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Legal Developments Relating to Nuclear Waste Storage and Disposal and the Yucca Mountain Repository Site

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August 29, 2016

Congressional Research Service

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www.crs.gov

R44151

Summary

The Nuclear Waste Policy Act of 1982 (NWPA) was an effort to establish an explicit statutory basis for the Department of Energy (DOE) to dispose of the nation's most highly radioactive nuclear waste. The NWPA requires DOE to remove spent nuclear fuel from commercial nuclear power plants, in exchange for a fee, and transport it to a permanent geologic repository or an interim storage facility before permanent disposal. Defense-related high-level waste is to go into the same repository. In an effort to mitigate the political difficulties of imposing a federal nuclear waste facility on a single community, Congress attempted to establish a scientifically based, multi-stage statutory process for selecting the eventual site of the nation's new permanent geologic repository. Congress amended the NWPA's site selection process in 1987, however, and designated Yucca Mountain, Nevada, as the sole candidate site for the repository by terminating site-specific activities at all other sites.

Since 2009, the Obama Administration and DOE have taken a number of steps directed toward terminating the Yucca Mountain project. First, the Administration's budget proposals have eliminated all funding for the project. Second, the President established a Blue Ribbon Commission to consider alternative solutions to the nation's nuclear waste challenges; in response to its recommendations, DOE is designing a consent-based siting process. Third, DOE attempted to terminate the Nuclear Regulatory Commission's (NRC's) Yucca Mountain licensing proceeding by seeking to withdraw its 2008 license application. Although DOE's motion to withdraw the application was denied by the NRC's Atomic Safety and Licensing Board, the NRC suspended the Yucca Mountain licensing proceeding in 2011, claiming budgetary limitations. In 2013, the U.S. Court of Appeals for the District of Columbia Circuit (D.C. Circuit) directed the NRC to resume its review of DOE's license application using what remained of previously appropriated funds, although it acknowledged that such funds were insufficient for the NRC to complete the review.

Following the D.C. Circuit's decision, NRC staff completed work on a Yucca Mountain Safety Evaluation Report (SER) in 2015. The SER concluded that DOE's license application met regulatory requirements, except for requirements related to ownership of land and certain water rights. Litigation challenging the Nevada State Engineer's denials of DOE's applications for permanent water rights has been stayed for more than a decade pending resolution of other issues relating to the future of Yucca Mountain. In May 2016, NRC staff also completed work on a supplement to DOE's environmental impact statement to address groundwater impacts.

Various other related nuclear waste issues also have been litigated, including safety standards for disposal, Nuclear Waste Fund fees (no longer being collected), and the federal government's contract liability for failure to take title to and dispose of nuclear waste. In June 2016, the U.S. Court of Appeals for the District of Columbia Circuit rejected a challenge to the NRC's rule and environmental impact statement supporting the continued, and possibly indefinite, storage of nuclear waste, saying "[t]o the extent that the petitioners disagree with the NRC's current policy for the continued storage of spent nuclear fuel, their concerns should be directed to Congress." Meanwhile, in the absence of a permanent repository, private companies have sought to establish consolidated interim storage facilities, which would require legislative authorization as well as agency approvals.

While the result of the ongoing disputes over the Yucca Mountain program remains uncertain, congressional action could have a significant impact on nuclear waste storage and disposal. Bills have been introduced that would promote either the Yucca Mountain repository or alternatives, and would modify management and storage of nuclear waste in the meantime.

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Key Takeaways of This Report

- Amendments in 1987 to the Nuclear Waste Policy Act (NWPA) declared Yucca Mountain, Nevada, to be the sole candidate site for a geologic repository for permanent disposal of the nation's spent nuclear fuel and high-level nuclear waste. The 1987 amendments retained the NWPA's requirements (1) that the site be fully characterized by the Department of Energy (DOE); (2) that certain procedures for state, tribal, and congressional participation in siting be completed; and (3) that the Nuclear Regulatory Commission (NRC) would have to approve DOE's construction authorization application before construction of a nuclear waste repository at Yucca Mountain could begin.
- In June 2008, DOE submitted to the NRC a detailed application for a license to construct the Yucca Mountain nuclear waste repository. The NWPA requires the NRC to issue a final decision approving or disapproving the issuance of a construction authorization not later than three years after the date of DOE's submission, after a technical review by NRC's staff and an adjudicatory hearing before the NRC's Atomic Safety and Licensing Board (ASLB). This deadline was not met.
- DOE attempted to withdraw its application in 2010, but after protracted legal battles, in 2013 a court ruled that the NWPA required the NRC to continue processing the application as long as it could, using the approximately \$11 million remaining from previously appropriated funds for the task.
- While the ASLB hearing remains suspended, the NRC has completed environmental analyses that are necessary for further review of DOE's application. The NRC finished its Safety Evaluation Report in January 2015, finding that DOE's application met the NRC's regulations regarding safety and related topics, except that DOE lacked necessary land and water rights permits. The land is currently under the control of other federal agencies, among other issues, and the water rights permits have been denied to DOE by the State of Nevada under state water rights law; litigation over DOE's application for permanent water rights at Yucca Mountain is still ongoing. The NRC also finished a supplement to DOE's Environmental Impact Statement in May 2016, finding that the groundwater-related impacts of a repository at Yucca Mountain would be "not detectable or ... so minor that they will neither destabilize nor noticeably alter any important attribute of the resource."
- A number of other issues relating to nuclear waste storage and disposal have also been litigated. In June 2016, the U.S. Court of Appeals for the D.C. Circuit rejected challenges to the NRC's determination to issue nuclear reactor or storage licenses, rejecting petitioners' arguments that the NRC's analyses or assumptions were unreasonable in light of the perceived lack of progress toward a permanent nuclear waste repository. Challenges to the NRC's safety regulations are currently being held in abeyance while other nuclear waste disposal related controversies remain unresolved.
- Nuclear power utilities' lawsuits challenging DOE's assessment and collection of Nuclear Waste Fund fees concluded in 2013, and DOE ceased collection of the fees in 2014. Claims by nuclear power utilities for monetary damages caused by DOE's breach of its obligation to begin collecting and disposing of the utilities' nuclear waste by 1998 continue to be litigated.
- The Obama Administration has opposed the Yucca Mountain repository and promoted alternative approaches. DOE established the Blue Ribbon Commission on America's Nuclear Future, which issued a report in 2012 recommending "consent-based" approaches for selection of nuclear waste disposal and consolidated interim storage sites, among other recommendations. DOE adopted most of the commission's recommendations in a 2013 report, but interim storage would require new authority from Congress.

Nuclear Waste Policy Act Framework

More than 30 years ago, Congress addressed increasing concerns regarding the management of the nation's growing stockpile of nuclear waste by calling for the federal collection of spent nuclear fuel (SNF) and high-level nuclear waste (HLW) for safe, permanent disposal.¹ Passed in 1982, the Nuclear Waste Policy Act (NWPA) was intended to establish an explicit statutory basis for the Department of Energy (DOE) to dispose of the nation's most highly radioactive nuclear waste. The NWPA requires DOE to take title to commercial nuclear power plants' SNF and, in

¹ For more policy and factual background on nuclear waste, see CRS Report RL33461, *Civilian Nuclear Waste Disposal*, by (name redacted)

exchange for a fee, remove and transport it to a permanent geologic repository or an interim storage facility before permanent disposal.² Defense-related HLW was to go into the same repository, unless the President determined separate storage was required.³

In an effort to mitigate the political difficulties of imposing a federal nuclear waste facility on a single⁴ community, Congress attempted to establish an objective, scientifically based, multi-stage statutory process for selecting the eventual site of the nation's new permanent geologic repository.⁵ Although DOE would be responsible for developing the eventual repository and carrying out the disposal program, individual nuclear power providers would fund a large portion of the program through significant annual contributions, or fees, to the Nuclear Waste Fund (NWF) established by the NWPA.⁶

Interim Storage Facility Requirements

Under the NWPA, “the persons owning and operating civilian nuclear power reactors have the primary responsibility for providing interim storage of spent nuclear fuel from such reactors.”⁷ Authority and responsibility for the federal government to provide “not more than 1,900 metric tons of capacity for interim storage” via a federally owned and operated system expired in 1990.⁸ Separately, the government's authority to license a monitored retrievable storage facility is conditioned on the NRC having issued a license for a permanent geologic repository.⁹ This requirement was intended in part to reduce concern that any consolidated storage facility could become a de facto repository.

With interim storage generally not authorized under the NWPA, the amount of SNF stored at civilian nuclear power reactors continues to grow. Currently, spent fuel discharged from U.S. commercial nuclear reactors is stored at 60 operating nuclear plant sites, 14 shutdown plant sites, and the Idaho National Laboratory.

Establishing a Permanent Geologic Repository for High-Level Nuclear Waste and Spent Nuclear Fuel

The NWPA created a multi-stage statutory framework—requiring the participation of the President, Congress, DOE, and the NRC—that governs the establishment of a permanent geologic nuclear waste repository. The various phases of the process include site recommendation, site characterization and study, site approval, and construction authorization. At the site recommendation stage, the Secretary of Energy (Secretary) was directed to nominate at least five potentially “suitable” sites for an eventual repository.¹⁰ After identifying and conducting

² P.L. 97-425, the Nuclear Waste Policy Act (hereinafter NWPA), codified at 42 U.S.C. §§10101 et seq.

³ NWPA §8(b)(2), 42 U.S.C. §10107(b)(2). Based on recommendations from DOE, President Ronald Reagan determined in 1985 that defense HLW should be disposed of in a repository with commercial SNF.

⁴ Although the NWPA originally envisioned the construction of a second repository to provide regional balance, the idea was abandoned under the NWPA amendments of 1987.

⁵ NWPA §§111-125, 42 U.S.C. §§10131-10145.

⁶ NWPA §302, 42 U.S.C. §10222.

⁷ NWPA §131, 42 U.S.C. §10151.

⁸ NWPA §136(a)(1), 42 U.S.C. §10156(a)(1).

⁹ See NWPA §148(d), 42 U.S.C. §10168(d).

¹⁰ The Secretary nominated sites in Mississippi, Texas, Utah, Washington, and Nevada.

an initial study of these sites, the Secretary was to recommend three sites to the President for characterization as “candidate sites.”¹¹ Pursuant to these obligations, the Secretary recommended Deaf Smith County, Texas; Hanford, Washington; and Yucca Mountain, Nevada, to the President in 1986. The Secretary’s recommendations were met with significant opposition from the affected states; however, and as a result, Congress amended the NWPAs site selection process in 1987 and designated Yucca Mountain as the sole candidate site for the repository by terminating “all site specific activities (other than reclamation activities) at all candidate sites, other than the Yucca Mountain site.”¹² The 1987 amendments, did not, however, end the site characterization, approval, and construction authorization phases, which continued as outlined under the original terms of the NWPAs.

In accordance with the characterization stage of the NWPAs framework, Yucca Mountain was extensively inspected and studied in an effort to determine if the site was in compliance with suitability guidelines established by DOE, and public health, safety, and environmental guidelines established by the Environmental Protection Agency.¹³ DOE obtained temporary (10-year) water permits from the State of Nevada for use in site characterization in 1992. In 1997, pursuant to state law and to NRC regulations requiring DOE to “have obtained such water rights as may be needed to accomplish the purpose of the geologic repository operations area” before proceeding with licensing,¹⁴ DOE filed five applications to the Nevada State Engineer for permanent water rights at the Yucca Mountain site for performance confirmation studies and eventual construction. The Nevada State Engineer denied DOE’s applications for permanent water rights in 2000, finding that granting the water rights would not be in the public interest. That denial was challenged in litigation, which is still ongoing fifteen years later.¹⁵ Meanwhile, the federal government did not meet its contractual obligation to begin accepting SNF by 1998, leading to litigation by some utilities for contract damages to cover the costs of on-site storage.¹⁶

Following other significant litigation over the proper safety standards to be applied to the Yucca Mountain facility, and notwithstanding charges by the State of Nevada that the site was unsafe,¹⁷ Secretary of Energy Spencer Abraham recommended that the President approve the Yucca Mountain site for the development of a repository in 2002.¹⁸ President George W. Bush approved the Yucca Mountain site the next day, and, pursuant to the terms of the NWPAs, recommended the site to Congress.

The NWPAs, however, provided the state in which the proposed repository would be located with the opportunity to object to the President’s site recommendation by submitting a notice of disapproval to Congress.¹⁹ If a notice of disapproval were submitted, the NWPAs stated that the site would be “disapproved” unless both houses of Congress overrode the state’s objection by

¹¹ NWPAs §112(b), 42 U.S.C. §10132(b).

¹² NWPAs §160, 42 U.S.C. §10172.

¹³ There has been significant litigation over the environmental guidelines to be applied to Yucca Mountain. *See, e.g., Nuclear Energy Institute v. EPA*, 373 F.3d 1251 (D.C. Cir. 2004).

