC.¹⁰²

The NRC is authorized to regulate almost every step in the “nuclear life cycle” besides the initial mining of materials.¹⁰³ Because the NRC’s far-reaching purpose is to ensure safety in the nuclear industry as a whole, case law suggests that the judicial system must limit its role to checking that the NRC complies with law.¹⁰⁴ Courts should not be responsible for determining what choices are safest regarding the nuclear industry because this would infringe on an area of

98. See *Bullcreek*, 359 F.3d at 543; *Nuclear Regul. Comm’n*, 78 F.4th at 844.

99. See *History*, U.S. NUCLEAR REGUL. COMM’N, <https://www.nrc.gov/about-nrc/history.html> (Sept. 10, 2021).

100. 42 U.S.C. § 2013(c).

101. Stephanie A. Giggets, *Nuclear Regulatory Commission and Atomic Energy*, 6 OHIO JUR. 3D ATOMIC ENERGY AND IONIZING RADIATION § 2 (2023).

102. Energy Reorganization Act of 1974, 42 U.S.C. § 5842; Exec. Order No. 11834, 40 Fed. Reg. 2971 (Jan. 15, 1975).

103. Giggets, *supra* note 101, at § 2; see also *About NRC*, U.S. NUCLEAR REGUL. COMM’N, <https://www.nrc.gov/about-nrc.html> (Jan. 16, 2024) (stating that the three main areas of the NRC’s regulatory mission are, (1) “reactors”; (2) “materials,” which includes “uses of nuclear materials in medical, industrial, and academic settings and facilities that produce nuclear fuel”; and (3) “waste,” which includes “transportation, storage, and disposal of nuclear materials and waste, and decommissioning of nuclear facilities from services”).

104. See *New Eng. Coal. on Nuclear Pollution v. U.S. Nuclear Regul. Comm’n*, 582 F.2d 87, 92 (1st Cir. 1978) (“The NRC, not this court, is entrusted with the task of making sure that nuclear power is safe. Our job is to see that the NRC performs that task in accordance with law. It is enough that we find that the NRC did make this decision in accordance with the relevant statutes and regulations.”).

authority specifically delegated to a federal agency.¹⁰⁵ Therefore, courts must show deference to the NRC's interpretation of its own regulations.¹⁰⁶

The NRC promulgated sets of rules within the Code of Federal Regulations to implement its substantive authority. Chapter 1 of Energy, Title 10, encompasses the NRC's rules and regulations.¹⁰⁷ Part 72 of that chapter specifically outlines "licensing requirements for the independent storage of spent nuclear fuel, high-level radioactive waste, and reactor-related greater than class C waste."¹⁰⁸ Part 72 thoroughly describes all key aspects of licensing storage facilities, such as factors for site evaluations, design criteria, required physical protection plans, and more.¹⁰⁹

In 1982, in response to the accumulating SNF at reactors across the country, as well as the stagnating development of the Yucca Mountain project, Congress passed the NWPA.¹¹⁰ The NWPA confused matters because until that point the NRC had assumed control over the area of nuclear waste storage.¹¹¹ However, the NWPA was a federal law meant to function as a comprehensive scheme for solving the nuclear waste issue in the United States.¹¹² Debate continues as to whether the NWPA was therefore intended to preempt the preexisting authority

105. The NRC is delegated the authority to establish rules that "protect health or . . . minimize danger to life or property" under the AEA. *See* 42 U.S.C. § 2201(b). It is a general rule of separation of powers that the judicial branch should not do the work assigned to elected branches. *See New Eng. Coal.*, 581 F.2d at 92 ("The NRC, not this court, is entrusted with the task of making sure that nuclear power is safe.").

106. *New Eng. Coal.*, 581 F.2d at 92 ("The Supreme Court has held that the Commission's interpretation of its regulations is controlling so long as it is reasonable and consistently applied." (citing *N. Ind. Pub. Serv. Co. v. Porter Cnty. Chapter of the Izaak Walton League of Am., Inc.*, 423 U.S. 12, 15 (1975))).

107. *See generally* 10 C.F.R. pt. 72 (2023).

108. *Id.*; *see also* *Stewart & Stewart*, *supra* note 19, at 22 (describing the NRC's gradual promulgations of Part 72 regulations).

109. *See, e.g.*, 10 CFR §§ 72.90, 72.122, 72.180 (2024).

110. "The Congress finds that...a national problem has been created by the accumulation of (A) spent nuclear fuel from nuclear reactors . . . Federal efforts during the past 30 years to devise a permanent solution to the problems of civilian radioactive waste disposal have not been adequate." 42 U.S.C. § 10131(a)(2)–(3).

111. *See Bullcreek v. Nuclear Regul. Comm'n*, 359 F.3d 536, 538 (D.C. Cir. 2004) (citing a handful of earlier cases in which the NRC had regulated SNF disposal).

112. 42 U.S.C. § 10131(b) ("The purposes of this part are (1) to establish a schedule for the siting, construction, and operation of repositories . . . (2) to establish the Federal responsibility, and a definite Federal policy, for the disposal of such waste and spent fuel . . .").

of the NRC, a federal agency claiming authority under another comprehensive federal statute.¹¹³

The NWPA is focused primarily on the effort to create a permanent, deep geologic repository for nuclear waste.¹¹⁴ The NWPA gave authority to the Department of Energy to site and build the permanent repository for spent nuclear fuel and high-level waste.¹¹⁵ The Department of Energy was also obligated under the NWPA to take title to spent nuclear fuel and begin disposal by 1998.¹¹⁶ The Department continuously failed to meet deadlines, further eroding the nation's confidence that the federal government could ever manage the SNF dilemma.¹¹⁷

The 1987 amendments to the NWPA prevent the Department of Energy from building a monitored retrievable storage facility—one possible interim storage solution—until the permanent repository at Yucca is licensed.¹¹⁸ Congress hoped the restriction would jumpstart development.¹¹⁹ Because the NWPA essentially ties all progress to the licensing of the Yucca repository, which no longer seems likely to be built,¹²⁰ it has further deadlocked the situation.

113. *Compare Bullcreek*, 359 F.3d at 542 (holding that the NRC may issue licenses for private away-from-reactor SNF storage facilities because the NWPA does not supersede the NRC's authority), *with Texas v. Nuclear Regul. Comm'n*, 78 F.4th 827 (5th Cir. 2023) (rejecting the NRC's claim of licensing authority under both the AEA and the NWPA).

