

**NUCLEAR REGULATORY COMMISSION**

**10 CFR Part 51**

**[Docket Nos. PRM-51-14, et al.; NRC-2011-0189]**

**Environmental Impacts of Severe Reactor and Spent Fuel Pool Accidents**

**AGENCY:** Nuclear Regulatory Commission.

**ACTION:** Petition for rulemaking; denial.

**SUMMARY:** The U.S. Nuclear Regulatory Commission (NRC) is denying 15 petitions for rulemaking submitted by the petitioners identified in the table in Section IV, "Availability of Documents." The petitioners requested that the NRC rescind its regulations that "reach generic conclusions about the environmental impacts of severe reactor and/or spent fuel pool accidents and therefore prohibit considerations of those impacts in reactor licensing proceedings."

**DATES:** The dockets for the petition for rulemakings PRM-51-14, PRM-51-15, PRM-51-16, PRM-51-17, PRM-51-18, PRM-51-19, PRM-51-20, PRM-51-21, PRM-51-22, PRM-51-23, PRM-51-24, PRM-51-25, PRM-51-26, PRM-51-27, and PRM-51-28 are closed on **[INSERT DATE OF PUBLICATION]**.

**ADDRESSES:** Please refer to Docket ID NRC-2011-0189 when contacting the NRC about the availability of information for any of these petitions. You may obtain publicly-available

information related to this action by any of the following methods:

- **Federal Rulemaking Web Site:** Go to <http://www.regulations.gov> and search for Docket ID NRC-2011-0189. Address questions about NRC dockets to Carol Gallagher, telephone: 301-287-3422; e-mail: [Carol.Gallagher@nrc.gov](mailto:Carol.Gallagher@nrc.gov). For technical questions, contact the individual listed in the “FOR FURTHER INFORMATION CONTACT” section of this document.

- **NRC’s Agencywide Documents Access and Management System (ADAMS):**  
You may obtain publicly available documents online in the ADAMS Public Documents collection at <http://www.nrc.gov/reading-rm/adams.html>. To begin the search, select “[ADAMS Public Documents](#)” and then select “[Begin Web-based ADAMS Search](#).” For problems with ADAMS, please contact the NRC’s Public Document Room (PDR) reference staff at 1-800-397-4209, 301-415-4737, or by e-mail to [PDR.resource@nrc.gov](mailto:PDR.resource@nrc.gov). For the convenience of the reader, instructions about obtaining information regarding the 15 petitions and other materials referenced in this document are provided in the “Availability of Documents” section.

- **NRC’s PDR:** You may examine and purchase copies of public documents at the NRC’s PDR, O1-F21, One White Flint North, 11555 Rockville Pike, Rockville, MD 20852.

**FOR FURTHER INFORMATION CONTACT:** Jenny Tobin, Office of Nuclear Reactor Regulation, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001; telephone: 301-415-2328; e-mail: [Jennifer.Tobin@nrc.gov](mailto:Jennifer.Tobin@nrc.gov).

## **SUPPLEMENTARY INFORMATION:**

I. Background.

II. Environmental Impacts of Severe Reactor Accidents and Spent Fuel Pool Accidents.

Determination of Petitions.

### III. Availability of Documents.

#### I. Background.

The 15 petitions were filed in August 2011 in response to the publication of the NRC's Near-Term Task Force (NTTF) report, "Recommendations for Enhancing Reactor Safety in the 21<sup>st</sup> Century, The Near-Term Task Force Review of Insights from the Fukushima Dai-ichi Accident," dated July 12, 2011. The NTTF report provided the NRC staff's recommendations to enhance U.S. nuclear power plant safety following the March 11, 2011, Fukushima accident in Japan. Based upon their interpretation of the NTTF report, the petitioners requested that the NRC rescind all regulations in part 51 of Title 10 of the *Code of Federal Regulations* (10 CFR) that "to the extent that they reach generic conclusions about the environmental impacts of severe reactor and/or spent fuel pool accidents and therefore prohibit considerations of those impacts in reactor licensing proceedings."<sup>1</sup> The NRC's regulations in 10 CFR part 51 implement section 102(2) of the National Environmental Policy Act of 1969, as amended (NEPA).<sup>2</sup>

The NRC defines "severe reactor accidents" as "those in which substantial damage is done to the reactor core, regardless of whether serious offsite consequences occur."<sup>3</sup> Spent fuel pools are large, robust structures that contain thousands of gallons of water. Spent fuel pools have thick, reinforced, concrete walls and floors lined with welded, stainless-steel plates. After removal from the reactor, spent fuel assemblies are placed into these pools and stored under at least 20 feet of water, which provides adequate shielding from radiation. Redundant monitoring, cooling, and makeup-water systems are part of the spent fuel pool system.

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<sup>1</sup> See, e.g., San Luis Obispo Mothers for Peace Petition for Rulemaking, PRM-51-15 at 2 (August 11, 2011). All of the petitions have the same, or essentially the same, request for rulemaking.

<sup>2</sup> 10 CFR 51.1(a).

<sup>3</sup> NUREG-1793, Final Safety Evaluation Report Related to Certification of the AP1000 Standard Design, Ch. 19 (2004).

The NTTF report, the 15 petitions, along with their NRC assigned docket numbers, and other pertinent documents are listed in Section IV, "Availability of Documents." The NRC published a notice of receipt of the petitions in the *Federal Register* (FR) on November 10, 2011 (76 FR 70067).<sup>4</sup> As explained in the November 10, 2011 notice, the Commission stated that it was:

reviewing the [NTTF report], including the issues presented in the 15 petitions for rulemaking. The petitioners specifically cite the [NTTF report] as rationale for the PRMs [petitions for rulemaking]. The NRC will consider the issues raised by these PRMs through the process the Commission has established for addressing the recommendations from the [NTTF report] and is not providing a separate opportunity for public comment on the PRMs at this time.<sup>5</sup>

As such, the NRC staff placed the 15 petitions into abeyance pending the outcome of deliberations regarding the recommendations from the NTTF report. Although activities related to the NTTF report are ongoing, the NRC staff determined that sufficient information is now available to address the 15 petitions.

#### A. NTTF Report.

Following the March 11, 2011, Fukushima Dai-ichi accident, the Commission directed the NRC staff to establish a task force to conduct a methodical and systematic review of NRC processes and regulations to determine whether the agency should make additional improvements to its regulatory system and to make recommendations to the Commission for its

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<sup>4</sup> The petitioners also requested a suspension of ongoing reactor licensing proceedings. In its notice of the petitions' receipt, the Commission referenced its September 9, 2011, decision, CLI-11-5, denying the petitioners' suspension requests. 76 FR at 70068 *citing Union Electric Company d/b/a Ameren Missouri (Callaway Plant, Unit 2), et al*, CLI-11-5, 74 NRC 141, 173-76 (2011).

<sup>5</sup> 76 FR 70069.

policy direction.<sup>6</sup> The staff formed the NTTF, which submitted the NTTF report to the Commission in SECY-11-0093, “Near-Term Report and Recommendations for Agency Actions Following the Events in Japan,” dated July 12, 2011. The 15 petitions were filed in August 2011.