¹⁴ 10 C.F.R. §63.121.

¹⁵ *See* “Yucca Mountain Water Rights Legal Status.”

¹⁶ *See* “Nuclear Power Utility Standard Contract Claims.”

¹⁷ Two key arguments against Yucca Mountain pertain to the region’s overall geologic instability and concerns over water infiltration. *See* Marta Adams, *Yucca Mountain—Nevada’s Perspective*, 46 IDAHO L. REV. 1, 1-6 (2010).

¹⁸ Matthew Wald, *Energy Department Recommends Yucca Mountain for Nuclear Waste Burial*, N.Y. TIMES, Feb. 15, 2002.

¹⁹ NWPAs §115(b), 42 U.S.C. §10135(b).

passing a “resolution of siting approval.”²⁰ Although Nevada opposed the selection of Yucca Mountain and quickly submitted its notice of disapproval, Congress passed, and the President signed, the necessary approval resolution to override Nevada’s objection.²¹ Thus, the site approval stage of the NWPA process ended.

The fourth stage of the NWPA process commenced in June 2008, when DOE submitted an application for authorization to construct the Yucca Mountain nuclear waste repository (license application) to the NRC.²² Under the NWPA, “if the President recommends to the Congress the Yucca Mountain site ... and the site designation is permitted to take effect ... the Secretary shall submit to the [NRC] an application for a construction authorization for a repository at such site.”²³ The statute further directed that following submission of the license application, the NRC “shall issue a final decision approving or disapproving the issuance of a construction authorization not later than the expiration of 3 years after the date of the submission of such application.”²⁴ NRC’s final decision to grant or deny a construction authorization is to be made after completion of the NRC staff’s independent technical review of the license application, an adjudicatory hearing before NRC’s Atomic Safety and Licensing Board, and subsequent review by the Commissioners. The NRC was considering the 8,600-page license application when the Obama Administration took office and ushered in a change in policy with respect to Yucca Mountain as the future site of the nation’s permanent nuclear waste repository.

Yucca Mountain and the Obama Administration

President Obama, former Secretary of Energy Steven Chu, and current Secretary of Energy Ernest Moniz have stated that Yucca Mountain does not represent a viable option for the permanent storage of nuclear waste.²⁵ In accordance with this view, the Administration has taken several important steps directed toward terminating the Yucca Mountain facility. First, with Congress’s approval, the Administration has sought to defund the Yucca Mountain project. Second, the President and former Secretary Chu established a commission to consider alternative solutions to the nation’s nuclear waste challenge. Third, and perhaps most controversial, DOE attempted to terminate the NRC’s Yucca Mountain licensing proceeding by seeking withdrawal of its application for a construction authorization (license application) for the Yucca Mountain facility.

Yucca Mountain Funding

DOE’s recent budget proposals have not requested funding for the Yucca Mountain facility. Moreover, the Administration utilized its FY2011 budget request to recommend the closure of the

²⁰ NWPA §115(c), 42 U.S.C. §10135(c).

²¹ P.L. 107-200, 107th Cong. (2002).

²² NRC, *DOE’s License Application for a High-Level Waste Geologic Repository at Yucca Mountain* (updated June 2016), available at <http://www.nrc.gov/waste/hlw-disposal/yucca-lic-app.html> (noting 2009 updates by DOE).

²³ NWPA §114(b), 42 U.S.C. §10134(b).

²⁴ NWPA §114(d), 42 U.S.C. §10134(d).

²⁵ Statement of Steven Chu, Secretary, Department of Energy, Before the Senate Committee on the Budget, Mar. 11, 2009 (“[B]oth the President and I have made clear that Yucca Mountain is not a workable option.”); Ernest Moniz, Secretary, Department of Energy, *An Adaptive, Consent-Based Path to Nuclear Waste Storage and Disposal Solutions*, Feb. 12, 2014, <http://www.energy.gov/articles/adaptive-consent-based-path-nuclear-waste-storage-and-disposal-solutions> (“The Administration made our position clear—Yucca Mountain is not a workable solution, and we can do better.”).

Office of Civilian Radioactive Waste Management (OCRWM), which had previously been charged with administering the Yucca Mountain project and many of DOE's obligations under the NWPA.²⁶ After steady reductions in staff, the OCRWM officially closed on September 30, 2010.²⁷ The recent budget proposals follow years of steady decreases in funding for the repository: from \$572 million in FY2005, to \$288 million in FY2009, to only enough funds, approximately \$197 million, to finance the ongoing NRC licensing process in FY2010.²⁸ Consistent with the Administration's budget requests, Congress, though debating several funding proposals, has not appropriated funds for the Yucca Mountain project since the limited funding included in FY2010.²⁹

Blue Ribbon Commission on America's Nuclear Future

Shortly before releasing the FY2011 budget proposal, the President asked DOE to establish the Blue Ribbon Commission on America's Nuclear Future (Commission) to explore, study, and evaluate alternatives to the Yucca Mountain facility for the permanent storage of SNF and HLW.³⁰ The 15-member Commission, appointed by the Secretary of Energy, consisted of scientists, academics, industry representatives, labor representatives, and former elected officials.³¹ The commission's goal was to "provide recommendations for developing a safe, long-term solution to managing the nation's used nuclear fuel and nuclear waste."³² The commission would not, however, consider specific sites for a future repository.³³

The commission issued its final report on January 26, 2012.³⁴ As expected, the report did not make any specific recommendations as to the "suitability" of Yucca Mountain, other than to make clear that the process of selecting and establishing the Yucca Mountain facility has suffered from several flaws and should be replaced by a new "consent-based approach" that provides "incentives" and encourages interested communities to "volunteer" as a potential host site for an eventual repository.³⁵ While acknowledging that "the future of the Yucca Mountain project remains uncertain," the commission did make specific findings that may have significant

²⁶ President's FY2011 Budget Proposal at 71, available at <http://www.gpoaccess.gov/usbudget/fy11/pdf/budget.pdf>.

²⁷ The administration of the NWF and responsibility for DOE's ongoing obligations under the Standard Contract and NWPA have been shifted to the DOE Office of Nuclear Energy.

²⁸ Statement of Steven Chu, Secretary, Department of Energy, Before the Senate Committee on Appropriations Subcommittee on Energy and Water Development, and Related Agencies, May 19, 2009.

²⁹ The House has repeatedly passed language that would provide DOE with funding to continue work on the Yucca Mountain program. These provisions, however, have been opposed by the Senate. See, e.g., H.R. 2354, 112th Cong. (2011); H.R. 5325, 112th Cong. (2012); H.R. 2609, 113th Cong. (2013); H.R. 2028, 114th Cong. (2015).

³⁰ Memorandum from President Barack Obama, to Steven Chu, Secretary of Energy, *Blue Ribbon Commission on America's Nuclear Future*, Jan. 29, 2010.

³¹ A list of Commission members is available at <http://brc.gov/members.html>.

³² DOE Press Release, *Secretary Chu Announces Blue Ribbon Commission on America's Nuclear Future*, Jan. 29, 2010, available at <http://www.doe.gov>. According to Secretary Chu, the commission will be looking at "different types of disposal options." Janice Valverde, *Administration to Withdraw License Bid for Yucca Mountain, Eliminates Funding*, BNA DAILY REPORT FOR EXECUTIVES, Feb. 2, 2010.

³³ DOE itself is currently prohibited by statute from considering specific sites other than Yucca Mountain. 42 U.S.C. §10172 ("The Secretary shall terminate all site specific activities ... at all candidate sites, other than the Yucca Mountain site, within 90 days after the enactment of the Nuclear Waste Policy Amendments Act of 1987.")

³⁴ BLUE RIBBON COMMISSION ON AMERICA'S NUCLEAR FUTURE, FINAL REPORT TO THE SECRETARY OF ENERGY (Jan. 26, 2012), available at http://brc.gov/sites/default/files/documents/brc_finalreport_jan2012.pdf.

³⁵ *Id.* at ix.

influence over the future of nuclear waste disposal.³⁶ Importantly, the commission concluded that deep geologic disposal “is the most promising and accepted method [of disposal] currently available,” and therefore recommended that the United States “should undertake an integrated nuclear waste management program that leads to the timely development of one or more permanent deep geological facilities for the safe disposal of spent fuel and high-level nuclear waste.”³⁷ Additionally, the commission concluded that “new institutional leadership for the nation’s nuclear waste program is clearly needed.”³⁸ The final report therefore recommended that control over nuclear waste disposal be removed from DOE, and instead vested in a newly established “single-purpose organization” that could “provide the stability, focus, and credibility that are essential to get the waste program back on track.”³⁹ The commission found a sufficiently independent “federal corporation chartered by Congress” to be the most promising structure for this new entity.⁴⁰ Finally, the commission reiterated the severe consequences of continued delays and urged Congress and the President to take action to institute the Commission’s recommendations “without further delay.”⁴¹

Recognizing the delays in a permanent disposal solution, the commission also urged “[p]rompt efforts to develop one or more consolidated storage facilities” to contain SNF temporarily before final disposal.⁴² Such interim storage facilities could enable removal of SNF from shutdown reactors and could also allow the federal government to begin meeting its waste acceptance obligations sooner, reducing its liability. However, legal authority for the federal government to provide or arrange for centralized, consolidated storage is lacking under the NWPA; provisions of the NWPA addressing such storage either have expired or are tied to repository-related milestones that have not been met.⁴³ Currently, nuclear reactors store spent fuel in pools or (after several years of “cooling”) dry casks on- or off-site.⁴⁴

DOE responded to the commission’s recommendations in January 2013 with a new waste strategy that calls for a “consent-based” process to select nuclear waste storage and disposal sites.⁴⁵ The strategy calls for geologic repository siting to occur by 2026, after development by the Environmental Protection Agency (EPA) of generic, non-site-specific, repository safety standards; the goal under the strategy is for repository licensing to be completed by 2042, and operations to

³⁶ *Id.* at 23.

³⁷ *Id.* at 29. The commission thus recommended the same general form of disposal as was planned at the Yucca Mountain facility.

³⁸ *Id.* at 60.

³⁹ *Id.* at x.

⁴⁰ *Id.* at 61.

⁴¹ *Id.* at xv.

⁴² *Id.* at vii.

⁴³ The NWPA tightly links development of an interim storage facility with development of a permanent repository, with the intention of avoiding the interim storage facility becoming a *de facto* repository. NWPA §148(d), 42 U.S.C. §10168 (providing for storage facility licensing conditions including that “construction of such facility may not begin until the Commission has issued a license for the construction of a repository”). *See also*, U.S. Government Accountability Office, NUCLEAR WASTE MANAGEMENT: KEY ATTRIBUTES, CHALLENGES, AND COSTS, FOR THE YUCCA MOUNTAIN REPOSITORY AND TWO POTENTIAL ALTERNATIVES, GAO-10-48, Nov. 4, 2009, pp. 31-32, <http://www.gao.gov/products/GAO-10-48>.

⁴⁴ *See* NRC, *Spent Fuel Storage in Pools and Dry Casks: Key Points and Questions & Answers* (2015), <http://www.nrc.gov/waste/spent-fuel-storage/faqs.html>.

⁴⁵ DOE, *Strategy for the Management and Disposal of Used Nuclear Fuel and High-Level Radioactive Waste* 8-9, Jan. 2013, http://energy.gov/sites/prod/files/2013%201-15%20Nuclear_Waste_Report.pdf.

begin by 2048.⁴⁶ The strategy also calls for a pilot interim surface storage facility to open by 2021, and a larger consolidated interim storage facility by 2025, which would require new authority from Congress.⁴⁷ In March 2015, President Obama reiterated support for the 2013 strategy and authorized DOE to move forward with planning for a separate repository for high-level radioactive waste resulting from atomic energy defense activities.⁴⁸ This authorization reverses the conclusion made under President Reagan in 1985 that separate disposal of defense nuclear waste was not required and that defense and civilian waste could be disposed of together in a dual-purpose repository.⁴⁹ DOE issued an invitation for public comments on the consent-based siting components of the strategy in late December 2015,⁵⁰ held a series of public meetings in spring and summer 2016,⁵¹ and plans to release a draft report on the comments and meetings later in 2016.⁵²

DOE's Attempted Withdrawal of Its Construction Authorization License Application

One of the more controversial actions taken by DOE was the agency's effort to terminate the NRC licensing proceeding by attempting to withdraw the Yucca Mountain license application. The 8,600-page license application had been submitted in June 2008.⁵³ At the time of DOE's decision to withdraw its license application, NRC's review of the application was proceeding on two tracks: technical review by NRC staff, to be documented in a safety evaluation report, and preliminary phases of adjudication before the NRC's Atomic Safety and Licensing Board (Board), to resolve challenges by a number of parties to technical and legal aspects of the DOE application.⁵⁴ The Board had admitted nearly 300 contentions, or contested issues, for adjudication.⁵⁵

⁴⁶ *Id.* at 7-9.

