

AFFIRMATION ITEM

RESPONSE SHEET

TO: Annette Vietti-Cook, Secretary
FROM: CHAIRMAN SVINICKI
SUBJECT: SECY-20-0112: Direct Final Rule: Advanced Boiling Water Reactor Design Certification Renewal (RIN 3150 AK04; NRC 2017 0090)

Approved XX Disapproved _____ Abstain _____ Not Participating _____

COMMENTS: Below XX Attached XX None _____

I approve for publication in the *Federal Register* the draft direct final rule and companion proposed rule to renew the certification for the U.S. Advanced Boiling Water Reactor standard design, as edited in the attached documents. I certify that this rule, if adopted, will not have a significant impact on a substantial number of small entities.

In the attached edits, I have proposed changes to clarify the appropriate treatment of generic technical specifications and operational requirements for this design certification under 10 CFR 50.109, "Backfitting" (the Backfit Rule). As drafted by the staff and recommended in the paper, the approach to controls on changes to the specifications and requirements would require a tortured interpretation of the provisions of the Backfit Rule that I find confusing and unnecessary. The staff's approach runs counter to the text of the Backfit Rule in its attempt to treat changes to generic technical specifications and operational requirements as changes to a design approval. The enclosed edits to the text of the regulation address this problem by explicitly requiring the treatment of this design certification as a design approval in order to bring these changes into the Backfit Rule's definition of "backfitting." The staff should take this approach into account when certifying designs without design approvals and should address and clarify this issue as an element of the ongoing consideration of revisions to 10 CFR Part 52.



SIGNATURE

01/ 8 /2021

DATE

Entered on "STARS" Yes No _____

[7590-01-P]

[KLS edits](#)

NUCLEAR REGULATORY COMMISSION

10 CFR Part 52

[NRC-2017-0090]

RIN 3150-AK04

Advanced Boiling Water Reactor (ABWR) Design Certification Renewal

AGENCY: Nuclear Regulatory Commission.

ACTION: Direct final rule and issuance of environmental assessment.

SUMMARY: The U.S. Nuclear Regulatory Commission (NRC) is amending its regulations to renew the U.S. Advanced Boiling Water Reactor standard design certification. Applicants or licensees intending to construct and operate a U.S. Advanced Boiling Water Reactor standard design may do so by referencing this design certification rule. The applicant for the renewal of the U.S. Advanced Boiling Water Reactor standard design certification is General Electric-Hitachi Nuclear Energy Americas, LLC.

DATES: The final rule is effective **[INSERT DATE 90 DAYS AFTER DATE OF PUBLICATION IN THE *FEDERAL REGISTER*]**, unless significant adverse comments are received by **[INSERT DATE 30 DAYS AFTER DATE OF PUBLICATION IN THE *FEDERAL REGISTER*]**. If the direct final rule is withdrawn as a result of such comments, timely notice of the withdrawal will be published in the *Federal Register*. The incorporation by reference of certain publications listed in this regulation is approved by

the Director of the Office of the Federal Register as of **[INSERT DATE 90 DAYS AFTER DATE OF PUBLICATION IN THE *FEDERAL REGISTER*]**.

ADDRESSES: You may submit comments by any of the following methods (unless this document describes a different method for submitting comments on a specific subject):

- **Federal Rulemaking Web Site:** Go to <https://www.regulations.gov> and search for Docket ID NRC-2017-0090. Address questions about NRC dockets to Dawn Forder; telephone: 301-415-3407; e-mail: Dawn.Forder@nrc.gov. For technical questions contact the individuals listed in the FOR FURTHER INFORMATION CONTACT section of this document.

- **E-mail comments to:** Rulemaking.Comments@nrc.gov. If you do not receive an automatic e-mail reply confirming receipt, then contact us at 301-415-1677.

For additional direction on obtaining information and submitting comments, see “Obtaining Information and Submitting Comments” in the SUPPLEMENTARY INFORMATION section of this document.

FOR FURTHER INFORMATION CONTACT: Dennis Andrukat, Office of Nuclear Material Safety and Safeguards, telephone: 301-415-3561, e-mail: Dennis.Andrukat@nrc.gov, or James Shea, Office of Nuclear Reactor Regulation, telephone: 301-415-1388, e-mail: James.Shea@nrc.gov. Both are staff of the U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001.

SUPPLEMENTARY INFORMATION:

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I. Obtaining Information and Submitting Comments

A. Obtaining Information.

Please refer to Docket ID NRC-2017-0090 when contacting the NRC about the availability of information for this action. You may obtain publicly available information related to this action by any of the following methods:

- **Federal Rulemaking Web Site:** Go to <https://www.regulations.gov/> and

search for Docket ID NRC-2017-0090.

- **NRC's Agencywide Documents Access and Management System**

(ADAMS): You may obtain publicly-available documents online in the ADAMS Public Documents collection at <https://www.nrc.gov/reading-rm/adams.html>. To begin the search, 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, at

301-415-4737, or by e-mail to PDR.Resource@nrc.gov. For the convenience of the reader, instructions about obtaining materials referenced in this document are provided in the Availability of Documents section.

- **Attention:** The [Public Document Room \(PDR\)](#), where you may examine and order copies of public documents is currently closed. You may submit your request to the PDR via e-mail at PDR.Resource@nrc.gov or call 1-800-397-4209 between 8:00 a.m. and 4:00 p.m. (EST), Monday through Friday, except Federal holidays.

- **Attention:** The Technical Library, which is located at Two White Flint North, 11545 Rockville Pike, Rockville, Maryland 20852, is open by appointment only. Interested parties may make appointments to examine documents by contacting the NRC Technical Library by e-mail at Library.Resource@nrc.gov between 8:00 a.m. and 4:00 p.m. (EST), Monday through Friday, except Federal holidays.

B. Submitting Comments.

The NRC encourages electronic comment submission through the **Federal Rulemaking Web Site** (<https://www.regulations.gov>). Please include Docket ID NRC-2017-0090 in your comment submission.

The NRC cautions you not to include identifying or contact information that you do not want to be publicly disclosed in your comment submission. The NRC will post all comment submissions at <https://www.regulations.gov> as well as enter the comment submissions into ADAMS. The NRC does not routinely edit comment submissions to remove identifying or contact information.

If you are requesting or aggregating comments from other persons for submission to the NRC, then you should inform those persons not to include identifying or contact information that they do not want to be publicly disclosed in their comment

submission. Your request should state that the NRC does not routinely edit comment submissions to remove such information before making the comment submissions available to the public or entering the comment into ADAMS. Comments received after **[INSERT DATE 30 DAYS AFTER DATE OF PUBLICATION IN THE *FEDERAL REGISTER*]**, will be considered if it is practical to do so, but the NRC is able to ensure consideration only for comments received on or before this date. Comments received on this direct final rule also will be considered to be comments on a companion proposed rule published in the Proposed Rules section of this issue of the *Federal Register*.

II. Rulemaking Procedure

Because the NRC anticipates that this action will be non-controversial, the NRC is using the “direct final rule procedure” for this rule. The rule will become effective on **[INSERT DATE 90 DAYS AFTER DATE OF PUBLICATION IN THE *FEDERAL REGISTER*]**. However, if the NRC receives significant adverse comments by **[INSERT DATE 30 DAYS AFTER DATE OF PUBLICATION IN THE *FEDERAL REGISTER*]**, then the NRC will publish a document that withdraws this direct final rule and would subsequently address the comments received in any final rule as a response to the companion proposed rule published in the Proposed Rules section of this issue of the *Federal Register*. Absent significant modifications to the proposed revisions requiring republication, the NRC does not intend to initiate a second comment period on this action in the event the direct final rule is withdrawn.

A significant adverse comment is a comment in which the commenter explains why the rule (including the environmental assessment) would be inappropriate, including

challenges to the rule's underlying premise or approach, or would be ineffective or unacceptable without a change. A comment is adverse and significant if it meets the following criteria:

(1) The comment opposes the rule and provides a reason sufficient to require a substantive response in a notice-and-comment process. For example, a substantive response is required when—

(a) The comment causes the NRC to reevaluate (or reconsider) its position or conduct additional analysis;

(b) The comment raises an issue serious enough to warrant a substantive response to clarify or complete the record; or

(c) The comment raises a relevant issue that was not previously addressed or considered by the NRC.

(2) The comment proposes a change or an addition to the rule, and it is apparent that the rule would be ineffective or unacceptable without incorporation of the change or addition.

(3) The comment causes the NRC to make a change (other than editorial) to the rule.

For detailed instructions on filing comments, please see the ADDRESSES section in the companion proposed rule published in the Proposed Rules section of this issue of the *Federal Register*.

III. Background

The General Electric Company (GE) submitted the U.S. Advanced Boiling Water Reactor (U.S. ABWR) standard design certification initial application on September 29, 1987. The NRC initially docketed the application (Docket No. STN 50-605) on February

22, 1988, but later changed the docket number to 52-001 on March 20, 1992 (57 FR 9749) to reflect GE's request [or the applicant's request] to review the application under part 52, "Licenses, Certifications, and Approvals for Nuclear Power Plants," of title 10 of the Code of Federal Regulations (10 CFR). The NRC documented its review in NUREG-1503, "Final Safety Evaluation Report Related to the Certification of the Advanced Boiling Water Reactor Design," in July 1994 (ADAMS Accession No. ML080670592), and NUREG-1503, Supplement 1, "Final Safety Evaluation Report Related to the Certification of the Advanced Boiling Water Reactor Design," in May 1997 (ADAMS Accession No. ML080710134). The NRC issued the agency's first design certification (DC) rule, for the U.S. ABWR, in the *Federal Register* (62 FR 25800), effective June 11, 1997. In 2007, GE and Hitachi Nuclear Energy formed an alliance, and General Electric-Hitachi Nuclear Energy Americas, LLC, (GEH) became the entity retaining the U.S. ABWR design from GE.

On December 7, 2010, GEH submitted its application to renew the certification of the U.S. ABWR standard design to the NRC under subpart B, "Standard Design Certifications," to 10 CFR part 52 of title 10 of the Code of Federal Regulations (10 CFR), "Standard design certifications." The NRC published a notice of receipt of the application in the *Federal Register* on January 27, 2011 (76 FR 4948). On February 18, 2011, the NRC formally accepted the design certification renewal application for docketing (76 FR 9612). The preapplication information submitted before the NRC formally accepted the application for docketing can be found in ADAMS under Docket No. PROJ0774.

Subpart B to 10 CFR part 52, "Licenses, certifications, and approvals for nuclear power plants," presents the processes for obtaining governing standard design certifications. Under § 52.57(a), an application for DC renewal must contain all information necessary to bring the information and data contained in the previous

applications up to date. Updates pursuant to ~~under~~ § 52.57(a) include clarifications consistent with the original understanding of the design information, and changes to correct known errors, including typographical errors, or defects, as defined in ~~10 CFR part~~ § 21.3, "Reporting of defects and noncompliance." For the NRC to issue a rule granting the DC renewal, ~~as stated in~~ ~~under~~ § 52.59(a), the design, either as originally certified or as modified during the rulemaking on renewal, must comply with (1) the Atomic Energy Act of 1954, as amended (AEA), (2) the NRC regulations applicable and in effect at the time the certification was issued, and (3) the applicable requirements of § 50.150, "Aircraft impact assessment,"¹ ~~because this is the first renewal of the U.S. ABWR and the U.S. ABWR certification was in effect on July 13, 2009. The NRC uses the term "modification" to refer to updates under § 52.57(a) and changes to meet the renewal standards in § 52.59(a); modifications are reviewed against the § 52.59(a) standards.~~

A DC renewal applicant may propose to amend the design ~~in accordance with~~ ~~under~~ § 52.59(c). An amendment is an applicant-proposed change that ~~is does~~ not fall within the definition of a modification, ~~an update under § 52.57(a) or a change to meet the renewal standards in § 52.59(a).~~ Amendments must comply with the AEA and the NRC's regulations applicable and in effect at the time of renewal ~~rather than the § 52.29(a) standards.~~ ~~If the amendment request entails such an extensive change to the certified design that an essentially new standard design is being proposed, a new DC application must be submitted.~~

Commented [A1]: The discussion of the use of the term "modification" here is deleted as unnecessary and in order to eliminate the potential for confusion with the use of the term in § 52.63(a)(3) to refer to generic changes under section VIII of appendix A to 10 CFR part 52 as discussed on page 25 of this version of the FRN.

¹ ~~The requirement for modifications in DC renewals to address § 50.150 was added to § 52.59(a) by a rule published June 12, 2009, requiring applicants for new nuclear power reactors to perform a design-specific assessment of the effects of the impact of a large, commercial aircraft (74 FR 28111). This requirement is applicable to the U.S. ABWR DC renewal because this is its first renewal the U.S. ABWR DC was in effect on July 13, 2009.~~

In addition, NRC regulations at § 52.59(b) ~~state that allow~~ the Commission ~~may to~~ impose other requirements ~~providing certain conditions are met, if it determines any of~~ the following:

~~1. They are necessary for adequate protection to public health and safety or common defense and security;~~

~~2. They are necessary for compliance with the NRC's regulations and orders applicable and in effect at the time the certification was issued; or~~

~~3. There is a substantial increase in overall protection of the public health and safety or the common defense and security to be derived from the new requirements, and the direct and indirect costs of implementing those requirements are justified in view of this increased protection.~~

The final U.S. ABWR DC rule for the original certification (~~62 FR 25800~~), Supplementary Information, Section II.A.1, "~~Issue Resolution (Issue Finality)~~," stated that the NRC "does not plan or expect to be able to conduct a [de novo] review of the entire design if a certification renewal application is filed under § 52.59[.]" "Criteria for renewal:" (~~62 FR 25800, 25805~~). Instead, the NRC stated that it expects that the focus of the review would be on changes to the design that are proposed by the applicant and insights from relevant operating experience with the certified design or other designs, or other material new information arising after the NRC staff's review of the design certification. Furthermore, the standards in § 52.59(b) controls the ~~development imposition~~ of new requirements during the review of applications for renewal. When GEH applied to renew the U.S. ABWR DC, the NRC affirmed this position, reviewed only those aspects of the design that were amended or modified, and determined whether operating experience or other material new information indicated that additional changes to the design were necessary. The staff reviewed GEH's proposed amendments and modifications to the design; the staff did not impose changes under 10 CFR 52.59(b).

~~On June 12, 2009, the NRC published a rule requiring applicants for new nuclear power reactors to perform a design-specific assessment of the effects of the impact of a large, commercial aircraft (74 FR 28111). By letter dated December 7, 2010, GEH included Revision 5 to the design control document (DCD) for the U.S. ABWR design with submitted its application for renewal the U.S. ABWR DC to the NRC, which included Revision 5 to the design control document.~~ This revision includes a containment re-analysis amendment and the necessary changes to meet the requirements of § 50.150, ~~"Aircraft impact assessment."~~ ~~Revision 5 of the DCD also including a description of~~ the aircraft impact assessment results and ~~identifications~~ and ~~incorporations of~~ design features and functional capabilities to show, with reduced use of operator actions, that the reactor core remains cooled and spent fuel pool integrity is maintained.