114. *See* GAO Report, *supra* note 18, at 1 (“In 1987, Congress amended the NWPA to direct the Department of Energy (DOE) to focus its efforts solely on a permanent geologic repository at one site: Yucca Mountain . . .”).

115. *Summary of the Nuclear Waste Policy Act*, U.S. ENV'T PROT. AGENCY, <https://www.epa.gov/laws-regulations/summary-nuclear-waste-policy-act> (June 22, 2023).

116. GAO Report, *supra* note 18, at 22.

117. BLUE RIBBON COMM'N, *supra* note 5, at 23.

118. *See* GAO Report, *supra* note 18, at 1–2.

119. Braquet, *supra* note 20, at 251 (“By not allowing consolidated interim storage until the granting of the license for a permanent repository, proponents of the bill hoped to prevent its detractors from thwarting the creation. If consolidated interim storage facilities could not be created without the license, Congress believed political pressure would force an agreement regarding the location for a permanent repository. Thirty years' hindsight has proven otherwise, as a license for a permanent repository still does not exist.”).

120. *See* Casey, *supra* note 27, at 733 (describing the complete termination of funding for any aspect of the Yucca Mountain facility and former President Barack Obama's 2010 direction that the Secretary of Energy file a motion to withdraw its license application for the permanent facility).

B. *The Recently Created Circuit Split*

1. *Bullcreek v. Nuclear Regulatory Commission*

In 2004, *Bullcreek v. Nuclear Regulatory Commission*¹²¹ became the first major case at the circuit court level to consider the NRC's authority to license private storage facilities in particular.¹²² In 1997, the Skull Valley Band of Goshute Indians (the Band) attempted to lease a portion of their land to Private Fuel Storage, LLC with the knowledge that the company intended to build a private away-from-reactor storage facility.¹²³ The contract would have provided rent income for the Band and offered potential employment opportunities at the facility.¹²⁴ However, some members of the Band opposed construction.¹²⁵

Private Fuel Storage, complying with the rules that the NRC had promulgated, applied for a license from the NRC.¹²⁶ In 2006, the NRC eventually issued a license to store 44,000 metric tons of spent nuclear fuel in dry casks for twenty years.¹²⁷ The license was conditioned upon additional approval by the Department of Interior, the Bureau of Indian Affairs, and other government agencies. These agencies refused to grant approval, which further impeded the efforts of Private Fuel Storage.¹²⁸

The State of Utah then filed a petition with the NRC wherein they asked to stay the licensing proceeding.¹²⁹ The petition also requested an amendment to the Code of Federal Regulations to reflect the State's belief that the NWPA had repealed any authority the NRC formerly possessed to regulate private facilities pursuant to the AEA.¹³⁰ In response, the NRC issued an order rejecting the State's arguments and concluded that the NWPA provision cited by the State had no effect on the NRC's licensing authority.¹³¹ Utah and nine members of the Goshute Indians petitioned the D.C. Circuit Court of Appeals for review of the arguments the NRC had presented in its order.¹³²

121. 359 F.3d 536 (D.C. Cir. 2004).

122. *See id.* at 537–38.

123. *Id.* at 539.

124. C. Michael Rasmussen, Note, *Gaining Access to Billions of Dollars and Having a Nuclear Waste Backyard*, 18 J. LAND RES. & ENV'T L. 335, 344 (1998).

125. Stewart & Stewart, *supra* note 19, at 86.

126. *Bullcreek*, 359 F.3d at 539.

127. Stewart & Stewart, *supra* note 19, at 87.

128. *Id.* at 86.

129. *Bullcreek*, 359 F.3d at 539.

130. *Id.* at 539.

131. *Id.*

132. *Id.* at 540.

In its opinion, the D.C. Circuit Court of Appeals focused mainly on the effects of the NWPA and entirely avoided a textual analysis of the AEA.¹³³ The court concluded, without discussion, that “[w]hile the AEA does not specifically refer to the storage or disposal of spent nuclear fuel, it has long been recognized that the AEA confers on the NRC authority to license and regulate the storage and disposal of such fuel.”¹³⁴ As the sole support for its claim, the court cited a handful of cases in which the NRC regulated disposal of SNF.¹³⁵ However, none of these cases analyzed the AEA either.

After assuming the NRC held licensing authority under the AEA, the court then analyzed the words of the disputed NWPA provision.¹³⁶ Relying on the canons of construction, the court concluded that the NWPA did not “repeal or supersede” the NRC’s pre-existing authority.¹³⁷

2. *Texas v. Nuclear Regulatory Commission*

In August 2023, *Texas v. Nuclear Regulatory Commission*¹³⁸ created a circuit split concerning NRC licenses for private SNF storage facilities when it diverged widely from the conclusions in *Bullcreek*. In 2015,¹³⁹ Andrews County, a rural Texas community, voted and passed a resolution demonstrating that the majority of community members supported the siting of an SNF storage facility in the area.¹⁴⁰ The then governor of Texas, Rick Perry, also advocated for a private SNF facility in Texas.¹⁴¹ Relying on the support expressed in the resolution, Waste Control Specialists, LLC put in an application for a license

133. The court used canons of construction and legislative history to thoroughly analyze Section 10155(h) of the NWPA. *See id.* at 541–43. The court only briefly mentioned the AEA and concluded that the AEA gives the NRC authority to regulate SNF storage based on previous cases, which also did not analyze the AEA. *See id.* at 538.

134. *Id.* at 538.

135. *Id.*

136. *Id.* at 541.

137. *Id.* at 542.

138. 78 F.4th 827 (5th Cir 2023).

139. *Andrews County Resolution*, *supra* note 71 (“A resolution in support of establishing a site in Andrews County for consolidated interim storage of spent nuclear fuel and high-level radioactive waste . . . the workforce, the geography, and the geology of Andrews County make it an ideal location for safe storage of radioactive materials, and Andrews County is a volunteer community that wishes to offer its unique resources to help solve the state’s and country’s SNF and HLW storage problems.”).

140. *Nuclear Regul. Comm’n*, 78 F.4th at 833.