⁴⁷ *Id.* at 4-6. For additional background on developments relating to interim storage, see "Private Interim Storage," in CRS Report RL33461, *Civilian Nuclear Waste Disposal*, by (name redacted) *infra*, "Congressional Action on Yucca Mountain Facility and Nuclear Waste Storage and Disposal."

⁴⁸ See DOE, *Fact Sheet: The Path Forward on Nuclear Waste Disposal* (Mar. 24, 2015), available at <http://energy.gov/sites/prod/files/2015/03/f20/Defense%20Repository%20Fact%20Sheet.pdf>.

⁴⁹ See DOE, *Report on Separate Disposal of Defense High-Level Radioactive Waste* (Mar. 2015), available at <http://www.energy.gov/sites/prod/files/2015/03/f20/Defense%20Repository%20Report.pdf> (finding that "a strong basis exists to find that a Defense HLW Repository is required" as the term "required" is used in NWSA §8(b)).

⁵⁰ DOE, "Invitation for Public Comment To Inform the Design of a Consent-Based Siting Process for Nuclear Waste Storage and Disposal Facilities," 80 Fed. Reg. 79,872 (Dec. 23, 2015).

⁵¹ DOE Office of Nuclear Energy, *Consent-Based Siting* (Aug. 2016), <http://www.energy.gov/ne/consent-based-siting>.

⁵² *Id.*

⁵³ See NRC, *Backgrounder on Licensing Yucca Mountain* (updated Dec. 2014), <http://www.nrc.gov/reading-rm/doc-collections/fact-sheets/yucca-license-review.html>.

⁵⁴ The Board is an "independent trial-level adjudicatory body" that conducts all licensing hearings for the NRC. The Board generally consists of three administrative judges, but unlike other administrative adjudicative bodies, not all Board judges are trained lawyers. A given panel generally consists of a mix of legal and technical judges. Technical judges must be "persons of recognized caliber and stature in the nuclear field" and generally have substantial experience in nuclear engineering. See *Nuclear Regulatory Commission: ASLBP Responsibilities*, available at <http://www.nrc.gov/about-nrc/regulatory/adjudicatory/aslbp-respons.html>; *Nuclear Regulatory Commission: Atomic Safety and Licensing Board Panel*, available at <http://www.nrc.gov/about-nrc/organization/aslbpfuncdesc.html>.

⁵⁵ See NRC, *supra* footnote 53.

DOE formally filed its motion seeking to withdraw the Yucca Mountain license on March 3, 2010.⁵⁶ The agency made clear that the decision to withdraw the license application was based on “policy” considerations.⁵⁷ Specifically, DOE asserted that scientific and technological advancements since the enactment of the NWSA, such as dry cask storage and advanced recycling, “provide an opportunity to develop better alternatives to Yucca Mountain.”⁵⁸ The agency further asserted that it did not “intend ever to refile an application to construct a permanent geologic repository for spent nuclear fuel and high-level radioactive waste at Yucca Mountain.”⁵⁹ As discussed in the following section, DOE’s withdrawal motion triggered strong opposition from a number of concerned parties.

Legal Challenges to Attempted Termination or Suspension of License Application Review Process

Several petitioners filed similar legal claims in two different venues immediately following DOE’s withdrawal motion.⁶⁰ These petitioners—Washington; South Carolina; Aiken County, South Carolina; the Prairie Island Indian Community; and the National Association of Regulatory and Utility Commissioners (NARUC)—petitioned to intervene in the NRC licensing proceeding in order to stop the withdrawal. Washington, South Carolina, and Aiken County, along with a group of private plaintiffs from Washington State, also filed statutory claims in the U.S. Court of Appeals for the District of Columbia Circuit (D.C. Circuit) challenging DOE’s authority to withdraw the license application.⁶¹ Most of the aforementioned parties later joined claims in the D.C. Circuit challenging NRC’s authority to terminate its review of DOE’s license application.

The legal battle over the Secretary’s authority to withdraw the license application—and the NRC’s obligation to review the license application—hinged on specific statutory language within the NWSA. Section 114 outlines the process for obtaining the necessary site approval and construction authorization for a permanent repository and provides the statutory foundation for the ongoing litigation.⁶² The provision states that once the site approval procedures are completed

⁵⁶ U.S. Department of Energy’s Motion to Withdraw, *In the Matter of U.S. Department of Energy*, ASLBP No. 09-892-HLW-CAB04 (Mar. 3, 2010).

⁵⁷ See Nuclear Regulatory Commission Atomic Safety and Licensing Board, Memorandum and Order, *In the Matter of U.S. Department of Energy*, ASLBP No. 09-892-HLW-CAB04 (June 29, 2010) at 2 (“Conceding that the Application is not flawed nor the site unsafe, the Secretary of Energy seeks to withdraw the Application with prejudice as a ‘matter of policy’ because the Nevada site ‘is not a workable option.’”) See also Nuclear Regulatory Commission Atomic Safety and Licensing Board, U.S. Department of Energy’s Reply to the Responses to the Motion to Withdraw, *In the Matter of U.S. Department of Energy*, ASLBP No. 09-892-HLW-CAB04 (May 27, 2010) at 1 (characterizing the question presented as whether the Secretary has authority “to seek withdrawal of a license application for a repository when the Secretary has determined, as a matter of policy, not to proceed with that repository”).

⁵⁸ See Brief for Respondents, *In re Aiken County*, No. 10-1050 (D.C. Cir. Jan. 3, 2011). DOE has also cited consistent opposition from Nevada as a reason for the policy shift.

⁵⁹ U.S. Department of Energy’s Motion to Withdraw, *In the Matter of U.S. Department of Energy*, ASLBP No. 09-892-HLW-CAB04, Mar. 3, 2010.

⁶⁰ The arguments made before the NRC and the D.C. Circuit were essentially the same, with the core arguments focusing on the NWSA, the National Environmental Policy Act, and the Administrative Procedure Act.

⁶¹ DOE’s Hanford Nuclear Reservation, located in southeast Washington, is currently home to approximately 53 million gallons of defense-related nuclear waste—a majority of which was to be disposed of, after solidification, in the future Yucca Mountain repository. Similarly, DOE’s Savannah River Site is home to large amounts of high-level waste. NARUC also filed a case with the D.C. Circuit to bar the Secretary from collecting Nuclear Waste Fund fees. See “Challenge to Nuclear Waste Fund Fee.”

⁶² NWSA §114, 42 U.S.C. §10134.

and the site is designated, as was the case with Yucca Mountain, “the Secretary *shall* submit to the [NRC] an application for a construction authorization for a repository.”⁶³ Upon submission of the application, the NRC “*shall* consider” the application “in accordance with the laws applicable to such applications, except that the [NRC] *shall* issue a final decision approving or disapproving the issuance of a construction authorization *not later than the expiration of 3 years* after the date of the submission of such application.”⁶⁴

NRC Administrative Adjudications and Suspension of Licensing Proceedings

At the administrative level, the Board issued a sweeping opinion in June 2010, ruling that Secretary Chu did not have the authority to withdraw the Yucca Mountain license application.⁶⁵ In rejecting DOE’s arguments, the Board concluded that the statutory language of the NWPA “mandates progress towards a merits decision,” which DOE could not “single handedly derail” by withdrawing the license application.⁶⁶ Beginning with the plain language of Section 114, the Board held that Congress had established a “detailed, specific procedure” that removed control of the license application process from the Secretary by creating a mandatory statutory scheme.⁶⁷ In the Board’s view, to allow DOE to withdraw the application as a matter of policy at this stage would be contrary to Congress’s intent that the licensing process be “removed from the political process.”⁶⁸

One day after the Board’s decision, and before DOE filed a formal appeal, the NRC released an order inviting the parties to file briefs on whether the commission should review the Board’s decision.⁶⁹ However, before the NRC took further action, the NRC Chairman at the time, Gregory Jaczko, directed NRC staff to use funds appropriated under the FY2011 Continuing Appropriations Act (CR) to close down the agency’s review of the Yucca Mountain license application.⁷⁰ In an October 4, 2010, memorandum, NRC staff were instructed to continue their Yucca Mountain activities “in accordance with” the commission’s FY2011 budget request that had sought only \$10 million to “support work related to the orderly closure of the agency’s Yucca Mountain licensing support activities.”⁷¹ The Chairman’s guidance was opposed by two fellow NRC commissioners as inconsistent with principles of appropriations law.⁷²

Notwithstanding the ongoing budget dispute, the NRC released an order on September 9, 2011, stating that the “Commission finds itself evenly divided on whether to take the affirmative action

⁶³ NWPA §114(b), 42 U.S.C. §10134(b) (emphasis added).

⁶⁴ NWPA §114(d), 42 U.S.C. §10134(d) (emphasis added). This final decision was to be subject to a one-year extension. *Id.*

⁶⁵ Memorandum and Order, *In the Matter of U.S. Department of Energy*, ASLBP No. 09-892-HLW-CAB04 (June 29, 2010) (hereinafter ASLB Order).

⁶⁶ *Id.* at 3.

⁶⁷ *Id.* at 6.

⁶⁸ *Id.* at 9.

⁶⁹ Order of the Nuclear Regulatory Commission, *In the Matter of U.S. Department of Energy*, No. 63-001-HLW (June 30, 2010).

⁷⁰ Memorandum to Office Directors and Regional Administrators from J.E. Dyer, Chief Financial Officer, Nuclear Regulatory Commission, *Guidance Under A Fiscal Year 2011 Continuing Resolution* (Oct. 4, 2010) (hereinafter NRC Budget Guidance).

⁷¹ *Id.*

⁷² Memorandum from Commissioner William C. Ostendorff, Disagreement With Staff Budget Guidance Under Fiscal Year 2011 Continuing Resolution (Oct. 8, 2010); Letter from Kristine L. Svinicki, Commissioner, Nuclear Regulatory Commission, to Congressman Joe Barton (Nov. 1, 2010).

of overturning or upholding the Board's decision."⁷³ Although not reaching a decision on the license withdrawal, the order, citing "budgetary limitations," directed the Board to "complete all necessary and appropriate case management activities, including disposal of all matters currently pending before it and comprehensively documenting the full history of the adjudicatory proceeding," by the end of the fiscal year.⁷⁴ On September 30, 2011, the Board officially announced that "because both future appropriated [Nuclear Waste Fund] dollars and [Full-Time Equivalent positions] for this proceeding are uncertain, and consistent with the Commission's Memorandum and Order of September 9, 2011, this proceeding is suspended."⁷⁵ However, the Board made clear that because the commission remained evenly divided, "the Board's decision to deny DOE's motion to withdraw [the license], therefore stands."⁷⁶

D.C. Circuit Challenges to DOE Withdrawal and NRC Suspension:

In re Aiken County

In conjunction with opposing DOE's motion for withdrawal at the administrative level, a number of parties also filed cases in federal court in an attempt to stop the termination of the Yucca Mountain licensing proceeding. Statutory claims filed by South Carolina, Washington, and private plaintiffs were consolidated in the D.C. Circuit.⁷⁷ The complaints alleged violations of the NWA, the National Environmental Policy Act, and the Administrative Procedure Act—claims similar to those made before the NRC.⁷⁸

In a July 2011 decision entitled *In re Aiken County I*,⁷⁹ the D.C. Circuit dismissed the challenges to the DOE license withdrawal as unripe. However, the court made clear that the plaintiffs may have found greater success had they challenged NRC's obligation to review the license application, as opposed to DOE's obligation to submit the application. The parties quickly re-filed, arguing that the NRC had no authority to terminate the licensing process. In *In re Aiken County II*,⁸⁰ issued in August 2012, the court ruled that it would hold the case in abeyance until December 14, 2012, at which point the parties were directed to update the court on the status of FY2013 appropriations, giving Congress the opportunity to provide more clarity regarding the funding issue.

On August 13, 2013, in the final *In re Aiken County* decision, the D.C. Circuit issued a writ of mandamus ordering the NRC to resume processing DOE's license application.⁸¹ The order stated that since the court's 2012 order, "Congress has taken no further action on this matter. At this

⁷³ Order of the Nuclear Regulatory Commission, *In the Matter of U.S. Department of Energy*, No. 63-001-HLW (Sep. 9, 2011).

⁷⁴ *Id.*

⁷⁵ Memorandum and Order, *In the Matter of U.S. Department of Energy*, ASLBP No. 09-892-HLW-CAB04, (Sep. 30, 2011). The Board also noted that "[a]lthough we have been informed that the agency has current appropriated Fiscal Year 2011 Nuclear Waste Funds that could be carried over into the next fiscal year, there are no Full-Time Equivalent positions (i.e., federal employee positions) requested in the President's Fiscal Year 2012 Budget for Yucca Mountain High-Level Waste activities." *Id.*

⁷⁶ *Id.* It is important to highlight that the Yucca Mountain proceedings were terminated by the NRC as a budgetary matter. The proceedings were not terminated by the actions of DOE or the Obama Administration.

