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## THE U.S. NUCLEAR WASTE IMPASSE: TRANSPORTATION IMPLICATIONS

*Michael F. McBride and Robin M. Rotman\**

For several years there has been an impasse, in the political branches, over how to make progress on dealing with the intractable problem of nuclear waste disposal in the United States. Currently, over 120 sites, spread across 39 states, host commercial spent fuel—many of these sites are former reactors that have become de facto interim nuclear waste storage sites, pending a permanent solution.<sup>10</sup> Transportation considerations are central in this discussion. With the potential for Congress to make progress on this issue following the 2018 midterm elections, this article reviews the potential paths forward and considers possible implications for the transportation sector.

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<sup>10</sup> See Nuclear Waste Policy Amendments Act 2018, Frequently Asked Questions About H.R. 3053 and Nuclear Waste, at 1, [https://energycommerce.house.gov/wp-content/uploads/2018/05/NWPAA\\_FAQ\\_05072018.pdf](https://energycommerce.house.gov/wp-content/uploads/2018/05/NWPAA_FAQ_05072018.pdf) (last visited Nov. 26, 2018).

## How Did We Get Here?

Shortly after the dawn of the nuclear age, it became apparent that waste would be created that would have long half-lives and therefore require long-term isolation to protect human health and the environment. Consideration was given to a wide range of options—including disposing of the waste in an abandoned salt mine in Kansas, sending it to outer space, or even putting it at the bottom of the ocean. All were rejected for various geologic and technical reasons.

In 1982, with the support of the nuclear industry, Congress took a major step toward a solution, enacting the Nuclear Waste Policy Act (“NWPA”).<sup>11</sup> The NWPA committed the federal government to taking title to, and responsibility for, disposal of commercial spent fuel, in addition to the defense wastes for which it was already responsible. Congress recognized that, as a practical matter, only the federal government has the ability to oversee permanent nuclear waste disposal. The NWPA required the Department of Energy (“DOE”) to evaluate potential sites for permanent, underground disposal of high-level nuclear waste, subject to licensing by the Nuclear Regulatory Commission (“NRC”), and appropriated funds for this purpose.

The NWPA required DOE to begin accepting commercial spent fuel by January 31, 1998.<sup>12</sup> DOE entered into enforceable contracts with NRC reactor licensees

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<sup>11</sup> Pub. L. No. 97-425, 96 Stat. 2201 (1983) (codified as amended at 42 U.S.C. §§ 10101–10270).

<sup>12</sup> *Id.* § 302(a)(5)(B), 96 Stat. 2258.

(“Licensees”) to carry out its responsibilities, which prescribed that generators pay a fee of 1.0 mil/kwh from nuclear-generated electricity to fund disposal activities.<sup>13</sup>

Initially, sites in as many as ten States were under consideration for a repository. Over time, DOE narrowed the list to Nevada, Texas, and the State of Washington. In 1987, Congress determined that the sites in Texas and Washington were too politically sensitive. In what has come to be referred to in Nevada media as the “Screw Nevada Bill,” Congress amended the NWPA to direct DOE to evaluate only Yucca Mountain, Nevada as a possible disposal site (“Yucca Mountain Project” or “Project”), and thereafter Congress provided appropriations specifically for the Project.<sup>14</sup>

When it became clear that DOE would not meet its obligation to begin accepting commercial spent fuel by January 31, 1998, a number of States and Licensees sued for specific performance, i.e., to get a court to force DOE to accept the spent fuel.<sup>15</sup> The U.S. Court of Appeals for the District of Columbia Circuit (“D.C. Circuit”) found that DOE was in violation of NWPA by refusing to accept commercial spent fuel.<sup>16</sup> Because the federal government lacked a place where it could safely accept the spent fuel, the D.C. Circuit did not force DOE to start accepting spent fuel, but instead suggested that the Licensees could pursue

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<sup>13</sup> *Id.* § 302(a)(3), 96 Stat. 2258; 42 U.S.C. § 10222.