141. Asher Price, *Gov. Rick Perry Encourages Support of High-Level Radioactive Waste Storage in Texas*, AUSTIN-AMERICAN STATESMAN (Sept. 25, 2018, 2:41 PM), <https://www.statesman.com/story/news/2014/04/01/gov-rick-perry-encourages-support-of-high-level-radioactive-waste-storage-in-texas/10067654007/>.

from the NRC to operate a private SNF facility in Andrews County.¹⁴² Soon after, Waste Control Specialists joined a partnership with another company to become Interim Storage Partners, LLC.¹⁴³

A complicating factor was that the county lies in the Permian Basin—a prime spot for oil production.¹⁴⁴ Partly due to fears that development in the area might negatively impact the oil industry, the proposed facility quickly became controversial.¹⁴⁵ Additionally, community members, including the succeeding Governor Greg Abbott and the Texas Commission on Environmental Quality, worried that although the storage facility was intended to be temporary, it would practically function as a “de facto permanent disposal facility”¹⁴⁶ because funding had ceased for the Yucca repository.¹⁴⁷ When the NRC published its draft environmental impact statement for the facility in May 2020, the agency received thousands of comments.¹⁴⁸

The comment submitted by Governor Abbott illustrates the variety of concerns relating to the proposed Andrews County project, some of which are unique to the particular location. For example, the Governor Abbott argued that because the Permian Basin produces more than 30% of American crude oil, the proposed facility would become “a prime target for attacks by terrorists, saboteurs, and other enemies.”¹⁴⁹ The governor also expressed concerns about the potential for accidents when transporting spent nuclear fuel.¹⁵⁰ Finally, he wished to reject the proposal because the environmental impact statement “simply assumes that a permanent geologic repository will be developed and licensed” before the sixty-year license expires “without addressing any contingency for the spent nuclear fuel if such a repository is not ready.”¹⁵¹

142. *Nuclear Regul. Comm’n*, 78 F.4th at 833.

143. *Id.*

144. *Id.*

145. See Greg Abbot, *Comment on Interim Storage Partners Consolidated Interim Storage Facility Project*, U.S. NUCLEAR REGUL. COMM’N (Nov. 4, 2020), <https://www.nrc.gov/docs/ML2030/ML20309A385.pdf> (alleging that an accident or intentional attack on a facility in the Permian Basin could disrupt the country’s energy supply).

146. *Nuclear Regul. Comm’n*, 78 F.4th. at 834.

147. Casey, *supra* note 27, at 733.

148. *Nuclear Regul. Comm’n*, 78 F.4th at 834.

149. Abbot, *supra* note 145.

150. *Id.* (“Finally, safe transportation of spent nuclear fuel would require specialized emergency response equipment and trained personnel, as well as significant infrastructure investments In the event of a rail accident or derailment, even absent a radiological release, the resources and logistics required to address such an accident would severely disrupt the transportation of oilfield and agricultural commodities, to the detriment of the entire country.”).

151. *Id.*

The NRC issued a final environmental impact statement, which included a recommendation in support of the facility, in July 2021.¹⁵² Despite the public's apprehension, and the state's last-ditch attempt to pass legislation outlawing storage of highly radioactive waste,¹⁵³ the NRC issued the license to Waste Control Specialists in September 2021.¹⁵⁴ The State of Texas, for-profit oil organization Fasken Land and Minerals, and Permian Basin Land and Royalty Owners (a non-profit organization aiming to protect the Permian Basin area), sued for review of the license.¹⁵⁵

The two key holdings of this case directly diverged from those in *Bullcreek*. Rather than simply concluding that the NRC has always possessed licensing authority under the AEA as the D.C. Circuit did in *Bullcreek*,¹⁵⁶ the Fifth Circuit Court of Appeals conducted a textual analysis of the AEA statute to address the issue of the NRC's scope of authority.¹⁵⁷ As the Fifth Circuit pointed out, "*Bullcreek* may be correct that the Nuclear Waste Policy Act didn't repeal portions of the Atomic Energy Act since 'repeals by implication are not favored,' but it doesn't actually address what authority the Commission had under the Atomic Energy Act."¹⁵⁸ After examining the plain text of various AEA provisions and applying canons of construction, the court ultimately held that the AEA never delegated to the NRC the authority to issue licenses for privately operated away-from-reactor storage facilities for spent nuclear fuel.¹⁵⁹

Second, the Fifth Circuit determined that regardless of the NRC's absence of initial licensing authority, the text of the NWPA provides an additional basis to conclude that the NRC's issuance of a private storage license is erroneous. The court held that the structure of the NWPA, as well as the history behind it, demonstrated that Congress intended to establish a "comprehensive statutory scheme" to manage all aspects of nuclear waste.¹⁶⁰ Because the realm of nuclear waste clearly encompasses the storage of spent nuclear fuel, the existence of the NWPA cannot permit the NRC to exercise control over nuclear waste—and its

152. *Nuclear Regul. Comm'n*, 78 F.4th at 834.

153. *Id.*

154. *Id.*

155. *Id.* at 831.

156. *Bullcreek v. Nuclear Regul. Comm'n*, 359 F.3d 536, 538 (D.C. Cir. 2004) ("While the AEA does not specifically refer to the storage or disposal of spent nuclear fuel, it has long been recognized that the AEA confers on the NRC authority to license and regulate the storage and disposal of such fuel.").

157. *Nuclear Regul. Comm'n*, 78 F.4th at 840.

158. *Id.* at 842 (quoting *Morton v. Mancari*, 417 U.S. 535, 549 (1974)).

159. *Id.* at 844.

160. *Id.* at 843–44.

licensing of private storage facilities is clearly an exercise of such control.¹⁶¹ The court ultimately vacated the NRC-issued license.¹⁶² The decision effectively shuts down the possibility of an Andrews County SNF facility, but also creates precedent that other circuits may draw from in the future to prevent private storage within their own jurisdictions.

III. CONGRESS SHOULD AMEND ITS FEDERAL STATUTE TO FACILITATE A SOLUTION

As demonstrated by the conflict between *Bullcreek* and *Texas v. Nuclear Regulatory Commission*, text provisions within the NWPA and the AEA are clearly disputed. When statutes are ambiguous, courts often use a variety of tools presented by the canons of construction to interpret that law.¹⁶³

Section III.A discusses how the canons demonstrate that the NWPA's text does not firmly prevent the NRC from licensing private away-from-reactor SNF storage facilities. Section III.B continues by discussing, on the other hand, how the canons demonstrate that the text of the AEA never delegated the authority to license private facilities to the NRC. As discussed in Section III.C, because the AEA never expressly delegated the precise authority to license SNF facilities to the NRC, it should be amended to do so. Finally, because its text should not be read as interfering with NRC authority, the NWPA may be left alone.¹⁶⁴

A. *The Nuclear Waste Policy Act Does Not Prohibit the Nuclear Regulatory Commission from Licensing Private Storage Facilities*

The section of the NWPA that most explicitly relates to private SNF storage is Section 10155. Subsection (h) states:

Notwithstanding any other provision of law, nothing in this chapter shall be construed to encourage, authorize, or require the private or Federal use, purchase, lease, or other acquisition of any storage facility located away from the site of any civilian nuclear power reactor and not owned by the Federal Government on January 7, 1983.¹⁶⁵

161. *Id.*

162. *Id.*

163. *See* 82 C.J.S. *Statutes* § 246 (2023).