⁷⁷ See *In re Aiken County*, 645 F.3d 428 (D.C. Cir. 2011).

⁷⁸ *Id.* at 4. The U.S. Courts of Appeals have original jurisdiction over challenges to agency action under the NWA. NWA § 119, 42 U.S.C. § 10139.

⁷⁹ *In re Aiken County*, 645 F.3d 428 (D.C. Cir. 2011).

⁸⁰ Order, *In re Aiken County*, No. 11-1271, 2012 U.S. App. LEXIS 16093 (D.C. Cir. Aug. 3, 2012).

⁸¹ 725 F.3d 255 (D.C. Cir. 2013).

point, the Commission is simply defying a law enacted by Congress, and the Commission is doing so without any legal basis.”⁸² The court rejected NRC’s arguments that it lacked funding to complete the Yucca Mountain licensing process, noting that “Congress often appropriates money on a step-by-step basis”⁸³ and that the NRC “ha[d] at least \$11.1 million in appropriated funds—a significant amount of money—to [continue the licensing process].”⁸⁴ The court also noted that despite several years of appropriations for the Yucca Mountain licensing at or near zero, “Congress speaks through the laws it enacts. No law states that the Commission should decline to spend previously appropriated funds on the licensing process. . . . [C]ourts generally should not infer that Congress has implicitly repealed or suspended statutory mandates based simply on the amount of money Congress has appropriated.”⁸⁵ The court concluded:

[O]ur decision here does not prejudice the merits of the Commission’s consideration or decision on the Department of Energy’s license application, or the Commission’s consideration or decision on any Department of Energy attempt to withdraw the license application. But unless and until Congress authoritatively says otherwise or there are no appropriated funds remaining, the Nuclear Regulatory Commission must promptly continue with the legally mandated licensing process.⁸⁶

The dissent in the case argued that the court should have used its discretion “not to order the doing of a useless act.”⁸⁷

Following the decision granting the writ of mandamus, the State of Nevada sought rehearing *en banc*, but its petition was denied.⁸⁸ Thereafter, certain petitioners moved to recover their attorneys’ fees pursuant to the Equal Access to Justice Act; one such claim was settled and the court denied the remaining petitioners’ claims on October 23, 2014.⁸⁹

After Aiken County: NRC Safety Evaluation Report and Other Licensing Activities

NRC Order on Resumption of Licensing Process

Days after the D.C. Circuit’s 2013 decision in *In re Aiken County*, Nye County, a plaintiff in that litigation, submitted motions to the NRC and Atomic Safety and Licensing Board to lift the suspension of the licensing proceeding and to schedule a case management conference.⁹⁰ The NRC sought input on how to restart the Yucca Mountain licensing process and directed its staff to gather pertinent budgeting information.⁹¹ The NRC thereafter issued an order and memorandum

⁸² *Id.* at 266.

⁸³ *Id.* at 259.

⁸⁴ *Id.*

⁸⁵ *Id.* at 260.

⁸⁶ *Id.* at 267.

⁸⁷ *Id.* at 270 (Garland, J., dissenting) (quoting *United States ex rel. Sierra Land & Water Co. v. Ickes*, 84 F.2d 228, 232 (D.C. Cir. 1936)).

⁸⁸ *In re Aiken County*, 2013 U.S. App. LEXIS 22003 (D.C. Cir. Oct. 28, 2013).

⁸⁹ See NRC, Monthly Status Report on Activities Related to the Yucca Mountain Licensing Action: Report for May 2015, available at <http://pbadupws.nrc.gov/docs/ML1514/ML15149A014.pdf>.

⁹⁰ See Order, *In the Matter of U.S. Department of Energy (High-Level Waste Repository)*, No. 63-001-HLW (NRC Aug. 30, 2013), available at <http://adamswebsearch2.nrc.gov/webSearch2/view?AccessionNumber=%27ML13242A315>.

⁹¹ *Id.*

directing its staff to complete the remaining volumes of the Safety Evaluation Report (SER) for the Yucca Mountain construction authorization application, the first volume of which had been published in August 2010.⁹² The SER functions to explain the NRC staff's determination as to whether the Yucca Mountain application meets NRC regulations. The NRC also directed its staff to undertake certain records management activities.⁹³ The NRC declined to resume the contested adjudication before the Board.⁹⁴

In addition, because NRC staff had previously determined in 2008 that the Environmental Impact Statement (EIS) submitted by DOE as part of its application was deficient in certain respects, particularly with respect to its discussion of groundwater impacts, the NRC requested that DOE prepare an EIS supplement.⁹⁵ While recognizing (as it had in 2008) that either DOE or the NRC could prepare the EIS supplement, the NRC found that “in promulgating the NWPA, Congress intended that the primary responsibility for evaluating environmental impacts rest with DOE,” and that DOE had already performed significant analyses in support of the EIS supplement.⁹⁶ However, on March 12, 2015, the NRC published a *Federal Register* notice explaining that the NRC, not DOE, would be preparing the EIS supplement.⁹⁷

In its November 2013 order, the NRC anticipated that completion of the SER (including necessary records management activities) and adoption of the EIS supplement would expend nearly all of the approximately \$11 million in previously appropriated funds. The NRC therefore issued another order to its staff at that time regarding efficient use of available funds and preparation of plans and status reports.⁹⁸ The NRC interpreted appropriations law as prohibiting it from expending general appropriations for Yucca Mountain-specific activities such as restoration of facilities, offices, and equipment involved in restarting the licensing proceedings.⁹⁹ On March 4, 2015, NRC Chairman Stephen Burns testified before the Senate Appropriations Subcommittee on Energy and Water Development that \$330 million in additional appropriations would be needed to complete the licensing process, including adjudicatory hearings.¹⁰⁰

⁹² Memorandum and Order CLI 13-08, In the Matter of U.S. Department of Energy (High-Level Waste Repository), No. 63-001-HLW at 1, 11-12 (NRC Nov. 18, 2013), available at <http://www.nrc.gov/reading-rm/doc-collections/commission/orders/2013/2013-08cli.pdf>.

⁹³ *Id.* at 1-2, 13-14 (directing NRC staff to enter Licensing Support Network (LSN) documents, mainly from DOE's collection, into the NRC's official public record-keeping system, the Agencywide Documents Access and Management System (ADAMS)).

⁹⁴ *Id.* at 16-18.

⁹⁵ *Id.* at 2, 14-16.

⁹⁶ *Id.* at 15-16 (citing *Implementing the Nuclear Waste Policy Act—Next Steps: Hearing Before H. Energy and Comm. Subcomm. on Env't and Econ.*, 113th Cong. 76 (2013) (statement of Dr. Peter Lyons, DOE Ass't Sec'y for Nuclear Energy) (“[W]e have provided the information to the NRC to do the supplement, but if they wish us to do it, we would use the information that we provided to them.”)).

⁹⁷ NRC, “Department of Energy; Yucca Mountain, Nye County, Nevada: Intent to Prepare a Supplement to a Final Supplemental Environmental Impact Statement,” 80 Fed. Reg. 13,029, 13,030 (Mar. 12, 2015) (“The DOE initially stated that it would prepare a supplement, but later declined to prepare the supplement. Instead, the DOE prepared a technical analysis, “Analysis of Postclosure Groundwater Impacts for a Geologic Repository for the Disposal of Spent Nuclear Fuel and High-Level Radioactive Waste at Yucca Mountain, Nye County, Nevada”.... In 2014, the DOE updated this report.... The NRC staff will consider these reports in preparing the supplement.”).

⁹⁸ NRC, Monthly Status Report on Activities Related to the Yucca Mountain Licensing Action: Report for May 2015 at 21, available at <http://pbadupws.nrc.gov/docs/ML1514/ML15149A014.pdf> (citing NRC, Staff Requirements—SECY-13-0113—Memorandum and Order Concerning Resumption of Yucca Mountain Licensing Process (Nov. 18, 2013)).

⁹⁹ *Id.* at 20-21.

¹⁰⁰ FY16 Nuclear Regulatory Commission Budget: Hearing before the Senate Appropriations Committee Subcommittee on Energy and Water Development, 114th Cong. (Mar. 4, 2015) (statement of Stephen G. Burns, NRC (continued...))

Safety Evaluation Report Conclusions

In its five-volume “Safety Evaluation Report Related to Disposal of High-Level Radioactive Wastes in a Geologic Repository at Yucca Mountain, Nevada” (SER), NRC staff found key deficiencies relating to the legal status of DOE’s land and water rights at the site, described in more detail below. Even if NRC were to receive sufficient appropriations to complete the licensing proceedings, DOE’s lack of ownership of required land and water would have to be resolved—most likely with the involvement of Congress—before NRC could grant a license for the Yucca Mountain nuclear repository.

However, except for the issues with land ownership and water rights, the NRC staff generally approved the safety and regulatory compliance of DOE’s application. These conclusions would support the NRC in eventually granting a license if the land and water rights were obtained, and if NRC and DOE were otherwise able to go forward with the overall licensing process. Volume 1 of the NRC staff’s SER, published in August 2010,¹⁰¹ concludes that DOE provided information satisfying NRC’s regulations regarding “General Information” in the license application.¹⁰² The remaining SER Volumes 2-5 present the NRC staff’s evaluation of the “Safety Analysis Report” portion of DOE’s license application. These volumes were published from October 2014 through January 2015. The second volume finds with “reasonable assurance” that with certain conditions, the repository design complies with NRC’s regulations regarding performance objectives and preclosure safety requirements.¹⁰³ The third likewise finds with “reasonable expectation” that the application complies with NRC regulatory requirements for postclosure safety, including multiple barriers and the performance assessments for individual protection, separate groundwater protection, and human intrusion.¹⁰⁴

Volume 4 of the SER, on “Administrative and Programmatic Requirements,” describes two ways in which DOE’s license application failed to meet applicable regulatory requirements. First, the NRC staff found that “regulatory requirements ... regarding ownership of the land where the [geologic repository operations area, or GROA] is located are not satisfied, because the lands where the GROA would be located have not been acquired by DOE, are not under the control and jurisdiction of DOE, and are not free of significant encumbrances.”¹⁰⁵ Specifically, the GROA and surrounding land within the proposed preclosure controlled area are under the control of several different federal agencies, including DOE, the U.S. Department of the Interior, and the U.S. Department of Defense. Volume 4 also noted that DOE had submitted a land withdrawal bill to

(...continued)

Chairman), *available at* <http://www.appropriations.senate.gov/sites/default/files/hearings/EW%20NRC%20Chairman%20Burns%20Statement%20030415.pdf>.

¹⁰¹ NRC, NUREG-1949, Safety Evaluation Report Related to Disposal of High-Level Radioactive Wastes in a Geologic Repository at Yucca Mountain, Nevada Volume 1: General Information (Aug. 2010), *available at* <http://pbadupws.nrc.gov/docs/ML1024/ML102440298.pdf>.

¹⁰² 10 C.F.R. §63.21(b).

¹⁰³ NRC, NUREG-1949, Safety Evaluation Report Related to Disposal of High-Level Radioactive Wastes in a Geologic Repository at Yucca Mountain, Nevada Volume 2: Repository Safety Before Permanent Closure (Jan. 2015), *available at* <http://pbadupws.nrc.gov/docs/ML1502/ML15022A146.pdf>.

¹⁰⁴ NRC, NUREG-1949, Safety Evaluation Report Related to Disposal of High-Level Radioactive Wastes in a Geologic Repository at Yucca Mountain, Nevada Volume 3: Repository Safety After Permanent Closure (Oct. 2014), *available at* <http://pbadupws.nrc.gov/docs/ML1428/ML14288A121.pdf>.

¹⁰⁵ NRC, NUREG-1949, Safety Evaluation Report Related to Disposal of High-Level Radioactive Wastes in a Geologic Repository at Yucca Mountain, Nevada Volume 4: Administrative and Programmatic Requirements xix (Dec. 2014), *available at* <http://pbadupws.nrc.gov/docs/ML1434/ML14346A071.pdf> (citing 10 C.F.R. §63.121(a)(1)-(2)).

Congress in 2007, but this was not enacted, and DOE has not completed any other land acquisition process.¹⁰⁶

Second, Volume 4 of the SER recognizes that NRC regulations require DOE to have obtained such water rights as may be needed to accomplish the purpose of the repository.¹⁰⁷ DOE had filed a water appropriation request with the Nevada State Engineer on July 22, 1997, for permanent rights to 430 acre-feet annually from five wells, the maximum amount estimated to be required for construction.¹⁰⁸ However, as described in more detail below and as summarized in the SER, “DOE’s actions to obtain water rights for this purpose have not been successful.”¹⁰⁹ Therefore, the NRC staff found that this regulatory requirement, too, had not been satisfied.