<sup>14</sup> See Nuclear Waste Policy Amendments of 1987, Pub. L. No. 100-203 §§ 5001–5065, 101 Stat. 1330, 1330–227 to –255.

<sup>15</sup> See, e.g., *Ind. Mich. Power Co. v. DOE*, 88 F.3d 1272 (D.C. Cir. 1996); *N. States Power Co. v. DOE*, 128 F.3d 754 (D.C. Cir. 1997); *Wis. Elec. Power Co. v. DOE*, 211 F.3d 646 (D.C. Cir. 2000); *Neb. Pub. Power Dist. v. United States*, 73 Fed. Cl. 650, 653 (2006), *rev'd*, 590 F.3d 1357 (Fed. Cir. 2010).

<sup>16</sup> *Ind. Mich. Power*, 88 F.3d at 1276.

damages before the U.S. Court of Claims.<sup>17</sup> The U.S. Court of Claims found that DOE was in breach of the contracts with Licensees regarding nuclear waste disposal, and ordered DOE to pay damages to the Licensees to reimburse their costs of storing spent fuel on-site at their facilities.<sup>18</sup> Payment is made out of the Judgment Fund, a permanent appropriation by Congress to pay judgments entered against the United States.<sup>19</sup> The longer the waste sits, the more the government will need to compensate Licensees for its inaction. Recent reports are that the government's annual liability for these damages is approximately \$800 million,<sup>20</sup> and that amount will continue to increase.

### DOE Makes Progress—For a Time

In February 2002, DOE released its assessment of the suitability of the Yucca Mountain site, concluding that the site was safe for disposal of spent nuclear fuel and nuclear waste.<sup>21</sup> President George W. Bush accepted DOE's analysis and determined that DOE should proceed with Yucca Mountain as the site of the nation's nuclear

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<sup>17</sup> See *N. States Power*, 128 F.3d at 759-60.

<sup>18</sup> *Entergy Nuclear FitzPatrick, LLC v. United States*, 93 Fed. Cl. 739, 745-48 (2010), *reconsideration denied*, 101 Fed. Cl. 464 (2011), *aff'd*, 711 F.3d 1382 (Fed. Cir. 2013).

<sup>19</sup> Mark Holt, Congressional Research Service, RL33461, *Civilian Nuclear Waste Disposal 12* (updated Sept. 6, 2018), <https://fas.org/sgp/crs/misc/RL33461.pdf>.

<sup>20</sup> See Nuclear Energy Institute, *Used Nuclear Fuel* <https://www.nei.org/advocacy/make-regulations-smarter/used-nuclear-fuel> (last visited Nov. 26, 2018); see also DOE, *Agency Financial Report*, at 78 (FY 2017), <https://www.energy.gov/sites/prod/files/2018/05/f51/fy-2017-doe-agency-financial-report.pdf>.

<sup>21</sup> See DOE, *Final Environmental Impact Statement for a Geologic Repository for the Disposal of Spent Nuclear Fuel and High-Level Radioactive Waste at Yucca Mountain, Nye County, Nevada* (Feb. 2002), <https://www.energy.gov/nepa/downloads/eis-0250-final-environmental-impact-statement>.

repository.<sup>22</sup> Under the NWPA, however, the Governor of Nevada had a right to veto the Project, subject to a Congressional override.<sup>23</sup> Governor Kenny Guinn exercised Nevada's veto right, but Congress overrode the veto, and continued to appropriate funds for the Project.<sup>24</sup> As a result, DOE was able to proceed and, in 2008, filed its application with the NRC for a Project license.<sup>25</sup>

The Obama Administration, however, opposed the Project as “not a workable option”—a position that the Government Accountability Office (“GAO”) and others have characterized as a policy decision, not based on technical or safety factors.<sup>26</sup> In March 2010, DOE filed a motion with the NRC to withdraw its license application.<sup>27</sup> The move was applauded by then-Senate Majority Leader Harry Reid (D-NV), a long-time opponent of the Project. In June 2010, the NRC's Atomic Safety and Licensing Board (“ASLB”) denied the motion 3-0, on grounds that the NWPA did not authorize DOE to withdraw the license application without Congressional approval.<sup>28</sup> Despite the ASLB Decision, in October 2010, then-Chairman of the

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<sup>22</sup> See Matthew L. Wald, *Bury the Nation's Nuclear Waste in Nevada, Bush Says*, N.Y. Times (Feb. 16, 2002), <https://www.nytimes.com/2002/02/16/us/bury-the-nation-s-nuclear-waste-in-nevada-bush-says.html>.

