

# NUCLEAR STALEMATE: INDEFINITE ABOVE-GROUND STORAGE IS A TEMPORARY, ALBEIT SAFE BAND-AID FOR A SERIOUS WOUND

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*“To say that after 20 years and nine billion dollars spent on Yucca Mountain, that there’s not an option, period to me is [a] remarkable statement.”*

—Senator John McCain, Arizona<sup>1</sup>

## INTRODUCTION

The disposal of America’s high-level nuclear waste and spent fuel has been the proverbial monster lurking in the bedroom closet for decades.<sup>2</sup> The volume of radioactive waste continues to grow at a steady rate annually, and states are running out of places to store the hazardous byproduct.<sup>3</sup> Congress, anticipating this problem years ago, established a statutory framework for a geologic repository site that all states could use to permanently dispose

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1 *Proposals on Energy Research and Development: Hearing Before the S. Comm. on Energy and Nat. Res.*, 111th Cong. 15 (2009) (statement of Sen. John McCain).

2 See *New York v. U.S. Nuclear Regulatory Comm’n*, 681 F.3d 471, 473 (D.C. Cir. 2012) (“This is another in the growing line of cases involving the federal government’s failure to establish a permanent repository for civilian nuclear waste.”); Richard B. Stewart & Jane B. Stewart, *Solving the Spent Nuclear Fuel Impasse*, 21 N.Y.U. ENVTL. L.J. 1, 3 (2014) (“The federal government has been in partial default on its NWPA obligation to take this SNF from utilities since 1998 . . . .”); Randall W. Miller, Note, *Wasting Our Options? Revisiting the Nuclear Waste Storage Problem*, 4 WASH. & LEE J. ENERGY, CLIMATE, & ENV’T 359, 360 (2013) (“Discussions about long-term nuclear waste storage date back to the 1950s.”).

3 See Miller, *supra* note 2, at 364–65; U.S. NUCLEAR REGULATORY COMM’N, BACK-GROUNDER: DRY CASK STORAGE OF SPENT NUCLEAR FUEL I (2014), <http://www.nrc.gov/reading-rm/doc-collections/fact-sheets/dry-cask-storage.pdf> (noting that “reactor designers [had] expected spent fuel to be . . . shipped offsite” but had to adapt once “pools began to fill up”).

of nuclear waste in a safe manner.<sup>4</sup> The disposal project has repeatedly stalled, however, due in part to intense politicking, “not in my backyard” mentalities, and logistical issues.<sup>5</sup> Within the past six years, the Obama Administration has pulled the plug on the entire project and sought alternative options.<sup>6</sup> Unfortunately, as factions battle over the best course of action, radioactive waste and spent fuel continue to accumulate at nuclear reactors across the country.<sup>7</sup> This dire situation spurred a court decision that prompted the Nuclear Regulatory Commission to promulgate the Continued Storage Rule (the Rule) in August of 2014, which lifted the moratorium on reactor construction and expansion by allowing indefinite above-ground storage of nuclear waste.<sup>8</sup> The Commission recognized this move as a somewhat temporary solution,<sup>9</sup> but some experts have criticized the agency, contending that the Rule amounts to a band-aid fix that simply prolongs the inevitable permanent disposal problem.<sup>10</sup>

A significant amount of research has emerged elucidating the rollercoaster ride that Yucca Mountain has been for lawmakers, the nuclear industry, and citizens of affected locales.<sup>11</sup> Indeed, the volume of complex issues revolving around nuclear energy and its place in America’s energy future is staggering. Not surprisingly, there are many ideas about how to best

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4 See 42 U.S.C. § 10131(a)(2), (b)(1) (2012).

5 See Megan Easley, Note, *Standing in Nuclear Waste: Challenging the Disposal of Yucca Mountain*, 97 CORNELL L. REV. 659, 672–73 (2012) (discussing President Obama’s and Nevada Senator Harry Reid’s agreement to halt the Yucca Mountain project); Matthew L. Wald, *Future Dim for Nuclear Waste Repository*, N.Y. TIMES (Mar. 5, 2009), [http://www.nytimes.com/2009/03/06/science/earth/06yucca.html?\\_r=0](http://www.nytimes.com/2009/03/06/science/earth/06yucca.html?_r=0) (noting the reduced amount of funding Yucca Mountain received as a result of President Obama’s 2009 budget proposal).

6 President Obama established the Blue Ribbon Committee to study alternate options for the storage of the nation’s radioactive waste. The committee completed its analysis in 2012 and submitted a final report. See generally BLUE RIBBON COMM’N ON AMERICA’S NUCLEAR FUTURE, TRANSPORTATION AND STORAGE SUBCOMMITTEE REPORT TO THE FULL COMMISSION (2012) [hereinafter BLUE RIBBON REPORT].

7 See Miller, *supra* note 2, at 364.

8 Continued Storage of Spent Nuclear Fuel, 79 Fed. Reg. 56238 (Sept. 19, 2014) [hereinafter Continued Storage Rule] (codified at 10 C.F.R. pt. 51). This amended regulation allows for the storage of spent nuclear fuel for an indefinite amount of time, based upon environmental impact studies completed to satisfy the 2012 court order. Three possible timeframes were analyzed: 60 years after reactor closing (the original Waste Confidence Rule); 160 years after reactor closing; and indefinitely.

9 *Id.* at 56244 (discussion at A13) (“The NRC will continue to monitor the ongoing research into spent fuel storage.”).

10 In 2012, the national inventory of spent nuclear fuel amounted to almost 70,000 metric tons. U.S. GOV’T ACCOUNTABILITY OFFICE, GAO-12-797, SPENT NUCLEAR FUEL 1 (2012). Approximately 2,000 metric tons are added each year. *Id.* at 19; see also Richard M. Jones, *Forward Step: Senate Bill on Nuclear Waste*, AM. INST. OF PHYSICS (Nov. 2, 2012), <https://www.aip.org/fyi/2012/forward-step-senate-bill-nuclear-waste> (noting the concern of senators that a “temporary [storage] site . . . become[s] a permanent storage facility”).

11 See, e.g., U.S. SENATE COMM. ON ENV’T & PUB. WORKS MAJORITY STAFF, YUCCA MOUNTAIN: THE MOST STUDIED REAL ESTATE ON THE PLANET (2006).

combat the negative physical byproducts of nuclear energy.<sup>12</sup> Notwithstanding this vast universe, this Note focuses on the validity and wisdom of the Nuclear Regulatory Commission's approach: the September 2014 Rule and accompanying Generic Environmental Impact Statement (GEIS), as well as their combined potential to significantly alter the trajectory of spent fuel storage and disposal in the United States.<sup>13</sup>

Part I will explain the relevant history helpful to understand the political battles and legal issues surrounding spent fuel disposal and the Yucca Mountain project. Parts II and III will analyze the implications of the new Continued Storage Rule and why it likely satisfies all applicable statutory requirements and judicial orders. Part IV will review industry and public reception of the new Rule and analyze the wisdom of its inception from a policy standpoint. Finally, Part V will conclude with suggestions about the trajectory of our nation's long-term spent nuclear fuel storage and permanent disposal.

## I. HISTORY AND POLITICS

### A. Background

Before the establishment of the Nuclear Regulatory Commission (NRC), responsibility for nuclear regulation was delegated by the Atomic Energy Act (AEA) of 1954 to the Atomic Energy Commission.<sup>14</sup> Given the excitement encircling this new source of electric power in the 1950s, the Atomic Energy Commission was primarily focused on encouraging the development of the promising technology in a safe manner.<sup>15</sup> However, the initial surge of public support quickly waned as Americans became concerned with the immense perceived hazards associated with nuclear facilities.<sup>16</sup>

By 1974, the Atomic Energy Commission had come under widespread assault for a variety of reasons,<sup>17</sup> and Congress summarily decided to abolish the agency altogether.<sup>18</sup> Realizing that the promotional facet of nuclear

12 For a broader overview of possible options and the way they could work within the current legal framework, see Stewart & Stewart, *supra* note 2.

13 See *supra* note 8 and accompanying text.

14 See Atomic Energy Act, ch. 1073, 68 Stat. 919 (1954) (codified as amended at 42 U.S.C. §§ 2011–2296 (2012)).

15 HARRY HENDERSON, NUCLEAR POWER 28 (2d ed. 2014) (“The AEC was now given two tasks with regard to nuclear power: promote its commercial development and develop regulations to protect the public and workers from the potential hazards of that technology.”).

16 See *id.* at 269.

17 See, e.g., RILEY E. DUNLAP ET AL., PUBLIC REACTIONS TO NUCLEAR WASTE: CITIZENS' VIEWS OF REPOSITORY SITING 38 (1993) (“The nation's increasing environmental awareness and post-Watergate distrust of the government made it more difficult for the AEC to avoid public scrutiny.”); see generally ROBERT VANDENBOSCH & SUSANNE E. VANDENBOSCH, NUCLEAR WASTE STALEMATE 35 (2007).

18 U.S. GOV'T ACCOUNTABILITY OFFICE, GAO-04-611, HANFORD WASTE TREATMENT PROJECT 8 n.4 (June 2004) [hereinafter HANFORD WASTE TREATMENT] (“[T]he Energy Reorganization Act of 1974 abolished the AEC . . .”).

power should be separated from the regulatory facet, legislators passed the Energy Reorganization Act of 1974.<sup>19</sup> This new statute created the contemporary NRC and charged it with the management of reactor facilities.<sup>20</sup> The NRC began operation in 1975.<sup>21</sup> In hindsight, this reshuffling of responsibility was particularly useful in the wake of the Three Mile Island incident that occurred just five years later.<sup>22</sup> The fledgling NRC was actually quick to respond to the crisis, although the devastating consequences still brought sweeping changes to the agency's regulatory scheme.<sup>23</sup> However, because Three Mile Island was the first major nuclear incident in the United States, it nonetheless grounded the public's fear about nuclear power in reality; namely, that the future of nuclear power was very promising but also tangibly dangerous.<sup>24</sup>

Since Three Mile Island, U.S. reliance on nuclear power has remained significant.<sup>25</sup> As of July 2014, there were 100 nuclear reactors in locations spread across thirty-one states.<sup>26</sup> Those reactors provide 20% of all electricity consumed in the United States.<sup>27</sup> Nuclear reactors are much more efficient than most mainstream energy sources; for example, the capacity factor (a measure of efficiency) of nuclear energy is 91%—coal plants operate at a capacity factor of around 59% and wind farms hover at 32%.<sup>28</sup> The average nuclear facility provides nearly sixteen million dollars of tax revenue for its

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19 See HENDERSON, *supra* note 15, at 28 (“Those functions [regulation and safety] . . . proved to be incompatible when they were carried out by a single agency.” (quoting J. SAMUEL WALKER & THOMAS R. WELLOCK, *A SHORT HISTORY OF NUCLEAR REGULATION, 1946–2009*, at 4 (2010))).

20 The promotional aspect was shifted to the Energy Research and Development Administration, now known as the Department of Energy. See Easley, *supra* note 5, at 663–64.