164. *See* discussion *infra* Section III.C.

165. 42 U.S.C. § 10155(h).

According to well-established canons of construction, when a court must interpret a statute's meaning it first analyzes the meaning of the text itself.¹⁶⁶ If the text of the statute is unambiguous and the overall scheme is consistent, the court is not required to analyze further.¹⁶⁷

Looking at the text alone, the statute provision notably lacks any prohibiting language. The drafters of the statute specifically chose to state that nothing in the chapter "shall be construed to . . . authorize" private storage facilities located away from reactors,¹⁶⁸ when they could have easily stated, for example, that the chapter *prohibits* the construction or authorization of private away-from-reactor storage facilities. The plain meaning of the words chosen for Section 10155(h) clearly demonstrates that, although Congress did not wish "to encourage" private facilities, it did not choose to expressly forbid them when it easily could have.¹⁶⁹ Relying only on common sense and the everyday meaning of the words, to not "encourage" is obviously not a synonym for *prohibits* or *forbids*. In *Bullcreek*, the challengers to the NRC argued in part that Section 10155(h) "expressly disavows" congressional intent to allow private away-from-reactor facilities for spent nuclear fuel.¹⁷⁰ However, the *Bullcreek* court emphasized the NRC's conclusion that Section 10155(h) is "facially neutral; neither prohibiting nor promoting the use of private [away-from-reactor] storage facilities."¹⁷¹ Still, to not encourage is a far cry from "expressly disavows."

Besides analyzing their ordinary meaning, courts can use additional canons to interpret certain words. For example, when Congress uses two different phrases in two parts of the same statute, one should presume that Congress intended a different meaning for each phrase.¹⁷² In another subsection of the

166. *Barnhart v. Sigmon Coal Co.*, 534 U.S. 438, 450 (2002) (citing *United States v. Ron Pair Enters., Inc.*, 489 U.S. 235, 240 (1989)).

167. *Robinson v. Shell Oil Co.*, 519 U.S. 337, 340 (1997).

168. 42 U.S.C. § 10155(h).

169. In the 1987 amendments to the NWPA, Congress left open a slim possibility of creating monitored retrieval storage facilities instead of outright forbidding them. However, the facilities are not allowed until the Yucca license for a permanent facility is granted. *See Braquet, supra* note 20, at 251. Perhaps Congress wished to mirror this strategy when drafting Section 10155. Rather than completely forbidding private facilities, Congress may have attempted to simply discourage them because it feared that without any discouragement (or with clear authorization) the country would wholeheartedly focus on the development of private facilities instead of the Yucca repository. *See Stewart & Stewart, supra* note 19, at 67 ("The overriding purpose of NWPA was to force development of repositories. Congress, in 1982 and again in 1987, deliberately restricted the development by DOE of MRS consolidated storage facilities so as not to undermine that objective.").

170. *Bullcreek v. Nuclear Regul. Comm'n*, 359 F.3d 536, 543 (D.C. Cir. 2004).

171. *Id.* (quoting *In re Priv. Fuel Storage, L.L.C.*, 56 N.R.C. 390, 407 (2002)).

172. *Sosa v. Alvarez-Machain*, 542 U.S. 692, 711 n.9 (2004) ("The Government's request that we read that phrase into the . . . exception, when it is clear that Congress knew

same NWP provision, the statute specifies that “storage capacity authorized by paragraph 1 shall not be provided at any Federal or non-Federal site within which there is a candidate site for a repository.”¹⁷³ This suggests that when the drafters intended a hard-line prohibition against something involving SNF storage, they would use the language “shall not be provided.” Compared to Section 10155(h), this phrase is much more definite.¹⁷⁴ Because this phrasing exists nearby subsection (h), this canon of construction would suggest that the drafters meant something different when they chose to use “nothing . . . shall be construed to encourage.” If the drafters truly meant the NWP to create a complete ban on private away-from-reactor storage facilities, they could have written subsection (h) to mirror the language of subsection (a)(2). For example, they could have written: storage capacity *shall not be provided* at any privately owned storage facility located away from the site of any civilian nuclear power reactor.

Other canons of constructions are used in situations where two separate statutes seem to conflict. One of these canons is that courts disfavor “repeal by implication.” When statutes seem to conflict, courts should attempt to interpret them, if possible, in a way that leaves both statutes in effect.¹⁷⁵ Similarly, another canon, sometimes called the clear statement rule, explains that courts should not interpret a statute in a way that overturns long-held policy or takes away long-established rights if the legislature did not clearly declare such an intention.¹⁷⁶

Although it is debatable whether the NRC ever technically had true legal authority to license away-from-reactor private SNF storage facilities under the AEA, the NRC has undeniably assumed and exercised that authority for years. This exercise of authority is shown by the NRC going to the extent of promulgating official licensing rules under the Code of Federal Regulations to implement the power it believed it possessed.¹⁷⁷ Because the licensing authority is a long-held federal policy, the canon advising against repeals by implication should apply, regardless of problems with the AEA itself. The imprecise

how to specify ‘act or omission’ when it wanted to, runs afoul of the usual rule that ‘when the legislature uses certain language in one part of the statute and different language in another, the court assumes different meanings were intended.’” (citation omitted)).

173. 42 U.S.C. § 10155(a)(2).

174. 42 U.S.C. § 10155(h).

175. *See Town of Red Rock v. Henry*, 106 U.S. 596, 601 (1883) (“The leaning of the courts is against repeals by implication . . . if it be possible to reconcile two statutes, one will not be held to repeal the other.”).

176. *Hayden v. Pataki*, 449 F.3d 305, 323 (2d Cir. 2006) (“Our decision . . . is confirmed and supported by the operation of the clear statement rule . . . a canon of interpretation which requires Congress to make its intent ‘unmistakably clear’ when enacting statutes . . . in traditionally sensitive areas, such as legislation affecting the federal balance.” (citing *Gregory v. Ashcroft*, 501 U.S. 452, 460 (1991))).