The NTTF report provided various NRC staff recommendations to the Commission concerning the enhancement of reactor safety, and a general implementation strategy, which included several proposals for new regulatory requirements. Recognizing that rulemaking and subsequent implementation can take several years to accomplish, the NTTF also recommended interim actions necessary to enhance reactor protection, severe reactor accident mitigation, and emergency preparedness while rulemaking activities are conducted.<sup>7</sup> In addition, the NTTF report concluded that a sequence of events like the Fukushima accident is unlikely to occur in the United States and therefore, ongoing power reactor operations and related licensing activities do not pose an imminent risk to public health and safety.

The NRC staff further refined the NTTF recommendations in SECY-11-0124, “Recommended Actions to be Taken Without Delay from the Near Term Task Force Report,” and SECY-11-0137, “Prioritization of Recommended Actions to be Taken in Response to Fukushima Lessons Learned,” both of which described the NRC staff’s recommendations for enhancing reactor safety and the priority for implementing those recommendations. In addition, the NRC has issued orders and initiated rulemaking activities to enhance the safety of reactors as a result of lessons learned from the Fukushima Dai-ichi accident. The petitioners contend that the recommendations of the NTTF report provides the justification for their request that the NRC rescind those regulations in 10 CFR part 51 to the extent that they reach generic

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<sup>6</sup> Tasking Memorandum – COMGBJ-11-0002 – NRC Actions Following the Events in Japan, March 23, 2011.

<sup>7</sup> <http://www.nrc.gov/reactors/operating/ops-experience/japan-dashboard.html>.

conclusions with respect to potential environmental impacts of severe reactor and spent fuel pool accidents and that preclude consideration of those conclusions in individual license renewal proceedings. Specifically, the petitions request that the NRC amend the following regulations: 10 CFR 51.45, 10 CFR 51.53, 10 CFR 51.95, and table B-1 to appendix B to subpart A of 10 CFR part 51 (table B-1).

#### B. Nuclear Power Plant License Renewal Actions and Table B-1.

In accordance with 10 CFR 51.95(c), which concerns nuclear power plant license renewal actions, the NRC relies upon NUREG-1437, “Generic Environmental Impact Statement for License Renewal of Nuclear Plants” (GEIS), an environmental impact statement initially published in May 1996 (1996 GEIS) and then revised and updated in June 2013 (2013 GEIS).<sup>8</sup> The GEIS describes the potential environmental impacts of renewing the operating license of a nuclear power plant for an additional 20 years. The NRC classifies the license renewal issues described in the GEIS as either generic or site-specific. Generic issues (i.e., environmental impacts common to all nuclear power plants) are addressed in the GEIS. Site-specific issues are addressed initially by the license renewal applicant (i.e., a nuclear power plant licensee seeking a renewal of its operating license under the NRC’s license renewal regulations in 10 CFR part 54), in its environmental report, which is required by 10 CFR 51.45, and then by the NRC in the supplemental environmental impact statement (SEIS) prepared for each license renewal application. The criteria for a license renewal applicant’s environmental report is set forth in 10 CFR 51.53(c).

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<sup>8</sup> The NRC regulation, 10 CFR 51.95(c), requires, for the consideration of potential environmental impacts of renewing a nuclear power plant’s operating license under 10 CFR part 54, that the NRC prepare an environmental impact statement, which is a supplement to the Commission’s NUREG–1437, “Generic Environmental Impact Statement for License Renewal of Nuclear Plants,” issued in June 2013. At the time the petitions were filed in 2011, 10 CFR 51.95(c) referred to the initial 1996 GEIS. The NRC published a notice of issuance for the updated 2013 GEIS on June 20, 2013 (78 FR 37325).

Under the NRC's current regulatory framework in 10 CFR part 51 for evaluating the potential environmental impacts of renewing a nuclear power reactor's operating license for an additional 20 years, neither the applicant's environmental report nor the NRC's SEIS are required to address issues previously determined to be generic, as set forth in the GEIS and the implementing regulations in 10 CFR part 51, absent new and significant information. The findings of the GEIS are codified in table B-1.<sup>9</sup> In table B-1, generic issues are designated as "Category 1" issues and site-specific issues are designated as "Category 2" issues. All of the NRC regulations cited by the petitioners pertain, either directly or indirectly, to specific generic findings in the GEIS that are, in turn, codified in table B-1. Therefore, the petitioners object to those table B-1 findings that make generic conclusions with respect to the potential environmental impacts of severe reactor and spent fuel pool accidents, namely, the findings for the table B-1 issues, "Severe accidents" and "Onsite storage of spent nuclear fuel."

In accordance with 10 CFR 2.335(a),<sup>10</sup> NRC rules and regulations, such as table B-1, generally cannot be challenged in NRC adjudicatory proceedings, including site-specific license renewal proceedings for a nuclear power plant before the NRC's Atomic Safety and Licensing Board. Thus, the petitioners request the rescission of the generic findings in table B-1, so that they can challenge the NRC environmental impact findings now encompassed in the table B-1 issues, "Severe accidents" and "Onsite storage of spent nuclear fuel," in future license renewal proceedings.

In table B-1, the "Severe accidents" issue has been classified as a Category 2, or

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<sup>9</sup> Table B-1 was amended to reflect the June 2013 GEIS update. The NRC rule amending Table B-1 and other 10 CFR part 51 regulations was published in the *Federal Register* on June 20, 2013 (78 FR 37282).

<sup>10</sup> NRC regulation, 10 CFR 2.335(a) states, in pertinent part, that "no rule or regulation of the Commission, or any provision thereof, concerning the licensing of production and utilization facilities, source material, special nuclear material, or byproduct material, is subject to attack by way of discovery, proof, argument, or other means in any adjudicatory proceeding subject to this [10 CFR part 2]." Paragraphs 2.335(b)-(d) provide exceptions to the provision in 10 CFR 2.335(a).

site-specific, issue with an impact level finding of “small.”<sup>11</sup> Although not classified as a generic issue, the table B-1 Severe accidents finding states that:

[t]he *probability-weighted consequences* of atmospheric releases, fallout onto open bodies of water, releases to groundwater, and societal and economic impacts from severe accidents *are small for all plants*. However, alternatives to mitigate severe accidents must be considered for all plants that have not considered such alternatives.<sup>12</sup>

The NRC notes that the petitions were filed in August 2011, before the June 2013 final rule that revised table B-1 and other provisions of 10 CFR part 51 was published. The 2013 amendments to the table B-1 “Severe accidents” finding, however, were of a minor, editorial nature (consisting of no more than deleting a regulatory reference). Otherwise, the language of the table B-1 “Severe accidents” finding is the same as the language that was in effect when the petitions were filed in 2011.