In a letter dated July 20, 2012, the NRC identified proposed changes that were regulatory improvements or that could meet the criteria in § 52.59(b). The NRC suggested that GEH consider the recommendations contained in SECY-12-0025, "Proposed Orders and Requests for Information in Response to Lessons Learned from Japan's March 11, 2011, Great Tohoku Earthquake and Tsunami," dated February 17, 2012, addressing Recommendations 4.2, 7.1, and 9.3 from ~~SECY-11-0093, "Near-Term Report and Recommendations for Agency Actions Following the Events in Japan," enclosure 1, "Recommendations for Enhancing Reactor Safety in the 21st Century; The NRC's Fukushima~~ Near-Term Task Force Review of Insights from the Fukushima Dai-ichi Accident report," dated July 12, 2011, ~~and SECY 11-0093, "Near-Term Report and Recommendations for Agency Actions Following the Events in Japan," dated July 12, 2011.~~ Subsequently, during the Mitigation of Beyond-Design-Basis Events rulemaking that ~~created~~ ~~resulted in~~ § 50.155, "Mitigation of beyond-design-basis events," the

Commission ~~decided not~~determined that it would be inappropriate to impose mitigation strategies requirements on DCs.²

After the NRC's July 20, 2012, letter to GEH, the NRC issued several requests for additional information to identify additional items or clarify the items communicated in the 2012 letter. By letter dated February 19, 2016, GEH submitted DCD, Revision 6, to incorporate changes to the U.S. ABWR DCD made in response to NRC's 2012 letter and to the NRC's requests for additional information. In addition, this revision transmitted corrections of typographical ~~mistakes~~errors, ~~that~~which were identified during document development, and other formatting changes. These corrections represent non-substantive changes that are editorial in nature. The NRC reviewed these typographical changes and determined that the changes do not affect the NRC's findings in the final safety evaluation report for original certification and are acceptable. On December 20, 2019, the applicant submitted DCD, Revision 7, ~~that~~incorporating the remaining changes provided in earlier responses to requests for additional information. The NRC reviewed DCD, Revision 7, against the changes proposed in responses to requests for additional information and noted that two short paragraphs were missing from Chapter 5. On March 16, 2020, the applicant resubmitted DCD, Revision 7, Chapter 5, including ~~those~~previously missing paragraphs. To ensure that the public can reference a single ADAMS package for this document, the NRC copied the original DCD, Revision 7, ADAMS package, ~~and~~replacing Chapter 5 with the corrected file. This corrected ADAMS package is the collection of DCD, Revision 7, chapters that the NRC has

² In the Mitigation of Beyond-Design-Basis Events proposed rule regulatory analysis, dated October 2015, the Commission ~~proposed~~explained that its proposal to not make the Mitigation of Beyond-Design-Basis Events ~~proposed~~rule inapplicable to existing DCs, which included the U.S. ABWR, ~~because~~was based on concluding that "[t]he issues that may be resolved in a DC and accorded issue finality may not include operational matters, such as the elements of the [Mitigation of Beyond-Design-Basis Events] proposed rule." However, as ~~noted~~discussed in SECY-19-0066, "Staff Review of NuScale Power's Mitigation Strategy for Beyond-Design-Basis External Events," the design certification can provide for finality under 10 CFR 52.63 and Section VI of appendix A to 10 CFR part 52 for the adequacy of the SSCs to perform their mitigation strategies functions, as analyzed in the FSAR.

reviewed (ADAMS Accession No. ML20093K254). The NRC's review is documented in Supplement 2 to NUREG-1503, "Final Safety Evaluation Report Related to the Certification of the Advanced Boiling Water Reactor Design." This final rule certifies Revision 7 of the U.S. ABWR DCD as provided in ADAMS Accession No. ML20093K254.

~~In a letter dated June 22, 2018, the only U.S. ABWR combined license (COL) holder, Nuclear Innovation North America LLC, requested NRC approval to withdraw the COLs for South Texas Project, Units 3 and 4 (COLs NPF 97 and NPF 98). The NRC approved the termination of these COLs on July 12, 2018.~~

~~On December 16, 2011, the NRC published a final rule amending the design certification rule for the U.S. ABWR design to comply with 10 CFR 50.150 by incorporating an aircraft impact assessment. The applicant for that amendment was the South Texas Project Nuclear Operating Company (STPNOC), which held combined licenses (COLs) using the U.S. ABWR design for South Texas Project, Units 3 and 4 (COLs NPF 97 and NPF 98). The amended design is identified in the current appendix A to 10 CFR part 52 as the STPNOC DCD. In a letter dated June 9, 2016, Separately, Toshiba Corporation Energy Systems and Solutions Company (Toshiba) sought renewal of the U.S. ABWR DC, incorporating the Toshiba-specific aircraft impact assessment amendment used in the STPNOC DCD. On June 9, 2016, Toshiba withdrew its renewal application to renew the original for the U.S. ABWR DC design certification with its version of the U.S. ABWR design certification. The Toshiba ABWR was to incorporate the Toshiba-specific aircraft impact assessment amendment of the U.S. ABWR design certification, identified in the current appendix A to 10 CFR part 52 as the South Texas Project Nuclear Operating Company (STPNOC) DCD. Because the original U.S. ABWR design certification has expired, along with its STPNOC DCD aircraft impact assessment amendment, and Toshiba has withdrawn its renewal U.S. ABWR DC~~

application; therefore, Toshiba's the STPNOC DCD with its Toshiba-specific aircraft impact assessment amendment is not longer in ~~considered to be~~ a timely renewal status as described in ~~under~~ § 52.57(b).

On June 22, 2018, the only U.S. ABWR COL holder, Nuclear Innovation North America LLC,³ requested NRC approval to withdraw the COLs for South Texas Project Units 3 and 4. The NRC approved the termination of these COLs on July 12, 2018. Additionally, sSince the only COLs or COL applicant ~~who that~~ referenced the Toshiba STPNOC DCD has been terminated ~~its licenses~~, and no other license or application referencinged the U.S. ABWR DC exists, the Toshiba STPNOC DCD no longer meets the requirement for validity beyond the date of expiration ~~as described in~~ under § 52.55(b). Finally, GEH has not requested to renew the STPNOC amendment. For ~~all~~ these reasons, the NRC is not retaining the original DCD or the STPNOC DCD option in Appendix A to 10 CFR part 52. Instead, the NRC is replacing appendix A to 10 CFR part 52 with this final rule certifying the renewed GEH U.S. ABWR design, as explained ~~in~~ in Section IV.

Commented [A2]: This discussion is edited for clarity. Staff should review these edits for their accuracy and propose any necessary corrections or further clarifications in a final version provided to the Commission 10 days prior to publication in the *Federal Register*.

IV. Discussion

Final Safety Evaluation Report

The final safety evaluation report for the renewed ABWR standard design consists of (1) the original final safety evaluation report published in July 1994 (NUREG-1503, Volume 1 – Chapters 1 through 22 and Volume 2 – Appendices); (2) NUREG-1503, Supplement 1, published in May 1997; and (3) NUREG-1503,

³ NINA assumed the role of lead applicant for COLs NPF 97 and NPF 98 from STPNOC on January 24, 2011, while consideration of the amendment to the U.S. ABWR design certification and the subsequent rulemaking were in progress.

Supplement 2, published in October 2020. NUREG-1503 and NUREG-1503, Supplement 1, document the staff's review of the original certified DC.⁴ ~~NUREG-1948, "Final Safety Evaluation Report Related to the Aircraft Impact Amendment to the U.S. Advanced Boiling Water Reactor (ABWR) Design Certification," documents the staff evaluation of the ABWR DC amendment to comply with requirements in § 50.150 that became effective in July 2009 (74 FR 28111); however, those changes and NUREG-1948 are not applicable for this U.S. ABWR DC renewal rule because the renewal DCD, Revision 7, incorporates a different set of changes to comply with requirements in § 50.150.~~ NUREG-1503, Supplement 2, documents the NRC staff's review of Revision 7 of the U.S. ABWR DCD. The original final safety evaluation report and its supplements are available as indicated in Section XVI, "Availability of Documents," in this document.

U.S. ABWR DC Renewal Rule

The following discussion describes the purpose and key aspects of each section of the U.S. ABWR DC renewal rule. ~~This rule is unique because it is the first DC renewal.~~ In addition to the GEH U.S. ABWR design certification, the current appendix A to 10 CFR part 52 includes discussions related to the U.S. ABWR design certified for the STPNOC acting together with Toshiba ~~America Nuclear Energy (TANE)~~. As described in Section III, "Background," of this document, ~~STPNOC has relinquished its~~ the NRC has terminated the COLs that relied on the U.S. ABWR design certification rule as amended, and ~~Toshiba~~ANE has withdrawn its U.S. ABWR DC renewal application. Therefore, the

⁴ NUREG-1948, "Final Safety Evaluation Report Related to the Aircraft Impact Amendment to the U.S. Advanced Boiling Water Reactor (ABWR) Design Certification," which documents the staff evaluation of the U.S. ABWR DC amendment to comply with requirements in § 50.150, is inapplicable to this U.S. ABWR DC renewal rule because the renewal DCD, Revision 7, incorporates a different set of changes to comply with the requirements in §§ 50.150 and 52.59.

NRC believes that the best approach for this renewal is to ~~completely~~ replace the existing appendix A to 10 CFR part 52 with a new version of the appendix in this final rule certifying the renewed GEH U.S. ABWR design. ~~This~~ new version of the appendix contains ~~is~~ no discussion of the removal of STPNOC/Toshiba ~~ANE~~ specific parts of the existing appendix A to 10 CFR part 52. The U.S. ABWR DC renewal rule maintains the structure of existing DC rules, with certain modifications where necessary to account for differences in the U.S. ABWR design documentation, design features, and environmental assessment (including severe accident mitigation design alternatives). As a result, DC rules are standardized to the extent practical.

A. Introduction (Section I)

The purpose of Section I of appendix A to 10 CFR part 52 is to identify the standard design approved by this U.S. ABWR DC renewal final rule and the applicant for certification of the standard design. Identification of the DC applicant is necessary to implement appendix A to 10 CFR part 52 for two reasons. First, § 52.63(c) identifies the DC applicant as a potential source for an applicant for a COL to obtain the generic DCD and supporting design information. If the COL applicant does not obtain the design information from the DC applicant, but instead uses a different entity, then the COL applicant must demonstrate that the entity supplying the design information is qualified to do so under ~~meet the requirements in~~ § 52.73, "Relationship to other subparts." Second, paragraph X.A.1 of this final rule requires that the identified DC applicant maintain the generic DCD throughout the time that appendix A to 10 CFR part 52 may be referenced.

B. Definitions (Section II)

The purpose of Section II of appendix A to 10 CFR part 52 is to define specific terminology with respect to this final DC rule. During development of the first two DC rules, the NRC decided that there would be both generic (master) design control documents maintained by the NRC and the design certification applicant, as well as individual plant-specific DCDs maintained by each applicant or licensee that references a certified standard design. This distinction is necessary in order to specify the relevant plant-specific requirements to applicants and licensees referencing appendix A to 10 CFR part 52. In order to facilitate the maintenance of the master design control documents, the NRC requires that each application for a standard design certification be updated to include an electronic copy of the final version of the DCD. The final version is required to incorporate all amendments to the DCD submitted since the original application, as well as any changes directed by the NRC as a result of its review of the original DCD or as a result of any public input that the staff determined was valid. In the case of the [U.S. ABWR DC renewal](#), there was no significant public participation in the staff review. This final version is the master DCD incorporated by reference in the design certification rule. The master DCD will be revised as needed to include generic changes to the version of the DCD that is approved in this design certification final rule. These changes would occur as the result of generic rulemaking by the NRC, under the change criteria in Section VIII of appendix A to 10 CFR part 52.

The NRC also requires each applicant and licensee referencing appendix A to 10 CFR part 52 to submit and maintain a plant-specific DCD as part of the COL final safety analysis report. This plant-specific DCD must either include or incorporate by reference the information in the generic DCD. The plant-specific DCD would be updated as necessary to reflect the generic changes to the DCD that the NRC may adopt through

rulemaking, plant-specific departures from the generic DCD that the NRC imposed on the licensee by order, and any plant-specific departures that the licensee chooses to make in accordance with the relevant processes in Section VIII. Therefore, the plant-specific DCD functions similarly to an updated final safety analysis report because it provides the most complete and accurate information on a plant's design basis for that part of the plant that would be within the scope of appendix A to 10 CFR part 52.

The NRC is treating the technical specifications in Chapter 16, "Technical Specifications," of the generic DCD as a special category of information and designating them as generic technical specifications in order to facilitate the special treatment of this information under appendix A to 10 CFR part 52. A COL applicant must submit plant-specific technical specifications that consist of the generic technical specifications, which may be modified as specified in paragraph VIII.C, and the remaining site-specific information needed to complete the technical specifications. The final safety analysis report that is required by § 52.79, "Contents of applications; technical information in final safety analysis report," will consist of the plant-specific DCD, the site-specific final safety analysis report, and the plant-specific technical specifications.

The terms Tier 1, Tier 2, and Tier 2* are defined, and the term COL action items (COL license information) are is described/ined in appendix A to 10 CFR part 52 because these concepts were not envisioned when 10 CFR part 52 was developed. The DC applicants and the NRC use these terms in implementing the two-tiered rule structure (the DCD is divided into Tiers 1 and 2 to support the rule structure) that was proposed by representatives of the nuclear industry after publication of 10 CFR part 52. The Commission approved the use of a two-tiered rule structure in its staff requirements memorandum, dated February 15, 1991, on SECY-90-377, "Requirements for Design Certification under 10 CFR Part 52," dated November 8, 1990.

Tier 1 information means the portion of the design-related information contained in the generic DCD that is approved and certified by this appendix. Tier 2 information means the portion of the design-related information contained in the generic DCD that is approved but not certified by this appendix. The change process for Tier 2 information is similar to, but not identical to, the change process set forth in § 50.59, “Changes, tests, and experiments.” The regulations in § 50.59 describe when a licensee may make changes to a plant as described in its final safety analysis report without a license amendment. Because the change process for Tier 2 information provided in Section VIII of this appendix provides more specific criteria than § 50.59, as described in § 50.59(c)(4), the definitions and criteria of § 50.59 are not applicable to this process.

Certain Tier 2 information has been designated in the generic DCD with brackets, italicized text, and an asterisk as “Tier 2*” information and a plant-specific departure from Tier 2* information requires prior NRC approval (refer to Section IV.H of this document). However, the Tier 2* designation expires for some of this information when the facility first achieves full power after the finding required by § 52.103(g). The process for changing Tier 2* information and the time at which its status at Tier 2* expires is set forth in paragraph VIII.B.6 of this appendix. Some Tier 2* requirements concerning special preoperational tests are designated to be performed only for the first plant or first three plants referencing the U.S. ABWR DC renewal rule. The Tier 2* designation for these selected tests will expire after the first plant or first three plants complete the specified tests. However, a COL action item requires that subsequent plants also perform the tests or justify that the results of the first-plant-only or first-three-plants-only tests are applicable to the subsequent plant.

The NRC is including a definition for a “*Departure from a method of evaluation described in the plant-specific DCD used in establishing the design bases or in the safety analyses*” (~~refer to~~ paragraph II.G of this appendix), ~~which is appropriate to~~

~~include in this direct final rule,~~ so that the eight criteria in paragraph VIII.B.5.b will be implemented for new reactors as intended.

C. Scope and Contents (Section III)

The purpose of Section III of appendix A to 10 CFR part 52 is to describe and define the scope and content of this design certification, how to obtain a copy of the generic DCD, requirements for incorporation by reference of the U.S. ABWR DC renewal final rule, and how documentation discrepancies or inconsistencies are to be resolved.

Paragraph III.A is the required statement of the Office of the Federal Register for approval of the incorporation by reference of the U.S. ABWR DCD, Revision 7 (~~ADAMS Accession No. ML20093K254~~), which includes a late correction to Tier 2, Chapter 5. In addition, this paragraph provides the information on how to obtain a copy of the DCD.