21 See HANFORD WASTE TREATMENT, *supra* note 18, at 8 n.4 (noting that management was given to the DOE).

22 Joseph P. Tomain & Constance Dowd Burton, *Nuclear Transition: From Three Mile Island to Chernobyl*, 28 WM. & MARY L. REV. 363, 364–65 (1987) (“TMI . . . serve[s] as more than [a] convenient milepost[] in the history of nuclear power. . . . [T]he events that occurred between these dates have significantly changed the direction of the nuclear . . . industr[y] . . .”).

23 See generally U.S. NUCLEAR REGULATORY COMM’N, *BACKGROUND: THREE MILE ISLAND ACCIDENT* (2013), <http://www.nrc.gov/reading-rm/doc-collections/fact-sheets/3-mile-isle.pdf>.

24 See Tomain & Burton, *supra* note 22, at 365–66 (“[T]he country underwent a loss of faith in nuclear power.”).

25 See *US Nuclear Generating Statistics*, NUCLEAR ENERGY INSTITUTE (May 2015), <http://www.nei.org/Knowledge-Center/Nuclear-Statistics/US-Nuclear-Power-Plants/US-Nuclear-Generating-Statistics> (displaying that over four million megawatt-hours of electricity was generated by nuclear facilities in 2014).

26 NUCLEAR ENERGY INST., *QUICK FACTS: NUCLEAR ENERGY IN AMERICA* (2014), <http://www.nei.org/CorporateSite/media/filefolder/Backgrounders/Fact-Sheets/Quick-Facts-July-2014.pdf?ext=.pdf>.

27 *Id.*

28 *Id.*

state and local government, and sixty-seven million dollars in federal taxes.<sup>29</sup> Production of nuclear energy is very clean, particularly when compared with coal plants, but continues to be a polarizing source of electricity due to its perceived danger.<sup>30</sup> The NRC's focus has gradually shifted away from reactor operation risks, however, and towards what is likely the largest problem facing the nuclear industry today—what to do with the massive amount of radioactive waste and spent fuel that are piling up at facilities across the nation.<sup>31</sup>

### B. Dealing with a “New” Problem

This nuclear fuel storage problem is not a novel issue. Congress passed the Nuclear Waste Policy Act (NWPA) in 1982,<sup>32</sup> having realized that the disposal of radioactive material would become a problem in the future.<sup>33</sup> The NWPA and its subsequent amendments provided the framework within which a permanent geologic repository could be selected.<sup>34</sup> Careful deliberation and study produced nine potential sites, spanning six states.<sup>35</sup> The Department of Energy (DOE) was to conduct additional study on each site, create a short list of three, and present those options to the President, who would make the final decision.<sup>36</sup> Congress was fully aware that the final repository site would be overwhelmingly unpopular within the chosen locale, and thus granted both states and Native American tribes veto power.<sup>37</sup> This veto power could only be overridden by a majority vote in both the House and Senate.<sup>38</sup> The obvious aim of this effort was to help curb the public outcry guaranteed to sprout from the result of the selection process.

The three locations on the “short list” emerged from the DOE in 1985: Hanford Nuclear Reservation in Washington; a salt formation in Texas; and

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29 *Id.*

30 *See, e.g.*, BENJAMIN K. SOVACOO, *CONTESTING THE FUTURE OF NUCLEAR POWER* 37 (2011).

31 *See Easley, supra* note 5, at 664–65 (noting that during the first several decades of the NRC's existence, concern about nuclear waste management did not “penetrate [the] industry,” although it has become clear that disposal is now a “significant problem for the nuclear industry”).

32 Nuclear Waste Policy Act of 1982, Pub. L. No. 97-425, § 111(a), 96 Stat. 2201, 2207.

33 42 U.S.C. § 10131(a)(2) (2012) (“[A] national problem has been created by the accumulation of (A) spent nuclear fuel from nuclear reactors; and (B) radioactive waste . . .”).

34 *See id.* § 10132.

35 U.S. SENATE COMM. ON ENV'T & PUB. WORKS MAJORITY STAFF, *supra* note 11, at 5 (“In February of 1983, DOE . . . formally identif[ied] nine potentially acceptable sites in six states for the . . . repository . . .”).

36 *See* 42 U.S.C. §§ 10132(b)–(c).

37 *See id.* § 10135(b).

38 *Id.* at § 10135(c).

Yucca Mountain in Nevada.<sup>39</sup> Lobbyists from each state sprang into action.<sup>40</sup> The official process was quickly and notoriously circumvented, seemingly by power politics, when Congress passed an amendment to the NWPA colloquially known as the “Screw Nevada Bill” that established Yucca Mountain as the permanent repository site.<sup>41</sup> Such a result, in hindsight, is not surprising; in 1987, Nevada had very limited influence in Congress.<sup>42</sup> A closed-door meeting of senior lawmakers occurred on December 17, 1987.<sup>43</sup> During this meeting, a bill was introduced that highlighted Yucca Mountain’s particular strength as a repository site because of several distinct differences from the Texas and Washington sites.<sup>44</sup> Perhaps partially a result of Nevada’s noticeable and suspicious absence at the meeting, the bill was passed only five days later, which effectively sliced the DOE short list to one contender: Yucca Mountain.<sup>45</sup> The Governor of Nevada exercised his veto power but was overruled by a supermajority.<sup>46</sup>

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39 U.S. DEP’T OF ENERGY, DOE/S-0048, RECOMMENDATION BY THE SECRETARY OF ENERGY OF CANDIDATE SITES FOR THE FIRST RADIOACTIVE-WASTE REPOSITORY 1, 9 (1986) [hereinafter DOE RECOMMENDATION].

40 See Leah Ayala, *Nuclear Power Companies Suing the Department of Energy: A Legal Remedy Magnifying Nuclear Ends*, 3 NEV. L.J. 449, 453 (2003) (“Texas and Washington had great political advantage over Nevada in the selection process . . .”). But see *Nuclear Energy Inst., Inc. v. EPA*, 373 F.3d 1251, 1260 (D.C. Cir. 2004) (noting that Congress decided to focus solely on Yucca Mountain because analyzing all three sites “was becoming both costly and time-consuming”).

41 42 U.S.C. § 10101(30); see James Davenport, *The Federal Structure: Can Congress Commandeer Nevada to Participate in Its Federal High Level Waste Disposal Program?*, 12 VA. ENVTL. L.J. 539, 539 (1993) (“[I]n 1987 Congress passed what is known locally as the Screw Nevada Bill, terminating all investigations except . . . Yucca Mountain.” (alteration in original) (quoting William Poole, *Gambling with Tomorrow*, SIERRA MAG., Nov.–Dec. 1992, [http://vault.sierraclub.org/sierra/200205/gambling\\_printable.asp](http://vault.sierraclub.org/sierra/200205/gambling_printable.asp))); David H. Topol, *Rethinking Who Is Left Holding the Nation’s Nuclear Garbage Bag: The Legal and Policy Implications of Nevada v. Watkins*, 1991 UTAH L. REV. 791, 819 (“Nevada politicians have characterized [the Act] as a ‘Screw Nevada Bill.’” (quoting 136 Cong. Rec. 6881, 7034 (daily ed. Apr. 5, 1990) (statement of Sen. Harry Reid))).

42 See Topol, *supra* note 41, at 800 (“The problem for Nevada was that it did not have as much political clout as Texas and Washington . . .”); see also Keith Rogers & Steve Tetreault, *Twenty-Five Years Later, ‘Screw Nevada’ Bill Elicits Strong Feelings*, LAS VEGAS REV.-J. (Dec. 21, 2012), <http://reviewjournal.com/business/energy/twenty-five-years-later-screw-nevada-bill-elicits-strong-feelings> (quoting Senator Reid as saying that he “was a brand-new member of the Senate” and that he “didn’t much know what was going on as most brand-new senators don’t”).

43 See Rogers & Tetreault, *supra* note 42.

44 See U.S. SENATE COMM. ON ENV’T & PUB. WORKS MAJORITY STAFF, *supra* note 11, at 5 (noting benefits of geohydrology, geochemistry, tectonics, costs, and socioeconomic impacts that were unique to Yucca Mountain).

45 *Id.* at 6 (“DOE [will] focus . . . solely on Yucca Mountain.”).

46 The House voted 306-117 in favor of overriding Nevada’s veto effort. See H.R.J. Res. 87, 107th Cong. (2002). The Senate followed suit shortly thereafter, with a vote of 60–39. See S.J. Res. 34, 107th Cong. (2002).

Despite the success of Texas and Washington in protecting their interests, Yucca Mountain soon proved to be a much more complicated location than previously thought. Technological advances revealed alleged weaknesses in the Yucca Mountain plan, which eventually led to serious questions about the legitimacy of the site.<sup>47</sup> Despite lingering concerns, Congress designated Yucca Mountain as the sole geologic repository for spent nuclear fuel in 2002.<sup>48</sup> The Secretary of Energy issued a statement recounting the massive amount of money, research, and time sunk into the project and the DOE's subsequent conclusion that Yucca Mountain could safely perform its function.<sup>49</sup> The DOE formally submitted the over-8,000-page license application for Yucca Mountain to the NRC in 2008.<sup>50</sup> The decision had been made.

A year later, on March 5, 2009, the Secretary of Energy confirmed to Senator John McCain in a committee hearing that Yucca Mountain was no longer a candidate for a nuclear repository site, firmly entrenching the Obama Administration in an anti-Yucca stance.<sup>51</sup> This position was heavily criticized by the nuclear industry and several members of Congress, and was generally decried as an overreach of executive power.<sup>52</sup> Quickly thereafter,

47 See, e.g., Rodney C. Ewing & Allison Macfarlane, *Yucca Mountain*, 296 SCIENCE 659, 660 (2002) (noting several "fundamental issues of strategy" and additional "unresolved technical issues").

48 See *supra* note 46 and accompanying text.

49 U.S. DEP'T OF ENERGY, RECOMMENDATION BY THE SECRETARY OF ENERGY REGARDING THE SUITABILITY OF THE YUCCA MOUNTAIN SITE FOR A REPOSITORY UNDER THE NUCLEAR WASTE POLICY ACT OF 1982, at 45 (2002) ("After careful evaluation, I am convinced that the product of over 20 years, millions of hours, and four billion dollars of this research provides a sound scientific basis for concluding that the site can perform safely . . . and that it is indeed scientifically and technically suitable for development as a repository.").

50 See generally U.S. NUCLEAR REGULATORY COMM'N, YUCCA MOUNTAIN REPOSITORY LICENSE APPLICATION (LA) FOR CONSTRUCTION AUTHORIZATION (June 3, 2008).

51 *Full Committee Hearing: To Receive Testimony Regarding Draft Legislative Proposals on Energy Research and Development (SH-216) Before the S. Comm. on Energy and Natural Resources*, 111th Cong. (2009) (statement of Steven Chu, Secretary of Energy) (indicating the DOE's disapproval of Yucca Mountain through discourse with Senator McCain), <http://energy.senate.gov/public/index.cfm/hearings-and-business-meetings?ID=aa73d7c2-b769-9950-6c6d-71c60fd14096>.