<sup>23</sup> NWPA §§ 115(b), 115(c), 42 U.S.C. §§ 10135(b), 10135(c).

<sup>24</sup> See Pub. L. No. 107-200, 116 Stat. 735 (2002) (approving the site at Yucca Mountain, Nevada, for the development of a repository for the disposal of high-level radioactive waste and spent nuclear fuel, pursuant to the NWPA).

<sup>25</sup> See generally NRC, DOE's License Application for a High-Level Waste Geologic Repository at Yucca Mountain (June 3, 2008), <https://www.nrc.gov/waste/hlw-disposal/yucca-lic-app.html>.

<sup>26</sup> See GAO, *Commercial Nuclear Waste: Effects of a Termination of the Yucca Mountain Repository Program and Lessons Learned*, at 11-13 (Apr. 2011), <https://www.gao.gov/assets/320/317627.pdf>.

<sup>27</sup> See DOE's Motion to Withdraw, *In re DOE, NRC 63-001-HLW* (Mar. 3, 2010), <https://www.nrc.gov/docs/ML1006/ML100621397.pdf>.

<sup>28</sup> See *In re DOE*, 71 NRC 609, 618-30 (2010) (“ASLB Decision”), *pet. for review dismissed*, *In re Aiken Cty.*, 645 F.3d 428 (D.C. Cir. 2011), *subsequent mandamus proceeding*, 725 F.3d 255 (D.C. Cir. 2013).

NRC, Gregory Jaczko, ordered the Staff to terminate review of the application and not spend the remaining funds that had been appropriated for the NRC licensing proceeding.<sup>29</sup> At that time, the NRC had over \$11 million remaining in appropriated funds that it had not spent. In September 2011, the Commission split 2-2 on appeal, leaving the ASLB Decision in effect under NRC rules.<sup>30</sup>

Because of the apparent determination of DOE to terminate the Project, several parties with interests in long-term nuclear waste disposal sought judicial relief, including Aiken County, South Carolina as the named lead petitioner (home to the Savannah River nuclear production site) and the State of Washington (home to the Hanford Reservation DOE nuclear weapons site).<sup>31</sup> Their first effort, against President Obama, DOE and NRC, did not succeed. Yet then-Judge Brown, in a concurring opinion, suggested that the Petitioners could instead move to compel agency action unlawfully delayed, given the NRC's inaction.<sup>32</sup> The Petitioners did so. Eventually, the D.C. Circuit took the rare step of issuing a writ of mandamus, compelling the NRC to use the remaining appropriated funds on Project licensing proceedings.<sup>33</sup> Separately, the same Court also suspended the NWPA Program Fee, on the grounds that the agency could not produce an adequate assessment of the

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<sup>29</sup> See Memorandum to Office Directors and Regional Administrators From J.E. Dyer, Chief Financial Officer, NRC, *Guidance Under a Fiscal Year 2011 Continuing Resolution* (Oct. 4, 2010), <http://www.thenwsc.org/ym/YM%20NRC.CEO%20Memo%20to%20Staff%20re%20CR%20100410.pdf>; see also 725 F.3d at 267-68 (Randolph, J., concurring) (citing NRC, Office of the Inspector General, OIG Case No. 11-05, *NRC Chairman's Unilateral Decision to Terminate NRC's Review of DOE Yucca Mountain Repository License Application* (June 6, 2011)).  
<sup>30</sup> See *In re DOE*, 74 NRC 368 (2011); see also *In re DOE*, 74 NRC 212 (2011).