Because the land ownership and water rights regulatory requirements were not satisfied, and also because the environmental impact statement supplement had not yet been prepared, NRC staff did not recommend that the NRC issue a construction authorization at this time. Nevertheless, Volume 5 of the SER includes proposed conditions of construction authorization which “could be included in a Construction Authorization if there is a Commission decision to authorize construction.”¹¹⁰

Supplement to Environmental Impact Statement

NRC staff released a supplement to DOE’s 2002 EIS in May 2016 to address the potential environmental impacts on groundwater, and impacts associated with the discharge of any contaminated groundwater to the ground surface, due to potential releases from a geologic repository at Yucca Mountain over a one-million-year period.¹¹¹ The NRC uses a three-level standard of significance for assessing environmental impacts—small, medium, and large, where “small” impacts are found when “[t]he environmental effects are not detectable or are so minor that they will neither destabilize nor noticeably alter any important attribute of the resource.”¹¹² The supplement “finds that each of the potential direct, indirect, and cumulative impacts on the resources evaluated in this supplement would be SMALL.”¹¹³

¹⁰⁶ *Id.* at 11-2 (citing S. 37, 110th Cong. (2007)).

¹⁰⁷ *Id.* at xix, 11-1, 11-6 (citing 10 C.F.R. §63.121(d)).

¹⁰⁸ *Id.* at 11-6. DOE estimated a maximum of 330 acre-feet of demand for operations after receipt and possession of the waste. *Id.*

¹⁰⁹ *Id.*

¹¹⁰ NRC, NUREG-1949, Safety Evaluation Report Related to Disposal of High-Level Radioactive Wastes in a Geologic Repository at Yucca Mountain, Nevada Volume 5: Proposed Conditions on the Construction Authorization and Probable Subjects of License Specifications vii, 3-2 (Jan. 2015), available at <http://pbadupws.nrc.gov/docs/ML1502/ML15022A488.pdf>.

¹¹¹ NRC, NUREG-2184, Supplement to the U.S. Department of Energy’s 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: Final Report (May 2016), available at <http://www.nrc.gov/docs/ML1612/ML16125A032.pdf>.

¹¹² *Id.* at 1-4 – 1-5 (citing 40 C.F.R. §1508.27 and NRC, NUREG-1748, ENVIRONMENTAL REVIEW GUIDANCE FOR LICENSING ACTIONS ASSOCIATED WITH NMSS PROGRAMS (2003), available at <http://www.nrc.gov/docs/ML0324/ML032450279.pdf>).

¹¹³ *Id.* at iii, xii.

Yucca Mountain Water Rights Legal Status

Background on State Water Law Framework and Permitting Procedures

As noted in the Yucca Mountain SER, NRC regulations require DOE to have obtained such water rights as may be needed to accomplish the purpose of the repository.¹¹⁴ DOE's current lack of water rights for a repository at Yucca Mountain underlies one of the two regulatory deficiencies highlighted by NRC's Safety Evaluation Report, so background on the legal framework for such water rights may be helpful in assessing any potential congressional actions specifically relating to Yucca Mountain.

Subject to certain exceptions,¹¹⁵ the allocation and use of water resources is primarily governed by state law, even on federally owned land. Allocation of water rights under state law often requires that users put the water to beneficial use. Under Nevada water law, beneficial use is "the basis, the measure and the limit of the right to the use of water."¹¹⁶ As summarized by the state agency with authority over water resources:

Examples of beneficial uses include irrigation, mining, stock watering, recreation, commercial, industrial, and municipal uses. Beneficial use also includes the underlying principle of the appropriative rights system of water allocation, known as 'use it or lose it.' In the West, where water resources are scarce, water users must demonstrate an actual beneficial use of water. They cannot speculate in water rights or hold on to water rights they do not actually intend to place to a beneficial use in a timely manner.¹¹⁷

The Nevada State Engineer, whose office is housed within the Nevada Department of Conservation and Natural Resources, has authority over appropriations of surface water and groundwater in the state. Any person who wishes to appropriate waters in Nevada for a beneficial use, or to change an existing water right, must apply to the State Engineer for a permit prior to any work in connection with such appropriation.¹¹⁸ A "person" for purposes of this requirement includes the United States and federal agencies such as DOE.¹¹⁹ The permit application must include, among other information, the amount of water sought, the purpose, a description of the

¹¹⁴ 10 C.F.R. §63.121(d).

¹¹⁵ In particular, DOE may be entitled to water rights as a matter of federal law under the reserved water rights doctrine. See *United States v. New Mexico*, 438 U.S. 696, 699 (1978); *Cappaert v. United States*, 426 U.S. 128, 138 (1976). Under this doctrine, the federal government's withdrawal of the site property from the public domain for federal uses could potentially support a finding that, in doing so, the federal government implicitly reserved the water necessary to fulfill these uses. The exact extent or volume of any such water right is uncertain for the Yucca Mountain site, as DOE has not asserted a reserved water right, and therefore the amount of any water reserved has not been quantified. Additionally, because much of the proposed site for the Yucca Mountain repository has been subject to multiple reservations over the years, it is unclear how these actions would affect the scope of any reserved water right.

¹¹⁶ NEV. REV. STAT. §533.035.

¹¹⁷ *Nevada Water Law 101*, NEV. DEPT. OF CONS. & NATURAL RES., <http://dcnr.nv.gov/documents/documents/nevada-water-law-101/> (last visited Mar. 10, 2015).

¹¹⁸ NEV. REV. STAT. §§533.325, 534.050. Note that small domestic wells and vested rights do not have to go through the application process. Vested rights to surface water are those rights for which the work to establish beneficial use was initiated prior to 1905 (the date of adoption of Nevada's water law). Vested rights to groundwater are those initiated prior to 1913 for artesian water and prior to 1939 for percolating water. A relatively small fraction of waters in Nevada fall within these categories of vested rights.

¹¹⁹ NEV. REV. STAT. §§533.010.

proposed works, and the estimated time to construct the works and apply the water to beneficial use.¹²⁰ Pursuant to the “use it or lose it” principle, the applicant also must provide proof satisfactory to the State Engineer of the applicant’s good faith intention, financial ability, and reasonable expectation to construct any work necessary to apply the water to the intended beneficial use with reasonable diligence.¹²¹ Any person interested may file a written protest against the granting of the application, and each protest must be considered.¹²²

The State Engineer must reject a water permit application where there is no unappropriated water in the proposed source of supply, where the proposed use conflicts with existing rights or with protectable interests in existing domestic wells, or where it threatens to prove detrimental to the public interest.¹²³ The State Engineer also cannot approve an appropriation beyond the extent to which it is reasonably required for the beneficial use to be served.¹²⁴ There is no provision in Nevada water law for the governor or any other person or entity, besides a court, to overrule a decision of the State Engineer. If an application is granted, a certificate of appropriation can be granted only after the applicant has filed proof of the application of the water to beneficial use, that is, the completion of the water works or project.¹²⁵ Issuance of a certificate of appropriation “perfects” the water right.¹²⁶

History and Current Status of DOE Applications for Water Rights

DOE submitted five water permit applications to the Nevada State Engineer on July 22, 1997. The applications sought to appropriate a cumulative 430 acre-feet annually from the groundwater of the Fortymile Canyon – Jackass Flat Hydrographic Basin for “industrial purposes,” including for road and facility construction, drilling, dust suppression, tunnel and pad construction, testing, and general site uses for the proposed Yucca Mountain repository. DOE sought the water appropriation to implement its responsibilities under the NWPA.¹²⁷

The applications were protested by several Nevada officials.¹²⁸ After a hearing, the State Engineer denied the applications, based largely on the enactment of a Nevada statute banning storage of radioactive waste in the state.¹²⁹ DOE appealed the State Engineer’s ruling to the federal district

¹²⁰ *Id.* §533.335.

¹²¹ *Id.* §533.370-1.c. In line with these application requirements, the State Engineer must set construction and use deadlines in any approval. *Id.* §§533.380, 533.390-533.410.

¹²² *Id.* §§533.360, 533.365, 533.375.

¹²³ *Id.* §533.070.

¹²⁴ *Id.*

¹²⁵ *Id.* §533.425.

¹²⁶ *Id.*; Tracy Taylor, State Engineer, Nevada Dept. of Conserv. and Natural Res., Summary of Statutory Procedures for Filing Claims of Vested Rights, Making Application for a Water Right and a Summary of Fees of the State Engineer 6-7, 9-10 (2009), available at http://water.nv.gov/Documents/SE_Procedures_Fees_Brochure.pdf.

¹²⁷ See State Engineer Ruling on Remand #5307 at 1, *In the Matter of Applications 63263, 63264, 63265, 63266 and 63267* (Nov. 7, 2003), available at <http://images.water.nv.gov/images/rulings/5307r.pdf> (“Ruling 5307”). Note that DOE had also applied for limited, temporary water permits for siting purposes in 1988. These temporary permits were granted in 1992, following litigation. See Order on Mot. Summ. J. and Mot. Stay at 1-2, *United States v. State of Nevada*, CV-S-00-268-RLH (D. Nev. Mar. 11, 2003), ECF no. 91; see also *United States v. Watkins*, 914 F.2d 1545 (9th Cir. 1990).

¹²⁸ Ruling 5307, *supra* footnote 127, at 1-2.

¹²⁹ See Order on Mot. Summ. J. and Mot. Stay at 1-2, *United States v. State of Nevada*, CV-S-00-268-RLH (Mar. 11, 2003), ECF no. 91 (citing State Engineer Ruling #4848).

court (with a protective notice of appeal in the appropriate county court).¹³⁰ In a 2003 order, the district court revoked the State Engineer's ruling and remanded the matter back for a decision that did not consider the Nevada radioactive waste storage ban.¹³¹ After another hearing, the State Engineer again denied the applications later that year on the grounds that the proposed water appropriations would not constitute beneficial uses and would threaten to prove detrimental to the interests of the Nevada public.¹³²

The district court's 2003 order also granted a stay of the water rights proceedings while "more encompassing" issues involving the Yucca Mountain project were being litigated elsewhere.¹³³ While the 2003 stay order was based primarily on deference to certain litigation in the D.C. Circuit, in 2005 the district court held that the decision in that litigation, *Nuclear Energy Institute, Inc. v. EPA*,¹³⁴ left the status of the project still undetermined.¹³⁵ The court recognized that "whether the proposed repository is, in fact, licensable" is an important consideration in determining, for the water rights appeal, "[whether] the State Engineer was arbitrary and capricious in determining that the water permit applications are not in the public interest."¹³⁶ The district court therefore maintained the stay, save for a limited allowance for DOE to file an amended complaint adding the State Engineer's updated ruling.¹³⁷

The litigation remains stayed¹³⁸ as the licensing question remains uncertain, particularly given DOE's current opposition to the repository. However, the NRC's publication of the SER, described above,¹³⁹ may have resolved some questions relating to "whether the proposed repository is, in fact, licensable"¹⁴⁰ by determining that the application met regulatory requirements except for those relating to land ownership and water rights. If the district court does at some point lift the stay, the court could ultimately either affirm the State Engineer's 2003 ruling; overturn it and direct DOE's water permit applications be approved; or remand it to the State Engineer with guidelines for a new ruling.

¹³⁰ The federal district court initially abstained and ordered the matter back to the state court. However, on DOE's appeal, the Ninth Circuit held that abstention was not appropriate and remanded for decision on the merits. *Id.* at 2-3. The state court case remains active but on hold pending the federal district court decision. *United States v. State Engineer* (5th Judicial District Court, Nye County, No. 15722).

¹³¹ Order on Mot. Summ. J. and Mot. Stay at 1-2, *United States v. State of Nevada*, CV-S-00-268-RLH (D. Nev. Mar. 11, 2003), ECF no. 91.

¹³² Ruling 5307, *supra* footnote 127.

¹³³ Order on Mot. Summ. J. and Mot. for Stay at 4-5, 12, *United States v. State of Nevada*, CV-S-00-268-RLH (D. Nev. Mar. 11, 2003), ECF no. 91.

¹³⁴ 371 F.3d 1251 (D.C. Cir. 2004).

¹³⁵ Order on Mot. to Lift Stay & Leave to Amend Compl. at 2-3, *United States v. State of Nevada*, CV-S-00-268-RLH (D. Nev. April 6, 2005), ECF no. 109.

¹³⁶ *Id.* Note that under the Nevada legal framework described above in this memorandum, the applicant's reasonable expectation to construct any work necessary to apply the water to the intended beneficial use is also relevant to the State Engineer's decision. Thus, the court's review depends not only on whether the proposed repository is licensable but also whether it is feasible and likely to be constructed. The court's stay order does not discuss the beneficial use requirement.

¹³⁷ *Id.*

¹³⁸ There has been some activity in the case since the imposition of the stay, but none that affects DOE's application for permanent water rights for construction and operation. DOE sought a preliminary injunction with respect to stipulated interim water use for certain site characterization, which was denied in 2007. Order on Second Mot. Prelim. Inj., *United States v. State of Nevada*, CV-S-00-268-RLH (D. Nev. Aug. 31, 2007), ECF no. 136.

¹³⁹ *See supra*, "After Aiken County: NRC Safety Evaluation Report and Other Licensing Activities."