Paragraph III.B is the requirement for COL applicants and licensees referencing the U.S. ABWR DCD to comply with the requirements of this appendix in order to benefit from the issue finality afforded the certified design. The legal effect of incorporation by reference is that the incorporated material has the same legal status as if it were published in the *Code of Federal Regulations*. This material, like any other properly issued regulation, has the force and effect of law. Tier 1 and Tier 2 information and generic technical specifications have been combined into a single document called the generic DCD, in order to effectively control this information and facilitate its incorporation by reference into the final rule. In addition, paragraph III.B clarifies that the conceptual design information and GEH's evaluation of severe accident mitigation design alternatives as described in the "Technical Support Document for the ABWR" are not ~~considered to be~~ part of appendix A to 10 CFR part 52. ~~As provided by~~ Consistent with § 52.47(a)(24), certification of these conceptual designs is not provided and they are not part of appendix A to 10 CFR part 52. ~~and, therefore,~~ they are not applicable to an

application that references appendix A to 10 CFR part 52. ~~Therefore, a~~An applicant referencing appendix A to 10 CFR part 52 would not be required to conform to the conceptual design information that was provided by the DC applicant. The conceptual design information, which consists of site-specific design features, was required in the DC application in order to facilitate the DC review. Similarly, the severe accident mitigation design alternatives were required to facilitate the environmental assessment.

Paragraphs III.C and III.D set forth the manner by which potential conflicts are to be resolved and identify the controlling document. Paragraph III.C establishes the Tier 1 description in the DCD as controlling in the event of an inconsistency between the Tier 1 and Tier 2 information in the DCD. Paragraph III.D establishes the generic DCD as the controlling document in the event of an inconsistency between the DCD and the final safety evaluation report for the certified standard design.

Paragraph III.E makes it clear that design activities outside the scope of the DC may be performed using actual site characteristics, provided that the design activities do not affect the DCD or conflict with the interface requirements. This provision applies to site-specific portions of the plant, such as the administration building.

D. Additional Requirements and Restrictions (Section IV)

Section IV of appendix A to 10 CFR part 52 sets forth additional requirements and restrictions imposed upon an applicant who references appendix A to 10 CFR part 52.

Paragraph IV.A sets forth the information requirements for COL applicants and distinguishes between information and documents that must be *included* in the application or the design control document and those which may be *incorporated by reference*. Any incorporation by reference in the application should be clear and should specify the title, date, edition, or version of a document and the page number(s) and

table(s) containing the relevant information to be incorporated. The legal effect of such an incorporation by reference into the application is that appendix A to 10 CFR part 52 would be legally binding on the applicant or licensee.

In paragraph IV.B the NRC reserves the right to determine how appendix A to 10 CFR part 52 may be referenced under 10 CFR part 50, "Domestic licensing of production and utilization facilities." This determination may occur in the context of a subsequent rulemaking modifying 10 CFR part 52 or this DC rule, or on a case-by-case basis in the context of a specific application for a 10 CFR part 50 construction permit or operating license. This provision is necessary because the previous DC rules were not implemented in the manner that was originally envisioned at the time that 10 CFR part 52 was issued. The NRC's concern is with the manner by which the inspections, tests, analyses, and acceptance criteria (ITAAC) were developed and the lack of experience with DCs in a licensing proceeding. Therefore, it is appropriate that the NRC retain some discretion regarding the manner by which appendix A to 10 CFR part 52 could be referenced in a 10 CFR part 50 licensing proceeding.

E. Applicable Regulations (Section V)

The purpose of Section V of appendix A to 10 CFR part 52 is to specify the regulations that are applicable and in effect for the U.S. ABWR DC renewal. These regulations consist of the technically relevant regulations identified in paragraph V.A, except for the regulations in paragraph V.B that are not applicable to this certified design.

F. Issue Resolution (Section VI)

The purpose of Section VI of appendix A to 10 CFR part 52 is to identify the scope of issues that are resolved by the NRC through this final rule and, therefore, are

“matters resolved” within the meaning and intent of § 52.63(a)(5). The section is divided into five parts: paragraph VI.A identifies the NRC’s safety findings in adopting appendix A to 10 CFR part 52, paragraph VI.B identifies the scope and nature of issues that are resolved by this final rule, paragraph VI.C identifies issues that are not resolved by this final rule, paragraph VI.D identifies the issue finality restrictions applicable to the NRC with respect to appendix A to 10 CFR part 52, and paragraph VI.E identifies the availability of secondary resources.

Paragraph VI.A describes the nature of the NRC’s findings in general terms and makes the findings required by § 52.54, “Issuance of standard design certification,” for the NRC’s approval of this DC final rule.

Paragraph VI.B sets forth the scope of issues that may not be challenged as a matter of right in subsequent proceedings. The introductory phrase of paragraph VI.B clarifies that issue resolution, as described in the remainder of the paragraph, extends to the delineated NRC proceedings for plants referencing appendix A to 10 CFR part 52. The remainder of paragraph VI.B describes the categories of information for which there is issue resolution.

Paragraph VI.C reserves the right of the NRC to impose operational requirements on applicants that reference appendix A to 10 CFR part 52. This provision reflects the fact that only some operational requirements, including portions of the generic technical specifications in Chapter 16 of the DCD, and no operational programs (e.g., operational quality assurance), were completely reviewed by the NRC in this DC final rule. However, those operational requirements that the NRC completely reviewed and approved as documented in the NRC’s final safety evaluation report, are subject to the change control provisions of paragraph VIII.C. The NRC notes that operational requirements may be imposed on licensees referencing this DC through the inclusion of license conditions in the license, or established by a COL applicant or license holder

through the inclusion with sufficient specificity of a description of the operational requirement in the plant-specific final safety analysis report.⁵ The NRC's choice of the regulatory vehicle for imposing the operational requirements will depend upon the following, among other things: (1) whether the development and/or implementation of these requirements must occur prior to either the issuance of the COL or the Commission finding under § 52.103(g) and (2) the nature of the change controls that are appropriate given the regulatory, safety, and security significance of each operational requirement.

Also, Paragraph VI.C allows the NRC to impose future operational requirements (distinct from design matters) on applicants who reference this DC. License conditions for portions of the plant within the scope of this DC (e.g., start-up and power ascension testing) are not restricted by § 52.63. The requirement to perform these testing programs is contained in the Tier 1 information. However, ITAAC cannot be specified for these subjects because the matters to be addressed in these license conditions cannot be verified prior to fuel load and operation, when the ITAAC are satisfied. In the absence of detailed design information to evaluate the need for and develop specific post-fuel load verifications for these matters, the NRC is reserving the right to impose, at the time of COL issuance, license conditions addressing post-fuel load verification activities for portions of the plant within the scope of this DC.

Paragraph VI.D requires the NRC to follow the restrictions contained in Section VIII of appendix A to 10 CFR part 52 when requiring generic or plant-specific modifications, changes, or additions to structures, systems, and components; design features; design criteria; and ITAAC within the scope of the certified design.

⁵ Certain activities ordinarily conducted following fuel load and therefore considered "operational requirements," but which may be relied upon to support a Commission finding under § 52.103(g), may themselves be the subject of ITAAC to ensure implementation prior to the § 52.103(g) finding.

Commented [A3]: This portion is edited to reflect the transitive nature of the verb "to impose" and the status of the plant-specific final safety analysis report (FSAR) as a licensee-controlled document.

Alternatively, staff may re-examine the need for the final clause of this sentence and delete it as (1) Paragraph VI.C does not include an option for the imposition or establishment of operational requirements through the use of a description in the plant-specific FSAR, rendering this clause unnecessary because it does not describe what the revised appendix A to 10 CFR part 52 means and (2) the noted capability of the NRC to oversee a licensee's conformance to its established operational programs exists elsewhere in the regulations (e.g., the quality assurance requirements of appendix B to 10 CFR part 50)..

Paragraph VI.E ~~ensures~~ provides that the NRC will specify at an appropriate time the procedures on how to obtain access to sensitive unclassified and non-safeguards information (SUNSI) and safeguards information (SGI) for the U.S. ABWR DC renewal rule. Access to such information would be for the sole purpose of requesting or participating in certain specified hearings, such as hearings required by § 52.85, “Administrative review of applications; hearings,” or an adjudicatory hearing.

G. Duration of this Appendix (Section VII)

The purpose of Section VII of appendix A to 10 CFR part 52 is, in part, to specify the period during which this design certification may be referenced by an applicant or licensee for a COL, under § 52.55, “Conditions of construction permits, early site permits, combined licenses, and manufacturing licenses,” and the period it will remain valid when the DC is referenced. For example, if a COL application references this DC during the 15-year period, then the DC would be effective for that COL application until that COL application is withdrawn or the license issued on that COL application expires, including periods of operation under a renewed license. The NRC intends for appendix A to 10 CFR part 52 to remain valid for the life of the plants that reference the DC to achieve the benefits of standardization and licensing stability. This means that changes to, or plant-specific departures from, information in the plant-specific DCD must be made under the change processes in Section VIII for the life of a plant that references this DC rule.

H. Processes for Changes and Departures (Section VIII)

The purpose of Section VIII of appendix A to 10 CFR part 52 is to set forth the processes for generic changes to, or plant-specific departures (including exemptions) from, the DCD. The NRC adopted this restrictive change process in order to achieve a

more stable licensing process for applicants and licensees that reference DC rules. Section VIII is divided into three paragraphs, which correspond to Tier 1, Tier 2, and operational requirements.

Generic *changes* (called “modifications” in § 52.63(a)(3)) must be accomplished by rulemaking because the intended subject of the change is this DC final rule itself, as is contemplated by § 52.63(a)(1). Consistent with § 52.63(a)(3), any generic rulemaking changes are applicable to all plants referencing this DC rule, absent circumstances which render the change technically irrelevant. By contrast, plant-specific *departures* could be either required by an order to one or more applicants or licensees; or an applicant or licensee-initiated departure applicable only to that applicant’s or licensee’s plant(s), similar to a § 50.59 departure or an exemption. Because these plant-specific departures result in a DCD that is unique for that plant, Section X of appendix A to 10 CFR part 52 requires an applicant or licensee to maintain a plant-specific DCD. For purposes of brevity, the following discussion refers to the processes for both generic changes and plant-specific departures as “change processes.” Section VIII refers to an exemption from one or more requirements of this appendix and addresses the criteria for granting an exemption. The NRC cautions that when the exemption involves an underlying substantive requirement (i.e., a requirement outside this appendix), then the applicant or licensee requesting the exemption must also demonstrate that an exemption from the underlying applicable requirement meets the criteria of § 52.7, “Specific exemptions,” or § 50.12, “Specific exemptions.”

~~Tier 1 information is the portion of design related information in the generic DCD that the NRC approves in the 10 CFR part 52 design certification appendices. To change Tier 1 information, the NRC approval by rulemaking or approval of an exemption from the certified design rule is required. Tier 2 information also is approved by the NRC in the 10 CFR part 52 design certification rule appendices, but it is not certified and~~

Commented [A4]: This statement omits the potential for a departure from Tier 1 information required by NRC order under § 52.63(a)(4) as allowed by section VIII.A.3 of appendix A to 10 CFR part 52 in the draft final rule.

~~licensees who reference the design can change this information using the process outlined in Section VIII of the appendices. This change process is similar to that in § 50.59 and is generally referred to as the “§ 50.59-like” process. If the criteria in Section VIII are met, a licensee can change Tier 2 information without prior NRC approval. The NRC created a third category, Tier 2*, to address industry requests to minimize the scope of Tier 1 information and provide greater flexibility for making changes. Tier 2* information is included in Tier 2 and has the same safety significance as Tier 1 information, but the NRC decided to provide more flexibility for licensees to change this type of information. Tier 2* is significant information included only in Tier 2 that cannot be changed without prior NRC approval of a license amendment requesting the change. Paragraph VIII.B.6 of appendix A to 10 CFR part 52 sets forth the process for changing Tier 2* information.~~

Tier 1 Information

Paragraph VIII.A describes the change process for changes to Tier 1 information that are accomplished by rulemakings that amend the generic DCD and are governed by the standards in § 52.63(a)(1). A generic change under § 52.63(a)(1) will not be made to a certified design while it is in effect unless the change: (1) is necessary for compliance with NRC regulations applicable and in effect at the time the certification was issued; (2) is necessary to provide adequate protection of the public health and safety or the common defense and security; (3) reduces unnecessary regulatory burden and maintains protection to public health and safety and common defense and security; (4) provides the detailed design information necessary to resolve select design acceptance criteria; (5) is necessary to correct material errors in the certification information; (6) substantially increases overall safety, reliability, or security of a facility and the costs of the change are justified; or (7) contributes to increased standardization

of the certification information. The rulemakings must provide for notice and opportunity for public comment on the proposed change, ~~as required by~~ under § 52.63(a)(2). The NRC will give consideration as to whether the benefits justify the costs for plants that are already licensed or for which an application for a permit or license is under consideration except for those changes that are necessary to provide adequate protection of the public health and safety or the common defense and security.

Departures from Tier 1 may occur in two ways: (1) the NRC may order a licensee to depart from Tier 1, as provided in paragraph VIII.A.3, or (2) an applicant or licensee may request an exemption from Tier 1, as addressed in paragraph VIII.A.4. If the NRC seeks to order a licensee to depart from Tier 1, paragraph VIII.A.3 would require that the NRC find both that the departure is necessary either to assure adequate protection of the public health and safety or the common defense and security or to bring the certification into secure compliance with the NRC's regulations applicable and in effect at the time of approval of the DC and that special circumstances are present, taking into consideration whether the special circumstances outweigh any decrease in safety that may result from the reduction in standardization caused by the plant-specific order. Paragraph VIII.A.4 provides that exemptions from Tier 1 requested by an applicant or licensee are governed by the requirements of §§ 52.63(b)(1) and 52.98(f), which provide an opportunity for a hearing. In addition, the NRC would not grant requests for exemptions that will result in a significant decrease in the level of safety otherwise provided by the design.

Tier 2 Information

Paragraph VIII.B describes the change processes for the Tier 2 information, including Tier 2* information, and Tier 2* information with a time of expiration. ~~The change processes for Tier 2 information which have~~ the same elements as the Tier 1

change process, but some of the standards for plant-specific orders and exemptions would be different. Generic Tier 2 changes, including Tier 2* and Tier 2* with a time of expiration, would be accomplished by rulemaking that would amend the generic DCD and would be governed by the standards in § 52.63(a)(1). A generic change under § 52.63(a)(1) ~~will~~ not be made to a certified design while it is in effect unless the change: (1) is necessary for compliance with NRC regulations ~~that were~~ applicable and in effect at the time the certification was issued; (2) is necessary to provide adequate protection of the public health and safety or the common defense and security; (3) reduces unnecessary regulatory burden and maintains protection to public health and safety and the common defense and security; (4) provides the detailed design information necessary to resolve select design acceptance criteria; (5) is necessary to correct material errors in the certification information; (6) substantially increases overall safety, reliability, or security of a facility and the costs of the change are justified; or (7) contributes to increased standardization of the certification information. If a generic change is made to Tier 2* information, then the category and expiration, if necessary, of the new information will also be determined in the rulemaking and the appropriate change process for that new information would apply.