The table B-1 “Onsite storage of spent nuclear fuel” issue has been classified as a Category 1, or generic, issue also with an impact level finding of “small.” The “[o]nsite storage of spent nuclear fuel” finding states that: the expected increase in the volume of spent fuel from an additional 20 years of operation can be safely accommodated onsite during the license renewal term with small environmental effects through dry or pool storage at all plants. For the period after the licensed life for reactor operations, the impacts of onsite storage of spent nuclear fuel during the continued storage period are discussed in NUREG-2157 and as stated in

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<sup>11</sup> For most table B-1 NEPA issues, the NRC determined whether the impacts of license renewal would have a small, moderate, or large environmental impact. The statements of consideration for the June 20, 2013 rulemaking stated that “[a] small impact means that the environmental effects are not detectable, or are so minor that they would neither destabilize nor noticeably alter any important attribute of the resource. A moderate impact means that the environmental effects are sufficient to alter noticeably, but not destabilize, important attributes of the resource. A large impact means that the environmental effects would be clearly noticeable and would be sufficient to destabilize important attributes of the resource” (78 FR 37285).

<sup>12</sup> 10 CFR part 51, subpart A, appendix B, table B-1, “Severe accidents” finding (emphasis added).



§ 51.23(b), shall be deemed incorporated into this issue.<sup>13</sup>

The 2013 amendments to the table B-1 “Onsite storage of spent nuclear fuel” finding were made to comport with the U.S. Court of Appeals decision in *New York v. NRC*, 681 F.3d 471 (D.C. Cir. 2012), which vacated the NRC’s 2010 final rule that updated the NRC’s “waste confidence” decision and rule (75 FR 81032, 81037; December 23, 2010). On September 19, 2014, the NRC issued the final “continued storage” rule<sup>14</sup> (formerly known as the waste confidence rule), which addressed the *New York vs. NRC* decision. The “[o]nsite storage of spent nuclear fuel” issue has been a generic, or Category 1, issue since table B-1’s inception in 1996.

#### C. Other NRC Regulations Identified by the Petitioners.

The NRC regulation, 10 CFR 51.45, sets forth the general requirements for an environmental report, which the NRC defines as a document submitted to the Commission by an applicant for a permit, license, or other form of permission, or an amendment to or renewal of a permit, license or other form of permission, in order to aid the Commission in complying with section 102(2) of NEPA.<sup>15</sup> Paragraph 51.45(b) requires that the environmental report contain a description of the proposed action, a statement of its purposes, and a description of the environment affected. Section 51.45 also contains a list of items that the environmental report should discuss, such as the impact of the proposed action on the environment, any adverse effects that cannot be avoided if the proposed action were to be implemented, and alternatives

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<sup>13</sup> 10 CFR part 51, Subpart A, App. B, Table B-1, “Onsite storage of spent nuclear fuel” finding. Spent fuel is stored in spent fuel pools. Following a sufficient period of time to allow the spent fuel to cool, spent fuel may be removed from the pool and placed in large casks on the licensee controlled site (“dry” storage).

<sup>14</sup> 79 FR 56238.

<sup>15</sup> 10 CFR 51.14(a) (definition of “environmental report”).

to the proposed action.<sup>16</sup>

The NRC regulation, 10 CFR 51.53(c), describes the applicant's preparation of an environmental report for the renewal of a nuclear power plant's operating license. Paragraph 51.53(c)(3)(i) states that the environmental report is not required to include analyses of the potential environmental impacts identified as Category 1 issues in table B-1. Paragraphs (c)(3)(ii)(A)-(P) of 10 CFR 51.53, describe the requirement to conduct environmental impact analyses for those Category 2 issues in table B-1 that must be addressed on a site-specific basis by the license renewal applicant in its environmental report. Specifically, 10 CFR 51.53(c)(3)(ii)(L) requires license renewal applicants to provide a consideration of alternatives to mitigate severe reactor accidents if the staff has not previously evaluated Severe Accident Mitigation Alternatives (SAMAs) for the applicant's plant in an environmental impact statement (EIS) or related supplement or in an environmental assessment (EA). In addition, paragraph 51.53(c)(3)(iv), requires the environmental report to include any new and significant information regarding the environmental impacts of license renewal of which the applicant is aware.

The NRC regulation, 10 CFR 51.95, describe the preparation of a post-construction environmental impact statement by the NRC, such as at the license renewal stage. Both 10 CFR 51.53 and 10 CFR 51.95 were among the regulations amended by the NRC to reflect the June 2013 update to the GEIS.<sup>17</sup>

#### D. Several Petitions Concern Actions Outside of License Renewal.

Several of the petitions were filed in relation to new reactor licensing proceedings, as opposed to proceedings concerning the renewal of an existing nuclear power plant's operating

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<sup>16</sup> 10 CFR 51.45(b)(1)-(5).

<sup>17</sup> The NRC rule amending these regulations was published in the *Federal Register* on June 20, 2013 (78 FR 37282).

license. The petitions filed for combined license (COL) actions are: PRM-51-14, -51-17, -51-18, -51-21, -51-23, -51-24, -51-25, -51-27, and -51-28; PRM-51-16 was filed for an operating license (OL) action. The generic findings to which the petitioners object concern only license renewal actions conducted pursuant to 10 CFR part 54. Specifically, the NRC's 10 CFR part 51 regulations that reach generic conclusions regarding severe accident or spent fuel storage issues in table B-1 do not apply to new reactor applications made under the provisions of 10 CFR part 52, for either an early site permit (ESP) or a COL, or for a construction permit (CP) or OL application (e.g., the Watts Bar 2 application) made under the provisions of 10 CFR part 50. The NRC makes no generic conclusions about severe reactor and spent fuel pool accidents when preparing environmental impacts statements for ESP, COL, CP, or OL applications. For these types of applications, the NRC performs a site-specific environmental review and does not rely upon generic conclusions in determining potential environmental impacts.

## **II. Environmental Impacts of Severe Reactor Accidents and Spent Fuel Pool Accidents.**

### **A. Overview.**

The petitioners assert that the lessons learned from the Fukushima Dai-ichi event, as documented in the recommendations of the NNTF report, provide “new and significant” information that would affect the NRC’s analysis of severe reactor and spent fuel pool accidents when considering whether to renew a nuclear power plant’s operating license for an additional 20 years in accordance with the NRC regulations in 10 CFR part 54, “Requirements for Renewal of Operating Licenses for Nuclear Power Plants.” It is upon this basis that the petitioners request that the NRC rescind all regulations in 10 CFR part 51 that “reach generic conclusions about the environmental impacts of severe reactor and/or spent fuel pool accidents

and therefore prohibit considerations of those impacts in reactor licensing proceedings.”<sup>18</sup>

Under NEPA case law, the standard for considering whether information is “new and significant” is that it must present “a seriously different picture of the environmental impact of the proposed project from what was previously envisioned.”<sup>19</sup> If the information is “new and significant,” and if the agency has not yet taken the proposed action, then the agency is required to supplement its environmental impact statement.<sup>20</sup> As described in this document, the NRC has determined that the NTTF report recommendations do not constitute “new and significant” information.

Moreover, the presence of “new and significant” information under NEPA does not compel an agency to engage in rulemaking, which is what petitioners request.<sup>21</sup>

Unless expressly directed by statute, the decision to promulgate rulemaking is a discretionary one on the part of the agency.<sup>22</sup>

With respect to the NTTF report recommendations, the NRC has implemented, or is in

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<sup>18</sup> See, e.g., San Luis Obispo Mothers for Peace Petition for Rulemaking, PRM-51-15 at 1 (August 11, 2011). All of the petitions have the same, or essentially the same, request for rulemaking.