¹⁴⁰ Order on Mot. to Lift Stay & Leave to Amend Compl., *supra* footnote 135.

Other Related Litigation

Challenges to EPA's and NRC's Health and Safety Regulations and DOE's Environmental Review for the Proposed Yucca Mountain Repository

While the administrative adjudication and court litigation described above were brought with the aim of furthering progress toward a repository at Yucca Mountain, other parties have initiated other litigation aiming to stop any such progress and prevent a repository at Yucca Mountain, or to restrict nuclear power and nuclear waste generation more generally. The State of Nevada, in particular, has challenged aspects of Yucca Mountain-related decisions for many years.¹⁴¹ Some of Nevada's claims remain ongoing.

The Energy Policy Act of 1992 required EPA to issue public health and safety standards for radioactive material potentially disposed of at Yucca Mountain, and also directed the National Academy of Sciences (NAS) to conduct a study to provide recommendations on what such standards would be reasonable.¹⁴² The statute also required the NRC to modify, to be consistent with EPA's standards, its technical requirements and criteria that DOE's Yucca Mountain construction license application must meet under the NWPA to be granted by the NRC.¹⁴³

NAS released its report in 1995¹⁴⁴ and EPA issued the standards for Yucca Mountain in 2001.¹⁴⁵ The State of Nevada joined with various environmental groups to challenge EPA's radiation-protection regulation as insufficiently protective of public health and safety. The State of Nevada also joined with several jurisdictions within Nevada to challenge the NRC's licensing-criteria rule and DOE's site-suitability criteria as arbitrary and capricious under the Administrative Procedure Act; DOE's 2002 Final Environmental Impact Statement (FEIS)¹⁴⁶ as unlawful under the National Environmental Policy Act (NEPA); and Congress's 2002 site approval resolution as unconstitutional. The Nuclear Energy Institute challenged EPA's groundwater standard as unnecessary and unlawful. These cases were consolidated and decided in 2004 in *Nuclear Energy Institute, Inc. v. EPA*, in which the D.C. Circuit held:

(1) The 10,000-year compliance period selected by EPA violates section 801 of the Energy Policy Act (EnPA) because it is not, as EnPA requires, "based upon and consistent with" the findings and recommendations of the National Academy of Sciences [which had recommended a standard pegged to the time when radiation doses reach their peak, and had disapproved a 10,000-year period]. The remaining challenges to the EPA regulation are without merit. (2) The Nuclear Regulatory Commission's licensing requirements are neither unlawful nor arbitrary and capricious except to the extent that

¹⁴¹ See *supra*, "History and Current Status of DOE Applications for Water Rights" (documenting Nevada opposition to water rights for Yucca Mountain since at least the 1990s).

¹⁴² Energy Policy Act §801(a), P.L. 102-486 (2002).

¹⁴³ *Id.* §801(b); NWPA §121(b), 42 U.S.C. §10141(b).

¹⁴⁴ NAS, *Technical Bases for Yucca Mountain Standards* (1995), available at http://www.nap.edu/openbook.php?record_id=4943.

¹⁴⁵ EPA, Public Health and Environmental Radiation Protection Standards for Yucca Mountain, NV: Final Rule, 66 Fed. Reg. 32,074 (June 13, 2001), codified at 40 C.F.R. pt. 197 (citing P.L. 102-486).

¹⁴⁶ DOE, EIS-0250: Final Environmental Impact Statement - Geologic Repository for the Disposal of Spent Nuclear Fuel and High-Level Radioactive Waste at Yucca Mountain, Nye County, Nevada (2002), available at <http://energy.gov/nepa/downloads/eis-0250-final-environmental-impact-statement>.

they incorporate EPA's 10,000-year compliance period. (3) The congressional resolution selecting the Yucca site for development represents an appropriate exercise of Congress's Article IV, section 3 authority over federal property. (4) The Department of Energy's and the President's actions leading to the selection of the Yucca Mountain site are unreviewable. All but one of Nevada's challenges to these actions are moot, and the remaining challenge [to the FEIS under NEPA] is unripe. Accordingly, we vacate the EPA and NRC regulations insofar as they include a 10,000-year compliance period. We deny or dismiss the remaining petitions for review.¹⁴⁷

Because the court dismissed Nevada's challenge to the FEIS on ripeness grounds,¹⁴⁸ subsequent lawsuits bringing the same or a similar challenge to the FEIS were not foreclosed. Thus, Nevada challenged DOE's FEIS again in 2004, after DOE issued a Record of Decision based on the FEIS governing the transportation of nuclear waste from the production sources to Yucca Mountain. Nevada's petition was denied as still unripe, because DOE's implementation of the transportation plan was contingent on various conditions—such as approval of a construction license for Yucca Mountain, or a “concrete decision” in that direction.¹⁴⁹ In June 2008, DOE issued a Supplemental Environmental Impact Statement for the Yucca Mountain repository, as well as Environmental Impact Statements for the related Nevada Rail Corridor and Rail Alignment.¹⁵⁰ The State of Nevada filed comments in 2008 before the U.S. Surface Transportation Board opposing DOE's application to construct the rail corridor, arguing in part that the NEPA analyses were flawed.¹⁵¹ There appears to have been little further court activity challenging the Yucca Mountain NEPA analyses in light of the developments beginning with DOE's attempted withdrawal of its license application. As noted above, NRC completed a supplement to DOE's 2008 Environmental Impact Statement in May 2016.¹⁵²

After the *Nuclear Energy Institute* court struck down that portion of EPA's rule relating to the 10,000-year compliance period, EPA released a new proposal in 2005 and reissued the public health and safety standards for Yucca Mountain in 2008, this time establishing dose standards applicable for a period up to 1 million years after disposal.¹⁵³ NRC reissued its regulations consistent with EPA's standards in 2009.¹⁵⁴ The State of Nevada, and others, again brought lawsuits in the D.C. Circuit challenging the EPA and NRC rules as insufficiently protective and

¹⁴⁷ 373 F.3d 1251, 1257 (D.C. Cir. 2004).

¹⁴⁸ *Id.* at 1313 (“In determining ripeness, ... we are primarily concerned with whether the claims raise ‘purely legal questions [that] would ... be presumptively suitable for judicial review,’ or whether the court and the agency would instead benefit from postponing review until the agency’s policy has ‘crystallized’ through implementation in a concrete factual setting. Where an issue is not yet fit for judicial review, we must weigh the benefits of postponing review against the hardship suffered by the petitioner as a result of such delay.”).

¹⁴⁹ *Nevada v. DOE*, 457 F.3d 78, 84-85 (D.C. Cir. 2006).

¹⁵⁰ DOE/EIS-0250F-S1, “Final Supplemental 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,” available at <http://pbadupws.nrc.gov/docs/ML0817/ML081750191.html>.

¹⁵¹ U.S. Department of Energy - Rail Construction and Operation - Caliente Rail Line in Lincoln, Nye, and Esmeralda Counties, Nevada, Surface Transportation Board Finance Docket No. 35106 (Statement of Robert (name redacted), Transportation Advisor for the State Of Nevada Agency For Nuclear Projects in Opposition to the Application, Dec. 4, 2008), available at <http://www.state.nv.us/nucwaste/news2008/pdf/nv081204stb.pdf>.

¹⁵² See “Supplement to Environmental Impact Statement.”

¹⁵³ EPA, “Public Health and Environmental Radiation Protection Standards for Yucca Mountain, Nevada,” 73 Fed. Reg. 61,257 (Oct. 15, 2008), codified at 40 C.F.R. Part 197.

¹⁵⁴ NRC, “Implementation of a Dose Standard After 10,000 Years,” 74 Fed. Reg. 10,811 (Mar. 13, 2009), codified at 10 C.F.R. Part 63.

otherwise legally deficient.¹⁵⁵ However, the trajectory of this litigation was changed with the Obama Administration's opposition to a nuclear waste repository at Yucca Mountain and DOE's attempted withdrawal of the license application. Given the continued suspension of the Yucca Mountain license application adjudicatory proceedings before the Board,¹⁵⁶ as well as other uncertainty surrounding the Yucca Mountain project, Nevada's lawsuits against EPA and NRC regarding their Yucca Mountain standards have been held in abeyance, subject to periodic status reports.¹⁵⁷

Notably, the legal validity of the EPA and NRC standards for Yucca Mountain were assumed by NRC in its Safety Evaluation Report.¹⁵⁸ However, if any aspect of the standards were to be struck down in the future, then the conclusions of the SER—which, as noted above, generally found DOE's license application to meet the NRC standards¹⁵⁹—could be thrown into jeopardy.

Challenges to NRC's Waste Confidence Determination and Continued Storage Rule

The NRC's "Waste Confidence" proceedings have also provided a basis for ongoing litigation that continues to be shaped by the Yucca Mountain saga. Litigation on the topic reaches back to the late 1970s, when environmental groups and states asked the NRC to condition its individual reactor operating license decisions on determinations that the reactors' radioactive wastes could be disposed of safely.¹⁶⁰ In the 1979 decision in *Minnesota v. NRC*, the D.C. Circuit agreed with the environmental groups and states.¹⁶¹ It ordered the NRC to determine, by rulemaking or other generic (as opposed to license-by-license) determination, whether offsite storage or disposal would be available for SNF when reactors' licenses expired, and if not, whether the SNF could be safely stored at decommissioned reactors until an offsite solution became available.¹⁶²

In response to *Minnesota v. NRC*, the NRC issued its first waste confidence rule in 1984, supported by an environmental assessment and finding of no significant impact pursuant to NEPA.¹⁶³ The NRC found "reasonable assurance" that, among other things, safe disposal of SNF and HLW in a geologic repository was technically feasible; one or more geologic repositories with sufficient capacity would be available by 2009; SNF and HLW would be managed safely until sufficient repository capacity became available; and if necessary, SNF could be stored safely

¹⁵⁵ Petition for Review filed by the State of Nevada, *Nevada v. EPA*, No. 08-1327 (D.C. Cir. Oct. 10, 2008), available at <http://www.state.nv.us/nucwaste/news2008/pdf/nvag081010petition.pdf>; Petition for Review filed by the State of Nevada, *Nevada v. NRC*, No. 09-1133 (D.C. Cir. May 9, 2009), available at <http://www.state.nv.us/nucwaste/news2009/pdf/nvag090508dose.pdf>.

¹⁵⁶ See "After Aiken County: NRC Safety Evaluation Report and Other Licensing Activities."

¹⁵⁷ See, e.g., Petitioner State of Nevada's Status Report, *State of Nevada v. Nuclear Regulatory Commission*, No. 09-1133 (D.C. Cir. filed May 12, 2015), available at <http://pbadupws.nrc.gov/docs/ML1513/ML15133A396.pdf>.

¹⁵⁸ See, e.g., NRC, NUREG-1949, Safety Evaluation Report Related to Disposal of High-Level Radioactive Wastes in a Geologic Repository at Yucca Mountain, Nevada Volume 3: Repository Safety After Permanent Closure at xxx, 3-2 (Oct. 2014), available at <http://pbadupws.nrc.gov/docs/ML1428/ML14288A121.pdf>.

¹⁵⁹ See "Safety Evaluation Report Conclusions" (regulatory requirements met except for those relating to land ownership and control and water rights).

¹⁶⁰ *Minnesota v. NRC*, 602 F.2d 412 (D.C. Cir. 1979).

¹⁶¹ *Id.*

¹⁶² *Id.* at 418-20.

¹⁶³ 49 Fed. Reg. 34,658, 34,688 (Aug. 31, 1984).

and without significant environmental impacts for at least 30 years beyond the expiration of a reactor's operating license at that reactor or at an offsite storage installation.¹⁶⁴

The NRC amended its waste confidence rule several times, including in 2010 to extend the timeframes, due in part to the Yucca Mountain delays and uncertainties. In the 2010 waste confidence rule, the NRC found that SNF could be stored safely for at least 60 years beyond the expiration of a reactor's operating license and that sufficient mined geologic repository capacity would be available when necessary.¹⁶⁵ The 2010 rule amendment was struck down in 2012, when the D.C. Circuit held that it violated NRC's NEPA obligations.¹⁶⁶ In particular, the court held that the NRC had to examine the environmental effects of failing to establish a permanent repository, "a possibility that cannot be ignored;"¹⁶⁷ and the court also ordered the NRC to examine certain potential risks relating to interim storage of SNF.¹⁶⁸ The NRC largely suspended issuing reactor or storage installation licenses until its assessments and rulemaking responding to the decision were completed.¹⁶⁹

The NRC finalized a revised rule entitled "Continued Storage of Spent Nuclear Fuel" in September 2014, codifying the environmental impact determinations reflected in the generic environmental impact statement (GEIS) issued at the same time.¹⁷⁰ "Because the timing of repository availability is uncertain," the GEIS analyzes potential environmental impacts over a short-term timeframe of 60 years of continued storage after the end of a reactor's licensed life for operation; a 160-year timeframe to address the potential for delay in repository availability; and an indefinite timeframe "to address the possibility that a repository never becomes available."¹⁷¹ The rule provides that the impact determinations in the GEIS shall be deemed incorporated into the environmental assessments and environmental impact statements required by other regulatory provisions for licensing actions.¹⁷² The NRC also lifted the suspension on licensing decisions at that time.¹⁷³

The States of New York, Connecticut, and Vermont, along with the Prairie Island Indian Community and a number of interest groups, filed suit in the D.C. Circuit to challenge the 2014 Continued Storage rule, the underlying GEIS, and the NRC's order lifting the suspension on licensing decisions.¹⁷⁴ The State of Massachusetts and the California State Energy Resources Conservation and Development Commission intervened on behalf of the petitioners, while several power companies and the Nuclear Energy Institute intervened on behalf of the respondent

¹⁶⁴ *Id.*

¹⁶⁵ 75 Fed. Reg. 81,032, 81,037 (Dec. 23, 2010).