177. *See* 10 C.F.R. pt. 72.

language in Section 10155(h) is far from a clear declaration by the legislature to revoke that authority.¹⁷⁸ Therefore, the application of the canon would suggest that the NWPA should be interpreted in a manner that leaves the NRC's authority intact.¹⁷⁹

Additionally, the AEA is explicitly mentioned elsewhere in the NWPA but not in this particular provision, and Congress was aware that the NRC had promulgated an entire set of regulations for licensing private off-site SNF facilities.¹⁸⁰ If Congress had intended to halt the NRC's established practice of licensing such facilities, it could have mentioned the AEA by name to ensure that its goal would be accomplished. As the *Bullcreek* court points out, the text of the provision "provides no support for Utah's conclusion that Congress . . . silently meant to repeal or supersede the NRC's authority under the AEA" because Congress was aware of the AEA and the NRC rules.¹⁸¹

In contrast, the *Texas v. Nuclear Regulatory Commission* court diverged from the *Bullcreek* court's holding by stating that the NWPA "provides a comprehensive scheme to address the accumulation of nuclear waste."¹⁸² The Fifth Circuit reasoned that the NRC's view of its licensing authority simply "cannot be reconciled with" the NWPA because the statute is so comprehensive.¹⁸³ According to the Fifth Circuit, when viewed as a whole, the NWPA prioritizes the construction of the Yucca permanent repository, offers a few temporary storage solutions in the meantime, particularly at-reactor storage

178. In a case regarding the application of the Americans with Disabilities Act to the administration of state prisons, the U.S. Supreme Court held that the clear statement rule was met. *See Penn. Dept. of Corrs. v. Yeskey*, 524 U.S. 206, 209–10 (1998). The text of the statute at issue read: "Subject to the provisions of this subchapter, no qualified individual with a disability shall, by reason of such disability, be excluded from participation in or be denied the benefits of the services, programs, or activities of a public entity, or be subjected to discrimination by any such entity." 42 U.S.C. § 12132; *Yeskey*, 524 U.S. at 209. The statute in *Yeskey*, held to be a clear statement, used the words "no . . . individual . . . shall." *Yeskey*, 524 U.S. at 209. Again, this clear language is markedly absent from Section 10155(h) of the NWPA. While the statute could have, akin to the clear statutory statement recognized in *Yeskey*, stated that a private storage facility away from reactor shall not be built, the statute instead only states "shall not be construed to encourage, authorize." 42 U.S.C. § 10155(h).

179. *See Bullcreek v. Nuclear Regul. Comm'n*, 359 F.3d 536, 542 (D.C. Cir. 2004) ("Given that Congress was aware of the NRC's regulations for licensing private away-from-reactor storage facilities, the plain language of § 10155(h) provides no support for Utah's conclusion that Congress 'expressly disavow[ed]' use of private away-from-reactor storage facilities or silently meant to repeal or supersede the NRC's authority under the AEA.").

180. *Id.* at 542 (citing 42 U.S.C. § 10153(a), (b)(3); 42 U.S.C. § 10155(a)(1)(A)(i); 10 C.F.R. § 72).

181. *Id.*

182. *Texas v. Nuclear Regul. Comm'n*, 78 F.4th 827, 842 (5th Cir. 2023).

183. *Id.*

or a federal facility, but purposely leaves private facilities out of its overall scheme.¹⁸⁴ For example, the court emphasized how Section 10152 directs the Secretary of Energy to “*encourage* and expedite the effective use of available storage, and the necessary additional storage, *at the site of* each civilian nuclear power reactor.”¹⁸⁵ Additionally, Section 10162(b) authorizes the Secretary of Energy to construct and operate a “monitored retrievable storage facility” according to special conditions.¹⁸⁶

The comparison of language demonstrates that the NWPA clearly favors the permanent repository and on-site storage as an alternative.¹⁸⁷ However, preference of certain options is irrelevant to the question of whether the NWPA actually *forecloses* the legal possibility of a private off-site SNF facility. To answer such a question, the proper course of action is to turn to the text of the statute before guessing at legislative intent.¹⁸⁸ As explained above, textual analysis demonstrates that the NWPA may not encourage the NRC licensing private facilities, but it does not actually forbid it.

B. The Atomic Energy Act Never Clearly Delegated the Right to License Private Storage Facilities

Although the conclusions from canons of construction indicate that the NWPA itself does not cancel the NRC’s authority to license away-from-reactor storage facilities, that authority must legally exist in the first place so that future licenses may survive attack in court. The NRC, as well as the D.C. Circuit in *Bullcreek*, conclude that the NRC’s licensing authority stems from the AEA.¹⁸⁹ However, the court did not analyze the text of the AEA to support this conclusion, but instead relied on case history wherein the NRC had traditionally managed SNF storage.¹⁹⁰

Because the NRC claims authority from the AEA, it is essential that the statute grants such authority. A government agency only has the power delegated

184. *Id.* at 843.

185. *Id.* (emphasis added); *see also* 42 U.S.C. § 10152.

186. 42 U.S.C. § 10162(b).

187. *Compare* 42 U.S.C. § 10152 (concerning on-site SNF storage using the language “encourage”), *with* 42 U.S.C. § 10155 (concerning off-site SNF storage using the language “nothing in this chapter shall be construed to encourage”).

188. *Barnhart v. Sigmon Coal Co.*, 534 U.S. 438, 450 (2002) (citing *United States v. Ron Pair Enters., Inc.*, 489 U.S. 235, 240 (1989)).

189. *Bullcreek v. Nuclear Regul. Comm’n*, 359 F.3d 536, 538 (D.C. Cir. 2004) (“While the AEA does not specifically refer to the storage or disposal of spent nuclear fuel, it has long been recognized that the AEA confers on the NRC authority to license and regulate the storage and disposal of such fuel.”).

190. *Id.*

to it by Congress.¹⁹¹ The NRC cannot claim authority based on a history of cases where courts erroneously interpreted statutes or jumped to baseless conclusions. Reliance on erroneous case law tradition, however well-established, is no justification for unlawfully exceeding statutory authority. For this reason, the Fifth Circuit in *Texas v. Nuclear Regulatory Commission* properly returned to analysis of the AEA itself in the fight over the Andrews County facility license.¹⁹² Here, the canons of construction demonstrate that the AEA did not clearly delegate the right to license private away-from-reactor storage facilities to the NRC.