<sup>19</sup> *Union Electric Company d/b/a Ameren Missouri (Callaway Plant, Unit 2), et al*, CLI-11-5, 74 NRC 141, 167-68 (2011) quoting *Hydro Resources, Inc.*, CLI-99-22, 50 NRC 3, 14 (1999) (“To merit this additional review, information must be both ‘new’ and ‘significant,’ and it must bear on the proposed action or its impacts. As we have explained, ‘[t]he new information must present ‘a seriously different picture of the environmental impact of the proposed project from what was previously envisioned’”) (alteration in the original.); *Sierra Club v. Froehlke*, 816 F.2d 205, 210 (5<sup>th</sup> Cir. 1987) (“In making its determination whether to supplement an existing EIS because of new information, the [United States Army, Corps of Engineers] should consider ‘the extent to which the new information presents a picture of the likely environmental consequences associated with the proposed action not envisioned by the original EIS.’”) (alteration added); *Wisconsin v. Weinberger*, 745 F.2d 412, 418 (7th Cir.1984) (supplementation required where new information “provides a seriously different picture of the environmental landscape.”); and see NRC Regulatory Guide 4.2, Supplement 1, Revision 1, Preparation of Supplemental Environmental Reports for Applications to Renew Nuclear Power Plant Operating Licenses, Chapter 5 (June 2013).

<sup>20</sup> 10 CFR 51.92(a).

<sup>21</sup> As a procedural statute, NEPA does not require an agency to amend its regulations, regardless of whether there is new and significant information that may lead to the supplementation of an agency’s environmental impact statement. *Robertson v. Methow Valley Citizens Council*, 490 U.S. 332, 350, 109 S. Ct. 1835, 1846 (1989) (“it is now well settled that NEPA itself does not mandate particular results, but simply prescribes the necessary process”).

<sup>22</sup> See *Federal Maritime Com’n v. South Carolina State Ports Auth.*, 535 U.S. 743, 780, 122 S. Ct. 1864 (2002) quoting *SEC v. Chenery Corp.*, 332 U.S. 194, 203, 67 S. Ct. 1575 (1947) (“the choice made between proceeding by general rule or by individual, ad hoc litigation is one that lies primarily in the informed discretion of the administrative agency”).

the process of implementing, new regulatory requirements for all nuclear power plant licensees, regardless of their license renewal status. In March 2012, the NRC issued orders requiring nuclear power plant licensees to implement strategies to mitigate beyond design basis<sup>23</sup> external events, install severe accident capable hardened vents (for Mark I and II reactors), and install reliable spent fuel pool instrumentation.<sup>24</sup> In addition, the NRC issued 10 CFR 50.54(f) letters<sup>25</sup> requesting that nuclear power plant licensees perform both seismic and flooding hazard reevaluations and an emergency preparedness reevaluation in the event of a prolonged station blackout (i.e., loss of offsite electric power to the nuclear power plant). The NTTF report recommendations and the March 2012 regulatory actions have no relation to the license renewal status of any operating nuclear power plant in the United States, either generically or on a site-specific basis. Similarly, the NTTF report recommendations have no bearing on the generic determinations in table B-1. Any NRC regulatory action that has been taken or could have been taken, as a result of the information presented in the NTTF report, would not have been deferred to the license renewal stage; any such action would have been taken as part of the NRC's ongoing safety program. Finally, it is noteworthy that the NTTF report did not recommend changing the generic determinations in table B-1 regarding severe reactor and spent fuel pool accidents, nor did it make any other recommendations regarding nuclear power

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<sup>23</sup> Definition of "beyond design basis accident" from NRC glossary: "This term is used as a technical way to discuss accident sequences that are possible but were not fully considered in the design process because they were judged to be too unlikely. (In that sense, they are considered beyond the scope of [design-basis accidents](#) that a nuclear facility must be designed and built to withstand.) As the regulatory process strives to be as thorough as possible, "beyond design-basis" accident sequences are analyzed to fully understand the capability of a design." Found at <http://www.nrc.gov/reading-rm/basic-ref/glossary/full-text.html>.

<sup>24</sup> Order EA-12-051, NRC Order on Spent Fuel Pool Instrumentation, dated March 12, 2012; Order EA-12-049, NRC Order on Mitigating Strategies, dated March 12, 2012; Order EA-13-109, NRC Order on Severe Accident Capable Hardened Vents, dated June 6, 2013.

<sup>25</sup> The NRC regulation, 10 CFR 50.54(f), provides that the NRC may request safety related information from a NRC licensee and that the licensee's response be made in writing under oath or affirmation. The 10 CFR 50.54(f) letters were issued on March 12, 2012.

plant license renewals.

## B. Severe Reactor Accidents.

The petitioners requested that the NRC rescind all of its regulations that reach generic conclusions about the environmental impacts of severe reactor accidents. As set forth in both table B-1 and 10 CFR 51.53(c)(3)(ii)(L), “Severe accidents,” is listed as a Category 2 or site specific issue, it is not a generic issue. In accordance with 10 CFR 51.53(c)(3)(ii)(L), the license renewal applicant must perform a SAMA analysis, unless one had been performed previously.

The SAMA requirement originated with the U.S. Court of Appeals decision, *Limerick Ecology Action, Inc. v. NRC*, 869 F.2d 719 (3rd Cir. 1989), and arose as a result of that court’s interpretation of NEPA. As such, the SAMA requirement is not derived from the NRC’s organic authority, the Atomic Energy Act of 1954, as amended, 42 USC 2011 *et seq.*, (AEA). A SAMA analysis only applies to nuclear power plant license renewal actions and is not required for any other type of NRC licensing or regulatory action. If the Commission determines that a safety requirement should be imposed upon a licensee or a class of licensees as a matter of “adequate protection,” which is an AEA statutory requirement,<sup>26</sup> then such a requirement is imposed either by order or through a license condition, regardless of cost and regardless of a given nuclear power plant’s license renewal status.

Adequate protection is the essential level of protection that the Commission is obligated to ensure under the AEA. The Commission, however, may require that nuclear power reactor licensees adopt safety measures or enhancements beyond the adequate protection level, but these measures or enhancements must, under the NRC’s “backfit” rule, 10 CFR 50.109, result

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<sup>26</sup> Section 182a. of the AEA requires that the Commission, in approving a licensing action involving a production or utilization facility, such as a nuclear power plant, must find that the technical specifications and other information provided by the applicant, as implemented through the Commission’s licensing process, “provide adequate protection to the health and safety of the public.” 42 USC 2232(a).

in a substantial increase in the overall protection of the public health and safety or common defense and security and be cost-justified. The U.S. Court of Appeals, in a decision involving the promulgation of the NRC's backfit rule for nuclear power plants, stated:

“Adequate protection,” however, is not absolute protection; thus, even when the adequate-protection standard is satisfied, safety improvements will be possible. Section 161 of the [AEA] empowers (but does not require) the Commission to establish safety requirements that are not necessary for adequate protection and to order holders of or applicants for operating licenses to comply with these requirements. In deciding whether to establish and how to enforce such additional requirements, *the NRC may take economic costs into account, even to the extent of conducting strict cost-benefit analyses.*<sup>27</sup>

Examples of adequate protection rulemakings include the anticipated transients without scram rule in 10 CFR 50.62 and the loss of large areas rule in 10 CFR 50.54(hh)(2); an example of a cost-justified rulemaking is the Station Blackout rule in 10 CFR 50.63.