¹⁶⁶ *New York v. NRC*, 681 F.3d 471 (D.C. Cir. 2012).

¹⁶⁷ *Id.* at 473.

¹⁶⁸ *Id.* at 479-83.

¹⁶⁹ *In the Matter of Calvert Cliffs Nuclear Project et al.*, Commission Order CLI-12-16 (NRC Aug. 7, 2012), *available at* <http://www.nrc.gov/reading-rm/doc-collections/commission/orders/2012/2012-16cli.pdf>.

¹⁷⁰ 79 Fed. Reg. 56,238, 56,263 (Sep. 19, 2014), *codified at* 10 C.F.R. §51.23.

¹⁷¹ NRC, GENERIC ENVIRONMENTAL IMPACT STATEMENT FOR CONTINUED STORAGE OF SPENT NUCLEAR FUEL: FINAL REPORT, VOLUME 1 (NUREG-2157) (Sep. 2014), *available at* <http://www.nrc.gov/reading-rm/doc-collections/nuregs/staffsr2157/v1/index.html>.

¹⁷² 10 C.F.R. §51.23.

¹⁷³ *In the Matter of Calvert Cliffs 3 Nuclear Project et al.*, Commission Order CLI-14-08 (NRC Aug. 26, 2014), *available at* <http://www.nrc.gov/reading-rm/doc-collections/commission/orders/2014/2014-08cli.pdf>.

¹⁷⁴ *Petitions for Review: New York v. NRC*, No. 14-1210 (D.C. Cir. Oct. 24, 2014); *Prairie Island Indian Community v. NRC*, No. 14-1212 (D.C. Cir. Oct. 29, 2014); *Beyond Nuclear, Inc. v. NRC*, No. 14-1216 (D.C. Cir. Oct. 29, 2014); *Natural Resources Defense Council v. NRC*, No. 14-1217 (D.C. Cir. Oct. 29, 2014).

agencies. Administrative petitions to suspend nuclear reactor licensing decisions and motions to admit new contentions to nuclear reactor licensing dockets were also filed before the NRC in September 2014 on similar grounds; briefing in the litigation was deferred until after the NRC denied the administrative petitions and motions in February 2015.¹⁷⁵

On June 3, 2016, a three-judge panel of the D.C. Circuit upheld the NRC's Continued Storage rule.¹⁷⁶ In its decision in *New York v. NRC*, the court held, among other things, that “none of [the challenged] assumptions is so unreasonable as to render the NRC's decision-making arbitrary or capricious,”¹⁷⁷ and that the GEIS sufficiently analyzed the impacts of continued storage of SNF.¹⁷⁸ The court stated:

We acknowledge the political discord surrounding our nation's evolving nuclear energy policy. But the role of Article III courts in this debate is circumscribed. “The scope of review under the ‘arbitrary and capricious’ standard is narrow and a court is not to substitute its judgment for that of the agency.” To the extent that the petitioners disagree with the NRC's current policy for the continued storage of spent nuclear fuel, their concerns should be directed to Congress.¹⁷⁹

The D.C. Circuit denied petitioners' request for rehearing *en banc*.¹⁸⁰

Challenge to Nuclear Waste Fund Fee

A series of decisions in the D.C. Circuit have also affected the statutory mechanism by which the construction and operation of the Yucca Mountain repository was to be funded. As required by the NWPA, the DOE entered into contracts with nuclear power utilities in which the agency agreed to collect and dispose of SNF and high-level nuclear waste in exchange for ongoing payments by the utilities into the statutorily established Nuclear Waste Fund (NWF).¹⁸¹ The law further requires the Secretary of Energy to annually “review” the fees to determine if the NWF will provide sufficient revenue to fund the waste disposal program and propose an adjustment to the fee if he determines that either excessive or inadequate revenue is being collected.¹⁸² Despite the fact that DOE had neither begun collecting nuclear waste nor constructed a disposal facility—and indeed determined that the Yucca Mountain facility is “unworkable”—the agency continued to collect the NWF fees (amounting to approximately \$750 million per year). Nor had the Secretary proposed a fee adjustment—instead concluding that continued collection of the fee at established levels was warranted.¹⁸³

In 2010, the National Association of Regulatory Utility Commissioners (NARUC) challenged the Secretary's continued collection of the NWF fee, arguing that the Secretary had not adequately

¹⁷⁵ In the Matter of DTE Electric Co. et al., Commission Order CLI-15-4 (NRC Feb. 26, 2015), available at <http://pbadupws.nrc.gov/docs/ML1505/ML15057A261.pdf>.

¹⁷⁶ *New York v. NRC*, No. 14-1210, 2016 U.S. App. LEXIS 10091 (D.C. Cir. June 3, 2016).

¹⁷⁷ *Id.* at *26.

¹⁷⁸ *Id.* at *15-25.

¹⁷⁹ *Id.* at *28.

¹⁸⁰ See Order, *New York v. NRC*, No. 14-1210 (D.C. Cir. Aug. 8, 2016).

¹⁸¹ NWPA §302, 42 U.S.C. §10222.

¹⁸² NWPA §302(a)(4), 42 U.S.C. §10222(a)(4).

¹⁸³ As of 2015, the NWF had a balance of \$34.3 billion. DOE Fiscal Year 2015 Agency Financial Report at 34 (2015), available at http://energy.gov/sites/prod/files/2015/11/f27/DOE_FY2015_AFR.pdf.

considered costs and revenues, and had failed to take into consideration the Obama Administration’s decision to terminate the Yucca Mountain waste facility.¹⁸⁴

In June 2012, the D.C. Circuit agreed with NARUC and ruled that the Secretary’s fee determination was inadequate, holding that it was “unreasonable” for the agency to use Yucca Mountain as a “proxy” for calculating future costs when the DOE itself deemed the facility “unworkable.”¹⁸⁵ The court added that the Secretary’s failure to engage in “sophisticated evaluations of the potential costs of a hypothetical repository” was arbitrary and capricious.¹⁸⁶ At the time, however, the court found it “premature” to order the Secretary to suspend the fee, instead directing the Secretary to respond with a new fee assessment within six months.¹⁸⁷

The Secretary responded to the court’s order by asserting that he could not determine whether the fees were inadequate or excessive because the agency had concluded that the NWF’s capacity to cover the future costs of nuclear waste disposal could span anywhere from a \$2 trillion deficit to a \$4.9 trillion surplus—a range the D.C. Circuit characterized as “so large as to be absolutely useless as an analytical technique to be employed to determine—as the Secretary is obligated to do—the adequacy of the annual fees paid by petitioners.”¹⁸⁸

The court rejected the Secretary’s position, holding that “[t]he Secretary may not comply with his statutory obligation by ‘concluding’ that a conclusion is impossible” and that many of the agency’s assumptions in reaching its estimate were in conflict with the NWPA.¹⁸⁹ Given the Secretary’s failure to produce an adequate fee assessment, the court ordered the Secretary to propose an alteration of the NWF fee to zero “until such a time as either the Secretary chooses to comply with the Act as it is currently written, or until Congress enacts an alternative waste management plan.”¹⁹⁰

The DOE officially ceased collection of the NWF fee on May 16, 2014.¹⁹¹

Nuclear Power Utility Standard Contract Claims

As previously mentioned, the NWPA directed the DOE to enter into contracts with nuclear power utilities, the terms of which obligated the federal government to collect and dispose of the operator’s SNF and high-level waste in exchange for the payment of fees to the NWF.¹⁹² The NWPA expressly stated that these contracts (known as the Standard Contract)¹⁹³ require the federal government to begin disposal of the covered nuclear waste no later than January 31, 1998.¹⁹⁴ With no available repository, DOE breached the Standard Contract by failing to begin the

¹⁸⁴ National Association of Regulatory Utility Commissioners v. DOE, 405 Fed. Appx. 507 (D.C. Cir. 2010).

¹⁸⁵ National Association of Regulatory Utility Commissioners v. DOE, 680 F.3d 819, 824-25 (D.C. Cir. 2012).

¹⁸⁶ *Id.* at 825.

¹⁸⁷ *Id.* at 826.

¹⁸⁸ National Association of Regulatory Utility Commissioners v. DOE, 736 F.3d 517 (D.C. Cir. 2013).

¹⁸⁹ *Id.*

¹⁹⁰ *Id.*

¹⁹¹ See Hiruo, Elaine, *DOE Implements Court-Ordered Suspension of Nuclear Waste Fee*, NUCLEAR FUEL, May 26, 2014.

¹⁹² NWPA §302, 42 U.S.C. §10222.

¹⁹³ In an effort to streamline the collection and disposal process, DOE elected to create a single “Standard Contract for Disposal of Spent Nuclear Fuel and/or High Level Radioactive Waste” for use with nuclear power utilities. 10 C.F.R. §961.11.

¹⁹⁴ NWPA §302(a)(5)(B), 42 U.S.C. §10222(a)(5)(B). For a more detailed discussion of the contract litigation, see CRS (continued...)

acceptance and disposal of SNF by the statutory deadline established in the NWPA. As a result, nuclear utilities have spent billions of dollars on temporary storage for toxic SNF that DOE is contractually and statutorily required to collect for disposal.¹⁹⁵ The breach has triggered a prolonged series of suits by nuclear power providers seeking to recover damages for DOE's failure to perform its statutory and contractual obligations. DOE estimates total liability stemming from these cases will reach \$29 billion.¹⁹⁶

Although DOE has acknowledged its partial breach of the Standard Contract in most cases,¹⁹⁷ significant litigation has been required to determine the level of damages individual nuclear utilities may legally recover. The nuclear utilities have pursued their breach of contract claims under a partial breach theory.¹⁹⁸ Generally speaking, when one party to a contract materially breaches the contract, the non-breaching party has the option to sue for damages under either a "full breach" or "partial breach" theory.¹⁹⁹ A successful claim for full breach discharges the contractual obligations of both parties and allows the non-breaching party to sue for all past, present, and future damages.²⁰⁰ A claim for partial breach, on the other hand, preserves the ongoing contractual relationship between the parties—meaning both parties are still obligated to perform under the terms of the contract.²⁰¹ Additionally, a party suing for partial breach may only recover the costs of mitigating the other party's breach that were incurred between the time the party became aware of a potential breach and the date of trial, and may not, therefore, recover future damages.²⁰²

Nuclear utilities have generally been successful in recovering all reasonable and foreseeable expenses incurred in mitigation of DOE's breach.²⁰³ These damages typically consist of costs

(...continued)

Report R40996, *Contract Liability Arising from the Nuclear Waste Policy Act (NWPA) of 1982*, by (name redacted)

¹⁹⁵ See U.S. Government Accountability Office, *Spent Nuclear Fuel Management: Outreach Needed to Help Gain Public Acceptance for Federal Activities That Address Liability*, GAO-15-141, Oct. 9, 2014, <http://www.gao.gov/assets/670/666454.pdf>.

¹⁹⁶ See DOE Fiscal Year 2015 Agency Financial Report at 77-78 ("To date, 35 suits have been settled involving utilities that collectively produce about 82 percent of the nuclear generated electricity in the United States. Under the terms of the settlements, the Judgment Fund, 31 U.S.C. 1304, paid \$3.9 billion to the settling utilities for delay damages they have incurred through September 30, 2015. In addition, 33 cases have been resolved by final judgments. Eight of those cases resulted in an award of no damages by the trial court and the remaining 25 cases resulted in a total of \$1.4 billion in damages that have been paid ... the total liability estimate is \$29 billion ...").

¹⁹⁷ See, e.g., *System Fuels Inc. v. United States*, 66 Fed. Cl. 722, 730 (2005) ("The government admitted on February 10, 2005 that 'DOE's delay in beginning acceptance of SNF ... constitutes a partial breach of the Standard Contract.'").

¹⁹⁸ See, e.g., *Pacific Gas & Elec. Co. v. United States*, 536 F.3d 1282 (Fed. Cir. 2008) ("A series of cases has established that DOE has partially breached the contract by failing to begin its performance.").