Departures from Tier 2 would occur in ~~five~~ ways: (1) the ~~NRC~~Commission may order a plant-specific departure, as set forth in paragraph VIII.B.3; (2) an applicant or licensee may request an exemption from a Tier 2 requirement as set forth in paragraph VIII.B.4; (3) a licensee may make a departure without prior NRC approval under paragraph VIII.B.5; ~~or~~ (4) the licensee may request NRC approval for proposed departures which do not meet the requirements in paragraph VIII.B.5 as provided in paragraph VIII.B.5.e; and (5) the licensee may request NRC approval for a departure from Tier 2* information under paragraph VIII.B.6.

Similar to Commission-ordered Tier 1 departures and generic Tier 2 changes, Commission-ordered Tier 2 departures cannot be imposed except when necessary, either to bring the certification into compliance with the NRC's regulations applicable and in effect at the time of approval of the DC or to ensure adequate protection of the public health and safety or the common defense and security, provided that special circumstances are present as set forth in paragraph VIII.B.3. However, unlike in the case of Tier 1 changes/departures, the Commission would not have to consider whether the special circumstances for the ordered Tier 2 departures would not have to outweigh any decrease in safety that may result from the reduction in standardization caused by the plant-specific order, as required by § 52.63(a)(4) for Tier 1 departures. The NRC has determined that it is not necessary to impose an additional limitation for standardization similar to that imposed on Tier 1 departures by § 52.63(a)(4) and (b)(1). This type of additional limitation for standardization because it would unnecessarily restrict the flexibility of applicants and licensees with respect to Tier 2 information.

An applicant or licensee referencing this DC rule may be permitted to request an exemption from Tier 2 information as set forth in paragraph VIII.B.4. The applicant or licensee would have to demonstrate that the exemption complies with one of the special circumstances in regulations governing specific exemptions in § 50.12(a). In addition, the NRC would not grant requests for exemptions that would result in a significant decrease in the level of safety otherwise provided by the design. However, unlike Tier 1 changes, the special circumstances for the exemption do not have to outweigh any decrease in safety that may result from the reduction in standardization caused by the exemption. If the exemption is requested by an applicant for a license, the exemption would be subject to litigation in the same manner as other issues in the licensing hearing, consistent with § 52.63(b)(1). If the exemption is requested by a licensee, then

~~the exemption would be subject to an opportunity for hearing in the same manner as license amendments.~~

Paragraph VIII.B.5 allows an applicant or licensee to depart from Tier 2 information, without prior NRC approval, if the departure does not involve a change to or departure from Tier 1 information, Tier 2* information, or the technical specifications, and the departure does not require a license amendment under paragraph VIII.B.5.b or c. The technical specifications referred to in B.5.a of this paragraph are the technical specifications in Chapter 16 of the generic DCD, including bases, for departures made prior to the issuance of the COL. After the issuance of the COL, the plant-specific technical specifications would be controlling under paragraph VIII.B.5. The requirement for a license amendment in paragraph VIII.B.5.b is similar to the requirement in § 50.59 and applies to all of the information in Tier 2 except for the information that resolves the severe accident issues or that affects information required by § 52.47(a)(28) to address aircraft impacts.

The NRC concludes that the resolution of ex-vessel severe accident design features should be preserved and maintained in the same fashion as all other safety issues that were resolved during the design certification review (refer to SRM on SECY-90-377, "Requirements for Design Certification Under 10 CFR Part 52," dated February 15, 1991, ADAMS Accession No. ML003707892). However, because of the increased uncertainty in ex-vessel severe accident issue resolutions, the NRC has adopted separate criteria in paragraph VIII.B.5.c for determining if a departure from information that resolves ex-vessel severe accident design features would require a license amendment. For purposes of applying the special criteria in paragraph VIII.B.5.c, ex-vessel severe accident resolutions are limited to design features where the intended function of the design feature is relied upon to resolve postulated accidents when the reactor core has melted and exited the reactor vessel, and the containment is being

challenged. The location of design information in the DCD is not important to the application of this special procedure for ex-vessel severe accident design features. However, the special procedure in paragraph VIII.B.5.c does not apply to design features that resolve "beyond-design-basis accidents" or other low-probability events. The important aspect of this special procedure is that it is limited to ex-vessel severe accident design features, as defined above. Some design features may have intended functions to meet "design-basis" requirements and to resolve "severe accidents." If these design features are reviewed under paragraph VIII.B.5, then the appropriate criteria from either paragraphs VIII.B.5.b or VIII.B.5.c are selected depending upon the function being changed.

Paragraph VIII.B.5.b ~~addresses~~ governs departures from Tier 2 information described in the DCD to address aircraft impacts, ~~under in accordance with~~ § 52.47(a)(28). ~~Under § 52.47(a)(28), applicants are required to include the information required by § 50.150(b) in their DCD.~~ An COL applicant or licensee ~~who changes that~~ departs from this information is required to consider the effect of the changed design feature or functional capability on the original aircraft impact assessment required by § 50.150(a). The applicant or licensee is also required to describe in the plant-specific DCD how the modified design features and functional capabilities continue to meet the assessment requirements in § 50.150(a)(1). Submittal of this updated information is governed by the reporting requirements in paragraph X.B.

During an ongoing adjudicatory proceeding (e.g., for issuance of a COL) a party who believes that an applicant or licensee has not complied with paragraph VIII.B.5 when departing from Tier 2 information may petition to admit such a contention into the proceeding under paragraph VIII.B.5.g. As set forth in paragraph VIII.B.5.g, the petition would have to comply with the requirements of § 2.309, "Hearing requests, petitions to intervene, requirements for standing, and contentions," and show that the departure

does not comply with paragraph VIII.B.5. If on the basis of the petition and any responses thereto, the presiding officer in the proceeding determines that the required showing has been made, the matter would be certified to the Commission for its final determination. In the absence of a proceeding, assertions of noncompliance with paragraph VIII.B.5 requirements applicable to Tier 2 departures would be treated as petitions for enforcement action under § 2.206, "Requests for action under this subpart."

Paragraph VIII.B.6 provides a process for departing from Tier 2* information. This reflects the inclusion of certain significant information only in Tier 2 that may not be changed without prior NRC approval. This Tier 2* information is identified in the generic DCD with italicized text and brackets.

Although the Tier 2* designation was originally intended to last for the lifetime of the facility, like Tier 1 information, the NRC determined that some of the Tier 2* information could expire when the plant first achieves full (100 percent) power, after the finding required by 10 CFR 52.103(g), while other Tier 2* information must remain in effect throughout the life of the facility. The factors determining whether Tier 2* information could expire after full power is first achieved (first full power) were whether the Tier 1 information would govern these areas after first full power and the NRC's determination that prior approval was required before implementation of the change due to the significance of the information. Therefore, certain Tier 2* information listed in paragraph VIII.B.6.c ceases to retain its Tier 2* designation after full power operation is first achieved following the Commission finding under 10 CFR 52.103(g). Thereafter, that information is deemed to be Tier 2 information that is subject to the departure requirements in paragraph VIII.B.5. By contrast, the Tier 2* information identified in paragraph VIII.B.6.b retains its Tier 2* designation throughout the duration of the license, including any period of license renewal.

If Tier 2* information is changed in a generic rulemaking, the designation of the new information (Tier 1, 2*, or 2) will also be determined in the rulemaking and the appropriate process for future changes will apply. If a plant-specific departure is made from Tier 2* information, then the new designation will apply only to that plant. If an applicant who references this design certification makes a departure from Tier 2* information, the new information will be subject to litigation in the same manner as other plant-specific issues in the licensing hearing. If a licensee makes a departure from Tier 2* information, it will be treated as a license amendment under 10 CFR 50.90 and the finality will be determined under paragraph VI.B.5. Any requests for departures from Tier 2* information that affects Tier 1 must also comply with the requirements in paragraph VIII.A.

Operational Requirements

The change process for technical specifications and other operational requirements in the design control document is set forth in Section VIII, paragraph C. The key to using the change processes described in Section VIII is to determine if the proposed change or departure would require a change to a design feature described in the generic DCD. If a design change is required, then the appropriate change process in paragraph VIII.A or VIII.B would apply. However, if a proposed change to the technical specifications or other operational requirements does not require a change to a design feature in the generic DCD, then paragraph VIII.C would apply. This change process has elements similar to the Tier 1 and Tier 2 change processes in paragraphs A and B, but with significantly different change standards. Because of the different finality status for technical specifications and other operational requirements, the NRC designated a special category of information, consisting of the technical specifications and other operational requirements, with its own change process in paragraph VIII.C. The

language in paragraph VIII.C also distinguishes between generic (Chapter 16 of the DCD) and plant-specific technical specifications to account for the different treatment and finality consistent with technical specifications before and after a license is issued.

The process in paragraph VIII.C.1 for making generic changes to the generic technical specifications in Chapter 16 of the DCD or other operational requirements in the generic DCD is accomplished by rulemaking and governed by the backfit standards in § 50.109, treating this design certification rule as though it were a design approval. This carries forward the backfitting protections afforded to the 1994 final design approval for the U.S. ABWR under § 50.109 codified as of May 2, 1997, which governed the modification of or addition to the design approval issued under appendix M, N, or O of part 52 for a facility. Because that final design approval has expired and a new design approval is no longer required for design certification and has not been requested by the applicant, changes to the generic technical specifications or other operational requirements would not otherwise be modifications of or additions to a design approval and therefore would not fall within the definition of backfitting in either the 1997 Backfit Rule or the current one.

The determination of whether the generic technical specifications and other operational requirements were completely reviewed and approved in this DC rule is based upon the extent to which the NRC reached a safety conclusion in the final safety evaluation report on this matter. If a technical specification or operational requirement was completely reviewed and finalized in the design certification rulemaking, then the requirement of § 50.109 would apply because a position was taken on that safety matter. Generic changes made under paragraph VIII.C.1 would be applicable to all applicants or licensees referencing this DC rule as described in paragraph VIII.C.2, unless the change is made technically irrelevant by a plant-specific departure.

Some generic technical specifications contain values in brackets []. The brackets are placeholders indicating that the NRC has not reviewed these values and represent a requirement that the applicant for a COL referencing the U.S. ABWR DC renewal rule must replace the values in brackets with final plant-specific values (refer to guidance provided in Regulatory Guide 1.206, Revision 1, "Applications for Nuclear Power Plants"). The NRC will review the final plant-specific values when provided as part of a COL application referencing this design. The values in brackets are neither part of the DC rule nor are they binding. Therefore, the replacement of bracketed values with final plant-specific values does not require an exemption from the generic technical specifications.

Plant-specific departures may occur by either an order under paragraph VIII.C.3 or an applicant's exemption request under paragraph VIII.C.4. The basis for determining if the technical specification or operational requirement was completely reviewed and approved for these processes would be the same as for paragraph VIII.C.1 previously discussed. If the technical specification or operational requirement is completely reviewed and finalized in the design certification rulemaking, then the NRC must demonstrate that special circumstances are present before ordering a plant-specific departure. If not, there would be no restriction on plant-specific changes to the technical specifications or operational requirements, prior to the issuance of a license, provided a design change is not required. Although the generic technical specifications were reviewed and approved by the NRC in support of the design certification review, the NRC intends to consider the lessons learned from subsequent operating experience during its licensing review of the plant-specific technical specifications. The process for petitioning to intervene on a technical specification or operational requirement contained in paragraph VIII.C.5 is similar to other issues in a licensing hearing, except that the petitioner must also demonstrate why special circumstances are present pursuant to

§ 2.335, "Consideration of Commission rules and regulations in adjudicatory proceedings."

Paragraph VIII.C.6 states that the generic technical specifications would have no further effect on the plant-specific technical specifications after the issuance of a license that references this appendix. After a license is issued, the bases for the plant-specific technical specifications would be controlled by the bases change provision set forth in the administrative controls section of the plant-specific technical specifications.

I. [RESERVED] (Section IX)

This section is reserved for future use. The matters discussed in this section of earlier design certification rules—inspections, tests, analyses, and acceptance criteria—are now addressed in the substantive provisions of 10 CFR part 52. Accordingly, there is no need to repeat these regulatory provisions in the U.S. ABWR DC renewal rule. However, this section is being reserved to maintain consistent section numbering with other design certification rules.

J. Records and Reporting (Section X)

The purpose of Section X of appendix A to 10 CFR part 52 is to set forth the requirements that will apply to maintaining records of changes to and departures from the generic DCD, which are to be reflected in the plant-specific DCD. Section X also sets forth the requirements for submitting reports (including updates to the plant-specific DCD) to the NRC. This section of appendix A to 10 CFR part 52 is similar to the requirements for records and reports in 10 CFR part 50, except for minor differences in information collection and reporting requirements.

Paragraph X.A.1 requires that a generic design control document including SUNSI and SGI referenced in the generic design control document be maintained by the

applicant for this rule. The generic DCD concept was developed, in part, to meet the requirements for incorporation by reference, including public availability of documents incorporated by reference. However, the SUNSI and SGI could not be included in the generic design control document because they are not publicly available. Nonetheless, the SUNSI and SGI were reviewed by the NRC and, as stated in paragraph VI.B.2, the NRC would consider the information to be resolved within the meaning of § 52.63(a)(5). Because this information is not in the generic DCD, this information, or its equivalent, is required to be provided by an applicant for a license referencing this U.S. ABWR DC renewal rule. Only the generic DCD is identified and incorporated by reference into this rule. The generic design control document and the NRC-approved version of the SUNSI and SGI must be maintained by the applicant (GEH) for the period of time that appendix A to 10 CFR part 52 may be referenced.

Paragraphs X.A.2 and X.A.3 place recordkeeping requirements on an applicant or licensee that references this design certification so that its plant-specific DCD accurately reflects both generic changes to the generic DCD and plant-specific departures made under Section VIII. The term “plant-specific” is used in paragraph X.A.2 and other sections of appendix A to 10 CFR part 52 to distinguish between the generic DCD that is being incorporated by reference into appendix A to 10 CFR part 52, and the plant-specific DCD that the COL applicant is required to submit under paragraph IV.A. The requirement to maintain changes to the generic DCD is explicitly stated to ensure that these changes are not only reflected in the generic design control document, which will be maintained by the applicant for the design certification, but also in the plant-specific DCD. Therefore, records of generic changes to the design control document will be required to be maintained by both entities to ensure that both entities have up-to-date design control documents.

Paragraph X.A.4.a requires the U.S. ABWR DC rule applicant to maintain a copy of the aircraft impact assessment analysis for the term of the certification and any renewal. This provision, which is consistent with § 50.150(c)(3), would facilitate any NRC inspections of the assessment that the NRC decides to conduct. Similarly, paragraph X.A.4.b requires an applicant or licensee who references appendix A to 10 CFR part 52 to maintain a copy of the aircraft impact assessment performed to comply with the requirements of § 50.150(a) throughout the pendency of the application and for the term of the license and any renewal. This provision is consistent with § 50.150(c)(4). For all applicants and licensees, the supporting documentation retained should describe the methodology used in performing the assessment, including the identification of potential design features and functional capabilities to show that the acceptance criteria in § 50.150(a)(1) will be met.

Paragraph X.A does not place recordkeeping requirements on site-specific information that is outside the scope of this rule. As discussed in paragraph IV.DB of this document, the final safety analysis report required by § 52.79 will contain the plant specific DCD and the site-specific information for a facility that references this rule. The phrase "site-specific portion of the final safety analysis report" in paragraph X.B.3.c refers to the information that is contained in the final safety analysis report for a facility (required by § 52.79) but is not part of the plant-specific DCD (required by paragraph IV.A). Therefore, this rule does not require that duplicate documentation be maintained by an applicant or licensee that references this rule because the plant-specific DCD is part of the final safety analysis report for the facility.