52 Senator McCain conveyed his disdain for the executive policy during his conversation with Secretary of Energy Steven Chu in a committee hearing conducted in 2009. See *id.* Some experts shared McCain's opinion about the continued validity of Yucca. See, e.g., Chris Gradomski, *Yucca: Not an Option?*, NUCLEAR ENGINEERING INT'L (May 27, 2009), <http://neimagazine.com/features/featureyucca-not-an-option/>. The Nuclear Energy Institute, a proponent of the nuclear industry, was similarly upset with the President's disavowal of Yucca Mountain. See Press Release, Nuclear Energy Institute, NEI Files Amicus Brief Supporting Challenges to DOE's Yucca Mountain License Withdrawal (June 28, 2010), <http://www.nei.org/News-Media/Media-Room/News-Releases/NEI-Files-Amicus-Brief-Supporting-Challenges-to-DO>. Several years later, the Washington Post reported on the D.C. Circuit's opinion that the Obama Administration failed to "follow nuclear waste law." See George F. Will, Opinion, *Court Orders Obama to Follow Nuclear Waste Law*, WASH. POST (Aug. 21, 2013), <http://washingtonpost.com/opinions/george-will-court-orders>

in January of 2010, the Obama Administration made plans to formally withdraw the license application.<sup>53</sup>

### C. *The Withdrawal from Yucca Mountain*

The DOE submitted a motion to withdraw the previously filed application for the licensing of Yucca Mountain to the Atomic Safety and Licensing Board (an entity that answers to the NRC) on March 3, 2010.<sup>54</sup> The DOE noted that “[w]hile DOE reaffirms its obligation to take possession and dispose of the nation’s spent nuclear fuel and high-level nuclear waste, the Secretary of Energy has decided that . . . Yucca Mountain is not a workable option.”<sup>55</sup> A withdrawal with prejudice was requested, as the DOE “[did] not intend ever to refile an application . . . [for] Yucca Mountain.”<sup>56</sup> Most notably, the motion to withdraw conceded the fact that Yucca Mountain was neither defective nor unsafe.<sup>57</sup> The Licensing Board denied the motion on procedural grounds, stating that the NWPA mandated a resolution of the application on the merits by the NRC and that the Secretary of Energy could not override the process.<sup>58</sup>

After the motion was denied, the NRC began discussing whether to reverse or uphold the Licensing Board’s rejection of the DOE motion.<sup>59</sup> However, outside the agency, states, environmental groups, and the public became enraged at what some considered an unabashed attempt to renege on a promised permanent nuclear repository.<sup>60</sup> The State of Washington quickly filed suit in the D.C. Circuit, as did several other local governments and individual citizens, for (1) review of the DOE’s attempt to withdraw its application and (2) its decision to abandon development of Yucca Mountain altogether.<sup>61</sup>

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obama-to-follow-nuclear-waste-law/2013/08/21/64c6ea0e-09bb-11e3-8974-f97ab3b3c677\_story.html.

53 See Lisa Mascaro, *Obama to Zero Out Yucca Mountain Funding, Pull License*, LAS VEGAS SUN (Jan. 31, 2010), <http://www.lasvegassun.com/news/2010/jan/31/obama-moves-pull-yucca-mountain-license-application/>.

54 See U.S. Department of Energy’s Motion to Withdraw, *In re U.S. Dep’t of Energy (High-Level Waste Repository)*, ASLBP No. 09-892-HLW-CAB04 (U.S. Nuclear Regulatory Comm’n Mar. 3, 2000) (No. 63-001). The Atomic Safety and Licensing Board evaluates license applications for the NRC. The DOE is not involved in this process.

55 *Id.* at 1.

56 *Id.* at 3 n.3.

57 See *id.* (containing no mention of safety concerns and limiting the withdrawal to policy considerations).

58 See *In re U.S. Dep’t of Energy*, 71 N.R.C. 609, 629 (2010) (“We conclude that . . . DOE lacks authority to seek to withdraw the Application.”).

59 See Miller, *supra* note 2, at 380–81 (“The exchange between the DOE and the ASLB prompted the DOE to appeal the ASLB decision to the NRC.”).

60 See Adam J. White, *Yucca Mountain: A Post-Mortem*, NEW ATLANTIS, Fall 2012, at 3–4, [http://thenewatlantis.com/docLib/20121116\\_TNA37White.pdf](http://thenewatlantis.com/docLib/20121116_TNA37White.pdf) (describing the Obama Administration “scuttling the project”).

61 See *In re Aiken County*, 645 F.3d 428, 430 (D.C. Cir. 2011).



The D.C. Circuit, in *In re Aiken County*, declared the case not ripe on the first count and not justiciable on the second.<sup>62</sup> The first count failed because a final determination had not yet been made by the NRC (in administrative proceedings) on the motion to withdraw;<sup>63</sup> the second failed because the DOE had made no legal move to stop development at Yucca<sup>64</sup>—although there had been press releases suggesting a halt of funding.<sup>65</sup> Despite the primarily procedural conclusions, the opinions remained quite lengthy, perhaps because the judges realized the future implications of a similar challenge on the merits.<sup>66</sup> For example, Judge Kavanaugh, in his concurrence, highlighted the important distinction between the NRC and DOE as executive agencies (particularly the NRC's unique independence), which could produce an odd stalemate given the intense political pressures surrounding spent fuel disposal.<sup>67</sup> Although both agencies share power regarding the administration of the NWPA, the NRC independently holds the sole authority to determine whether the executive branch can terminate the Yucca Mountain process.<sup>68</sup> Indeed, even the brief submitted by the Department of Justice specifically noted that the NRC did not join certain merit-based arguments that the DOE submitted, exemplifying the separation of the two agencies.<sup>69</sup> As a result of this interesting structure, the NRC would theoretically retain power over the executive branch if it disagreed with the President's assessment of Yucca Mountain's viability.<sup>70</sup>

#### D. Interpretive Difficulties

While the NRC was contemplating the withdrawal problem, another issue had arisen out of a 2010 update to the Waste Confidence Decision (abbreviated "WCD" but commonly known as the Waste Confidence Rule). The WCD resulted from *Minnesota v. U.S. Nuclear Regulatory Commission*, a 1979 D.C. Circuit case that demanded assurances from the NRC about the existence of a permanent repository in order to approve an expansion of on-

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62 *Id.*; see Miller, *supra* note 2, at 381–82 (“[S]tates and citizens sued in the D.C. Circuit contesting the DOE’s motion . . .”).

63 See *In re Aiken County*, 645 F.3d at 435 (noting the agency had not actually rejected the motion to withdraw).

64 *Id.* at 437 (“[P]etitioners have set forth no discrete action mandated by the NWPA that the DOE has failed to perform or performed inadequately.”).

65 See Wald, *supra* note 5 (noting that the budget for Yucca Mountain was almost entirely cleaned out when President Obama took office).

66 *Infra* Section III.C (describing in greater detail the possible deference given to the NRC as an independent body).

67 See *In re Aiken County*, 645 F.3d at 439 (Kavanaugh, J., concurring) (“[Yucca] is a mess because the executive agency (the Department of Energy) and the independent agency (the Nuclear Regulatory Commission) have overlapping statutory responsibilities . . .”).

68 *Id.*; see generally *Humphrey’s Ex’r v. United States*, 295 U.S. 602 (1935).

69 *In re Aiken County*, 645 F.3d at 443 n.3 (Kavanaugh, J., concurring).

70 See *id.* at 443 (“[The President] is powerless to direct or supervise the Nuclear Regulatory Commission . . .”).

site storage at several reactors.<sup>71</sup> The NRC agreed that such considerations were very important and established a WCD, essentially stating that the agency must be confident that a permanent geologic repository will be available in the future before continuing to produce nuclear waste in the present.<sup>72</sup>

The WCD was supported by an environmental assessment (EA) and finding of no significant impact (FONSI).<sup>73</sup> Those findings essentially provided the backbone for the NRC's conclusion that a repository would be available in the near future, by a certain given date, and that no significant environmental harm would occur before its availability.

The first WCD has since been through many amendments, each pushing the estimated repository availability date further and further back.<sup>74</sup> However, the 2010 revision significantly altered the substance of the WCD, providing that a repository would be available "when necessary," instead of giving an actual date, in contention with all previous iterations of the WCD.<sup>75</sup> Furthermore, the NRC updated the "safe" term for above-ground waste storage from thirty years to sixty years, citing various environmental effect studies.<sup>76</sup>

In *New York v. Nuclear Regulatory Commission*,<sup>77</sup> New York, Vermont, Connecticut, and New Jersey challenged the 2010 amendments on the grounds that (1) they failed to account for the substantial political and societal obstacles in opening a repository and (2) a "when necessary" standard failed to address the effects of the inability to open a repository in time.<sup>78</sup> The court agreed, importantly holding that the NRC "failed to examine the environmental consequences of failing to establish a repository when one is needed"<sup>79</sup> and commanding that the NRC "assess the potential environmental effects of such a failure."<sup>80</sup> The rationale of this case is crucial to analyz-

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71 602 F.2d 412, 418 (D.C. Cir. 1979) ("[T]he court contemplates consideration on remand . . . whether there is reasonable assurance that an off-site storage solution will be available . . . and if not, whether there is reasonable assurance that the fuel can be stored safely at the sites . . .").

72 See *New York v. U.S. Nuclear Regulatory Comm'n*, 681 F.3d 471, 475 (D.C. Cir. 2012) (noting the original purpose of WCDs).

73 See *id.* at 476.

74 See *id.* at 475.

75 Waste Confidence Decision Update, 75 Fed. Reg. 81037, 81038 (Dec. 23, 2010) (to be codified at 10 C.F.R. pt. 51); see *New York*, 681 F.3d at 475 ("Finding 2 now states that a suitable repository will be available 'when necessary,' rather than by a date certain." (quoting Waste Confidence Decision Update, 75 Fed. Reg. at 81038)).

76 Waste Confidence Decision Update, 75 Fed. Reg. at 81040 ("The Commission finds reasonable assurance that, if necessary, spent fuel . . . can be stored safely and without significant environmental impacts for at least 60 years beyond the licensed life for operation . . .").

77 681 F.3d at 471 (D.C. Cir. 2012).

78 See *id.* at 473 (noting the court's displeasure with the lack of long-term environmental effects studies).

79 *Id.* at 479.

80 *Id.*

ing the validity of the NRC's new Continued Storage Rule, because a failure to comply with *New York* would invalidate its promulgation.

In August of 2014, the NRC lifted the moratorium on above-ground storage of nuclear waste through the promulgation of the Continued Storage Rule<sup>81</sup>—a move vigorously applauded by the industry and generally decried by environmentalists.<sup>82</sup> As previously noted, the decision to allow above-ground storage “indefinitely” was a product of the increasing concern about the current capacity of reactor facilities across the country.<sup>83</sup> To understand the basis of legal challenges to the Rule, an overview of the two realistic above-ground storage options is required. The first of these options is at-reactor cask storage, the scenario the NRC assumes will exist in the near future, and consequently the scenario to which the Rule and GEIS apply.<sup>84</sup> At-reactor storage is the method of storing waste that is, for now, most economical.<sup>85</sup> The second option is the creation of consolidated, DOE-managed interim storage facilities for spent fuel and nuclear waste.<sup>86</sup> Such facilities are contemplated in the NWPA but the reality of one coming into existence is questionable.<sup>87</sup> Subsection III.D.3 will analyze such an interim facility in greater depth. Suffice to say, serious questions remain about the availability of such a facility, and for now, the NRC remains focused on at-reactor cask storage.