A SAMA analysis, if one were required at the license renewal stage in accordance with 10 CFR 51.53(c)(3)(ii)(L), is not within the scope of the AEA's adequate protection standard but is incident to the NRC's NEPA review for license renewal actions. As described in its February 9, 2012, decision pertaining to Entergy's license renewal application for its Pilgrim nuclear power station, the Commission described the SAMA analysis as a cost-benefit analysis and that any actions taken as a result of a SAMA analysis, such as the imposition of a new requirement upon a licensee, must be cost-justified. Specifically, the Commission stated:

A SAMA analysis is part of the NRC's license renewal review under NEPA. It is a NEPA mitigation alternatives analysis, and to date has been conducted as a quantitative analysis to identify if there are additional mitigation measures—procedures or hardware—that may be cost-beneficial to implement at a nuclear power plant to further reduce severe accident risk (probability or consequences)... The SAMA analysis is a probability-weighted assessment of the benefits and costs of mitigation alternatives

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<sup>27</sup> *Union of Concerned Scientists v. NRC*, 824 F.2d 108, 114 (D.C. Cir. 1987) (emphasis added) (alteration added). Section 161 of the AEA is codified at 42 USC 2201.

that can be used to reduce the risks (probability or consequences or both) of potential severe accidents at nuclear power plants.<sup>28</sup> As explained elsewhere in this document, safety issues that trigger the adequate protection threshold, including those related to severe accidents, are addressed without regard to a given plant's license renewal status and are not deferred to the license renewal stage. The recommendations of the NTTF report have no bearing on the NRC's license renewal process, including the associated environmental review.

### *Petitioners' Focus on License Renewal Regulations*

As previously discussed, all of the regulations identified by the petitioners concern NRC license renewal actions. The renewal of a nuclear power plant's operating license is governed by the NRC regulations set forth in 10 CFR part 54, and is a discrete event. To date, for every nuclear power plant in the United States that has had its operating license renewed, the renewal has happened only once in the life of the plant. The focus of the license renewal safety review is on how the licensee will manage the effects of aging on passive, long-lived systems, structures, and components identified in accordance with 10 CFR part 54. The license renewal safety review, which includes an inspection program, ensures that licensees have adequate aging management practices in place before the NRC approves the renewal of the operating license.

Ensuring that operating plants meet the level of adequate protection, as established by NRC regulations, orders, and the conditions placed on individual operating licenses, is an ongoing NRC responsibility; not like license renewal, which is a discrete event. Safety issues at operating nuclear power plants are addressed by the NRC on a continuous basis. The NRC does not defer appropriate safety measures to the receipt of a license renewal application. Any potential safety issue is addressed regardless of whether the plant has had its license renewed.

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<sup>28</sup> *Entergy Nuclear Generation Company and Entergy Nuclear Operations, Inc. (Pilgrim Nuclear Power Station)*, CLI-12-01, 75 NRC 39, 41 (Feb. 9, 2012).



Furthermore, potential power plant safety measures are considered during the current license term and, if directed by an NRC order or new regulatory requirement, operating reactor licensees will be required to take the appropriate actions. For example, safety measures were implemented after the September 11, 2001, terrorist attacks and new regulatory requirements were implemented following the Fukushima event. The NRC actively uses the reactor oversight process<sup>29</sup> to assure public health and safety for the operation of each nuclear power plant. The reactor oversight process for power reactors uses a variety of tools to monitor and evaluate the performance of commercial nuclear power plants.

In addition to its ongoing reactor oversight process, the NRC has evaluated the prevention and mitigation of potential severe accidents in past reactor studies, such as the individual plant examination (IPE) and individual plant examination of external events (IPEEE) programs.<sup>30</sup> The IPE's specific objective was to develop an appreciation of severe accident behavior, and to identify ways in which the overall probabilities of core damage and fission product releases could be reduced if deemed necessary. While the IPE took into account internal events that could challenge the plant design (e.g., equipment failure), the IPEEE program considered external challenges such as earthquakes, fires, and high winds.<sup>31</sup>

#### *GEIS Severe Accidents Analysis*

When the NRC promulgated the license renewal rule and the severe accidents finding in table B-1 in 1996, the NRC referenced its Containment Performance Improvement (CPI) program which examined each of the five U.S. containment types to determine potential failure modes, potential plant improvements, and the cost-effectiveness of such improvements. As a

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<sup>29</sup> <http://www.nrc.gov/NRR/OVERSIGHT/ASSESS/index.html#processdescr>.

<sup>30</sup> Generic Letter No. 88-20, "Individual Plant Examination for Severe Accident Vulnerabilities - 10 CFR 50.54(f)," <http://www.nrc.gov/reading-rm/doc-collections/gen-comm/gen-letters/1988/gl88020.html>.

<sup>31</sup> Generic Letter No. 88-20, Supplement 4, "Individual Plant Examination of External Events (IPEEE) for Severe Accident Vulnerabilities – 10 CF 50.54(f)," [http://r1.nrc.gov/ drcs/toolbox/fp\\_refs/Gen-Ltrs/gl8820s4.pdf](http://r1.nrc.gov/ drcs/toolbox/fp_refs/Gen-Ltrs/gl8820s4.pdf).

result of the CPI, only a few containment improvements were found to be potentially beneficial and were either identified for further NRC research or for individual licensee evaluation. The Commission stated:

In conclusion, the GEIS analysis of severe accident consequences and risk is adequate, and additional plant-specific analysis of these impacts is not required. However, because the ongoing regulatory program related to severe accident mitigation (i.e., IPE and IPEEE) has not been completed for all plants and consideration of severe accident mitigation alternatives has not been included in an EIS or supplemental EIS related to plant operations for all plants, a site-specific consideration of severe accident mitigation alternatives is required at license renewal for those plants for which this consideration has not been performed. The Commission expects that if these reviews identify any changes as being cost beneficial, such changes generally would be procedural and programmatic fixes, with any hardware changes being only minor in nature and few in number.<sup>32</sup>

In preparing the 2013 GEIS, the NRC staff specifically considered and evaluated severe reactor accidents and found that the conclusions reached in the 1996 GEIS remained valid. In addition, the NTTF report concluded that a sequence of events like the Fukushima accident is unlikely to occur in the United States and, therefore, ongoing power reactor operations and related licensing activities do not pose an imminent risk to public health and safety. Moreover, the NRC staff has concluded that there is nothing in the NTTF report that would lead the NRC to revise the 2013 GEIS. As stated in the 2013 GEIS:

As of the publication date of [the 2013] GEIS, the NRC's evaluation of the consequences of the Fukushima events is ongoing. As such, the NRC will continue to evaluate the need to make improvements to existing regulatory requirements based on the task force report and additional studies and analyses of the Fukushima events as more information is learned. *To the extent that any revisions are made to NRC regulatory requirements, they would be made applicable to nuclear power reactors regardless of whether or not they have a renewed license.* Therefore, no additional analyses have been performed in this GEIS as a result

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<sup>32</sup> 61 FR 28467, 28481 (June 5, 1996).

of the Fukushima events. In the event that the NRC identifies information from the Fukushima events that constitutes new and significant information with respect to the environmental impacts of license renewal, the NRC will discuss that information in its site-specific supplemental EISs (SEISs) to the GEIS, as it does with all such new and significant information.<sup>33</sup>

Essentially, the NTTF report does not present a dramatically different picture of severe accident impacts compared to the description of severe accident impacts in the GEIS. As noted in the 2013 GEIS excerpt, if the NRC finds that an additional requirement should be imposed upon a reactor licensee, whether cost-justified or as a result of an “adequate protection” finding, the NRC will impose that requirement regardless of its license renewal situation. The renewal of a nuclear power plant’s operating license does not, in any way, prescribe the NRC’s ongoing safety surveillance of that plant. The regulations that the petitioners want rescinded pertain only to license renewal findings, not the NRC’s ongoing safety surveillance.

Moreover, the NRC has also determined that requiring a license renewal applicant to prepare a second SAMA is unlikely to uncover any cost-beneficial plant modifications that would substantially reduce the risk and is therefore unnecessary. As discussed in Appendix E of the 2013 GEIS:

[License renewal applicants] for plants that have already had a SAMA analysis considered by the NRC as part of an EIS, supplement to an EIS, or EA, do not need to have a SAMA analysis reconsidered for license renewal. In forming its basis for determining which plants needed to submit a SAMA, the Commission noted that all licensees had undergone, or were in the process of undergoing, more detailed site-specific severe accident mitigation analyses through processes separate from license renewal, specifically the Containment Performance Improvement (CPI), Individual Plant Examination (IPE), and IPE for external events (IPEEE) programs. In light of these studies, the Commission stated that it did not expect future SAMA analyses to uncover “major plant design changes or modifications that will prove to be cost-beneficial.” The NRC’s experience in completed license renewal proceedings has confirmed this prediction. As a result, the totality of these studies (the former SAMA analyses, the IPE, the IPEEE, and the CPI) provides a strong basis for the Commission’s decision to not

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<sup>33</sup> NUREG-1437, “Generic Environmental Impact Statement for License Renewal of Nuclear Plants,” Vol. 1, Rev. 1, Chapter 1, Section 1.9. at 1-33 and 1-34 (2013) (citations omitted) (emphasis added).

require applicants to perform an additional SAMA analysis in a license renewal application if the NRC had previously evaluated one for that plant.<sup>34</sup>

In an October 31, 2013, decision concerning the license renewal application for the Limerick Nuclear Power Plant, the Commission reaffirmed the basis for the 10 CFR 51.53(c)(3)(ii)(L) provision not requiring a SAMA if one had been prepared previously, and by extension, the “Severe accidents” finding in table B-1, stating that:

We determined that one SAMA analysis would uncover most cost-beneficial measures to mitigate both the risk and the effects of severe accidents, thus satisfying our obligations under NEPA ... the purpose of the supplemental-SAMA-analysis exception in section 51.53(c)(3)(ii)(L), then, is to reflect our view that one SAMA analysis, as a general matter, satisfies our NEPA obligation to consider measures to mitigate both the risk and the environmental impacts of severe accidents.<sup>35</sup>

The NRC has concluded that the NTTF report recommendations do not constitute new and significant information under NEPA because the GEIS had already specifically considered and evaluated similar severe accidents and there is nothing in the NTTF report that would lead the NRC to revise this evaluation.

In addition, the NTTF report recommendations do not provide any basis for the NRC to consider rulemaking to rescind the generic Table B-1 conclusion regarding severe accidents. The NRC continues to address severe accident-related issues in the day to day regulatory oversight of nuclear power plant licensees. The NRC’s regulatory efforts have reduced severe accident risks beyond what was considered in the 1996 and 2013 GEIS. In some cases, such as the NRC’s response to the accident at Fukushima Dai-ichi, these regulatory activities are ongoing. The NRC will continue to evaluate the need to make improvements to existing regulatory requirements as more information is learned. To the extent that any amendments

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<sup>34</sup> NUREG-1437, “Generic Environmental Impact Statement for License Renewal of Nuclear Plants,” Vol. 3, Rev. 1, App. E, Section E.4. at E-45 (2013) (citations omitted) (alteration added).

<sup>35</sup> *Exelon Generation Company, LLC* (Limerick Generating Station, Units 1 and 2), CLI-13-07, 77 NRC 199, 210 (Oct. 31, 2013) *citing* 61 FR at 28481.

are made to NRC regulations, they would be made applicable to all nuclear power reactors, regardless of whether a respective licensee has submitted an application for license renewal.

### C. Spent Fuel Pool Accidents.

Spent fuel pools at operating U.S. nuclear power plants were designed and licensed to maintain a large inventory of water to protect and cool spent fuel under normal and accident conditions, including earthquakes. Domestic and international operational experience and past NRC studies (e.g., NUREG-1353, NUREG-1738 and SECY-13-0112)<sup>36</sup> have borne out that spent fuel pools are effectively designed to prevent accidents that could affect the safe storage of spent fuel. Regarding spent fuel pool accidents, the petitioners' primary concern is a "seismically induced" spent fuel pool fire (i.e., an earthquake damaging the structure of the spent fuel pool and thereby causing a complete or partial drainage of the pool's water.)<sup>37</sup> With respect to the March 2011 Fukushima accident, a Japanese government report, issued in June 2011, found that the Fukushima Dai-ichi, Unit 4 spent fuel pool, the one believed to have sustained the most serious damage, actually remained "nearly undamaged."<sup>38</sup> The report noted that visual inspections found no water leaks or serious damage to the Unit 4 spent fuel pool. On

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<sup>36</sup> These studies include NUREG-1353, "Regulatory Analysis for the Resolution of Generic Issue 82, 'Beyond Design Basis Accidents in Spent Fuel Pools'" (April 1989); NUREG-1738, "Technical Study of Spent Fuel Pool Accident Risk at Decommissioning Nuclear Power Plants" (February 2001); and SECY-13-0112, "Consequence Study of a Beyond-Design-Basis Earthquake Affecting the Spent Fuel Pool for a U.S. Mark I Boiling-Water Reactor" (October 2013).

<sup>37</sup> Potential spent fuel pool fires caused by a successful terrorist strike were the subject of rulemaking petitions filed in 2006 (PRM-51-10) and 2007 (PRM-51-12). These petitions also requested the rescission of the generic finding in Table B-1 concerning onsite spent fuel storage. The NRC denied these petitions in 2008 (73 FR 46204; August 8, 2008). In its denial notice, the NRC described spent fuel pools as "massive, extremely-robust structures designed to safely contain the spent fuel discharged from a nuclear reactor under a variety of normal, off-normal, and hypothetical accident conditions (e.g., loss of electrical power, floods, earthquakes, or tornadoes)." 73 FR at 46206. The NRC's denials of the PRM-51-10 and PRM-51-12 petitions were upheld in court. *New York v. U.S. Nuclear Regulatory Commission*, 589 F.3d 551 (2<sup>nd</sup> Cir. 2009).