Paragraph X.B.1 requires applicants or licensees that reference this rule to submit reports that describe departures from the design control document and include a summary of the written evaluations. The requirement for the written evaluations is set forth in paragraph X.A.3. The frequency of the report submittals is set forth in paragraph

X.B.3. The requirement for submitting a summary of the evaluations is similar to the requirement in § 50.59(d)(2).

Paragraph X.B.2 requires applicants or licensees that reference this rule to submit updates to the design control document, which include both generic changes and plant-specific departures, as set forth in paragraph X.B.3. The requirements in paragraph X.B.3 for submitting reports will vary according to certain time periods during a facility's lifetime. If a potential applicant for a COL that references this rule decides to depart from the generic DCD prior to submission of the application, then paragraph X.B.3.a will require that the updated design control document be submitted as part of the initial application for a license. Under paragraph X.B.3.b, the applicant may submit any subsequent updates to its plant-specific DCD along with its amendments to the application provided that the submittals are made at least once per year. Because amendments to an application are typically made more frequently than once a year, this should not be an excessive burden on the applicant.

Paragraph X.B.3.b also requires semi-annual submission of the reports required by paragraph X.B.1 and X.B.2 throughout the period of application review and construction. The NRC will use the information in the reports to support planning for the NRC's inspection and oversight during this phase, when the licensee is conducting detailed design, procurement of components and equipment, construction, and preoperational testing. In addition, the NRC will use the information in making its finding on ITAAC under § 52.103(g), as well as any finding on interim operation under Section 189.a(1)(B)(iii) of the Atomic Energy Act of 1954, as amended. Once a facility begins operation (for a COL under 10 CFR part 52, after the Commission has made a finding under § 52.103(g)), the frequency of reporting will be governed by the requirements in paragraph X.B.3.c.

V. ABWR Final Design Approval

On July 13, 1994, the NRC issued a final design approval for the U.S. ABWR design ~~in accordance with~~ under appendix O to 10 CFR part 52, "Standardization of design: staff review of standard designs"; the approval was published in the *Federal Register* on July 20, 1994 (59 FR 37058). The final design approval was scheduled to expire on July 13, 1999. On November 23, 1994, the NRC issued a revised final design approval ~~in accordance with~~ under appendix O to 10 CFR part 52, which expired on July 13, 2009. On December 1, 1994, the NRC published the revised final design approval for U.S. ABWR standard design (59 FR 61647). On August 28, 2007, the NRC replaced appendix O of 10 CFR part 52 with Subpart E of 10 CFR part 52, "Standard design approvals," thereby replacing a final design approval with a standard design approval (72 FR 49351). As discussed in the statements of consideration for the 2007 rulemaking, a renewal process was not specifically provided for either a final design approval or standard design approval. The issued final design approval has expired, a renewal was neither requested nor available, nor is there a standard design approval being sought concurrent with this U.S. ABWR DC renewal rule. Therefore, the U.S. ABWR design does not have a current final design approval or standard design approval.

VI. Section-by-Section Analysis

The following paragraphs describe the specific changes in this direct final rule:

~~Section 52.11, "Information collection requirements: OMB approval."~~

~~In § 52.11, this direct final rule revises appendix A to 10 CFR part 52 on the list of information collection requirements in paragraph (b) of this section.~~

Appendix A to Part 52—Design Certification Rule for the U.S. Advanced Boiling Water Reactor

This direct final rule amends appendix A to 10 CFR part 52 to incorporate the renewed U.S. ABWR standard design into the NRC's regulations. Applicants or licensees intending to construct and operate a plant using the U.S. ABWR design may do so by referencing the DC rule.

VII. Regulatory Flexibility Certification

Under the Regulatory Flexibility Act (5 U.S.C. 605(b)), the NRC certifies that this direct final rule does not have a significant economic impact on a substantial number of small entities. This direct final rule affects only the licensing and operation of nuclear power plants. The companies that own these plants do not fall within the scope of the definition of "small entities" set forth in the Regulatory Flexibility Act or the size standards established by the NRC (10 CFR 2.810).

VIII. Regulatory Analysis

The NRC has not prepared a regulatory analysis for this direct final rule. The NRC prepares regulatory analyses for rulemakings that establish generic regulatory requirements applicable to all licensees. Design certifications are not generic rulemakings in the sense that design certifications do not establish standards or requirements with which all licensees must comply. Rather, design certifications are

NRC approvals of specific nuclear power plant designs by rulemaking, which then may be voluntarily referenced by applicants for combined licenses or construction permits. Furthermore, an applicant for a design certification, rather than the NRC, initiates design certification rulemakings. Preparation of a regulatory analysis in this circumstance would not be useful because the design to be certified is proposed by the applicant, rather than the NRC. For these reasons, the NRC concludes that preparation of a regulatory analysis is neither required nor appropriate.

IX. Backfitting and Issue Finality

The NRC has determined that this direct final rule does not constitute a backfit as defined in the backfit rule (§ 50.109), and it is not inconsistent with any applicable issue finality provision in 10 CFR part 52.

This U.S. ABWR DC renewal rule does not constitute backfitting as defined in the backfit rule (§ 50.109) because there are no existing operating licenses under 10 CFR part 50, or COLs or manufacturing licenses under 10 CFR part 52 referencing this DC rule and because no current final design approval or standard design approval exists for the U.S. ABWR.

This U.S. ABWR DC renewal rule is not inconsistent with any applicable issue finality provision in 10 CFR part 52 because it does not impose new or changed requirements on existing DC rules in appendices B through F to 10 CFR part 52 and there are no COLs or manufacturing licenses issued by the NRC that reference the original U.S. ABWR DC rule. Conforming changes appear in appendix A to 10 CFR part 52 to reflect the renewed standard design in place of the original U.S. ABWR DC; however, these changes do not impose any additional requirements.

For these reasons, neither a backfit analysis nor a discussion addressing the issue finality provisions in 10 CFR part 52 was prepared for this rule.

X. Voluntary Consensus Standards

The National Technology Transfer and Advancement Act of 1995, Pub. L. 104-113, requires that Federal agencies use technical standards that are developed or adopted by voluntary consensus standards bodies unless the use of such a standard is inconsistent with applicable law or otherwise impractical. In this direct final rule, the NRC certifies the renewal for the U.S. ABWR standard ~~plant~~-design for use in nuclear power plant licensing under 10 CFR part 50 or 52. Design certifications are not generic rulemakings establishing a generally applicable standard with which all 10 CFR parts 50 and 52 nuclear power plant licensees must comply. Design certifications are Commission approvals of specific nuclear power plant designs by rulemaking. Furthermore, design certifications are initiated by an applicant for rulemaking, rather than by the NRC. This action does not constitute the establishment of a standard that contains generally applicable requirements.

XI. Plain Writing

The Plain Writing Act of 2010 (Pub. L. 111-274) requires Federal agencies to write documents in a clear, concise, and well-organized manner that also follows other best practices appropriate to the subject or field and the intended audience. The NRC has written this document to be consistent with the Plain Writing Act as well as the Presidential Memorandum, "Plain Language in Government Writing," published June 10, 1998 (63 FR 31883).

XII. Environmental Assessment and Final Finding of No Significant Impact

The NRC has determined under the National Environmental Policy Act of 1969, as amended (NEPA), and the NRC's regulations in subpart A of 10 CFR part 51, that this direct final rule, if confirmed, would not be a major Federal action significantly affecting the quality of the human environment and, therefore, an environmental impact statement is not required. The NRC's generic determination in this regard is reflected in § 51.32(b)(1). The basis for the NRC's categorical exclusion in this regard, as discussed in the 2007 final rule amending 10 CFR parts 51 and 52 (72 FR 49351), is based upon the following considerations. A DC rule does not authorize the siting, construction, or operation of a facility referencing any particular design, but only codifies a standard design certification in a rule (the U.S. ABWR DC renewal in this case). The NRC will evaluate the environmental impacts and issue an environmental impact statement as appropriate under NEPA as part of the application for the construction and operation of a facility referencing any particular DC rule.

In addition, consistent with § 51.30(d) and § 51.31(b), the NRC has prepared an environmental assessment, "Environmental Assessment by the U.S. Nuclear Regulatory Commission Relating to Renewal of the Certification of the ABWR Standard Design," for the U.S. ABWR design renewal addressing various design alternatives to prevent and mitigate severe accidents. The environmental assessment is based, in part, upon the NRC's review of GEH's supplemental evaluation of various severe accident mitigation design alternatives to prevent and mitigate severe accidents required in "Amendment to Technical Support Document for the ABWR," which updates information in the original "Technical Support Document for the ABWR." Based upon review of GEH's evaluation, the Commission concludes that (1) GEH identified a reasonably complete set of potential

design alternatives to prevent and mitigate severe accidents for the U.S. ABWR design renewal; (2) none of the potential design alternatives are justified on the basis of cost-benefit considerations; and (3) it is unlikely that other design changes would be identified and justified during the term of the design certification on the basis of cost-benefit considerations because the estimated core damage frequencies for the U.S. ABWR are very low on an absolute scale. These issues are considered resolved for the U.S. ABWR design. Based on its own independent evaluation, the NRC reached the same conclusion as GEH that none of the possible candidate design alternatives are potentially cost beneficial for the U.S. ABWR design. This independent evaluation was based on reasonable treatment of costs, benefits, and sensitivities. The NRC concludes that GEH has adequately identified areas where risk potentially could be reduced in a cost-beneficial manner and adequately assessed whether the implementation of the identified potential severe accident mitigation design alternatives or candidate design alternatives would be cost beneficial for the given evaluation criteria as provided in the U.S. ABWR DC renewal environmental assessment.

The finality of all environmental issues concerning severe accident mitigation design alternatives in the current U.S. ABWR design certification rule relied on site parameters being within those specified in the technical support document for the original U.S. ABWR, dated December 1994 as amended November 30, 2010. However, in an Atomic Safety and Licensing Board memorandum and order in the South Texas Project Electric Generating Station Units 3 and 4 Combined License proceeding (LBP-11-07), the board determined that no list of site parameters was specified in the ABWR technical support document. Therefore, the NRC staff re-evaluated the criteria for determining whether finality for severe accident mitigation design alternatives should apply in a future ABWR licensing action. To this end, the NRC staff selected the criteria for finality as the averted risk person-rem value for each severe accident mitigation

design alternative provided in Table 5 of the original technical support document. Although finality criteria for the severe accident mitigation design alternative for this DC renewal action cannot be based on site parameters, the selected criteria, if met, provide assurance that a severe accident mitigation design alternative would still not be cost beneficial at a proposed site for the ABWR design. Therefore, the NRC finds that the evaluation performed by GEH is reasonable and sufficient.

The environmental assessment is available as indicated in Section XVI, "Availability of Documents."

XIII. Paperwork Reduction Act Statement

This final rule does not contain any new or amended collections of information subject to the Paperwork Reduction Act of 1995 (44 U.S.C. 3501, et seq.). Existing collections of information were approved by the Office of Management and Budget, ~~approval-control~~ number 3150-0151.

Public Protection Notification

The NRC may not conduct or sponsor, and a person is not required to respond to, a collection of information unless the document requesting or requiring the collection displays a currently valid OMB control number.

XIV. Congressional Review Act

This final rule is a rule as defined in the Congressional Review Act (5 U.S.C. 801-808). However, the Office of Management and Budget has not found it to be a major rule as defined in the Congressional Review Act.

XV. Agreement State Compatibility

Under the "Policy Statement on Adequacy and Compatibility of Agreement States Programs," approved by the Commission on June 20, 1997, and published in the *Federal Register* (62 FR 46517; September 3, 1997), this rule is classified as compatibility "NRC." Compatibility is not required for Category "NRC" regulations. The NRC program elements in this category are those that relate directly to areas of regulation reserved to the NRC by the Atomic Energy Act or the provisions of 10 CFR, and although an Agreement State may not adopt program elements reserved to the NRC, it may wish to inform its licensees of certain requirements by a mechanism that is consistent with a particular State's administrative procedure laws, but does not confer regulatory authority on the State.

XVI. 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.

Documents Related to U.S. ABWR Design Certification Renewal Rule

DOCUMENT	ADAMS ACCESSION NO. / FEDERAL REGISTER CITATION
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SECY- 2020-XXX 0112X, "Direct Final Rule—Advanced Boiling Water Reactor Design Certification Renewal (RIN 3150-AK04; NRC-2017-0090)," [Date]December 9, 2020	ML20170A520
GE-Hitachi ABWR Design Control Document Tier 1 & 2, Revision 7, October 2019 (includes correction noted, as of March 2020)	ML20093K254
GE-Hitachi Nuclear Energy, Transmittal of ABWR Standard Plant Design Certification Renewal Application Design Control Document, Revision 5, Tier 1 and Tier 2, December 7, 2010	ML110040176
GE-Hitachi ABWR Design Control Document Tier 1 & 2, Revision 5, December 7, 2010	ML110040323
Technical Report NEDO-33875, ABWR U.S. Certified Design—Aircraft Impact Assessment, Licensing Basis Information and Design Details for Key Design Features, Rev. 3 (M170049), February 2017	ML17059C523
Licensing Technical Report NEDO-33878, ABWR ECCS Suction Strainer Evaluation of Long-Term Recirculation Capability, Rev. 3 (M180068), March 2018	ML18092A306
<i>Final Safety Evaluation Report and Supplements</i>	
NUREG-1503, Supplement 2, "Final Safety Evaluation Report Related to the Certification of the Advanced Boiling Water Reactor Design," October 2020	ML20301A886
NUREG-1503, Supplement 1, "Final Safety Evaluation Report Related to the Certification of the Advanced Boiling Water Reactor Design," May 1997	ML080710134
NUREG-1503, Vols. 1 – 2, "Final Safety Evaluation Report Related to the Certification of the Advanced Boiling Water Reactor Design," July 1994	ML080670592
<i>Environmental Review</i>	
Environmental Assessment by the U.S. Nuclear Regulatory Commission Relating to Renewal of the Certification of the ABWR Standard Design, [Date]	ML20055D918
Staff Technical Analysis in Support of the Advanced Boiling Water Reactor Design Certification Renewal Environmental Assessment	ML20024D602
MFN 16-062, "Applicant's Supplemental Environmental Report – Amendment to Standard Design Certification (ABWR Renewal Docket 52-045)," August 2016	ML16235A415
25A5680AA, "Amendment to Technical Support Document for the ABWR," Sheet 1, November 30, 2010 (Renewal Application)	ML110040178
SECY-97-077, "Certification of Two Evolutionary Designs," April 15, 1996 (Original ABWR Environmental Assessment)	ML003708129