## II. SUBSTANCE OF THE CONTINUED STORAGE RULE AND NEPA STANDARDS

The NRC's concentration on at-reactor cask storage is exemplified through the promulgation of a rule that moves towards reliance on above-ground storage for the foreseeable future. Essentially, the traditional date-

81 Continued Storage Rule, 79 Fed. Reg. 56238 (Sept. 19, 2014).

82 See Press Release, Nuclear Energy Inst., Nuclear Industry Commends NRC for Finalizing Used Fuel Storage Rule (Aug. 26, 2014), <http://www.nei.org/News-Media/Media-Room/News-Releases/Nuclear-Industry-Commends-NRC-for-Finalizing-Used> (“The industry appreciates the NRC’s [new Rule].” (quoting Ellen Ginsberg)). But see Bob Audette, *New NRC Rule Supports Indefinite Storage of Nuclear Waste*, BRATTLEBORO REFORMER (Aug. 27, 2014), [http://reformer.com/localnews/ci\\_26412189/new-nrc-rule-supports-indefinite-storage-nuclear-waste](http://reformer.com/localnews/ci_26412189/new-nrc-rule-supports-indefinite-storage-nuclear-waste) (“Long-term storage of nuclear waste continues to be a problem the US has refused to grapple with.” (quoting Sandy Levine)).

83 See, e.g., Stewart & Stewart, *supra* note 2, at 22 (noting that the amount of waste in pools has begun to approach capacity at many reactors).

84 See generally Continued Storage Rule, 79 Fed. Reg. 56238; U.S. NUCLEAR REGULATORY COMM’N, NUREG-2157, 2 GENERIC ENVIRONMENTAL IMPACT STATEMENT FOR CONTINUED STORAGE OF SPENT NUCLEAR FUEL (2014).

85 Waste in holding pools constitutes the majority of total spent fuel, but dry cask storage is now a cheaper alternative. Thus, as new waste accumulates and pools reach capacity, dry cask storage will become much more prevalent. See Stewart & Stewart, *supra* note 2, at 22 (“[D]ry cask technology [provides] utilities with a cheaper storage alternative.”).

86 *Id.* at 9 (noting that the DOE may construct consolidated storage facilities).

87 See *id.* at 66–67 (analyzing the authority of the DOE to develop a facility under the NWPA).

specific WCD has been replaced with a rule stating that the NRC is altogether unsure when a permanent repository will be available.<sup>88</sup> Although the NRC still expects a functioning repository soon, they have analyzed three possible timeframes during which one does not become available, including a scenario in which above-ground storage must continue indefinitely because a repository never becomes available.<sup>89</sup> The Rule specifically disclaims any endorsement of temporary storage as the ultimate goal of the NRC<sup>90</sup> but also fails to provide any date for a permanent repository.<sup>91</sup> As previously noted, the NRC thinks this omission is compliant with the *New York* court order,<sup>92</sup> although some refute this departure from precedent.<sup>93</sup> In summary, the Rule essentially expresses the opinion that a repository will become available without committing to a timeline,<sup>94</sup> while reiterating that the agency's goal remains repository storage.<sup>95</sup>

To understand the alleged necessity of Waste Confidence findings, a brief background of NEPA standards is helpful. When major governmental projects are proposed, particularly in cases of construction or land development, there is often concern about potential effects on the environment.<sup>96</sup> In order to both mitigate public concern and support the scientific validity of such a project, legislatures often commission expert studies, which provide specific information about potential environmental consequences of development.<sup>97</sup> For many projects, these studies are mandated by the EPA or applicable statute (often NEPA)—without a study, any project that qualifies as a “major Federal action” cannot proceed.<sup>98</sup> NEPA offers two options to

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88 See Continued Storage Rule, *supra* note 8, at 56243 (Discussion at A11) (“The GEIS acknowledges the uncertainties inherent in a prediction of repository availability . . .”).

89 See generally *id.* at 56245 (Discussion at B3).

90 *Id.* at 56251 (“This analysis does not constitute an endorsement of [continued long-term above-ground storage].”).

91 *Id.* (“Although the NRC believes that 25–35 years is a reasonable timeframe for repository development, the NRC acknowledges that there is sufficient uncertainty in this estimate that the possibility that more time will be needed cannot be ruled out.”).

92 *Id.* at 56242 (noting the reason that the NRC is “doing this now”).

93 See Intervenor’s Motion to Leave to File a New Contention Concerning the Absence of Required Waste Confidence Safety Findings in the Combined Operating Licensing Proceeding for FERMI 3 Nuclear Power Plant at 8–10, *In re* DTE Elec. Co., CLI-14-07 (U.S. Nuclear Regulatory Comm’n Sept. 29, 2014) (No. 50-341).

94 Continued Storage Rule, *supra* note 8, at 56251 (Discussion at C1) (stating “sufficient uncertainty” about the timeline).

95 See *id.* (“This analysis does not constitute an endorsement of extended onsite storage of spent fuel as the appropriate long-term solution for disposition of spent fuel and high-level waste.”).

96 The National Environmental Policy Act of 1969 was implemented to force agencies to analyze environmental implications for projects. See *New York v. U.S. Nuclear Regulatory Comm’n*, 681 F.3d 471, 476 (D.C. Cir. 2012) (summarizing the purpose of NEPA).

97 See, e.g., BLUE RIBBON REPORT, *supra* note 6.

98 42 U.S.C. § 4332(C) (2012) (requiring that federal agencies “include in [reports on] . . . major Federal actions significantly affecting the quality of the human environment, a detailed statement . . . [about] the environmental impact”).

satisfy its requirements: (1) an environmental assessment that results in a finding of no significant impact; or (2) a comprehensive environmental impact statement reviewing all potential threats to the environment and the safety of the public.<sup>99</sup>

In the nuclear industry, NEPA is paramount to the continued operation of nuclear plants that, by design, cannot be relocated—and the spent fuel produced at these plants is difficult to move as well.<sup>100</sup> The AEA and NRC recognize the importance of environmental impact analysis, and require some type of assessment before nuclear facility leases can be approved, renewed, or expanded.<sup>101</sup> As one may imagine, the generation of an environmental impact statement for every single unique nuclear facility in the United States would be incredibly expensive and time consuming. As a result, it is common practice in certain industries to allow for environmental assessments that apply to all potential licensees.<sup>102</sup> Some dispute the wisdom of such a device, but the NRC, Congress, and courts have long supported this type of statement not only in the nuclear industry, but many other industries as well.<sup>103</sup>

### III. LEGALITY OF THE CONTINUED STORAGE RULE

The interplay of NEPA and the AEA produces four overarching reasons that the Continued Storage Rule is a valid NRC regulation: (1) the AEA does not mandate WCDs; (2) disposal safety findings are not a prerequisite for licensing reactors; (3) the Rule satisfies *New York*; and (4) assumptions relied upon by the NRC do not jeopardize the integrity of the Rule as a whole.

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99 *National Environmental Policy Act Review Process*, U.S. ENVTL. PROTECTION AGENCY (Nov. 2, 2015), <http://www2.epa.gov/nepa/national-environmental-policy-act-review-process>.

100 Rail transportation is theoretically feasible and has been researched by the federal government in anticipation of a repository. See U.S. SENATE COMM. ON ENV'T & PUB. WORKS MAJORITY STAFF, *supra* note 11, at 22–23. As you may imagine, rail transportation is inherently risky, but has nonetheless been found to be a safe and reliable method for transporting radioactive waste. *Id.*

101 See *Frequently Asked Questions About NRC's Role Under the National Environmental Policy Act*, U.S. NUCLEAR REGULATORY COMM'N (Dec. 7, 2012), <http://www.nrc.gov/about-nrc/regulatory/licensing/nepa.html>.

102 See Mark A. Chertok, *Overview of the National Environmental Policy Act: Environmental Impact Assessments and Alternatives*, 27–28 (unpublished manuscript), [http://sprlaw.com/pdf/spr\\_nepa\\_eli\\_05.pdf](http://sprlaw.com/pdf/spr_nepa_eli_05.pdf) (last visited Nov. 19, 2015) (describing NEPA “tiering”).

103 See *New York v. U.S. Nuclear Regulatory Comm'n*, 681 F.3d 471, 480 (D.C. Cir. 2012) (“Both the Supreme Court and this court have endorsed the Commission’s long-standing practice of considering environmental issues through general rulemaking in appropriate circumstances.”).

### A. *AEA and WCDs*

#### 1. The AEA's Plain Language and NRC's Rationale for Omitting a WCD

The main concern with the Rule is that its failure to include waste confidence findings violates requirements for both new licenses and license renewals under the AEA. The AEA states that “[i]n connection with applications for licenses to operate production or utilization facilities, the applicant shall state . . . information as the Commission may, by rule or regulation, deem necessary . . . [to] provide adequate protection to the health and safety of the public.”<sup>104</sup> The WCD was a “rule,” under the language above, promulgated by the NRC to express its confidence that spent fuel could be stored in a geologic repository in the future before issuing licenses.<sup>105</sup> The NRC has historically said that it would not license a reactor absent such a finding.<sup>106</sup>

Recognizing potential legal challenges based upon its historical interpretation, the NRC confronted its waste confidence omission head-on with the inclusion of a “Why is there not a separate waste confidence decision document” section.<sup>107</sup> Recall that NEPA may be satisfied by either (1) an environmental assessment and finding of no significant impact or (2) a comprehensive environmental impact statement.<sup>108</sup> For decades, the NRC had used the first level of NEPA analysis to satisfy its statutory requirements: production of an EA that results in a finding that the delay of a repository will have no significant environmental impact.<sup>109</sup> Given this historical use of the EA and FONSI analysis to satisfy NEPA, the Commission expected confusion when they decided to adopt the second level of NEPA analysis: a comprehensive generic environmental impact statement.<sup>110</sup> Essentially, the NRC claims that the comprehensive GEIS was prepared to satisfy NEPA requirements in lieu of waste confidence findings, completely erasing the need for the latter.<sup>111</sup>

104 42 U.S.C. § 2232(a) (2012).

105 See *Minnesota v. U.S. Nuclear Regulatory Comm’n*, 602 F.2d 412, 418 (D.C. Cir. 1979) (“[T]he court contemplates consideration on remand . . . whether there is reasonable assurance that an off-site storage solution will be available . . . and if not, whether there is reasonable assurance that the fuel can be stored safely at the sites . . .”).

106 Denial of NRDC Petition for Rulemaking, 42 Fed. Reg. 34391, 34393 (June 27, 1977).

107 Continued Storage Rule, *supra* note 8, at 56243–44 (Discussion at A11).

108 *National Environmental Policy Act Review Process*, U.S. ENVTL. PROTECTION AGENCY (Nov. 2, 2015), <http://www2.epa.gov/nepa/national-environmental-policy-act-review-process>.

109 See Continued Storage Rule, *supra* note 8, at 56242 (“This rule and GEIS represent a change in the format.”).

110 This is why the Continued Storage Rule contains a comprehensive list of F.A.Q.-type questions to explain the new format. See *generally id.* at 56241–46.

111 See *id.* at 56244 (“[T]he former ‘Findings’ were outputs of previous Waste Confidence proceedings, which included an environmental assessment and finding of no significant impact.”).