<sup>38</sup> See "Report of Japanese Government to the IAEA Ministerial Conference on Nuclear Safety-The Accident at TEPCO's Fukushima Nuclear Power Stations," IV-91. English version available at [http://www.kantei.go.jp/foreign/kan/topics/201106/iaea\\_houkokusho\\_e.html](http://www.kantei.go.jp/foreign/kan/topics/201106/iaea_houkokusho_e.html), last visited on April 22, 2013.

April 25, 2014, the NRC issued a report entitled “NRC Overview of the Structural Integrity of the Spent Fuel Pool at Fukushima Dai-ichi, Unit 4,” which confirmed that the structural integrity of the Unit 4 spent fuel pool was not compromised.

The accident at the Fukushima Dai-ichi nuclear facility in Japan also led to additional questions about the safe storage of spent fuel and whether the NRC should require the expedited transfer of spent fuel from spent fuel pools to dry cask storage at nuclear power plants in the United States. This issue was identified by NRC staff subsequent to the NTTF report along with the understanding that further study was needed to determine if regulatory action was warranted. Consequently, a regulatory analysis was conducted on the expedited transfer of spent fuel from pools to dry cask storage. The results of this analysis were provided to the Commission in COMSECY-13-0030, “Staff Evaluation and Recommendation for Japan Lessons Learned Tier 3 Issue on Expedited Transfer of Spent Fuel,” dated November 12, 2013. The Commission subsequently concluded that regulatory action need not be pursued in SRM-COMSECY-13-0030, issued on May 23, 2014. Nothing that the petitioners provided in these petitions undermines this conclusion.

The evaluation of the environmental impacts of the onsite storage of spent nuclear fuel during the license renewal term, including potential spent fuel pool accidents, was documented in the 1996 GEIS and reaffirmed in the 2013 GEIS. Based on these evaluations, the “onsite storage of spent nuclear fuel” NEPA issue in table B-1 has been classified as a Category 1, or generic, issue with an impact level finding of “small.” On August 26, 2014, the Commission approved the “continued storage” final rule and its associated generic environmental impact statement amending 10 CFR Part 51 to revise the generic determination on the environmental impacts of continued storage of spent nuclear fuel beyond the licensed life for operation of a

reactor. The continued storage GEIS<sup>39</sup> also concluded that the environmental impacts from spent fuel pool fires are small during the short-term storage timeframe (the 60 years of continued storage after the end of a reactor's licensed life for operation), which is consistent with the finding of the license renewal GEIS.

### III. Determination of Petitions.

For the reasons described in Section II of this document, the NRC has concluded that there is no basis to rescind the NRC's generic conclusions in table B-1 concerning the environmental impacts of the "Severe accidents" and "Onsite storage of spent nuclear fuel" issues nor to amend any other NRC regulation. Therefore, the NRC is denying the petitions in accordance with 10 CFR 2.803.

### IV. Availability of Documents

The documents identified in the following table are available to interested persons through one or more of the following methods, as indicated. For more information on accessing ADAMS, see the ADDRESSES section of this document

DOCUMENT	ADAMS ACCESSION NO. / WEB LINK / FEDERAL REGISTER CITATION
CLI-99-22, <i>Hydro Resources, Inc.</i> , July 23, 1999	<a href="http://www.nrc.gov/reading-rm/doc-collections/commission/orders/1999/1999-022cli.pdf">http://www.nrc.gov/reading-rm/doc-collections/commission/orders/1999/1999-022cli.pdf</a>
CLI-11-05, Union Electric Company d/b/a Ameren Missouri (Callaway Plant, Unit 2), September 9, 2011	<a href="http://www.nrc.gov/reading-rm/doc-collections/commission/orders/2011/2011-05cli.pdf">http://www.nrc.gov/reading-rm/doc-collections/commission/orders/2011/2011-05cli.pdf</a>

<sup>39</sup> NUREG-2157, Appendix F, Section F.1.3, Page F-16, "Conclusion."

CLI-12-01, <i>Entergy Nuclear Generation Company and Entergy Nuclear Operations, Inc. (Pilgrim Nuclear Power Station)</i> , February 9, 2012	<a href="http://www.nrc.gov/reading-rm/doc-collections/commission/orders/2012/2012-01cli.pdf">http://www.nrc.gov/reading-rm/doc-collections/commission/orders/2012/2012-01cli.pdf</a>
CLI-13-07, <i>Exelon Generation Company, LLC</i> (Limerick Generating Station, Units 1 and 2), October 31, 2013	<a href="http://www.nrc.gov/reading-rm/doc-collections/commission/orders/2013/2013-07cli.pdf">http://www.nrc.gov/reading-rm/doc-collections/commission/orders/2013/2013-07cli.pdf</a>
<i>Federal Register</i> notice—Consideration of Environmental Impacts of Temporary Storage of Spent Fuel After Cessation of Reactor Operation, December 23, 2010	75 FR 81032
<i>Federal Register</i> notice—Environmental Review for Renewal of Nuclear Power Plant Operating Licenses, June 5, 1996	61 FR 28467
<i>Federal Register</i> notice—License Renewal of Nuclear Power Plants; Generic Environmental Impact Statement and Standard Review Plans for Environmental Reviews, June 20, 2013	78 FR 37325
<i>Federal Register</i> notice—Revisions to Environmental Review for Renewal of Nuclear Power Plant Operating Licenses, June 20, 2013	78 FR 37282
<i>Federal Register</i> notice—Taxpayers and Ratepayers United, et al.; Environmental Impacts of Severe Reactor and Spent Fuel Pool Accidents, November 10, 2011	76 FR 70067
<i>Federal Register</i> notice—The Attorney General of Commonwealth of Massachusetts, The Attorney General of California; Denial of Petitions for Rulemaking, August 8, 2008	73 FR 46204
Generic Letter No. 88-20, Individual Plant Examination for Severe Accident Vulnerabilities - 10 CFR 50.54(f), November 23, 1988	<a href="http://www.nrc.gov/reading-rm/doc-collections/gen-comm/gen-letters/1988/gl88020.html">http://www.nrc.gov/reading-rm/doc-collections/gen-comm/gen-letters/1988/gl88020.html</a>
Generic Letter No. 88-20, Supplement 4, IIPEEE for Severe Accident Vulnerabilities – 10 CF 50.54(f), June 28, 1991	<a href="http://r1.nrc.gov/drs/toolbox/fp_refs/Gen-Ltrs/gl8820s4.pdf">http://r1.nrc.gov/drs/toolbox/fp_refs/Gen-Ltrs/gl8820s4.pdf</a>
Recommendations for Enhancing Reactor Safety in the 21 <sup>st</sup> Century, Recommendations for Enhancing Reactor Safety in the 21 <sup>st</sup> Century, Near-Term Task Force Review of Insights from the Fukushima Dai-Ichi Accident, July 12, 2011	ML111861807
Regulatory Guide 4.2, Supplement 1, September 2000	ML003710495
Regulatory Guide 4.2, Supplement 1, Rev. 1, June 2013	ML13067A354
NRC Overview of the Structural Integrity of the Spent Fuel Pool at Fukushima Dai-ichi, Unit 4, April 25, 2014	ML14111A099