Generally, the NRC has argued that it has broad authority to license SNF storage facilities because certain provisions of the AEA give the NRC licensing authority in a variety of other areas relating to nuclear products.¹⁹³ For example, two provisions give authority to issue licenses to possess “special nuclear material”¹⁹⁴ and “source material.”¹⁹⁵ Another provision gives the NRC authority to issue licenses to dispose of “byproduct material.”¹⁹⁶ However, textual analysis demonstrates that none of these provisions accurately apply to spent nuclear fuel.

First, Section 2073 the AEA states:

The Commission is authorized (i) to issue licenses to . . . possess, own . . . special nuclear material . . .

1. For the conduct of research and development activities of the types specified in section 2051 of this title;
2. For use in the conduct of research and development activities or in medical therapy under a license issued pursuant to section 2134 of this title;
3. For use under a license issued pursuant to section 2133 of this title;

191. *Bowen v. Geo. Univ. Hosp.*, 488 U.S. 204, 208 (1988) (“It is axiomatic that an administrative agency’s power to promulgate legislative regulations is limited to the authority delegated by Congress.”).

192. *Texas v. Nuclear Regul. Comm’n*, 78 F.4th 827, 841 (5th Cir. 2023).

193. *See id.* at 840 (referencing the arguments that the NRC made during *Bullcreek*).

194. 42 U.S.C. § 2073

195. 42 U.S.C. § 2093.

196. 42 U.S.C. § 2111.

4. For such other uses as the Commission determines to be appropriate to carry out the purposes of this chapter.¹⁹⁷

Section 2133, referenced in subsection (3), relates to licenses for “utilization or production facilities for industrial commercial purposes.” Neither type of facility is for SNF storage, so subsection (3) is inapplicable in this context.¹⁹⁸

At first, the imprecision of subsection (4) may seem to grant the NRC potentially broad licensing authority. However, another important canon of statutory construction states that a general word or statement, when connected to precise words or statements, should be read narrowly to tie in with the more specific terms.¹⁹⁹ In *Texas v. Nuclear Regulatory Commission*, the court stated that Section 2073(4) was meant to allow possession of special nuclear material for other types of research or development, but not meant to be a catchall provision.²⁰⁰ If Congress literally meant to give the NRC the ability to possess special nuclear material for any use that the NRC might believe to be “appropriate to carry out the purposes of the chapter,” there would be no reason to specifically list the uses in subsections (1)–(3) because they would be encompassed by subsection (4). It makes better logical sense to assume subsections (1)–(4) describe uses for research or development. The absence of an explicit provision granting authority for storage or disposal in this section is significant because Congress went to the trouble of precisely enumerating the purposes in subsections (1)–(3). Therefore, even if spent nuclear fuel could be categorized as “special nuclear material,” the subsection does not authorize possession for the purpose of storage. Thus, Section 2073 does not delegate to NRC the ability to license away-from-reactor SNF storage.

197. 42 U.S.C. § 2073.

198. 42 U.S.C. § 2014(v), (cc); see *Nuclear Regul. Comm’n*, 78 F.4th at 841 (explaining that “utilization” and “production” are precisely defined within Section 2014(cc) and (v) and those definitions relate to nuclear reactors and fuel enrichment facilities rather than any type of storage or disposal).

199. See *United States v. Buluc*, 930 F.3d 383, 388–389 (“*Ejusdem generis* . . . describes the ‘principle that when a general term follows a specific one, the general term should be understood as a reference to subjects akin to the one with specific enumeration.’” (quoting *Ali v. Fed. Bureau of Prisons*, 522 U.S. 214, 223 (2008))); see, e.g., *Wash. State Dep’t of Soc. & Health Servs. v. Guardianship Est. of Keffeler*, 537 U.S. 371, 383–85 (2003) (applying the canon to a list stating “execution, levy, attachment, garnishment, or other legal process,” and holding that “other legal process” should be read as limited to legal processes which were similar in nature to the three specific legal processes preceding it).

200. *Texas v. Nuclear Regul. Comm’n*, 78 F.4th 827, 841 (5th Cir. 2023) (“Principles of statutory interpretation require these grants be read in light of the other, more specific purposes listed—namely for certain types of research and development.”).

Another provision of the AEA, Section 2093, states:

The Commission is authorized to issue licenses for and to distribute source material within the United States to qualified applicants requesting such material

1. For the conduct of research and development activities of the types specified in section 2051 of this title;
2. For use in the conduct of research and development activities or in medical therapy under a license issued pursuant to section 2134 of this title;
3. For use under a license issued pursuant to section 2133 of this title; or
4. For any other use approved by the Commission as an aid to science or industry.²⁰¹

Even if spent nuclear fuel could be categorized as “source material,” Section 2093 also fails to grant the NRC satisfactory authority to license SNF storage facilities for the same reasons as Section 2073. Like Section 2073, Section 2093 mentions a Section 2133 license that, as explained above, does not relate to storage. Subsection (4) is also vaguer than the three subsections before it; like subsection (4) in Section 2073, it should be read narrowly as referring to research purposes. Lending itself to incontrovertible plain text interpretation, subsection (4) explicitly states “aid to science.”

As the *Texas v. Nuclear Regulatory Commission* court concludes, “neither § 2073 nor § 2093 confers a broad grant of authority to issue licenses for any type of possession of special nuclear material or source material.”²⁰² The AEA “authorizes the Commission to issue such licenses only for certain enumerated purposes – none of which encompass storage or disposal of material as radioactive as spent nuclear fuel.”²⁰³ Because the AEA specifies particular purposes, the natural conclusion is that those not listed were meant to be excluded.

201. 42 U.S.C. § 2093(a).

202. *Nuclear Regul. Comm’n*, 78 F.4th at 841.

203. *Id.* at 840.