¹⁹⁹ See Restatement (Second) of Contracts §236 cmt. b ("If the injured party elects to or is required to await the balance of the other party's performance under the contract, his claim is said instead to be one for damages for partial breach."); Restatement (Second) of Contracts §243 cmt. a.

²⁰⁰ Restatement (Second) of Contracts §236.

²⁰¹ *Id.* See also, E. Alan, Farnsworth, *Contracts* §8.15 (3d ed. 1999) ("Damages are calculated on the assumption that both parties will continue to perform in spite of the breach.").

²⁰² *Indiana Michigan Power Co. v. United States*, 422 F.3d 1369, 1374 (Fed. Cir. 2005) (holding that a partial breach plaintiff can recover damages incurred from the point at which the "party has reason to know that performance by the other party will not be forthcoming" to the date of trial.).

²⁰³ As a general rule, to recover damages the utilities must show that "(1) the damages were reasonably foreseeable ... at the time of contracting; (2) the breach is a substantial causal factor in the damages; and (3) the damages are shown with reasonable certainty." *Indiana Michigan Power*, 422 F.3d at 1373.

associated with developing, implementing, and maintaining on-site interim SNF storage.²⁰⁴ Damages are limited, however, to the costs incurred from the date at which the utility became aware of DOE's potential breach, a realization often occurring well before the January 31, 1998, deadline, to the date of trial.²⁰⁵ Nuclear utilities are free, however, to re-file future claims as new damages are incurred.²⁰⁶ The Judgment Fund of the U.S. Treasury, not the NWF, has been the source of federal funds for the payment of eligible claims; as of the end of FY2015, a total of \$5.3 billion had been paid for settlements and final judgments.²⁰⁷

Congressional Action on Yucca Mountain Facility and Nuclear Waste Storage and Disposal

Energy and Water Development and Related Agencies Appropriations

The Obama Administration's FY2017 budget request included an increase in funding for disposal of SNF, including funding to expand DOE's efforts to develop a "consent-based" nuclear waste disposal system in lieu of a repository at Yucca Mountain.²⁰⁸ Similar to previous years, the House Appropriations Committee rejected the Administration's program funding request and instead voted to provide \$170 million to continue the Yucca Mountain licensing process.²⁰⁹ (As noted above, NRC is currently winding down the licensing process using what remains of previously appropriated funds; the NRC Chairman has testified that completion of the licensing process for Yucca Mountain, including the adjudication, would cost \$330 million, not including any costs that would be incurred by DOE as the license applicant.²¹⁰) Likewise similar to previous years, the Senate has not included any funding to continue the Yucca Mountain licensing process, but did include provisions granting DOE authority to move forward with a pilot consolidated interim nuclear waste storage facility with consent-based siting, notwithstanding any other provisions of the NWA.²¹¹ The Senate approved its version of the FY2017 Energy and Water Development

²⁰⁴ On-site interim storage commonly requires "re-racking" or the construction of "dry casks." For further information on interim storage see CRS Report R40202, *Nuclear Waste Disposal: Alternatives to Yucca Mountain*, by (name redacted)

²⁰⁵ Or in the case of subsequent suits, from the date of last recovery to the date of trial.

²⁰⁶ *Indiana Michigan Power*, 422 F.3d at 1377 ("When a party sues for partial breach, it retains its rights to sue for damages for its remaining rights to performance."). New claims must be filed at least every six years in order to comply with the statute of limitations.

²⁰⁷ See CRS Testimony TE10002, *Nuclear Waste Fund: Budgetary, Funding, and Scoring Issues*, by (name redacted)

²⁰⁸ See CRS Report R44465, *Energy and Water Development: FY2017 Appropriations*, by (name redacted)

²⁰⁹ Energy and Water Development and Related Agencies Appropriations Act, 2016, H.R. 2028, 114th Cong. (as passed by House, May 1, 2015); H.Rept. 114-91 (2015).

²¹⁰ FY16 Nuclear Regulatory Commission Budget: Hearing before the Senate Appropriations Committee Subcommittee on Energy and Water Development, 114th Cong. (Mar. 4, 2015) (statement of Stephen G. Burns, NRC Chairman), available at <http://www.appropriations.senate.gov/sites/default/files/hearings/EW%20NRC%20Chairman%20Burns%20Statement%20030415.pdf>.

²¹¹ H.R. 2028, 114th Cong. §306 (as passed by Senate, May 12, 2016); S.Rept. 114-236 (2016).

appropriations bill on May 12, 2016,²¹² but the House version of the bill did not pass a roll call vote on the House floor on May 26, 2016.²¹³

Blue Ribbon Commission Recommendations

Several bills have been introduced to implement a number of the recommendations made in 2012 by the Blue Ribbon Commission on America's Nuclear Future.²¹⁴ S. 854, the Nuclear Waste Administration Act of 2015, would establish a new Nuclear Waste Administration (NWA) as an independent agency in the executive branch, to which all current DOE functions under the NWPA and all current nuclear waste disposal contracts would be transferred.²¹⁵ Repository siting would no longer be set by statute at Yucca Mountain; rather, all repository and storage siting would be required to follow a consent-based procedure.²¹⁶ A new Nuclear Waste Oversight Board would oversee various funding, fee, and contract-related matters.²¹⁷ S. 854 would remove a number of limitations on the nuclear agency's authority currently imposed by the NWPA. It would require the NWA to establish a program for at least one federal or private nuclear waste storage facility to provide interim storage, starting with a pilot program for high-priority waste such as waste from decommissioned nuclear reactors.²¹⁸ It would also expressly allow for reevaluation of the determination, made in 1985, that a separate facility for defense nuclear waste was not "necessary," and would more broadly allow separate facilities "if necessary or appropriate."²¹⁹ NWPA's current repository volume limitations would also be revoked.²²⁰ The bill also contains various provisions on nuclear waste transportation, technical assistance, and funding and cost recovery.

S. 854 expressly provides that ongoing litigation against DOE regarding nuclear waste disposal contracts²²¹ shall "not abate by reason of the enactment of this Act," and would continue with the Administrator of the NWA substituted for the Secretary of Energy.²²² However, the bill directs the Administrator, together with the Attorney General, to settle the claims "as a condition precedent of an agreement of the Administrator to take title to and store the nuclear waste of the contract holder at a storage facility," and to modify contracts in accordance with such settlements.²²³

Another pair of bills introduced in the 114th Congress in both houses, the Nuclear Waste Informed Consent Act, H.R. 1364 and S. 691, would relate more narrowly to the Blue Ribbon Commission's recommendation for a new "consent-based approach" to nuclear waste facility siting. These bills would prohibit the NRC from granting a nuclear waste repository construction license unless DOE has entered into a written agreement to host the repository with the governor of the state in which the repository is proposed to be located; each affected unit of local

²¹² *Id.*

²¹³ H.R. 5055, 114th Cong.; H.Rept. 114-532 (2016).

²¹⁴ See "Blue Ribbon Commission on America's Nuclear Future."

²¹⁵ S. 854, 114th Cong. tit. II-III (2015). A similar bill, S. 1240, was introduced in the 113th Congress.

²¹⁶ *Id.* §§304-306.

²¹⁷ *Id.* §205.

²¹⁸ *Id.* §305.

²¹⁹ *Id.* §308.

²²⁰ *Id.* §509.

²²¹ See "Nuclear Power Utility Standard Contract Claims."

²²² S. 854, 114th Cong. §406 (2015).

²²³ *Id.*

government²²⁴ as well as any unit of general local government contiguous to the affected unit of local government through which SNF or HLW would be transported; and each affected Indian tribe. The bills also clarify that the consent requirements apply to DOE's pending 2008 application for a construction license Yucca Mountain, as well as to any application submitted thereafter. Notably, comparable provisions of S. 854 would extend to nuclear waste storage facilities as well as permanent repositories, but S. 854 does not include contiguous local governments through which waste would be transported.

The Interim Consolidated Storage Act, H.R. 3643 and H.R. 4745, would amend the NWSA to expressly authorize DOE to enter or modify contracts for the storage of HLW or SNF with any licensed interim consolidated storage facility, and to specify that DOE's transfer of HLW or SNF to such a facility would satisfy Standard Contract obligations. H.R. 3643 also would enable DOE to use "necessary amounts" from the Nuclear Waste Fund for certain costs in connection with an interim consolidated storage facility, without further appropriation; this provision is removed in H.R. 4745.²²⁵ Waste Control Specialists LLC (WCS), a private company, in collaboration with Andrews County, Texas, has proposed to develop an interim consolidated storage facility in Texas, and has filed a license application with the NRC; an application for a second centralized interim storage facility in New Mexico is expected to be filed by another company, Holtec International, later in 2016.²²⁶

Yucca Mountain Licensing

Taking a contrasting approach to the bills above, in the 113th Congress, H.R. 3895, the Energy Exploration and Production to Achieve National Demand Act, or EXPAND Act, would have directed the NRC to continue to review DOE's pending license application to construct the repository at Yucca Mountain and to approve such application within 180 days after enactment, apparently notwithstanding any lack of appropriations or any determinations by the NRC finding deficiencies in the application. H.R. 3895 also would have removed statutory limitations on the amount of radiological material that can be placed in Yucca Mountain and required the NRC to replace such limitations with new limits based on scientific and technical analysis. In addition, H.R. 3895 would have mandated the NRC to take certain measures to accelerate nuclear energy development.²²⁷

Nuclear Waste Reduction and Storage Safety

Several other bills have been introduced in the 114th Congress relating to nuclear waste reduction and storage safety, and they have taken diverging approaches to dealing with the current lack of disposal options stemming from the hurdles that have faced the Yucca Mountain repository. With

²²⁴ The term "affected unit of local government" is not defined. By comparison, the bill incorporates the NWSA's definition of "affected Indian tribe" as "any Indian tribe—(A) within whose reservation boundaries a [nuclear waste testing, storage, or disposal facility] is proposed to be located; (B) whose federally defined possessory or usage rights to other lands outside of the reservation's boundaries arising out of congressionally ratified treaties may be substantially and adversely affected by the locating of such a facility: *Provided*, That the Secretary of the Interior finds, upon the petition of the appropriate governmental officials of the tribe, that such effects are both substantial and adverse to the tribe."

²²⁵ H.R. 3643, §3(b) (adding NWSA §191(d)).

²²⁶ Mark Lombard, NRC Director of Division of Spent Fuel Management, "WCS Sends NRC Interim Storage Application," NRC Public Blog, April 28, 2016, <https://public-blog.nrc-gateway.gov/2016/04/28/wcs-sends-nrc-interim-storage-application/>.

²²⁷ H.R. 3895, 113th Cong. (2014).

respect to nuclear waste reduction, H.R. 1806, the America COMPETES Reauthorization Act of 2015, contains various provisions for DOE nuclear energy research, including “[r]educing used nuclear fuel and nuclear waste products generated by civilian nuclear energy,” as well as “[r]educing the environmental impact of nuclear energy-related activities.”²²⁸ More specifically, the bill replaces DOE’s Nuclear Reactor 2010 program²²⁹ with a program for reactor concepts that, among other attributes, “substantially reduce production of high-level waste per unit of output.”²³⁰ Fuel cycle research and development under the bill would also encompass a variety of potential strategies to minimize nuclear waste creation (including by nuclear fuel recycling), improve safety, and improve waste management and storage.²³¹ H.R. 1806 passed the House on May 20, 2015, on a 217-205 vote and was referred to the Senate Committee on Commerce, Science, and Transportation.

A series of bills in the Senate target SNF storage management for active and decommissioned nuclear power plants, with an emphasis on moving SNF out of pools. S. 944, the Safe and Secure Decommissioning Act of 2015, would prohibit NRC from granting any regulatory waiver or exemption for a nuclear power reactor that has permanently shut down, thereby requiring NRC to impose full safety and security requirements, unless and until all of that reactor’s SNF has been transferred from pools to dry casks. S. 945, the Dry Cask Storage Act of 2015, would require nuclear power plants to develop, and NRC to review and approve or disapprove, plans for removing SNF from storage pools and transfer it to dry cask storage facilities. S. 964, the Nuclear Plant Decommissioning Act of 2015, would expand requirements for post-shutdown decommissioning activities reports to increase state, local, and public involvement and NRC oversight. Similar bills were introduced in the 113th Congress.²³²

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²²⁸ H.R. 1806, 114th Cong. §621 (2015) (to amend §951 of the Energy Policy Act of 2005, 42 U.S.C. §16271).

²²⁹ 42 U.S.C. §16272.

²³⁰ H.R. 1806, 114th Cong. §623 (2015).

²³¹ *Id.* §625.

²³² Safe and Secure Decommissioning Act of 2014, S. 2324, 113th Cong. (2014); Dry Cask Storage Act of 2014, S. 2325, 113th Cong. (2014); Nuclear Plant Decommissioning Act of 2014, H.R. 4667, S. 2326, 113th Cong. (2014).

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