Letter from GE Nuclear Energy Submitting the Enclosed "Technical Support Document for the ABWR," December 21, 1994 (Original NEPA/SAMDA Submittal)	ML100210563
<i>Commission Papers, Original Design Certification, Interim Rule Amendments, and Other Supporting Documents</i>	
SECY-19-0066, "Staff Review of NuScale Power's Mitigation Strategy for Beyond-Design-Basis External Events," June 26, 2019	ML19148A443
SECY-12-0025, "Proposed Orders and Requests for Information in Response to Lessons Learned from Japan's March 11, 2011, Great Tohoku Earthquake and Tsunami," February 17, 2012	ML12039A111
SECY-11-0093, "Near-Term Report and Recommendations for Agency Actions Following the Events in Japan," July 12, 2011	ML11186A950
The Near-Term Task Force Review of Insights from the Fukushima Dai-Ichi Accident, July 12, 2011	ML111861807
Staff Requirements Memorandum on SECY-90-377, "Requirements for Design Certification Under 10 CFR Part 52," February 15, 1991	ML003707892
SECY-90-377, "Requirements for Design Certification under 10 CFR Part 52," November 8, 1990	ML003707889
NUREG-1948, "Final Safety Evaluation Report Related to the Aircraft Impact Amendment to the U.S. Advanced Boiling Water Reactor (ABWR) Design Certification," June 2011	ML11182A163
U.S. Advanced Boiling Water Reactor Aircraft Impact Design Certification Amendment, December 16, 2011	76 FR 78096
LBP-11-07, Atomic Safety and Licensing Board Memorandum and Order in the South Texas Project Electric Generating Station Units 3 and 4 Combined License Proceeding, February 28, 2011	ML110591049
GE Hitachi Nuclear Energy; Acceptance for Docketing of an Application for Renewal of the U.S. Advanced Boiling Water Reactor Design Certification, February 18, 2011 (Acceptance Application)	76 FR 9612
GE Hitachi Nuclear Energy; Notice of Receipt and Availability of an Application for Renewal of the U.S. Advanced Boiling Water Reactor Design Certification, January 27, 2011 (Notice of Receipt of the Application)	76 FR 4948
ABWR-LIC-09-621, Revision 0, "Applicant's Supplemental Environmental Report-Amendment to ABWR Standard Design Certification," November 2009	ML093170455
Consideration of Aircraft Impacts for New Nuclear Power Reactors, June 12, 2009 (Changes to DC Complying with § 50.150)	74 FR 28111

Licenses, Certifications, and Approvals for Nuclear Power Plants, August 28, 2007 (Revision of 10 CFR Parts 50 and 52)	72 FR 49351
Presidential Memorandum, "Plain Language in Government Writing," June 10, 1998	63 FR 31883
Policy Statement on Adequacy and Compatibility of Agreement States Programs, September 3, 1997	62 FR 46517
Standard Design Certification for the U.S. Advanced Boiling Water Reactor Design, May 12, 1997 (Original U.S. ABWR Design Certification)	62 FR 25800
GE-Hitachi Nuclear Energy, Transmittal of ABWR Standard Plant Design Certification Renewal Application Design Control Document Revision 7, Chapter 5, March 16, 2020	ML20076D961
GE-Hitachi Nuclear Energy – ABWR Standard Plant Design Certification Renewal Application Design Control Document Revision 7, Tier 1 and Tier 2, December 20, 2019	ML20007E274
GE-Hitachi Nuclear Energy, Submittal of ABWR Standard Plant Design Certification Renewal Application Design Control, Document, Revision 6, Tier 1 and Tier 2, February 19, 2016	ML16081A268
GE-Hitachi Nuclear Energy – ABWR Standard Plant Design Certification Renewal Application Design Control Document Revision 6, Tier 1 and Tier 2, February 19, 2016	ML16214A015
Mitigation of Beyond-Design-Basis Events (MBDBE) – Regulatory Analysis – Proposed Rule Post-SRM, October 2015	ML15266A133
Letter from Nuclear Innovation North America LLC, South Texas Project Units 3 and 4 Termination of Combined Licenses NPF-97 and NPF-98, July 12, 2018	ML18179A217
South Texas Project, Units 3 and 4, Request for Withdrawal of Combined Licenses, June 22, 2018	ML18184A338
Withdrawal of Toshiba Advanced Boiling Water Reactor Design Certification Rule Renewal Application, June 9, 2016	ML16173A310
GE-Hitachi Nuclear Energy – U.S. Advanced Boiling Water Design Certification Renewal Application, July 20, 2012	ML12125A385
Reactor Regulatory History on Design Certification Rules, April 26, 20006	ML003761550
Notice of Issuance of Revised Final Design Approval for U.S. ABWR Standard Design, December 1, 1994	59 FR 61647

⁶ ~~The regulatory history of the NRC's design certification reviews is a package of documents that is available in the NRC's PDR and NRC Library: Reactor Regulatory History on Design Certification Rules, April 26, 2000. This history spans the period during which the NRC simultaneously developed the regulatory standards for reviewing these designs and the form and content of the rules that certified the designs. This document predates this rulemaking and therefore does not contain a regulatory history for this rulemaking.~~

Letter to GE Nuclear Energy Transmitting the Revised Final Design Approval for [the] U.S. ABWR Standard Design, November 23, 1994	ML20077A747
Issuance of Final Design Approval Pursuant to 10 CFR Part 52, Appendix O; U.S. Advanced Boiling Water Reactor Design; GE Nuclear Energy, July 20, 1994	59 FR 37058
Final Design Approval FDA-0 for GE Nuclear Energy U.S. ABWR Standard Design, July 13, 1994 (Docket No. 52-001)	ML20070L506
GE Nuclear Energy; Receipt of Application for Design Certification, March 20, 1992 (Initial Application)	57 FR 9749

Commented [A5]: Staff should renumber the footnotes to reflect the deletion of the footnote on the regulatory history, which had no reference point in the text.

The NRC may post materials related to this document, including public comments, on the Federal Rulemaking Web site at <https://www.regulations.gov> under Docket ID NRC-2017-0090. The Federal Rulemaking Web site allows you to receive alerts when changes or additions occur in a docket folder. To subscribe: (1) navigate to the docket folder (NRC-2017-0090), (2) click the “Sign up for E-mail Alerts” link, and (3) enter your e-mail address and select how frequently you would like to receive e-mails (daily, weekly, or monthly).

XVII. Procedures for Access to Proprietary and Safeguards Information for Preparation of Comments on the U.S. ABWR Design Certification Renewal Rule

This section contains instructions regarding how the non-publicly available documents related to this final rule, and specifically those listed in Tables 1.6-1 and 1.6-2 beginning on page 1.6-2 of Tier 2 of the DCD, may be accessed by interested persons who wish to comment on the design certification. These documents contain proprietary information and SGI. Requirements for access to SGI are primarily set forth in 10 CFR parts 2 and 73. This section provides information specific to this final rule; however, nothing in this section is intended to conflict with the SGI regulations.

Interested persons who desire access to proprietary information on the U.S. ABWR design should first request access to that information from GEH, the design certification applicant. A request for access should be submitted to the NRC if the applicant does not either grant or deny access by the 10-day deadline described in the following section.

Submitting a Request to the NRC for Access

Within 10 days after publication of this direct final rule, any individual or entity who believes access to proprietary information or SGI is necessary in order to submit comments on this U.S. ABWR DC renewal rule may request access to such information. Requests for access to proprietary information or SGI submitted more than 10 days after publication of this document will not be considered absent a showing of good cause for the late filing explaining why the request could not have been filed earlier.

The requestor shall submit a letter requesting permission to access proprietary information and/or SGI to the Office of the Secretary, U.S. Nuclear Regulatory Commission, Attention: Rulemakings and Adjudications Staff, Washington, D.C. 20555-0001. The expedited delivery or courier mail address is: Office of the Secretary, U.S. Nuclear Regulatory Commission, Attention: Rulemakings and Adjudications Staff, 11555 Rockville Pike, Rockville, Maryland 20852. The e-mail address for the Office of the Secretary is Rulemaking.Comments@nrc.gov. The requester must send a copy of the request to the DC applicant at the same time as the original transmission to the NRC using the same method of transmission. Requests to the applicant must be sent to Michelle Catts, Senior Vice President, Regulatory Affairs, General Electric-Hitachi Nuclear Energy Americas, LLC, 3901 Castle Hayne Road, P.O. Box 780, M/C A10, Wilmington, NC 28402.

The request must include the following information:

1. The name of this design certification, U.S. ABWR design certification; the rulemaking identification number, RIN 3150–AK04; the rulemaking docket number, NRC–2017–0090; and the *Federal Register* citation for this rule.
2. The name, address, and e-mail or FAX number of the requester.
3. If the requester is an entity, the name of the individual(s) to whom access is to be provided, including the identity of any expert, consultant, or assistant who will aid the requester in evaluating the information.
4. If the request is for proprietary information, the requester's need for the information in order to prepare meaningful comments on the design certification must be demonstrated. Each of the following areas must be addressed with specificity:
 - a. The specific issue or subject matter on which the requester wishes to comment;
 - b. An explanation why information that is publicly available is insufficient to provide the basis for developing meaningful comment on the U.S. ABWR DC renewal rule with respect to the issue or subject matter described in paragraph 4.a. of this section; and
 - c. The technical competence (demonstrable knowledge, skill, training or education) of the requestor to effectively utilize the requested proprietary information to provide the basis for meaningful comment. Technical competence may be shown by reliance on a qualified expert, consultant, or assistant who satisfies these criteria.
 - d. A chronology and discussion of the requester's attempts to obtain the information from the design certification applicant, and the final communication from the requester to the applicant and the applicant's

response, if any was provided, with respect to the request for access to proprietary information must be submitted.

5. If the request is for SGI, a statement that explains each individual's "need to know" the SGI, as required by §§ 73.2 and 73.22(b)(1). Consistent with the definition of "need to know" as stated in § 73.2, "Definitions," the statement must explain:
 - a. The specific issue or subject matter on which the requester wishes to comment;
 - b. An explanation of why publicly available information is insufficient to provide the basis for developing meaningful comment on the design certification with respect to the issue or subject matter described in paragraph 5.a. of this section and why the SGI requested is indispensable in order to develop meaningful comments;⁷ and
 - c. The technical competence (demonstrable knowledge, skill, training, or education) of the requestor to effectively utilize the requested SGI to provide the basis and specificity for meaningful comment. Technical competence may be shown by reliance on a qualified expert, consultant, or assistant who satisfies these criteria.
 - d. A completed Form SF-85, "Questionnaire for Non-Sensitive Positions," for each individual who would have access to SGI. The completed Form SF-85 will be used by the Office of Administration to conduct the background check required for access to SGI, as required by 10 CFR part 2, subpart C, and § 73.22(b)(2), to determine the requestor's

⁷ Broad SGI requests under these procedures are unlikely to meet the standard for need to know. Furthermore, NRC staff redaction of information from requested documents before their release may be appropriate to comport with this requirement. The procedures in this document do not authorize unrestricted disclosure or less scrutiny of a requester's need to know than ordinarily would be applied in connection with either adjudicatory or non-adjudicatory access to SGI.

trustworthiness and reliability. For security reasons, Form SF-85 can only be submitted electronically through the electronic questionnaire for investigations processing (e-QIP) Web site, a secure Web site that is owned and operated by the Defense Counterintelligence and Security Agency (DCSA). To obtain online access to the form, the requestor should contact the NRC's Office of Administration at 301-415-3710.⁸

- e. A completed Form FD-258 (fingerprint card), signed in original ink, and submitted in accordance with § 73.57(d). Copies of Form FD-258 will be provided in the background check request package supplied by the Office of Administration for each individual for whom a background check is being requested. The fingerprint card will be used to satisfy the requirements of 10 CFR part 2, subpart C, § 73.22(b)(1), and Section 149 of the Atomic Energy Act of 1954, as amended, which mandates that all persons with access to SGI must be fingerprinted for an FBI identification and criminal history records check.
- f. A check or money order in the amount of \$326.00⁹ payable to the U.S. Nuclear Regulatory Commission for each individual for whom the request for access has been submitted; and
- g. If the requester or any individual who will have access to SGI believes they belong to one or more of the categories of individuals relieved from the criminal history records check and background check requirements, as stated in § 73.59, the requester should also provide a statement specifically stating which relief the requester is invoking, and explaining

⁸ The requester will be asked to provide his or her full name, Social Security Number, date and place of birth, telephone number, and e-mail address.

⁹ This fee is subject to change pursuant to the Defense Counter Intelligence and Security Agency's (DCSA) adjustable billing rates.

the requester's basis (including supporting documentation) for believing that the relief is applicable. While processing the request, the NRC's Office of Administration, Personnel Security Branch, will make a final determination whether the stated relief applies. Alternatively, the requester may contact the Office of Administration for an evaluation of his or her status prior to submitting the request. Persons who are not subject to the background check are not required to complete the SF-85 or Form FD-258; however, all other requirements for access to SGI, including the need to know, are still applicable.

Copies of documents and materials required by paragraphs 5.d.-g., as applicable, of this section must be sent to the following address: Office of Administration, U.S. Nuclear Regulatory Commission, Personnel Security Branch, Mail Stop TWFN-07D04M, 11555 Rockville Pike, Rockville, MD 20852. These documents and materials should not be included with the request letter to the Office of the Secretary, but the request letter should state that the forms and fees have been submitted as required.

To avoid delays in processing requests for access to SGI, all forms should be reviewed for completeness and accuracy (including legibility) before submitting them to the NRC. The NRC will return incomplete or illegible packages to the sender without processing.

Based on an evaluation of the information submitted under paragraphs 4.a.-4.d. or 5.a.-g. of this section, as applicable, the NRC staff will determine within 10 days of receipt of the written access request whether the requester has established a legitimate need for access to proprietary information or need to know the SGI requested.

Determination of Legitimate Need for Access

For proprietary information access requests, if the NRC determines that the requester has established a legitimate need for access to proprietary information, the NRC will notify the requester in writing that access to proprietary information has been granted. The NRC must first notify the DC applicant of the NRC's determination to grant access to the requester not less than 10 days before informing the requester of the NRC's decision. If the applicant wishes to challenge the NRC's determination, it must follow the procedures in Predisclosure Procedures for Proprietary Information Constituting Trade Secrets or Confidential Commercial or Financial Information of this section. The NRC will not provide access to disputed proprietary information to the requester until the procedures are completed as described in Predisclosure Procedures for Proprietary Information Constituting Trade Secrets or Confidential Commercial or Financial Information of this section. The written notification will contain instructions on how the requestor may obtain copies of the requested documents, and any other conditions that may apply to access to those documents. These conditions may include, but are not limited to, the signing of a Non-Disclosure Agreement or Affidavit setting forth terms and conditions to prevent the unauthorized or inadvertent disclosure of proprietary information by each individual who will be granted access.

For requests for access to SGI, if the NRC determines that the requester has established a need to know the SGI, the NRC's Office of Administration will then determine, based upon completion of the background check, whether the proposed recipient is trustworthy and reliable, as required for access to SGI by § 73.22(b). If the NRC's Office of Administration determines that the individual or individuals are trustworthy and reliable, the NRC will promptly notify the requester in writing. The notification will provide the names of approved individuals as well as the conditions

under which the SGI will be provided. Those conditions may include, but are not limited to, the signing of a Non-Disclosure Agreement or Affidavit by each individual who will be granted access to SGI.

Release and Storage of SGI

Prior to providing SGI to the requester, the NRC staff will conduct (as necessary) an inspection to confirm that the recipient's information protection system is sufficient to satisfy the requirements of § 73.22. Alternatively, recipients may opt to view SGI at an approved SGI storage location rather than establish their own SGI protection program to meet SGI protection requirements.

Filing of Comments on the U.S. ABWR Design Certification Renewal Rule Based on Non-Public Information

Any comments on this final rule that are based upon the disclosed proprietary information or SGI must be filed by the requester no later than 25 days after receipt of (or access to) that information, or the close of the public comment period, whichever is later. The commenter must comply with all NRC requirements regarding the submission of proprietary information and SGI to the NRC when submitting comments to the NRC (including marking and transmission requirements).

Review of Denials of Access

If the request for access to proprietary information or SGI is denied by the NRC, the NRC shall promptly notify the requester in writing, briefly stating the reason or reasons for the denial.

Before the Office of Administration makes a final adverse determination regarding the trustworthiness and reliability of the proposed recipient(s) for access to SGI, the Office of Administration, in accordance with § 2.336(f)(1)(iii), must provide the proposed recipient(s) any records that were considered in the trustworthiness and reliability determination, including those required to be provided under § 73.57(e)(1), so that the proposed recipient(s) have an opportunity to correct or explain the record.