The AEA and NEPA undoubtedly overlap, but they exist for different reasons.<sup>112</sup> The purpose of NEPA is to evaluate environmental risks associated with major federal actions.<sup>113</sup> However, NEPA restrictions are not barriers to nuclear reactor construction—they are simply meant to uncover gross hazards and provide the public and agencies with valuable information.<sup>114</sup> A bad NEPA impact statement, on its own, does not condemn a federal action.<sup>115</sup> Conversely, the AEA imposes an absolute and specific restriction on nuclear licensing that is dangerous to the public health or safety.<sup>116</sup> The AEA's mandates are thus different and operate as a stringent application of NEPA, *barring* license applications inimical to the “health and safety.”<sup>117</sup> NEPA is simply used as a vehicle to reach such conclusions.

Courts may give credence to this statutory difference in purpose and use it to support a finding that the AEA requires *more* than NEPA: more referring to a WCD. Indeed, the contentions filed against the Continued Storage Rule seem to invoke this difference as a reason why it violates the AEA.<sup>118</sup> However, it could similarly be argued that the AEA is no more than an application of NEPA and thus relies on a “bad” finding under NEPA to exercise its “barring” power. This distinction is discussed further below, but it is important to keep in mind.

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112 See, e.g., Intervenor’s Motion to Leave to File a New Contention Concerning the Absence of Required Waste Confidence Safety Findings in the Combined Operating Licensing Proceeding for FERMI 3 Nuclear Power Plant at 12–13, *In re* DTE Elec. Co., CLI-14-07 (U.S. Nuclear Regulatory Comm’n Sept. 29, 2014) (No. 50-341) (citing 42 U.S.C. § 2133(d)).

113 See *New York v. U.S. Nuclear Regulatory Comm’n*, 681 F.3d 471, 476 (D.C. Cir. 2012) (noting that the purpose of NEPA is to “ensure ‘fully informed and well-considered’ decisionmaking” (quoting *Vt. Yankee Nuclear Power Corp. v. Nat. Res. Def. Council*, 435 U.S. 519, 558 (1978))); see also *Miller*, *supra* note 2, at 377 (“NEPA requires all federal agencies to issue a report, or EIS, detailing the environmental consequences associated with the action.”).

114 See, e.g., *Miller*, *supra* note 2, at 377 (noting that NEPA essentially exists to prevent rash decisions).

115 Note, however, that failure to comply with the procedural aspects of NEPA such as the production of an environmental impact statement can bring harsh consequences. See *Chertok*, *supra* note 102, at 2.

116 The original language of the Act was that “[t]he Commission shall issue such licenses . . . [to those] who agree to observe such safety standards to protect health and to minimize danger to life or property as the Commission may by rule establish.” Atomic Energy Act, Pub. L. No. 703, § 103, 68 Stat. 936, 936–37 (1954). This language has since been changed to read that “no license may be issued . . . [that] would be inimical to the common defense and security or to the health and safety of the public.” 42 U.S.C. § 2133(d) (2012).

117 42 U.S.C. § 2133(d).

118 See Intervenor’s Motion to Leave to File a New Contention Concerning the Absence of Required Waste Confidence Safety Findings in the Combined Operating Licensing Proceeding for FERMI 3 Nuclear Power Plant at 12, *In re* DTE Elec. Co., CLI-14-07 (U.S. Nuclear Regulatory Comm’n Sept. 29, 2014) (No. 50-341) (“[NEPA and the AEA] impose distinct and independent obligations.”).

A secondary concern with the Rule is Section 103(d) of the AEA, alluded to above, which bars licensing “if, in the opinion of the Commission, the issuance of a license to such a person would be inimical to . . . the health and safety of the public.”<sup>119</sup> The NRC can use two arguments to support the validity of the Rule under this requirement. First, the Commission has said that Section 103(d) applies only to the activities described in the license application (such as the operation and maintenance of a facility)—not the ultimate disposal of spent fuel produced from such activities.<sup>120</sup> This argument has never been faulted by a majority opinion,<sup>121</sup> and indeed seems to be indirectly supported by several judges.<sup>122</sup> Second, the NRC could argue that the “in the opinion of the Commission” language authorizes licensing under their new Rule—one that has ensured above-ground storage is safe. Such an argument may likely succeed because the AEA itself gives considerable deference to the NRC.<sup>123</sup> For example, Section 161(b) charges the NRC with the duty of creating a regulatory scheme<sup>124</sup>—demonstrating that the AEA does not itself make judgment calls on safety, but rather simply requires that the NRC license what the *agency* determines to be “safe” nuclear facilities.

## 2. NRC Is Correct in Determining that a WCD Is Not Required

Concededly, the GEIS (supporting the new Rule) does not claim reasonable confidence that a repository will be available by a certain date—only that the NRC continues to believe that such a date is in the near future.<sup>125</sup> Thus, it is clear that the new Rule is not a traditional WCD.<sup>126</sup> The existence of an “indefinite” timeframe and language indicating that a repository will be avail-

119 42 U.S.C. § 2133(d).

120 Intervenors’ Motion to Leave to File a New Contention Concerning the Absence of Required Waste Confidence Safety Findings in the Combined Operating Licensing Proceeding for FERMI 3 Nuclear Power Plant at 7 n.24, *In re* DTE Elec. Co., CLI-14-07 (U.S. Nuclear Regulatory Comm’n Sept. 29, 2014) (No. 50-341).

121 *But see* *Minnesota v. U.S. Nuclear Regulatory Comm’n*, 602 F.2d 412, 419 (D.C. Cir. 1979) (Tamm, J., concurring).

122 *See infra* note 134 and accompanying text.

123 The AEA gave the original Atomic Energy Commission general authority to “establish by rule, regulation, or order . . . [they] may deem necessary . . . to protect health or to minimize danger to life.” Atomic Energy Act, Pub. L. No. 703, § 161, 68 Stat. 936, 948 (1954); *see also* 42 U.S.C. § 2201(b).

124 The text of the AEA gives rulemaking deference to the NRC. *See* 42 U.S.C. § 2201(b) (stating that the NRC is authorized to “establish by rule, regulation, or order, such standards . . . [it] may deem necessary . . . to promote the common defense and security or to protect health”).

125 U.S. NUCLEAR REGULATORY COMM’N, *supra* note 84, at, ES.23(2) (“[T]he NRC believes it is likely that a repository will be available by 60 years after the end of a reactors licensed life . . .”).

126 The NRC agrees that the new Rule does not contain a traditional WCD. *See* Continued Storage Rule, *supra* note 8, at 56243–44 (Discussion at A11).



able “when necessary” start to look like the lack of long-term analysis that appeared in *New York*, necessitating a new Rule in the first place.<sup>127</sup>

Thus, the preliminary hurdle is whether or not a WCD is statutorily required by the AEA. As previously noted, the plain text of the AEA seems to allow for flexibility in the regulatory scheme, and for significant NRC deference.<sup>128</sup> Although the AEA states that the NRC may promulgate rules to satisfy certain requirements before issuing licenses,<sup>129</sup> it does not require that such rules be permanent, and does not forbid policy changes. This premise seems to be underlying the NRC’s main argument: that the agency has now made the determination, through comprehensive analysis and new technology, that indefinite above-ground storage can be safe, and that therefore a Waste Confidence Decision is no longer needed because the GEIS fulfills NEPA requirements.

To analyze such a claim, one would look to the court in *New York*, which held that since the WCD was a “major federal action,” it required either an EIS or environmental assessment and finding of no significant impact.<sup>130</sup> Under this language, the Continued Storage Rule is no doubt a “major federal action,” but it is supported by a comprehensive EIS instead of the traditional EA and FONSI combination. Such a “swap” is valid under *New York*.<sup>131</sup> Indeed, the reason that the Rule’s name was changed from “Waste Confidence” to “Continued Storage” was in response to a “near-unanimous public comment to more accurately reflect the nature and content of the rule.”<sup>132</sup> Thus, the Continued Storage Rule and GEIS seem to take the place of a WCD by satisfying the same statutory requirement under NEPA.

Critics argue that even if the Continued Storage Rule is valid under NEPA, *Minnesota* requires “reasonable assurance” in a repository.<sup>133</sup> It is true that the original intent of Congress in passing the NWPA was to deal with the recognized byproduct of nuclear energy in a permanent and consolidated way.<sup>134</sup> It seems that the court in *Minnesota* implicitly recognized this intent in combination with the AEA and came to the conclusion that any environmental study analyzing spent fuel safety should necessarily include projec-

127 See *New York v. U.S. Nuclear Regulatory Comm’n*, 681 F.3d 471, 479 (D.C. Cir. 2012).

128 See *supra* note 123 and accompanying text.

129 See 42 U.S.C. § 2201(b).

130 See *New York*, 681 F.3d at 476 (“We agree with petitioners that the WCD rulemaking is a major federal action requiring either a FONSI or an EIS.”).

131 See *id.* at 477.

132 See *Industry Commends NRC’s Final Used Fuel Storage Rule*, NUCLEAR ENERGY INSTITUTE (Aug. 27, 2014), <http://www.nei.org/News-Media/News/News-Archives/Industry-Commends-NRC-s-Final-Used-Fuel-Storage-Ru> (quoting NRC press release).

133 Waste Confidence Contention at 7–8, *In re DTE Elec. Co.*, CLI-14-07 (U.S. Nuclear Regulatory Comm’n Sept. 29, 2014) (No. 50-341).

134 See Nuclear Waste Policy Act of 1982, Pub. L. No. 97-425, § 111(b), 96 Stat. 2201, 2207 (1983) (“The purpose[ ] of this subtitle [is] . . . reasonable assurance that . . . spent nuclear fuel [can] be disposed of in a repository . . .”).

tions of confidence regarding permanent storage.<sup>135</sup> However, the magic words “reasonable assurance” need not appear in the Rule to satisfy *Minnesota*. Rather, the NRC must simply *express* reasonable assurance that a repository will exist in the near future, or alternatively that fuel can be safely stored in the interim, and the Rule does just that.<sup>136</sup>

Contentions submitted by environmental groups to the NRC challenging the Continued Storage Rule have invoked *New York*,<sup>137</sup> in which the court summarized *Minnesota* as a “mandate . . . that plants are only licensed while the NRC has reasonable assurance that permanent disposal of the resulting waste will be available.”<sup>138</sup> However, this particular quote cherry-picks a phrase out of the whole sentence. When read in totality, *New York* only says that “the WCD is simply an answer” to the *Minnesota* mandate requiring reasonable assurance of disposal.<sup>139</sup> Furthermore, *Minnesota* actually states in the same sentence that if there is not reasonable assurance of a repository, there must *at least* be “reasonable assurance that the fuel can be stored safely” for an indefinite amount of time.<sup>140</sup> The Continued Storage Rule follows the language of *Minnesota* perfectly by acknowledging that a repository date is unknowable,<sup>141</sup> but confirming safe storage in the interim.

In conclusion, courts have not recognized WCDs as the sole method to satisfy statutory requirements under NEPA. Rather, courts have recognized WCDs as *an* acceptable solution under NEPA. The NRC position that the AEA does not mandate a WCD and that its GEIS properly accounts for the safety concerns of the public—although a sharp turn away from NRC precedent since the 1970s—is nonetheless valid.