Besides these two subsections, Section 2111 discusses disposal, so at first glance it seems like a possible source of the NRC's authority to license SNF storage facilities.²⁰⁴ Section 2111 states that "byproduct material, as defined in paragraphs (3) and (4) of section 2014(e)" may be disposed of in a facility that "is adequate to protect public health and safety and is licensed by the Commission."²⁰⁵ Section 2014(e) lists the definition of "byproduct material."²⁰⁶

One category of byproduct material is "any discrete source of radium-226 that is produced, extracted, or converted . . . for use for a commercial, medical, or research activity; or any material that[] has been made radioactive by the use of a particle accelerator and is produced . . . for use for a commercial . . . activity."²⁰⁷

Another category is:

(4) Any discrete source of naturally occurring radioactive material, other than source material, that:

(A) The Commission, in consultation with the Administrator of the Environmental Protection Agency, the Secretary of Energy, the Secretary of Homeland Security, and the head of any other appropriate Federal agency, determines would pose a threat similar to the threat posed by a discrete source of radium-226 to the public health and safety or the common defense and security; and

(B) Before, on, or after August 8th is extracted or converted after extraction for use in a commercial, medical, or research activity.²⁰⁸

Spent nuclear fuel is not purely radium-226, so byproduct material cannot statutorily encompass SNF.²⁰⁹ Some of the other isotopes within SNF material have half-lives much longer than radium-226.²¹⁰ A half-life is the length of time

204. See 42 U.S.C. § 2111.

205. 42 U.S.C. § 2111(b)(1). An alternative method is a State licensed disposal facility which has "an agreement with the Commission." 42 U.S.C. § 2111(b)(1)(B)(ii).

206. 42 U.S.C. § 2014(e).

207. 42 U.S.C. § 2014(e)(3).

208. 42 U.S.C. § 2014(4).

209. See 42 U.S.C. § 2014(e)(3).

210. See *Radium-226 Decay Chain*, NAT'L INST. OF STANDARDS AND TECH., <https://www.nist.gov/image-23773> (last visited Mar. 25, 2024) (stating the half-life of radium-226 is 1,600 years); *Backgrounder on Plutonium*, U.S. NUCLEAR REGUL. COMM'N, <https://www.nrc.gov/reading-rm/doc-collections/fact-sheets/plutonium.html> (Jan. 7, 2021) (stating spent nuclear fuel contains a variety of isotopes, including plutonium-239, which has a half-life of 24,000 years).

required for the radioactivity of material to decrease by 50%.²¹¹ Half-life is a fundamental aspect of radioactivity.²¹² Therefore, because spent nuclear fuel includes isotopes with half-lives much longer than radium-226,²¹³ it cannot be defined as a radioactive material that “pose[s] a threat similar to” that of radium-226.²¹⁴ Consequently, spent nuclear fuel cannot fit the alternative statutory definition of byproduct material either.²¹⁵

The most important canon of statutory construction is looking first to the plain meaning of the statute. The AEA does not explicitly grant the NRC authority to license facilities that will store or dispose of spent nuclear fuel. The AEA does grant the NRC authority to license facilities to “possess” “special nuclear material” and “source material,” or dispose of “byproduct material,” under defined circumstances or for specific purposes.²¹⁶ However, as discussed above, none of these statutory grants of authority can be read in a way that encompasses an away-from-reactor private storage facility for spent nuclear fuel.²¹⁷ Therefore, as the Fifth Circuit concluded in *Texas v. Nuclear Regulatory Commission*, a textual analysis reveals that the AEA never properly delegated the right to license private away-from-reactor storage facilities to the NRC.

C. Congress Should Amend the Atomic Energy Act

Scientific evidence and expert opinions agree that private and consolidated away-from-reactor storage facilities are likely the most realistic, safe, and cost-effective solution to the continuing buildup of spent nuclear fuel that threatens to overwhelm the United States.²¹⁸ However, once the canons of construction are

211. See John O. Rasmussen & Ellis P. Steinberg, *Radioactivity*, BRITANNICA, <https://www.britannica.com/science/radioactivity> (Jan. 20, 2024).

212. *Id.*

213. See *Texas v. Nuclear Regul. Comm’n*, 78 F.4th 827, 841 (5th Cir. 2023) (describing how one SNF isotope, plutonium-239, has a half-life of 24,000 years compared to radium-226’s half-life of 1,600 years, a fifteen-fold difference, which the Fifth Circuit used as proof that “there’s no plausible argument that spent nuclear fuel, which contains radioactive isotopes with half-lives much longer than radium-226, is the type of radioactive material contemplated in the disposal provision in § 2111(b)”).

214. See 42 U.S.C. § 2014(e)(4)(A).

215. See *Nuclear Regul. Comm’n*, 78 F.4th at 841; 42 U.S.C. § 2014(e)(4).

216. 42 U.S.C. §§ 2073, 2093, 2111.

217. The enumerated purposes in 42 U.S.C. § 2073(a) and 42 U.S.C. § 2093(a) do not cover storage, and while byproduct material can be stored under 42 U.S.C. § 2111(b)(1), the textual definition of byproduct material cannot include spent nuclear fuel under 42 U.S.C. § 2014(e). Therefore, none of these options properly authorize the NRC to issue licenses for SNF storage.

218. See Stewart & Stewart, *supra* note 19, at 55–56 (stating that the Blue Ribbon Commission, Department of Energy Strategy procedures, and economist Cliff Hamal’s study

applied to the two key statutory schemes in the field, it becomes clear that licenses for such facilities are unlawful under the existing legislation.²¹⁹ The best adjustment that U.S. Congress can make to legalize private storage facilities is to amend the AEA so that it clearly delegates authority to the NRC to license those facilities.

Because the phrasing of the NWPA does not explicitly prohibit the licensing of away-from-reactor storage facilities,²²⁰ the true obstacle is the scope of the NRC's authority outside of the NWPA. If Congress offered an express delegation of licensing authority to the NRC—the legal and express equivalent of the authority that the *Bullcreek* court mistakenly assumed the NRC already possessed by implication—the NWPA as it currently stands would not block that authority.²²¹ Moving forward under an amended AEA, the NRC could issue licenses with less holdup in the courts.²²²

Some researchers have suggested that the best course of action to accomplish the same goal would be to amend the NWPA rather than the AEA.²²³ However, as explained above, the NWPA does not need to be altered to allow the NRC to issue licenses for private facilities,²²⁴ as long as the NRC actually possesses that authority from a proper source. Adjusting the AEA rather than the NWPA has the additional benefit of avoiding further debate over the major questions doctrine, the principle that a government agency should only decide an issue of national importance if the legislature had clearly authorized the agency to do

all reached similar conclusions that advocated for a consolidated interim storage option); GAO Report, *supra* note 18, at 34 (“Regarding interim storage, nearly all of the experts we interviewed cited advantages of consolidated interim storage.”); BLUE RIBBON COMM’N, *supra* note 5, at 35 (“Recent studies find that the operation and maintenance costs for spent fuel storage at shutdown sites range from \$4.5 million to \$8 million per year, compared to an incremental \$1 million per year or less when the reactor is still in operation . . . these cost estimates suggest that the savings achievable by consolidating stranded spent fuel at a centralized facility would be enough to pay for that facility.”).