Appeals from a denial of access must be made to the NRC's Executive Director for Operations (EDO) under § 9.29. The decision of the EDO constitutes final agency action under § 9.29(d).

Predisclosure Procedures for Proprietary Information Constituting Trade Secrets or Confidential Commercial or Financial Information

The NRC will follow the procedures in § 9.28 if the NRC determines, under the Determination of Legitimate Need for Access of this section, that access to proprietary information constituting trade secrets or confidential commercial or financial information will be provided to the requester. However, any objection filed by the applicant under § 9.28(b) must be filed within 15 days of the NRC notice in the Determination of Legitimate Need for Access of this section rather than the 30-day period provided for under § 9.28(b). In applying the provisions of § 9.28, the applicant for the DC rule will be treated as the "submitter."

XVIII. Incorporation by Reference—Reasonable Availability to

Interested Parties

The NRC is incorporating by reference the U.S. ABWR DCD, Revision 7. As described in the "Discussion" section of this document, the generic DCD combined into a single document Tier 1 and Tier 2 information and generic technical specifications in order to effectively control this information and facilitate its incorporation by reference into the rule. The NRC also is incorporating by reference two GEH technical reports (NEDO-33875 and NEDO-33878).

The NRC is required by law to obtain approval for incorporation by reference from the Office of the Federal Register (OFR). The OFR's requirements for incorporation by reference are set forth in 1 CFR part 51. The OFR's regulations require an agency to include in a direct final rule a discussion of the ways that the materials the agency incorporates by reference are reasonably available to interested parties or how it worked to make those materials reasonably available to interested parties. The discussion in this section complies with the requirement for direct final rules as set forth in 1 CFR 51.5(b)(2).

The NRC considers "interested parties" to include all potential NRC stakeholders, not only the individuals and entities regulated or otherwise subject to the NRC's regulatory oversight. These NRC stakeholders are not a homogenous group but vary with respect to the considerations for determining reasonable availability. Therefore, the NRC distinguishes between different classes of interested parties for the purposes of determining whether the material is "reasonably available." The NRC considers the following to be classes of interested parties in NRC rulemakings with regard to the material to be incorporated by reference:

• Individuals and small entities regulated or otherwise subject to the NRC's regulatory oversight (this class also includes applicants and potential applicants for licenses and other NRC regulatory approvals) and who are subject to the material to be incorporated by reference by rulemaking. In this context, "small entities" has the same meaning as a "small entity" under § 2.810.

• Large entities otherwise subject to the NRC's regulatory oversight (this class also includes applicants and potential applicants for licenses and other NRC regulatory approvals) and who are subject to the material to be incorporated by reference by rulemaking. In this context, "large entities" are those that do not qualify as a "small entity" under § 2.810.

• Non-governmental organizations with institutional interests in the matters regulated by the NRC.

• Other Federal agencies, States, local governmental bodies (within the meaning of § 2.315(c)).

• Federally-recognized and State-recognized¹⁰ Indian tribes.

• Members of the general public (i.e., individual, unaffiliated members of the public who are not regulated or otherwise subject to the NRC's regulatory oversight) who may wish to gain access to the materials which the NRC incorporates by reference by rulemaking in order to participate in the rulemaking process.

The NRC makes the materials incorporated by reference available for inspection to all interested parties, by appointment, at the NRC Technical Library, which is located at Two White Flint North, 11545 Rockville Pike, Rockville, Maryland 20852; telephone: 301-415-7000; e-mail: Library.Resource@nrc.gov. In addition, as described in Section

¹⁰ State-recognized Indian tribes are not within the scope of 10 CFR 2.315(c). However, for purposes of the NRC's compliance with 1 CFR 51.5, "interested parties" includes a broad set of stakeholders, including State-recognized Indian tribes.

XVI of this document, documents related to this direct final rule are available online in the NRC's Agencywide Documents Access and Management System (ADAMS) Public Documents collection at <https://www.nrc.gov/reading-rm/adams.html>.

The NRC concludes that the materials the NRC is incorporating by reference in this final rule are reasonably available to all interested parties because the materials are available to all interested parties in multiple ways and in a manner consistent with their interest in the materials.

List of Subjects in 10 CFR Part 52

Administrative practice and procedure, Antitrust, Combined license, Early site permit, Emergency planning, Fees, Incorporation by reference, Inspection, Issue finality, Limited work authorization, Nuclear power plants and reactors, Probabilistic risk assessment, Prototype, Reactor siting criteria, Redress of site, Penalties, Reporting and recordkeeping requirements, Standard design, Standard design certification.

For the reasons set out in the preamble and under the authority of the Atomic Energy Act of 1954, as amended; the Energy Reorganization Act of 1974, as amended; the Nuclear Waste Policy Act of 1982, as amended; and 5 U.S.C. 552 and 553, the NRC is amending 10 CFR part 52:

PART 52 – LICENSES, CERTIFICATIONS, AND APPROVALS FOR NUCLEAR POWER PLANTS

1. The authority citation for part 52 continues to read as follows:

Authority: Atomic Energy Act of 1954, secs. 103, 104, 147, 149, 161, 181, 182, 183, 185, 186, 189, 223, 234 (42 U.S.C. 2133, 2134, 2167, 2169, 2201, 2231, 2232, 2233, 2235, 2236, 2239, 2273, 2282); Energy Reorganization Act of 1974, secs. 201, 202, 206, 211 (42 U.S.C. 5841, 5842, 5846, 5851); 44 U.S.C. 3504 note.

2. Revise appendix A to 10 CFR part 52 to read as follows:

Appendix A to Part 52—Design Certification Rule for the U.S. Advanced Boiling Water Reactor

I. Introduction

Appendix A constitutes the renewed standard design certification for the U.S. Advanced Boiling Water Reactor (U.S. ABWR) design, in accordance with 10 CFR part 52, subpart B. The applicant for certification of the U.S. ABWR design is General Electric-Hitachi Nuclear Energy Americas, LLC (GEH).

II. Definitions

A. *Generic design control document (generic DCD)* means the document containing the Tier 1 and Tier 2 information and generic technical specifications that is incorporated by reference into this appendix.

B. *Generic technical specifications (generic TS)* means the information required by §§ 50.36 and 50.36a of this chapter for the portion of the plant that is within the scope of this appendix.

C. *Plant-specific DCD* means that portion of the combined license (COL) final safety analysis report (FSAR) that sets forth both the generic DCD information and any plant-specific changes to generic DCD information.

D. *Tier 1* means the portion of the design-related information contained in the generic DCD that is approved and certified by this appendix (Tier 1 information). The

design descriptions, interface requirements, and site parameters are derived from Tier 2 information. Tier 1 information includes:

1. Definitions and general provisions;
2. Design descriptions;
3. Inspections, tests, analyses, and acceptance criteria (ITAAC);
4. Significant site parameters; and
5. Significant interface requirements.

E. *Tier 2* means the portion of the design-related information contained in the generic DCD that is approved but not certified by this appendix (Tier 2 information). Compliance with Tier 2 is required, but generic changes to and plant-specific departures from Tier 2 are governed by Section VIII of this appendix. Compliance with Tier 2 provides a sufficient, but not the only acceptable, method for complying with Tier 1. Compliance methods differing from Tier 2 must satisfy the change process in Section VIII of this appendix. Regardless of these differences, an applicant or licensee must meet the requirement in paragraph III.B of this appendix to reference Tier 2 when referencing Tier 1. Tier 2 information includes:

1. Information required by § 52.47(a) and (c), with the exception of generic TS and conceptual design information;
2. Supporting information on the inspections, tests, and analyses that will be performed to demonstrate that the acceptance criteria in the ITAAC have been met; and
3. COL action items (COL license information), which identify certain matters that must be addressed in the site-specific portion of the ~~final safety analysis report~~FSAR by an applicant who references this appendix. These items constitute information requirements but are not the only acceptable set of information in the ~~final safety analysis report~~FSAR. An applicant may depart from or omit these items, provided that the departure or omission is identified and justified in the ~~final safety analysis~~

~~report~~FSAR. After issuance of a COL, these items are not requirements for the licensee unless such items are restated in the final safety analysis report.

F. *Tier 2** means the portion of the Tier 2 information, designated as such in the generic DCD, which is subject to the change process in paragraph VIII.B.6 of this appendix. This designation expires for some Tier 2* information under paragraph VIII.B.6 of this appendix.

G. *Departure from a method of evaluation described in the plant-specific DCD used in establishing the design bases or in the safety analyses* means:

1. Changing any of the elements of the method described in the plant-specific DCD unless the results of the analysis are conservative or essentially the same; or
2. Changing from a method described in the plant-specific DCD to another method unless that method has been approved by the NRC for the intended application.

H. All other terms in this appendix have the meaning set out in § 50.2 of this chapter, § 52.1, or Section 11 of the Atomic Energy Act of 1954, as amended, as applicable.

III. Scope and Contents

A. Incorporation by reference approval. The ABWR material identified in paragraph III.A.1 of this section is approved for incorporation by reference by the Director of the Office of the Federal Register under 5 U.S.C. 552(a) and 1 CFR part 51. You may obtain copies of the generic DCD, including the generic technical specifications, and the two GEH technical reports (NEDO-33875 and NEDO-33878) from Michelle Catts, Senior Vice President, Regulatory Affairs, General Electric-Hitachi Nuclear Energy Americas, LLC, 3901 Castle Hayne Road, P.O. Box 780, M/C A10, Wilmington, NC 28402. You can view the generic DCD, including the generic technical specifications, and the two GEH technical reports (NEDO-33875 and NEDO-33878)

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online in the NRC Library at <https://www.nrc.gov/reading-rm/adams.html>. In ADAMS, search under ADAMS Accession No. ML20093K254 to obtain the generic DCD, ADAMS Accession No. ML17059C523 to obtain GEH technical report NEDO-33875, and ADAMS Accession No. ML18092A306 to obtain GEH technical report NEDO-33878. If you do not have access to ADAMS or if you have problems accessing documents located in ADAMS, contact the NRC's Public Document Room (PDR) reference staff at 1-800-397-4209, at 301-415-3747, or by e-mail at PDR.Resource@nrc.gov. Copies of the ABWR materials are available in the ADAMS Public Documents Collection. All approved material is available for inspection at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, e-mail at fedreg.legal@nara.gov or go to <https://www.archives.gov/federal-register/cfr/ibrlocations.html>.

1. General Electric-Hitachi Nuclear Energy Americas, LLC

a. ABWR Design Control Document Tier 1 (25A5675AA), Revision 7 (October 2019).

b. ABWR Design Control Document Tier 2 (25A5675AB), Revision 7 (October 2019).

c. Technical Report NEDO-33875, ABWR US Certified Design—Aircraft Impact Assessment, Licensing Basis Information and Design Details for Key Design Features, Rev. 3 (M170049) (February 2017).

d. Licensing Technical Report NEDO-33878, ABWR ECCS Suction Strainer Evaluation of Long-Term Recirculation Capability, Rev. 3 (M180068) (March 2018).

B. An applicant or licensee referencing this appendix, in accordance with Section IV of this appendix, shall incorporate by reference and comply with the requirements of this appendix except as otherwise provided in this appendix. Conceptual design information, as set forth in the generic DCD, the "Technical Support

Document for the ABWR,” and the “Amendment to Technical Support Document for the ABWR,” are not part of this appendix. Tier 2 references to the probabilistic risk assessment (PRA) in the U.S. ABWR DCD Tier 2 Chapter 19 do not incorporate the PRA into Tier 2.

C. If there is a conflict between Tier 1 and Tier 2 of the DCD, then Tier 1 controls.

D. If there is a conflict between the generic DCD and either the application for the design certification renewal of the U.S. ABWR design or the NUREG-1503, “Final Safety Evaluation Report Related to Certification of the ABWR Standard Design”; NUREG-1503, Supplement 1; and NUREG-1503, Supplement 2, then the generic DCD controls.

E. Design activities for structures, systems, and components that are wholly outside the scope of this appendix may be performed using site characteristics, provided the design activities do not affect the DCD or conflict with the interface requirements.

IV. Additional Requirements and Restrictions

A. An applicant for a COL that wishes to reference this appendix shall, in addition to complying with the requirements of §§ 52.77, 52.79, and 52.80, comply with the following requirements:

1. Incorporate by reference, as part of its application, this appendix.

2. Include, as part of its application:

a. A plant-specific DCD containing the same type of information and using the same organization and numbering as the generic DCD for the U.S. ABWR design, either by including or incorporating by reference the generic DCD information, and as modified and supplemented by the applicant’s exemptions and departures;

b. The reports on departures from and updates to the plant-specific DCD required by paragraph X.B of this appendix;

c. Plant-specific TS, consisting of the generic and site-specific TS that are required by §§ 50.36 and 50.36a of this chapter;

d. Information demonstrating that the site characteristics fall within the site parameters and that the interface requirements have been met;

e. Information that addresses the COL action items; and

f. Information required by § 52.47(a) that is not within the scope of this appendix.

3. Include, in the plant-specific DCD, the sensitive, unclassified, non-safeguards information (including proprietary information and security-related information) and safeguards information referenced in the U.S. ABWR generic DCD.

4. Include, as part of its application, a demonstration that an entity other than GEH is qualified to supply the U.S. ABWR design, unless GEH supplies the design for the applicant's use.

B. The Commission reserves the right to determine in what manner this appendix may be referenced by an applicant for a construction permit or operating license under 10 CFR part 50.

V. Applicable Regulations

A.1. Except as indicated in paragraphs A.2 and A.3 and B of this section, the regulations that apply to the U.S. ABWR design are in 10 CFR parts 20, 50, 52, 73, and 100, codified as of May 2, 1997, that are applicable and technically relevant, as described in the final safety evaluation report (NUREG-1503); NUREG-1503, Supplement 1; and as described in NUREG-1503, Supplement 2, for renewal modifications except as it pertains to addressing compliance with § 50.150 of this chapter.

2. Except as indicated in paragraphs A.1 and A.3 and B of this section, the regulations that apply to the U.S. ABWR design are in 10 CFR parts 20, 50, 52, 73, and

100, codified as of **[INSERT DATE 90 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER]**, that are applicable and technically relevant, as described in NUREG-1503, Supplement 2, for renewal amendments.

3. Except as indicated in paragraphs A.1 and A.2 and B of this section, the regulations in § 50.150 of this chapter, codified as of **[INSERT DATE 90 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER]**, apply to the U.S. ABWR design, that are applicable and technically relevant, as described in NUREG-1503, Supplement 2.

B. The U.S. ABWR design is exempt from portions of the following regulations:

1. Paragraph (f)(2)(iv) of 10 CFR 50.34—**Separate Plant Safety Parameter** Display Console – codified as of May 2, 1997;

2. Paragraph (f)(2)(viii) of 10 CFR 50.34—Post-Accident Sampling for Boron, Chloride, and Dissolved Gases – codified as of May 2, 1997; and

3. Paragraph (f)(3)(iv) of 10 CFR 50.34—Dedicated Containment Penetration - codified as of May 2, 1997.

Commented [A6]: In this rulemaking, the staff appropriately returns to the usage of appendices A through D of 10 CFR part 52 of conformance to the NUREG-1379, "NRC Editorial Style Guide," section 6.20, of using an em dash to set off an abrupt change in thought and provide a brief description of the regulation for which the design is exempt rather than the practice adopted in appendices E and F of 10 CFR part 52 of replacing the information on what the exemption covers with the title of the overarching section of the regulation, "Contents of Applications: Technical Information." Because this provision of the information using this methodology improves the readability of the regulation, and the usage found in appendices E and F does not convey any useful information, the staff should adopt the practice as proposed in this rulemaking for future design certification rules and make appropriate corrections to appendices E and F.