### B. *Storage Safety v. Disposal Safety*

Although a WCD is not required by the plain text or judicial interpretation of the statute, a slightly different attack has arisen against the Rule. This attack is not aimed at the necessity of WCDs in the context of reasonable confidence in such repository, but rather in the context of the feasibility of safe permanent *disposal* in a repository.<sup>142</sup> Several states have initiated law-

135 See *Minnesota v. U.S. Nuclear Regulatory Comm’n*, 602 F.2d 412, 418 (D.C. Cir. 1979) (discussing “contemplation” of certain safety aspects in connection with licensing).

136 See generally Continued Storage Rule, *supra* note 8.

137 Petition to Suspend Final Decisions in All Pending Reactor Licensing Proceedings Pending Issuance of Waste Confidence Safety Findings—Amended and Corrected at 3, *In re DTE Elec. Co.*, CLI-14-07 (U.S. Nuclear Regulatory Comm’n Oct. 6, 2014) (No. 50-341) [hereinafter Petition to Suspend].

138 *New York v. U.S. Nuclear Regulatory Comm’n*, 681 F.3d 471, 476 (D.C. Cir. 2012).

139 *Id.*

140 See *Minnesota*, 602 F.2d at 418.

141 Continued Storage Rule, *supra* note 8, at 56251 (Discussion at C2) (noting uncertainty).

142 See generally Press Release, Atty. Gen. Eric T. Schneiderman, A.G. Schneiderman and State Coalition to Challenge Rules Governing Continued Storage of Nuclear Waste in Our Communities (Oct. 27, 2014), <http://ag.ny.gov/press-release/ag-schneiderman-and-state-coalition-challenge-rules-governing-continued-storage>.

suits in the D.C. Circuit claiming that the NRC must issue findings that confirm that the disposal of nuclear fuel is safe before licensing reactors.<sup>143</sup> A review of case law and NRC precedent suggests that such an approach is likely untenable. Although the NRC recognizes it will make safety findings before licensing a geologic repository,<sup>144</sup> it need only be reasonably confident that a repository will be available before licensing reactors<sup>145</sup>—not produce comprehensive analysis supporting reasonable confidence that such disposal will be safe. These lawsuits have further contended that the NRC’s own precedent has required disposal safety findings,<sup>146</sup> but the Commission has concluded that “it is not obligated to make a ‘definitive’ finding . . . [that] safe methods of . . . disposal are now available [before] licensing.”<sup>147</sup>

The Commission’s stance, as evidenced by statements such as the one above, is clearly supported by case law. In 1978, *Natural Resources Defense Council, Inc. v. U.S. Nuclear Regulatory Commission* squarely addressed the issue, stating that the “NRC is not required . . . to withhold action on . . . applications for nuclear power . . . licenses until it makes a determination that high-level radioactive wastes can be permanently disposed of safely.”<sup>148</sup> This holding was reiterated by the D.C. Circuit in *Minnesota*, in which the court noted that “[t]he NRC . . . conclud[ed] that Congress did not intend [the AEA] to require a demonstration that nuclear wastes could safely be disposed of before licensing of nuclear plants was permitted. [NRDC] affirmed on this basis.”<sup>149</sup> The court confined its holding to a mandate that reasonable assurance of safe storage was required in the event no repository was built soon, which resulted in a remand producing the first WCD.<sup>150</sup> As a result, *Minne-*

143 See generally *Petition for Review, Nat. Res. Def. Council, Inc. v. U.S. Nuclear Regulatory Comm’n*, No. 14-1217 (D.C. Cir. Oct. 29, 2014) [hereinafter *Petition for Review I*]; *Petition for Review, Beyond Nuclear, Inc. v. U.S. Nuclear Regulatory Comm’n*, No. 14-1216 (D.C. Cir. Oct. 29, 2014) (hereinafter *Petition for Review II*).

144 See *Waste Confidence Decision Update*, 75 Fed. Reg. 81037, 81045 (Dec. 23, 2010) (codified at 10 C.F.R. pt. 51) (“The Commission will make the safety finding with respect to SNF disposal . . . in the context of a licensing proceeding for a geologic repository.”).

145 History and case law support this position. The issue was squarely addressed in *Natural Resources Defense Council, Inc. v. U.S. Nuclear Regulatory Commission*, in which the court noted that “[at] its essence, the issue in this case is whether NRC, prior to granting nuclear power reactor operating licenses, is required by the public health and safety requirement of the AEA to make a determination . . . that high-level radioactive wastes can be permanently disposed of safely.” 582 F.2d 166, 170 (2d Cir. 1978). The court concluded that “it [was] clear that from the very beginnings of commercial nuclear power the Congress was aware of the absence of a permanent waste disposal facility, but decided to proceed with power plant licensing.” *Id.*

146 See generally *Petition to Suspend*, *supra* note 137.

147 *Natural Resources Defense Council Denial of Petition for Rulemaking*, 42 Fed. Reg. 34391 (July 5, 1977).

148 *Nat. Res. Def. Council, Inc.*, 582 F.2d at 175.

149 *Minnesota v. U.S. Nuclear Regulatory Comm’n*, 602 F.2d 412, 417 (D.C. Cir. 1979).

150 The court noted that it “confine[d] its action . . . to rejection of certain contentions . . . notably the claim of need for an adjudicatory proceeding.” *Id.* at 419. Furthermore, the court recognized the “complex and vexing question of the disposal of

*sota* did not disturb the *Natural Resource Defense Council* precedent. Furthermore, even if *Minnesota* was construed to require disposal safety findings before licensing, *Chevron* requires that pre-*Chevron* precedent be evaluated through a *Chevron* lens,<sup>151</sup> which would likely result in a finding sympathetic to the NRC's interpretation that the AEA does not require disposal safety findings.

What does *New York* have to say about alleged mandatory disposal safety findings? In *New York*, where the court vacated the 2010 Rule and WCD solely on NEPA grounds, it made no clear indication that the AEA required a disposal safety finding before issuing licenses.<sup>152</sup> Although unlikely, an activist, determined reading of *New York's* language could construe disposal safety findings as a requirement under the AEA. In particular, a passage faulting the 2012 WCD for failing to "properly analyze . . . its permanent disposal conclusion" provides support for such a conclusion.<sup>153</sup> This interpretation would clearly jeopardize the Continued Storage Rule and GEIS. Despite this possibility, the clearest reading, and the one that comports with precedent, is that *New York* requires an analysis of the safety of storage in the event no repository is built.

These lawsuits also appeared to be premised on a reading of certain phrases such as "protect public health" and "adequate protection" as mandating a detailed analysis of the safety of permanently stored nuclear waste.<sup>154</sup> As demonstrated above, however, neither the NRC nor courts have ever considered such disposal safety findings to be required by the AEA.<sup>155</sup> Although traditional WCDs made a reference to the safety of such disposal,<sup>156</sup> it was merely in support of the contention that a repository would soon become available. The NRC has concluded in the new Rule that "adequate protection" can be assured via above-ground storage that, if necessary, can continue indefinitely,<sup>157</sup> and substantial deference is owed to this conclusion.<sup>158</sup> Thus, an attack on the Continued Storage Rule premised on the absence of

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nuclear wastes" and is "characterized by continuing evolution of the state of pertinent knowledge." *Id.*

151 See *Dominion Energy Brayton Point, LLC v. Johnson*, 443 F.3d 12, 17 (1st Cir. 2006) ("[A court must] reexamine pre-*Chevron* precedents through a *Chevron* lens.").

152 See *New York v. U.S. Nuclear Regulatory Comm'n*, 681 F.3d 471, 479 (D.C. Cir. 2012) (noting that "we are focused on the effects of a *failure* to secure permanent storage" and not the safety of the actual repository).

153 See *id.* at 478.

154 Both the agency lawsuits and D.C. Circuit lawsuits seem to lean heavily on certain phrases contained within the AEA to support their position that evidence of safe disposal in a repository is required before licensing. See generally *Petition for Review I*, *supra* note 143; *Petition for Review II*, *supra* note 143; *Petition to Suspend*, *supra* note 137.

155 *Supra* note 132 and accompanying text.

156 See *Nuclear Energy Inst., Inc.'s Motion for Leave to File Amicus Curiae Brief* at 3, *In re DTE Elec. Co., CLI-14-07* (U.S. Nuclear Regulatory Comm'n Oct. 31, 2014) (No. 50-341) (noting that the NRC nonetheless made a determination that disposal safety was not a prerequisite for licensing).

157 See generally *Continued Storage Rule*, *supra* note 8.

specific *disposal* safety findings seems just as likely to fail as an attack premised on the omission of a traditional WCD.

C. *The Continued Storage Rule Satisfies New York*

By applying the premise that neither traditional WCDs nor specific findings regarding the safety of repository disposal are necessary, the Rule satisfies the court order requirements of *New York*. It seems obvious that the NRC's abrupt shift was the result of the executive branch's resistance to Yucca Mountain and the fact that any hope for a repository within the next decade all but evaporated in 2010. The *New York* order placed the NRC in an impossible position: they could not profess reasonable assurance, as there was in past WCDs, that a repository would be available at a certain date. However, the NRC needed a solution to allow licensing activities to resume because of the gridlock caused by the court order.

The petitioners' challenges in *New York* were threefold: (1) that a "when necessary" standard failed to account for political barriers;<sup>159</sup> (2) that "when necessary" language did not address the effects of a failure to establish a repository in time;<sup>160</sup> and (3) that continued storage conclusions were not supported by a long-term analysis.<sup>161</sup> The court agreed, holding that the WCD failed to "properly analyze the environmental effects of its permanent disposal conclusion"<sup>162</sup> and that the continued storage conclusions were not "forward-looking."<sup>163</sup> Interestingly, the court did not reach the question of political barriers.<sup>164</sup> The NRC spent two years completing an exhaustive analysis, and returned a Rule that does not contain a WCD because its GEIS concludes that failure to establish a repository in the indefinite future will not result in harm.

NEPA requires that an agency analyze both the probability that a repository is not built, and effects of such a circumstance.<sup>165</sup> The Continued Storage Rule has done just that: although the repository date is unknown, the

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158 See, e.g., *Minnesota v. U.S. Nuclear Regulatory Comm'n*, 602 F.2d 412, 419 (D.C. Cir. 1979) ("[I]t is for the Commission to decide the ultimate question of certainty implicit in health and safety judgments and to resolve technical disagreements . . .").

159 *New York v. U.S. Nuclear Regulatory Comm'n*, 681 F.3d 471, 477–78 (D.C. Cir. 2012).

160 *Id.*

161 *Id.*

162 *Id.* at 478. Note that this language can be construed in two different ways. First, one may read this phrase to mean that the failure was in evaluating environmental effects of the storage of fuel in the event that no repository is built. Such a reading comports with existing case law. Alternatively, one may read this phrase to mean that the failure was that no environmental impact study was specifically done regarding permanent disposal of spent fuel. If such a reading was endorsed, it would become quickly apparent that the Continued Storage Rule and GEIS fail to comply with *New York*.

163 *Id.* at 479.

164 *Id.* at 478.

165 *Id.*; see, e.g., *Carolina Envtl. Study Grp. v. United States*, 510 F.2d 796, 799 (D.C. Cir. 1975).

harm resulting from continued storage is sufficiently minimal.<sup>166</sup> Furthermore, the new Rule contends that the NRC still thinks a repository will be available at least within the first two time frames analyzed (60 and 160 years).<sup>167</sup> But even the unlikely third time frame, continued indefinite storage, is environmentally “safe.”<sup>168</sup> Such an approach satisfies the holdings in *New York* by (1) analyzing potential harms and (2) producing an evaluation resulting in minimal-impact findings.