<sup>31</sup> *In re Aiken Cty.*, 645 F.3d 428.

<sup>32</sup> See *id.* at 438.

<sup>33</sup> *In re Aiken Cty.*, 725 F.3d at 266.

appropriate amount of the fee in light of numerous uncertainties.<sup>34</sup> The D.C. Circuit also upheld the NRC’s “Continued Storage Rule,” which permits on-site storage of commercial spent fuel for the indefinite future, finding that the NRC had a rational basis and substantial evidence for its conclusion that it would be safe to continue to store spent fuel indefinitely at reactor sites.<sup>35</sup>

In compliance with the writ of mandamus, the NRC resumed work on the Project licensing proceeding, issuing a Safety Evaluation Report and a Supplemental Environmental Impact Statement. At present, the funds have mostly been expended, and the NRC has informed Congress that it would need approximately \$330 million to complete the Project licensing.<sup>36</sup> The D.C. Circuit’s writ of mandamus does not require the NRC to perform unfunded work.

To date, Congress has not appropriated any additional funds. That is where matters stand on the Yucca Mountain Project—it is stalled because Congress has been unable to agree on additional appropriations.

### Meanwhile....

Although the Obama Administration opposed the Project, it attempted to address the nuclear waste issue by creating the “Blue Ribbon Commission on America’s Nuclear Future” (“BRC”), an advisory committee to the Secretary of Energy. The BRC published a report in

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<sup>34</sup> *Nat’l Ass’n of Regulatory Util. Comm’rs v. DOE*, 736 F.3d 517, 521 (D.C. Cir. 2014).

<sup>35</sup> *New York v. NRC*, 824 F.3d 1012, 1016 (D.C. Cir. 2016).

<sup>36</sup> See Holt, *supra*, note 10, at 2 & n.9 (at 2 & n.9) (citing 2015 Congressional testimony of NRC Chairman Burns)



January 2012.<sup>37</sup> As directed by the Secretary of Energy, the BRC did not opine on any particular site for nuclear waste disposal, nor did it opine on the merits of the Project in particular. It did support geologic disposal of nuclear waste by the federal government and, among other things, supported what it termed “consent-based siting,” in the wake of Nevada’s staunch opposition to the Project.<sup>38</sup>

In December 2015, DOE launched efforts to promote consent-based siting, and held meetings around the country to encourage a State to volunteer to host a nuclear waste disposal site in exchange for money and other benefits. In the wake of the BRC Report, the Bipartisan Policy Center started its “Nuclear Waste Initiative,” pursuant to which it issued a series of white papers and a report endorsing consent-based siting.

### Transportation Implications

Safe transportation of spent nuclear fuel is a key component of the nuclear waste solution. The vast majority of spent nuclear fuel and other nuclear waste that is moved in the United States is transported by rail. Although there has never been a release of high-level nuclear waste when transported in an NRC-approved spent fuel storage cask, public opposition to nuclear waste disposal sites often focuses on perceived transportation risks.

With respect to the Yucca Mountain Project, a large volume of spent nuclear fuel would be transported to the

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<sup>37</sup> Blue Ribbon Commission on America’s Nuclear Future, Report to the Secretary of Energy (Jan. 2012) (“BRC Report”), [https://www.energy.gov/sites/prod/files/2013/04/f0/brc\\_finalreport\\_jan2012.pdf](https://www.energy.gov/sites/prod/files/2013/04/f0/brc_finalreport_jan2012.pdf).

<sup>38</sup> See *id.* at 47-59.

site over the course of many years, shipped predominantly by rail, and to a much lesser extent, by truck. Nevada state officials lament that a rail line that would carry spent nuclear fuel to the site passes within a half-mile of the Las Vegas Strip. A train derailment with a subsequent release of nuclear materials (even though that is an exceedingly improbable event) could expose railroad employees, first responders, residents and visitors to high levels of radiation.<sup>39</sup> The volume and frequency of shipments, even without a release, could also generate concerns for transportation workers in the Las Vegas area, who may require radiation exposure monitoring.