NUREG-1353, "Regulatory Analysis for the Resolution of Generic Issue 82, "Beyond Design Basis Accidents in Spent Fuel Pools," April 1989	ML082330232
NUREG-1437, "Generic Environmental Impact Statement for License Renewal of Nuclear Plants," June 20, 2013	ML13107A023
NUREG-1738, "Technical Study of Spent Fuel Pool Accident Risk at Decommissioning Nuclear Power Plants," February 2001	ML010430066
NUREG-2161, "Consequence Study of a Beyond-Design-Basis Earthquake Affecting the Spent Fuel Pool for a U.S. Mark I Boiling-Water Reactor," October 9, 2013	ML13256A334
Order EA-12-049, NRC Order on Mitigating Strategies, March 12, 2012	ML12054A735
Order EA-12-051, NRC Order on Spent Fuel Pool Instrumentation , March 12, 2012	ML12056A044
Petition submitted by Commonwealth of Massachusetts (PRM-51-10), September 19, 2006	ML062640409
Preparation of Supplemental Environmental Reports for Applications to Renew Nuclear Power Plant Operating Licenses, Chapter 5, Revision 1, June 20, 2013	ML13106A244
PRM 51-14 submitted by Gene Stilp, on behalf of Taxpayers and Ratepayers United (Bell Bend- COL), August 11, 2011	ML112430559
PRM 51-15 submitted by Diane Curran, on behalf of San Luis Obispo Mothers for Peace (Diablo Canyon- LR), August 11, 2011	ML11236A322
PRM 51-16 submitted by Diane Curran, on behalf of Southern Alliance for Clean Energy (Watts Bar- OL), August 11, 2011	ML11223A291
PRM 51-17 submitted by Mindy Goldstein, on behalf of Center for a Sustainable Coast, Georgia Women's Action for New Directions f/k/a/ Atlanta Women's Action for New Directions, and Southern Alliance for Clean Energy (Vogtle- COL), August 11, 2011	ML11223A043
PRM 51-18 submitted by Mindy Goldstein, on behalf of Southern Alliance for Clean Energy, National Parks Conservation Association, Dan Kipnis, and Mark Oncavage (Turkey Point- COL), August 11, 2011	ML11223A044
PRM 51-19 submitted by Deborah Brancato, on behalf of Riverkeeper, Inc. & Hudson River Sloop Clearwater, Inc. (Indian Point- LR), August 11, 2011	ML11229A712
PRM 51-20 submitted by Paul Gunter, on behalf of Beyond Nuclear, Seacoast Anti-Pollution League and Sierra Club of New Hampshire (Seabrook- LR), August 11, 2011	ML11223A371
PRM 51-21 submitted by Michael Mariotte, on behalf of Nuclear Information and Resource Service, Beyond Nuclear, Public Citizen, and SOMDCARES (Calvert Cliffs- COL), August 11, 2011	ML11223A344

PRM 51-22 submitted by Raymond Shadis, on behalf of Friends of the Coast and New England Coalition (Seabrook- LR), August 11, 2011	ML11223A465
PRM 51-23 submitted by Robert V. Eye, on behalf of Intervenor in South Texas Project Nuclear Operating Co., Application for Units 3 and 4 Combined Operating License (South Texas- COL), August 11, 2011	ML11223A472
PRM 51-24 submitted by Robert V. Eye, on behalf of Intervenor in Luminant Generation Company, LCC, Application for Comanche Peak Nuclear Power Plant Combined License (Comanche Peak- COL), August 11, 2011	ML11223A477
PRM 51-25 submitted by Mary Olson, on behalf of the Ecology Party of Florida, Nuclear Information (Levy- COL), August 11, 2011	ML11224A074
PRM 51-26 submitted by Terry Lodge, on behalf of Beyond Nuclear, Citizens Environment Alliance of Southwestern Ontario, Don't Waste Michigan, and the Green Party of Ohio (Davis-Besse- LR), August 11, 2011	ML112450527
PRM 51-27 submitted by Terry Lodge, on behalf of Beyond Nuclear, Citizens for Alternatives to Chemical Contamination, Citizens Environmental Alliance of Southwestern Ontario, Don't Waste Michigan, Sierra Club, Keith Gunter, Edward McArdle, Henry Newman, Derek Coronado, Sandra Bihn, Harold L. Stokes, Michael J. Keegan, Richard Coronado, George Steinman, Marilyn R. Timmer, Leonard Mandeville, Frank Mantei, Marcee Meyers, and Shirley Steinman (Fermi- COL), August 11, 2011	ML112450528
PRM 51-28 submitted by Barry White, on behalf of Citizens Allied for Safe Energy, Inc (Turkey Point- COL), August 11, 2011	ML11224A232
Report of Japanese Government to the IAEA Ministerial Conference on Nuclear Safety-The Accident at TEPCO's Fukushima Nuclear Power Stations, June 2011	<a href="http://www.kantei.go.jp/foreign/kan/topics/201106/iae_a_houkokusho_e.html">http://www.kantei.go.jp/foreign/kan/topics/201106/iae_a_houkokusho_e.html</a>
SECY-11-0093, "Near-Term Report and Recommendations for Agency Actions Following the Events in Japan," July 12, 2011	ML11186A959
SECY-11-0124, "Recommended Actions to be Taken Without Delay from the Near Term Task Force Report," September 9, 2011	ML11245A127
SECY-11-0137, "Prioritization of Recommended Actions to be Taken in Response to Fukushima Lessons Learned," October 3, 2011	ML11269A204

SECY-13-0112, Consequence Study of a Beyond-Design-Basis Earthquake Affecting the Spent Fuel Pool for a U.S. Mark I Boiling-Water Reactor, October 9, 2013	ML13256A334
SRM-COMSECY-13-0030, Staff Evaluation and Recommendation for Japan Lessons-Learned Tier 3 Issue on Expedited Transfer of Spent Fuel, May 23, 2014	ML14143A360

Dated at Rockville, Maryland, this       day of       , 2015.

For the Nuclear Regulatory Commission.

Annette L. Vietti-Cook,  
Secretary of the Commission

SECY-13-0112, Consequence Study of a Beyond-Design-Basis Earthquake Affecting the Spent Fuel Pool for a U.S. Mark I Boiling-Water Reactor, October 9, 2013	ML13256A334
SRM-COMSECY-13-0030, Staff Evaluation and Recommendation for Japan Lessons-Learned Tier 3 Issue on Expedited Transfer of Spent Fuel, May 23, 2014	ML14143A360

Dated at Rockville, Maryland, this       day of       , 2015.

For the Nuclear Regulatory Commission.

Annette L. Vietti-Cook,  
Secretary of the Commission

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