The NRC can still claim that its conclusion about the repository timeline, given the agency’s unique understanding of the interplay between the nuclear industry and politics, merits substantial deference. *New York* declined to comment on such an argument,<sup>169</sup> but past cases have indicated that such a tack may be successful.<sup>170</sup> Indeed, the NRC was created to regulate the industry and protect the public—it is not difficult to assume that, after many decades of operation, the agency is best situated to judge the repository timeline. And furthermore, as noted previously,<sup>171</sup> the independent status of the NRC within the executive branch gives it a level of protection from political pressure that could potentially produce poor judgments.

#### D. NRC Assumptions that May Impact the Level of Deference

The NRC’s conclusion that indefinite above-ground storage is both safe and feasible relies on several critical assumptions: (1) that casks containing spent fuel are replaced every 100 years;<sup>172</sup> (2) that resources potentially having “moderate” or “large” environmental impacts do not affect the overall safety of continued storage;<sup>173</sup> and (3) that theoretical away-from-reactor

166 Table 1 of the Continued Storage Rule lays out the environmental impacts on various aspects of fuel storage. Nearly all impacts are rated “small.” Continued Storage Rule, *supra* note 8, at 56247 Tbl.1.

167 See *id.* at 56245 (Discussion at B3) (“The NRC considers the short-term timeframe to be the most likely scenario for continued storage . . .”).

168 This conclusion is based upon the premise that casks will be replaced every 100 years, which is discussed in greater detail below. The NRC notes that the safety of indefinite storage is identical to the 100-year timeframe and seems to think it is sustainable for at least some amount of time. *Id.*

169 *New York*, 681 F.3d at 478 (“[W]e need not decide whether, as the Commission contends, an agency’s interpretation of the political landscape surrounding its field of expertise merits deference.”).

170 See, e.g., *Nuclear Energy Inst., Inc. v. EPA*, 373 F.3d 1251, 1276 (D.C. Cir. 2004) (“Where issues involve elusive and not easily defined areas . . . , our review is considerably more deferential, according broad leeway to the [agency’s] line-drawing determinations.” (alterations in original) (quoting *Sinclair Broad. Group, Inc. v. FCC*, 284 F.3d 148, 159 (D.C. Cir. 2002))); *id.* (“[W]e will give an extreme degree of deference to the agency when it is evaluating scientific data within its technical expertise.” (alteration in original) (quoting *City of Waukesha v. EPA*, 320 F.3d 228, 247 (D.C. Cir. 2003))).

171 See *supra* note 51 and accompanying text.

172 See Continued Storage Rule, *supra* note 8, at 56245.

173 See *id.* at 56246 (Discussion at B6) (providing explanation of different ratings, but not specifically stating that the few categories rated “moderate” and “large” are inconsequential).

storage, though indicating higher environmental impacts than at-reactor storage, does not cloud the safety of continued storage.<sup>174</sup>

## 1. Cask Replacement

The first and likely most important of these concerns is that all casks containing nuclear waste are replaced every 100 years. Although the proposition of container replacement is certainly rational, it should also make the public nervous. The NRC claims that cask replacement will be evaluated on an individual basis, and that it is possible that casks can safely last longer than 100 years.<sup>175</sup> Thus, the indefinite timeframe is nonetheless premised on a time-sensitive replacement aspect to ensure safe operation over 100 years after the life of a cask.<sup>176</sup>

It is possible that a court would take this 100-year replacement policy into account when determining if the new Rule satisfies the AEA requirements for the protection of the health and safety of the public. Clearly, the GEIS concludes that licenses issued under a continued-storage scheme will not “be inimical to the common defense and security or to the health and safety.”<sup>177</sup> Absent a cask replacement assumption, this conclusion passes muster under the plain text of the AEA. However, cask replacement is not a straight-forward procedure.<sup>178</sup> The GEIS does not discuss potential dangers of replacing containers of spent fuel, or vulnerability to terrorist attack during this process.<sup>179</sup> The GEIS does, however, explain that a dry transfer system will be built at all necessary facilities to perform dry cask transfer if the timeline extends towards 100 years.<sup>180</sup> Such facilities would also be replaced every 100 years to ensure safety.<sup>181</sup>

Although it is unpersuasive that a court would strike the entirety of the Continued Storage Rule simply for its reliance on cask replacement, this reliance is the part of the Rule most vulnerable to attack.

174 See *id.* (Discussion at B7) (providing explanation of different ratings, but not specifically stating that the few categories rated “moderate” and “large” are inconsequential).

175 See U.S. NUCLEAR REGULATORY COMM’N, NUREG-2157, 1 GENERIC ENVIRONMENTAL IMPACT STATEMENT FOR CONTINUED STORAGE OF SPENT NUCLEAR FUEL 1-16 (2014) (“[T]he 100-year replacement cycle provides a reasonably conservative assumption . . . . However, this assumption does not mean that dry cask storage systems and facilities *need* to be replaced every 100 years to maintain safe storage.”).

176 See *id.*

177 42 U.S.C. § 2133(d) (2012).

178 See, e.g., Stewart & Stewart, *supra* note 2, at 27–29 (reviewing the current status of dry cask storage and safety).

179 It does, however, note that the 100-year replacement cycle is consistent with the Yucca Mountain Final Environmental Impact Statement published in 2008. U.S. NUCLEAR REGULATORY COMM’N, NUREG-2157, 1 GENERIC ENVIRONMENTAL IMPACT STATEMENT FOR CONTINUED STORAGE OF SPENT NUCLEAR FUEL § 1.8.3 (2014).

180 *Id.* § 1.8.1 (“NRC assumes . . . a dry transfer system . . . is necessary at some point to handle the transfer of fuel.”).

181 *Id.* § 1.8.3 (“NRC assumes . . . DTS . . . are replaced every 100 years.”).

## 2. Impact Ratings

The second concern relates to the actual environmental impact assumptions that form the basis for the NRC's conclusion that continued storage is "safe" under applicable law. There are two specific categories for which the GEIS notes the possibility of anything greater than a "small" environmental impact due to on-site above-ground storage: "Historic and Cultural Resources" and "Nonradioactive Waste."<sup>182</sup> To understand the significance of these findings, an overview of the rating system is necessary.

"Small" impacts are those in which "[t]he environmental effects are not detectable or are so minor that they will neither destabilize nor noticeably alter . . . the resource."<sup>183</sup> "Moderate" impacts may "alter noticeably, but not . . . destabilize . . . the resource."<sup>184</sup> "Large" impacts are both "clearly noticeable" and *will* "destabilize . . . the resource."<sup>185</sup> Thus, small impacts, as defined, seem to pass both AEA requirements for public safety because they are not inimical to public safety.<sup>186</sup>

"Historic and Cultural Resources" are given a small to large ranking for both the 160-year timeframe and the indefinite timeframe.<sup>187</sup> The reason for this range is the site-by-site differences in reactor facilities. In areas where there are no historic or cultural resources present, or disturbance can be easily avoided, the impact would be small.<sup>188</sup> In areas where such resources are abundant, immobile, or for some other reason are obstacles to above-ground storage, the impact could be large.<sup>189</sup>

"Nonradioactive Waste" is given a small to moderate ranking only for the indefinite timeframe.<sup>190</sup> The reason for a potential moderate impact is presumably because of the volume of nonhazardous solid waste that would accumulate at a reactor if storage continued indefinitely.

Note that neither of the above resources directly affects the safety of the public. Nor is there any substantial risk of radiation leak.<sup>191</sup> Even if the negative implications of continued storage for history, culture, and solid waste were at the maximum predicted levels, there seem to be minimal, if any, adverse effects on human health or safety.

## 3. Away-from-Reactor Storage

The final NRC assumption garnering concern is the analysis of away-from-reactor storage. The DOE has maintained that its NWPAA authority to

182 The Rule provides a chart detailing the predicted effect on all resource types.

183 Continued Storage Rule, *supra* note 8 (Discussion at B6).

184 *Id.*

185 *Id.*

186 See 42 U.S.C. § 2232(a) (2012).

187 Continued Storage Rule, *supra* note 8, tbl.1.

188 *Id.* (Discussion at B7).

189 See *id.*

190 *Id.* tbl.1.

191 "Historical and Cultural Resources" and "Nonradioactive Waste" are categories of environmental impact that do not deal with actual waste or radiation leak.



develop consolidated storage facilities for interim storage of fuel is unusable because such authority is inextricably linked to repository development.<sup>192</sup> These consolidated storage facilities were to be used in harmony with a permanent repository to help transition to geologic storage.<sup>193</sup> Waste was to be collected at regional consolidation sites, and then transported on to the permanent repository in bulk.

The AEA originally gave the DOE sweeping authority to regulate domestic distribution and transportation of special nuclear material and byproduct material.<sup>194</sup> However, the NWPA contains several requirements that effectively block the DOE from creating its own interim, off-site storage facilities,<sup>195</sup> unless a court were to judicially rewrite the entirety of the NWPA based upon the current political climate. In accordance with the current statutory scheme, the DOE could now select the site of one single interim storage facility, but could not begin construction until the NRC issues a construction license for the permanent repository.<sup>196</sup> Although the GEIS and Rule satisfy the NRC's obligations under NEPA for storage of spent fuel after a reactor's license expires, they seemingly have no direct application to storage of spent fuel during the life of a reactor or to a theoretical interim storage facility.

Keeping the above limitations in mind, all impacts rated above "small" for away-from-reactor storage are not directly related to health or safety concerns. Additionally, proposed construction would almost assuredly take into account site-specific information, leading to an environmental impact on the small side of the scale, rather than large. It is highly unlikely that a court would give substantial weight to the negative findings in either the at-reactor or away-from-reactor analyses, but they are certainly a point of contention for parties seeking to challenge the overall safety conclusions.

### *E. Conclusions Regarding Legality*

The Continued Storage Rule and accompanying GEIS are likely valid under all applicable requirements. The NRC's conclusion that a GEIS supplants WCDs is supported by the language and interpretation of the AEA and NEPA. Disposal safety findings are not required by the AEA, and even if they were, the Rule provides statements of confidence in the technical feasibility

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192 U.S. DEP'T OF ENERGY, REPORT TO CONGRESS ON THE DEMONSTRATION OF THE INTERIM STORAGE OF SPENT NUCLEAR FUEL FROM DECOMMISSIONED NUCLEAR POWER REACTOR SITES 5 (2008), <http://pbadupws.nrc.gov/docs/ML0834/ML083450160.pdf> ("[The] provisions were unusable because of the required linkages to repository development.").

193 See Stewart & Stewart, *supra* note 2, at 62 (noting that the NWPA envisioned at least one consolidated storage facility to help transition waste from storage to repository disposal).

194 See, e.g., Atomic Energy Act of 1946, Pub. L. No. 79-585 §§ 5(b)(5), 5(e), 60 Stat. 755, 762.

195 See *id.* at 63–64.

196 *Id.*

and safety of a repository by referencing a string of previous research.<sup>197</sup> The Rule does not allow for nuclear licenses to be issued to reactors that would produce unsafe environmental impacts. The Rule satisfies *New York's* mandate by conducting a comprehensive analysis that resulted in minimal impact findings for the environment, public health, and safety. Unless Congress amends the NWPA or passes new legislation allowing for one or more consolidated interim storage facilities, the primary method of storage will continue to be above-ground at-reactor cask storage.