219. See discussion *supra* Section II.A.

220. See discussion *supra* Section III.A.

221. See discussion *supra* Section III.A.

222. The ambiguous statutes have given states material to drag out the fight over the issued licenses. See Stewart & Stewart, *supra* note 19, at 16 (describing how the private company eventually terminated the Skull Valley project in Utah after “protracted litigation and continuing failure to obtain needed permits”).

223. See, e.g., Braquet, *supra* note 20, at 247 (“Congress can and should amend the Nuclear Waste Policy Act to allow private companies to construct and operate large interim storage facilities for commercial nuclear use. . . . Congress gains more time to find a permanent repository and tackle the nation’s nuclear waste problem.”); GAO Report, *supra* note 18, at 47.

224. See discussion *supra* Section III.A.

so.²²⁵ The recent opinion in *Texas v. Nuclear Regulatory Commission* opened the door to arguing that the doctrine prohibits the NRC's licensing ability.²²⁶ Therefore, even if the NWPA was amended to explicitly allow privately owned and operated storage facilities to exist, future challengers could still argue that the NRC lacks clear delegation of authority to issue the licenses for those facilities. Amending the AEA proactively prevents this issue from becoming a new weapon used to stall future license applications in court.

Additionally, because the AEA is the statute that provides the NRC's extensive licensing authority in other areas of the nuclear industry, such as licensing commercial reactors themselves,²²⁷ it makes the most sense to add a new specific licensing authority to the AEA rather than embed it within the NWPA. While the NWPA's main purpose is not to outline the boundaries of the NRC's power, that is precisely the purpose of the AEA.²²⁸ Amending the AEA would thus create the most cohesive statutory scheme.

A successful amendment to the AEA could take many forms and be located in various places throughout the statute, but to avoid future debates it should be exceedingly clear and precise in its terms. Section 2093 of the AEA describes the NRC's ability to issue licenses for the possession of source material.²²⁹ A new section could mirror Section 2093 but describe spent nuclear fuel instead of source material. The first subsection would grant the actual authority, using clear and unequivocal language such as: The Commission is authorized to issue licenses to qualified applicants requesting to own and operate private facilities, located away from reactor, for spent nuclear fuel. The amendment could cross-

225. See *West Virginia v. EPA*, 597 U.S. 697, 729–30 (2022) (deciding, when interpreting a provision of the Clean Air Act, that it would be highly unlikely for Congress to allow an agency to decide long-term levels of coal-based energy production, because the decision would have nationwide effects).

226. *Texas v. Nuclear Regul. Comm'n*, 78 F.4th 827, 844 (5th Cir. 2023) (“A decision of such magnitude and consequence rests with Congress itself, or an agency acting pursuant to clear delegation from that representative body.” (quoting *West Virginia v. EPA*, 597 U.S. at 719–22)). Because there is no clear delegation under the AEA, and disposal of nuclear waste is undeniably an issue with potentially far-reaching ramifications, the Fifth Circuit argues that the doctrine must apply. *Id.*

227. See *Backgrounder on Reactor License Renewal*, U.S. NUCLEAR REGUL. COMM'N, <https://www.nrc.gov/reading-rm/doc-collections/fact-sheets/fs-reactor-license-renewal.html> (Jan. 3, 2022).

228. Compare 42 U.S.C. § 2013 (explaining that one purpose of the AEA is to provide for a program of administration to carry out Congress's desired nuclear industry policies), with 42 U.S.C. § 10131 (explaining that the purpose of the disposal and storage section of the NWPA is “to establish a definite [f]ederal policy[] for the disposal of . . . waste and spent fuel”).

229. See 42 U.S.C. § 2093.

reference the definition of spent nuclear fuel that already exists.²³⁰ The second subsection, again mirroring Section 2093, could outline “minimum criteria for licenses.”²³¹ This subsection might state: “The Commission shall establish, by rule, minimum criteria for the issuance of specific”²³² licenses for the storage of spent nuclear fuel that ensure commitment to the health and safety of the public. The NRC has these rules promulgated already in Part 72 of Chapter 10 of the Code of Federal Regulations, so they could be easily transferred to the amended statute.²³³

Congress should strongly consider an amendment to the AEA that explicitly delegates the power to license private SNF storage facilities to the NRC because away-from-reactor facilities provide a safe solution to the spent nuclear fuel accumulating at reactor sites. The AEA, rather than the NWPA, is the best location for the amendment because the AEA contains other provisions that give the NRC licensing authority in other contexts. The amendment would be a cohesive and logical addition to the AEA, but unnecessary if embedded in the NWPA. Also, a direct delegation to the NRC would avoid future challenges raised under the major questions doctrine.

CONCLUSION

For both the health of the United States and the health of the environment, spent nuclear fuel should one day be safely deposited deep underground. However, reaching this conclusion does not give the federal government the right to turn a blind eye to the reality facing the country—that there is currently no hope for a permanent repository for spent nuclear fuel. In the meantime, the U.S. government must advocate for the next best solution with the goal of buying time to kick-start the search for a permanent location. Dry cask storage away from reactors is the safest and most efficient option. To put this method into action, the NRC must be authorized to license these facilities.

Because the current state of the federal statutory scheme hinders the NRC from doing so, the AEA should be amended. With a clear delegation of authority to license away-from-reactor storage facilities, private companies could move forward with development and avoid the fate of the companies in the Skull Valley and Andrews County applications whose licenses were hopelessly tied up

230. See 42 U.S.C. § 2014(dd) (referencing the definition of “spent nuclear fuel” in 42 U.S.C. § 10101(23)); see also 42 U.S.C. § 10101(23) (stating that “‘spent nuclear fuel’ means fuel that has been withdrawn from a nuclear reactor following irradiation, the constituent elements of which have not been separated by reprocessing”).

231. 42 U.S.C. § 2093(b).

232. *Id.*

233. See generally 10 C.F.R. pt. 72 (2023).

in lawsuits, stalling all development progress. The storage of spent nuclear fuel could very well determine whether the nuclear energy industry survives in America. And the survival of the nuclear energy industry could very well determine the amount of carbon emissions entering the atmosphere in the coming decades. Congress must understand that its ability to shape SNF policy presents an unmissable chance to slow the climate crisis, and therefore act accordingly by swiftly and carefully amending the AEA.