Some Yucca Mountain opponents argue for decentralized repositories so that waste does not need to be transported as far. To the extent that transportation of spent nuclear fuel and high-level radioactive waste is transported fewer miles as a result of having more than one disposal site, the transportation risk would necessarily be less because the overall miles the spent fuel would be transported would be less. Whether there are other risks that might increase in such a scenario—such as whether having more than one repository increases overall risk—depends on the comparative assessment of risks associated with the particular sites, and would have to be considered by the NRC during licensing of each specific site.

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<sup>39</sup> See Bobby Magill, *Nevadans Prep for Yucca Battle Even as Funding Faces Long Odds*, Bloomberg Environment, June 25, 2018, <https://news.bloombergenvironment.com/environment-and-energy/nevadans-prep-for-yucca-battle-even-as-funding-faces-long-odds>.

## A Continued Impasse?

For several years, it was thought in Washington, D.C. that the unwillingness of Congress to appropriate further funds for the Yucca Mountain Project licensing proceeding was due to the political clout of Harry Reid (D-NV), the then-Senate Majority Leader. Some lawmakers assumed that when Harry Reid left the Senate, the Yucca Mountain Project would go through. The election of President Trump bolstered these assumptions. Although President Trump did not take a position on the Yucca Mountain Project during the 2016 elections, he has largely appeared to support the Project, and his proposed budget for 2019 recommended that Congress appropriate approximately \$48 million to NRC, and \$120 million to DOE, to resume Project licensing activities.<sup>40</sup> Further, on May 10, 2018, the House passed, by a 340-72 vote, legislation (H.R. 3053) to amend the NWPA, provide funding for the Project, and promote centralized interim storage of commercial spent

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<sup>40</sup> See Dep't of Energy FY 2019 Budget Request Fact Sheet at 3 (Feb. 12, 2018), <https://energy.gov/sites/prod/files/2018/02/f48/Energy%20Department%20FY%202019%20Budget%20Fact%20Sheet.pdf>; Press Release, NRC, NRC Proposes FY 2019 Budget to Congress (Feb. 12, 2018), <https://www.nrc.gov/reading-rm/doc-collections/news/2018/18-005.pdf>; see also Office of Management and Budget, Budget of the U.S. Government, *An American Budget*, Fiscal Year 2019, at 45-48, <https://www.whitehouse.gov/wp-content/uploads/2018/02/budget-fy2019.pdf>. But note that on October 20, 2018, while in Nevada campaigning for Sen. Dean Heller (R-NV), President Trump stated during a television interview: "I think you should do things where people want them to happen, so I would be very inclined to be against [the Project]." He remarked that "[w]e will be looking at it very seriously over the next few weeks, and I agree with the people of Nevada." Seung Min Kim, *Trump Signals Opposition to Nuclear Waste Site in Nevada Despite His Budget Proposals to Fund It*, The Washington Post, Oct. 21, 2018, [https://www.washingtonpost.com/politics/trump-signals-opposition-to-nuclear-waste-site-in-nevada-despite-his-budget-proposals-to-fund-it/2018/10/21/50eff246-d571-11e8-9559-712cbf726d1c\\_story.html?utm\\_term=.718bb8e02ba5&wpisrc=nl\\_politics&wpm=1](https://www.washingtonpost.com/politics/trump-signals-opposition-to-nuclear-waste-site-in-nevada-despite-his-budget-proposals-to-fund-it/2018/10/21/50eff246-d571-11e8-9559-712cbf726d1c_story.html?utm_term=.718bb8e02ba5&wpisrc=nl_politics&wpm=1). On October 26, 2018, Energy Secretary Rick Perry reiterated President Trump's support for the Yucca Mountain Project. See Ari Natter and Brian Eckhouse, *Perry Says White House Still Backs Nevada Nuclear Dump*, Bloomberg, updated Oct. 27, 2018 <https://www.bloomberg.com/news/articles/2018-10-26/energy-secretary-says-white-house-still-backs-nevada-nuke-dump>.

fuel while the Project is under consideration (and, eventually, construction, if licensed by the NRC).