#### IV. REPOSITORY IMPLICATIONS AND POLICY

##### A. *Industry and Public Reception*

The Continued Storage Rule has been applauded by the nuclear industry. The Nuclear Energy Institute (NEI), the primary representative of the industry, is governed by a fifty-two-member board of directors that includes CEOs, engineering firms, and reactor designers that almost invariably support resumed licensing procedures.<sup>198</sup> On August 27, 2014, the NEI both commended the NRC's new policy and noted that it "appropriately address[ed]" *New York*.<sup>199</sup> The NEI has also said it "supports . . . making substantial progress toward developing the Yucca Mountain site or another geologic repository," as well as "the development of a consolidated facility" in the meantime.<sup>200</sup>

Public opinion, however, has been overwhelmingly negative. Countless articles were published about the NRC's neglectful and wanton disregard for the safety of the country's nuclear waste.<sup>201</sup> And this is to be expected—many journalists seemingly jump to the conclusion that perpetual storage of radioactive spent fuel will inevitably result because of the Rule. The focus on this frightening, worst-case scenario casts the NRC in a dubious light, and there have even been suggestions that the NRC has lost its autonomy and is in the nuclear industry's pocket.<sup>202</sup> With tragedies such as Fukushima still in

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197 See U.S. NUCLEAR REGULATORY COMM'N, NUREG-2157, 1 GENERIC ENVIRONMENTAL IMPACT STATEMENT FOR CONTINUED STORAGE OF SPENT NUCLEAR FUEL §§ B.2–B.3 (2014).

198 *About NEI*, NUCLEAR ENERGY INSTITUTE, <http://nei.org/About-NEI> (last visited Nov. 20, 2015).

199 Nuclear Energy Institute, *supra* note 132.

200 *Used Nuclear Fuel Storage*, NUCLEAR ENERGY INSTITUTE, <http://www.nei.org/issues-policy/nuclear-waste-management/used-nuclear-fuel-storage> (last visited Nov. 20, 2015).

201 David McCumber, *Lawsuit Challenges NRC Rules on Waste Storage*, NEWS TIMES (Danbury, Conn.) (Oct. 29, 2014), <http://www.newstimes.com/local/article/Lawsuit-challenges-NRC-rules-on-waste-storage-5857105.php>.

Some locales lashed out at the new Rule because of the implications it had for neighborhood nuclear dumps. See, e.g., Roger Johnson, Opinion, *We Are Now a Nuclear Waste Dump*, SAN CLEMENTE PATCH (CA) (Oct. 4, 2014), <http://patch.com/california/sanclemente/we-are-now-nuclear-waste-dump>.

202 See, e.g., John Sullivan, *U.S. Nuclear Regulator Lets Industry Help with the Fine Print*, PROPUBLICA (Apr. 13, 2011, 7:05 PM), <http://propublica.org/article/u.s.-nuclear-regulator-lets-industry-write-rules>.

the memories of Americans, nuclear energy continuation and even expansion seem scary when no permanent disposal solution is available.<sup>203</sup> Certainly public opinion can significantly affect the highly political issues of repository and interim consolidated storage development. Thus, the negative press surrounding the new Rule could initiate a helpful push towards Congressional repository action the public thinks could rectify the “dangers” of indefinite storage.

### B. *The Rule Going Forward*

One thing is abundantly clear: the NRC is focused on short-term storage needs, and above-ground storage is the most efficient method for dealing with this imminent problem. However, assuming the new Rule is deemed valid, repository development will continue to be an issue that is repeatedly delayed for both convenience and political maneuvering. If “indefinite” language fulfills the statutory requirements of providing for the safety of the public under the AEA (given minimal negative impact), it is hard to imagine that substantial steps towards repository development will occur in the next half-century. The Yucca Mountain project had already been pushed back decades beyond the originally anticipated date of inception before it was cancelled.<sup>204</sup> Experts and the NRC have stated countless times that a geologic repository is the most efficient, most economical, most environmentally sound, *safest* way to dispose of radioactive spent fuel.<sup>205</sup> Despite that agreement, the new Rule and GEIS focus primarily on the relative safety of short-term band-aid solutions; indeed, the focus seems to be on how to use the band-aid for the longest possible time, instead of fixing the underlying problem.

However, it is patently unfair to place the blame on the NRC. In reality, the Commission has chosen the only feasible path out of the thicket created by the *New York* order. It has not shirked its duty to license safe nuclear plants, and indeed recognizes that the Continued Storage Rule is not the optimal solution.<sup>206</sup> Many times throughout the Rule, the NRC intimates that it believes in a geologic repository manifesting soon, but that such a development is completely reliant on Congressional action.<sup>207</sup> Perhaps the 2016 election will produce an administration that pushes for the revival of

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203 I say no permanent solution is “available” as a reflection of the mindset of the public. This is true in the sense that the political landscape makes a permanent solution currently unavailable. However, it is untrue in the sense that permanent disposal solutions are technically available if Congress and the President could agree to move forward.

204 See generally U.S. SENATE COMM. ON ENV'T & PUB. WORKS MAJORITY STAFF, *supra* note 11 and accompanying text.

205 See, e.g., *id.*

206 See, e.g., *New York v. U.S. Nuclear Regulatory Comm'n*, 681 F.3d 471, 477 (D.C. Cir. 2012) (“[T]he Commission believes that the lessons learned from the Yucca Mountain program . . . will ensure that . . . a consensus [will] be reached.”).

207 See Continued Storage Rule, *supra* note 8 (Discussion at A12).

Yucca, which seems possible given the 2014 Republican majorities in both the House and Senate.<sup>208</sup>

The blame should not rest on the judiciary either, because the interpretation of the AEA in *New York* (and its progeny) has followed both the original intent of Congress and the plain language of the statute. Courts have recognized the importance of permanent disposal, and have raised concerns about repository development on occasion simply from a common sense perspective.<sup>209</sup> The true culprit here is a classic battle of separation of powers and federalism.

The executive branch's Blue Ribbon Commission has attempted to fashion alternate options for the permanent disposal of spent fuel and nuclear waste.<sup>210</sup> But most experts concur that the smartest option continues to be a repository, and the path of least resistance is the revival of Yucca Mountain.<sup>211</sup> The existing infrastructure, even accounting for the partial dismantling of the facility, puts Yucca light-years ahead of any new repository site. Extensive tests have already been completed, and paid for with significant taxpayer dollars, to ensure the viability of the site.<sup>212</sup> Although the people of Nevada are understandably upset with the prospect of the one and only nuclear repository in the country being within 500 miles of their homes, one repository is better than none.

#### CONCLUSION

For the next couple years, the NRC will no doubt have to contend with lawsuits alleging that the Continued Storage Rule is invalid. Regardless of their success or failure (and especially if the Rule is declared invalid), the agency should use the obvious unpopularity of continued storage as a launch pad for efforts to achieve consensus on permanent disposal. The NRC must stay vigilant and focus on (1) keeping research current and (2) addressing any research that exposes weaknesses in above-ground cask storage.

Congress and the executive branch should establish a new spent fuel storage and disposal program that allows for the development of consoli-

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208 Republicans historically have supported the development of Yucca more than Democrats have. See, e.g., *Full Committee Hearing: To Receive Testimony Regarding Draft Legislative Proposals on Energy Research and Development (SH-216) Before the Committee on Energy and Natural Resources*, 111th Cong. (2009), <http://energy.senate.gov/public/index.cfm/hearings-and-business-meetings?ID=aa73d7c2-b769-9950-6c6d-71c60fd14096>.

209 See *New York*, 681 F.3d at 474 (quoting BLUE RIBBON COMM'N ON AMERICA'S NUCLEAR FUTURE, REPORT TO THE SECRETARY OF ENERGY 27 (2012)) (noting that the failure to develop a permanent solution is the "central flaw" of the U.S. nuclear waste management program to date); *Nuclear Energy Inst., Inc. v. EPA*, 373 F.3d 1251, 1258 (D.C. Cir. 2004) ("Radioactive waste and its harmful consequences persist for time spans seemingly beyond human comprehension."); *Minnesota v. U.S. Nuclear Regulatory Comm'n*, 602 F.2d 412, 419 (D.C. Cir. 1979) (describing the disposal of nuclear waste as "complex and vexing").

210 See generally BLUE RIBBON REPORT, *supra* note 6.

211 See Petition for Review I, *supra* notes 143; Petition for Review II, *supra* note 143.

212 See generally U.S. SENATE COMM. ON ENV'T & PUB. WORKS MAJORITY STAFF, *supra* note 11; DOE RECOMMENDATION, *supra* note 39.

dated storage facilities, and ideally a resurrection of the Yucca repository. Alternatively, Congress should at least amend the AEA to clearly allow for consolidated storage facilities to be constructed once a repository is selected. Simply allowing consolidated facilities to be implemented without a repository would undermine the pressure on states to support a repository program by giving them an “out.” Although transportation to a new site is not without risk, leaving spent fuel at locations across the country is far more dangerous in the long term.

Additionally, a new agency should be created for the sole purpose of waste management and disposal. For too long the NRC has attempted to balance regulation, licensing, and safety considerations for nuclear reactors. The creation of the NRC in 1974 was specifically to combat the inability of the Atomic Energy Commission to effectively manage all facets of nuclear power. We have reached a similar tipping point in which the NRC has struggled to continue to regulate operation, storage, and disposal efforts. The establishment of a focused disposal agency would help to quell negative public opinion and provide a buffer between the industry and the public safety. The singular concentration would help push important developments quickly, and facilitate faster site selection and construction.

Finally, further exploration of private interim storage facilities could prove more efficient than reliance on federal facilities. The new agency could work with private parties to create standards and approve construction. This corporate type of model has been implemented in many European countries with varying levels of success but is extremely common.<sup>213</sup> Although not an optimal solution, such a scheme could be useful in the interim. Additionally, several European countries have developed systems that recycle spent fuel.<sup>214</sup> Research has been completed in the United States regarding the reprocessing of spent fuel, but relatively little progress has been made.<sup>215</sup> If more focus was given to this alternative, the development of a reprocessing program could help alleviate pressure on disposal of spent fuel.

Congress must become invested in permanent disposal in one way or another. The current stalemate is not beneficial for the environment, the nuclear industry, states, or the American people. Spent nuclear fuel storage is a serious problem that requires a serious solution.

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213 See, e.g., Kenneth A. Rogers, *Fire in the Hole: A Review of National Spent Nuclear Fuel Disposal Policy*, 51 *PROGRESS IN NUCLEAR ENERGY* 281, 282–85 (2009).

214 See generally *id.*

215 See, e.g., *Full Committee Hearing: To Receive Testimony Regarding Draft Legislative Proposals on Energy Research and Development (SH-216) Before the Committee on Energy and Natural Resources*, 111th Cong. (2009), <http://energy.senate.gov/public/index.cfm/hearings-and-business-meetings?ID=aa73d7c2-b769-9950-6c6d-71c60fd14096>.