But yet the Project still seems to be going nowhere fast. Why?

It turns out that “The Trouble with Harry” became “The Trouble with Mitch,” i.e., Mitch McConnell (R-KY), the current Senate Majority Leader. Leader McConnell had a majority of only 51-49 heading into the 2018 elections, and wanted to maintain, or grow, the Republican majority if at all possible. He reportedly did not allow the Project to come up for an appropriations vote in the run-up to the 2018 midterms, in an effort to allow Senator Dean Heller (R-NV), a long-time opponent of the Project, to score political points with his Nevada constituency by continuing to claim to block the Project.<sup>41</sup> Indeed, during his campaign, Senator Heller took credit for ensuring that a Yucca Mountain Project licensing funding request by DOE and NRC was excluded from the Energy and Water, Legislative Branch, and Military Construction and Veterans Affairs appropriations bill passed by the Senate in June 2018.<sup>42</sup> He also touted successful efforts in removing a \$30 million Project appropriation from the John S. McCain National Defense Authorization Act for Fiscal Year 2019.<sup>43</sup>

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<sup>41</sup> Rep. John Shimkus (R-IL) lamented that “As we’ve allowed for a decade now, a single senator’s short-term political calculations again triumphed over long-term, bipartisan policy priorities.” Gary Martin, *Congressman: Political Considerations Derailing Yucca Mountain*, Las Vegas Review-Journal, Sept. 12, 2018, <https://www.reviewjournal.com/news/politics-and-government/nevada/congressman-political-considerations-derailing-yucca-mountain/>.

<sup>42</sup> See Press Release, Dean Heller, U.S. Senator for Nevada, *Heller Successfully Keeps Funding for Yucca Mountain Out of Appropriations Bill Approved by the U.S. Senate* (June 25, 2018), <https://www.heller.senate.gov/public/index.cfm/2018/6/heller-successfully-keeps-funding-for-yucca-mountain-out-of-appropriations-bill-approved-by-the-u-s-senate>.

<sup>43</sup> See *id.*

Despite these efforts, Senator Heller was defeated in the 2018 midterms by Congresswoman Jacky Rosen (D-NV), who also opposes the Project.

With the 2018 elections now behind us, the question remains: Will Congress finally break the impasse? Or will it find another excuse to again avoid this nettlesome issue?

Given the strong Congressional support the Project has enjoyed in the past, given that geologic disposal is the preferred technical means of dealing with the nuclear waste problem, given that the federal government has already spent approximately \$11 billion on the Project,<sup>44</sup> and given that DOE's obligations to pay Licensees' on-site storage costs already has amounted to at least \$6.9 billion, and may eventually exceed \$34 billion,<sup>45</sup> it is widely believed that Congress will appropriate funds for the Project after the 2018 midterm elections. But the long and troubled history of the Project suggests caution in relying on that belief.

At some point, though, Congress must appropriate funds to do something about nuclear waste storage and disposal.

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<sup>44</sup> See American Legislative Exchange Council, *Resolution Urging the President and Congress to Abide by the Nuclear Waste Policy Act of 1982 to Establish a Permanent Geologic Repository for Used Nuclear Fuel and Defense-Related High-Level Radioactive Waste* (finalized Jan. 12, 2017), <https://www.alec.org/model-policy/resolution-urging-the-president-and-congress-to-abide-by-the-nuclear-waste-policy-act-of-1982-to-establish-a-permanent-geologic-repository-for-used-nuclear-fuel-and-defense-related-high-level-radioact/>.

<sup>45</sup> See Holt, *supra*, note 10, at 12 & n.57; see also *id.* at 42 (others predicted that future damages could rise by tens of billions of dollars more if the federal disposal program fails altogether).