VI. Issue Resolution

A. The Commission has determined that the structures, systems, and components and design features of the U.S. ABWR design comply with the provisions of the Atomic Energy Act of 1954, as amended, and the applicable regulations identified in Section V of this appendix; and therefore, provide adequate protection to the health and safety of the public. A conclusion that a matter is resolved includes the finding that additional or alternative structures, systems, and components, design features, design criteria, testing, analyses, acceptance criteria, or justifications are not necessary for the U.S. ABWR design.

B. The Commission considers the following matters resolved within the meaning of § 52.63(a)(5) in subsequent proceedings for issuance of a COL, amendment of a COL, or renewal of a COL, proceedings held under § 52.103, and enforcement proceedings involving plants referencing this appendix:

1. All nuclear safety issues associated with the information in the final safety evaluation reports (NUREG-1503; NUREG-1503, Supplement 1; and NUREG-1503, Supplement 2), Tier 1, Tier 2, and the rulemaking records for original certification and renewal of the U.S. ABWR design, with the exception of generic TS and other operational requirements;

2. All nuclear safety and safeguards issues associated with the referenced information in the 85 public and non-public documents in Tables 1.6-1 and 1.6-2 of Tier 2 of the generic DCD, or other referenced documents, which, in context, are intended as requirements in the generic DCD for the U.S. ABWR design;

3. All generic changes to the DCD under and in compliance with the change processes in paragraphs VIII.A.1 and VIII.B.1 of this appendix;

4. All exemptions from the DCD under and in compliance with the change processes in paragraphs VIII.A.4 and VIII.B.4 of this appendix, but only for that plant;

5. All departures from the DCD that are approved by license amendment, but only for that plant;

6. Except as provided in paragraph VIII.B.5.f of this appendix, all departures from Tier 2 under and in compliance with the change processes in paragraph VIII.B.5 of this appendix that do not require prior NRC approval, but only for that plant; and

7. All environmental issues concerning severe accident mitigation design alternatives associated with the information in the NRC's environmental assessment for the U.S. ABWR design (ADAMS Accession No. ML20055D918) and GEH's supplemental evaluation of various severe accident mitigation design alternatives to

prevent and mitigate severe accidents in “Amendment to Technical Support Document for the ABWR” (ADAMS Accession No. ML110040178), which updates information in the original “Technical Support Document for the ABWR” (ADAMS Accession No. ML100210563) for plants referencing this appendix whose averted risk person-rem value for each severe accident mitigation design alternative is less than or equal to the averted risk person-rem value for that severe accident mitigation design alternative provided in Table 5 of the original technical support document.

C. The Commission does not consider operational requirements for an applicant or licensee who references this appendix to be matters resolved within the meaning of § 52.63(a)(5). The Commission reserves the right to require operational requirements for an applicant or licensee who references this appendix by rule, regulation, order, or license condition.

D. Except under the change processes in Section VIII of this appendix, the Commission may not require an applicant or licensee who references this appendix to:

1. Modify structures, systems, components, or design features as described in the generic DCD;
2. Provide additional or alternative structures, systems, components, or design features not discussed in the generic DCD; or
3. Provide additional or alternative design criteria, testing, analyses, acceptance criteria, or justification for structures, systems, components, or design features discussed in the generic DCD.

E. The NRC will specify, at an appropriate time, the procedures to be used by an interested person who wishes to review portions of the DC or references containing safeguards information or sensitive unclassified non-safeguards information (including proprietary information, such as trade secrets and commercial or financial information obtained from a person that are privileged or confidential (§ 2.390 of this chapter and 10

CFR part 9), and security-related information), for the purpose of participating in the hearing required by § 52.85, the hearing provided under § 52.103, or in any other proceeding relating to this appendix, in which interested persons have a right to request an adjudicatory hearing.

VII. Duration of this Appendix

This appendix may be referenced for a period of 15 years from **[INSERT DATE 90 DAYS AFTER DATE OF PUBLICATION IN THE *FEDERAL REGISTER*]**, except as provided for in §§ 52.55(b) and 52.57(b). This appendix remains valid for an applicant or licensee who references this appendix until the application is withdrawn, or the license expires or is terminated by the NRC, including any period of extended operation under a renewed license.

VIII. Processes for Changes and Departures

A. Tier 1 information

1. Generic changes to Tier 1 information are governed by the requirements in § 52.63(a)(1).

2. Generic changes to Tier 1 information are applicable to all applicants or licensees who reference this appendix, except those for which the change has been rendered technically irrelevant by action taken under paragraph A.3 or A.4 of this section.

3. Departures from Tier 1 information that are required by the Commission through plant-specific orders are governed by the requirements in § 52.63(a)(4).

4. Exemptions from Tier 1 information are governed by the requirements in §§ 52.63(b)(1) and 52.98(f). The Commission will deny a request for an exemption from

Tier 1, if it finds that the design change will result in a significant decrease in the level of safety otherwise provided by the design.

B. Tier 2 information

1. Generic changes to Tier 2 information are governed by the requirements in § 52.63(a)(1).

2. Generic changes to Tier 2 information are applicable to all applicants or licensees who reference this appendix, except those for which the change has been rendered technically irrelevant by action taken under paragraph B.3, B.4, or B.5, of this section.

3. The Commission may not require new requirements on Tier 2 information by plant-specific order, while this appendix is in effect under § 52.55 or § 52.61, unless:

a. A modification is necessary to secure compliance with the Commission's regulations applicable and in effect, as set forth in Section V of this appendix, or to ensure adequate protection of the public health and safety or the common defense and security; and

b. Special circumstances as defined in § 50.12(a) of this chapter are present.

4. An applicant or licensee who references this appendix may request an exemption from Tier 2 information. The Commission may grant such a request only if it determines that the exemption will comply with the requirements of § 50.12(a) of this chapter. The Commission will deny a request for an exemption from Tier 2, if it finds that the design change will result in a significant decrease in the level of safety otherwise provided by the design. The granting of an exemption to an applicant must be subject to litigation in the same manner as other issues material to the license hearing. The granting of an exemption to a licensee must be subject to an opportunity for a hearing in the same manner as license amendments.

5.a. An applicant or licensee who references this appendix may depart from Tier 2 information, without prior NRC approval, unless the proposed departure involves a change to or departure from Tier 1 information, Tier 2* information, or the TS, or requires a license amendment under paragraph B.5.b or B.5.c of this section. When evaluating the proposed departure, an applicant or licensee shall consider all matters described in the plant-specific DCD.

b. A proposed departure from Tier 2, other than one affecting resolution of a severe accident issue identified in the plant-specific DCD or one affecting information required by § 52.47(a)(28) to address aircraft impacts, requires a license amendment if it would:

(1) Result in more than a minimal increase in the frequency of occurrence of an accident previously evaluated in the plant-specific DCD;

(2) Result in more than a minimal increase in the likelihood of occurrence of a malfunction of a structure, system, or component important to safety and previously evaluated in the plant-specific DCD;

(3) Result in more than a minimal increase in the consequences of an accident previously evaluated in the plant-specific DCD;

(4) Result in more than a minimal increase in the consequences of a malfunction of a structure, system, or component important to safety previously evaluated in the plant-specific DCD;

(5) Create a possibility for an accident of a different type than any evaluated previously in the plant-specific DCD;

(6) Create a possibility for a malfunction of a structure, system, or component important to safety with a different result than any evaluated previously in the plant-specific DCD;

(7) Result in a design-basis limit for a fission product barrier as described in the plant-specific DCD being exceeded or altered; or

(8) Result in a departure from a method of evaluation described in the plant-specific DCD used in establishing the design bases or in the safety analyses.

c. A proposed departure from Tier 2, affecting resolution of an ex-vessel severe accident design feature identified in the plant-specific DCD, requires a license amendment if:

(1) There is a substantial increase in the probability of an ex-vessel severe accident such that a particular ex-vessel severe accident previously reviewed and determined to be not credible could become credible; or

(2) There is a substantial increase in the consequences to the public of a particular ex-vessel severe accident previously reviewed.

d. A proposed departure from Tier 2 information required by § 52.47(a)(28) to address aircraft impacts shall consider the effect of the changed design feature or functional capability on the original aircraft impact assessment required by § 50.150(a) of this chapter. The applicant or licensee shall describe, in the plant-specific DCD, how the modified design features and functional capabilities continue to meet the aircraft impact assessment requirements in § 50.150(a)(1) of this chapter.

e. If a departure requires a license amendment under paragraph B.5.b or B.5.c of this section, it is governed by § 50.90 of this chapter.

f. A departure from Tier 2 information that is made under paragraph B.5 of this section does not require an exemption from this appendix.

g. A party to an adjudicatory proceeding for either the issuance, amendment, or renewal of a license or for operation under § 52.103(a), who believes that an applicant or licensee who references this appendix has not complied with paragraph VIII.B.5 of this appendix when departing from Tier 2 information, may petition to admit into the

proceeding such a contention. In addition to complying with the general requirements of § 2.309 of this chapter, the petition must demonstrate that the departure does not comply with paragraph VIII.B.5 of this appendix. Further, the petition must demonstrate that the change bears on an asserted noncompliance with an ITAAC acceptance criterion in the case of a § 52.103 preoperational hearing, or that the change bears directly on the amendment request in the case of a hearing on a license amendment. Any other party may file a response. If, on the basis of the petition and any response, the presiding officer determines that a sufficient showing has been made, the presiding officer shall certify the matter directly to the Commission for determination of the admissibility of the contention. The Commission may admit such a contention if it determines the petition raises a genuine issue of material fact regarding compliance with paragraph VIII.B.5 of this appendix.

6.a. An applicant who references this appendix may not depart from Tier 2* information, which is designated with brackets, italicized text, and an asterisk in the generic DCD, without NRC approval. The departure will not be considered a resolved issue, within the meaning of Section VI of this appendix and § 52.63(a)(5).

b. A licensee who references this appendix may not depart from the following Tier 2* matters without prior NRC approval. A request for a departure will be treated as a request for a license amendment under 10 CFR 50.90.

- (1) Fuel burnup limit (4.2).
- (2) Fuel design evaluation (4.2.3).
- (3) Fuel licensing acceptance criteria (Appendix 4B).

c. A licensee who references this appendix may not, before the plant first achieves full power following the finding required by 10 CFR 52.103(g), depart from the following Tier 2* matters except in accordance with paragraph B.6.b of this section. After the plant first achieves full power, the following Tier 2* matters revert to Tier 2

status and are thereafter subject to the departure provisions in paragraph B.5 of this section.

- (1) ASME Boiler & Pressure Vessel Code, Section III.
- (2) ACI 349 and ANSI/AISC N-690.
- (3) Motor-operated valves.
- (4) Equipment seismic qualification methods.
- (5) Piping design acceptance criteria.
- (6) Fuel system and assembly design (4.2), except burnup limit.
- (7) Nuclear design (4.3).
- (8) Equilibrium cycle and control rod patterns (Appendix 4A).
- (9) Control rod licensing acceptance criteria (Appendix 4C).
- (10) Instrument setpoint methodology.
- (11) EMS performance specifications and architecture.
- (12) SSLC hardware and software qualification.
- (13) Self-test system design testing features and commitments.
- (14) Human factors engineering design and implementation process.

d. Departures from Tier 2* information that are made under paragraph B.6 of this section do not require an exemption from this appendix.

C. Operational requirements

1. Changes to U.S. ABWR DC generic TS and other operational requirements that were completely reviewed and approved in the design certification rulemaking and do not require a change to a design feature in the generic DCD are governed by the requirements in § 50.109 of this chapter, treating this design certification rule as though it were a design approval. Changes that require a change to a design feature in the generic DCD are governed by the requirements in paragraph A or B of this section.

2. Changes to U.S. ABWR DC generic TS and other operational requirements are applicable to all applicants who reference this appendix, except those for which the change has been rendered technically irrelevant by action taken under paragraph C.3 or C.4 of this section.

3. The Commission may require plant-specific departures on generic TS and other operational requirements that were completely reviewed and approved, provided a change to a design feature in the generic DCD is not required and special circumstances, as defined in § 2.335 of this chapter are present. The Commission may modify or supplement generic TS and other operational requirements that were not completely reviewed and approved or require additional TS and other operational requirements on a plant-specific basis, provided a change to a design feature in the generic DCD is not required.

4. An applicant who references this appendix may request an exemption from the generic TS or other operational requirements. The Commission may grant such a request only if it determines that the exemption will comply with the requirements of § 52.7. The granting of an exemption must be subject to litigation in the same manner as other issues material to the license hearing.

5. A party to an adjudicatory proceeding for the issuance, amendment, or renewal of a license, or for operation under § 52.103(a), who believes that an operational requirement approved in the DCD or a TS derived from the generic TS must be changed, may petition to admit such a contention into the proceeding. The petition must comply with the general requirements of § 2.309 of this chapter and must either demonstrate why special circumstances as defined in § 2.335 of this chapter are present or demonstrate that the proposed change is necessary for compliance with the Commission's regulations applicable and in effect, as set forth in Section V of this appendix. Any other party may file a response to the petition. If, on the basis of the

petition and any response, the presiding officer determines that a sufficient showing has been made, the presiding officer shall certify the matter directly to the Commission for determination of the admissibility of the contention. All other issues with respect to the plant-specific TS or other operational requirements are subject to a hearing as part of the licensing proceeding.

6. After issuance of a license, the generic TS have no further effect on the plant-specific TS. Changes to the plant-specific TS will be treated as license amendments under § 50.90 of this chapter.

IX. [Reserved]

X. Records and Reporting

A. Records

1. The applicant for this appendix shall maintain a copy of the generic DCD that includes all generic changes that are made to Tier 1 and Tier 2, and the generic TS and other operational requirements. The applicant shall maintain the sensitive unclassified non-safeguards information (including proprietary information and security-related information) and safeguards information referenced in the generic DCD for the period that this appendix may be referenced, as specified in Section VII of this appendix.

2. An applicant or licensee who references this appendix shall maintain the plant-specific DCD to accurately reflect both generic changes to the generic DCD and plant-specific departures made under Section VIII of this appendix throughout the period of application and for the term of the license (including any periods of renewal).

3. An applicant or licensee who references this appendix shall prepare and maintain written evaluations which provide the bases for the determinations required by

Section VIII of this appendix. These evaluations must be retained throughout the period of application and for the term of the license (including any periods of renewal).

4.a. The applicant for the U.S. ABWR design shall maintain a copy of the aircraft impact assessment performed to comply with the requirements of § 50.150(a) of this chapter for the term of the certification (including any periods of renewal).

b. An applicant or licensee who references this appendix shall maintain a copy of the aircraft impact assessment performed to comply with the requirements of § 50.150(a) of this chapter throughout the pendency of the application and for the term of the license (including any periods of renewal).

B. Reporting

1. An applicant or licensee who references this appendix shall submit a report to the NRC containing a brief description of any plant-specific departures from the DCD, including a summary of the evaluation of each departure. This report must be filed in accordance with the filing requirements applicable to reports in § 52.3.

2. An applicant or licensee who references this appendix shall submit updates to its plant-specific DCD, which reflect the generic changes to and plant-specific departures from the generic DCD made under Section VIII of this appendix. These updates shall be filed under the filing requirements applicable to final safety analysis report updates in §§ 50.71(e) of this chapter and 52.3.

3. The reports and updates required by paragraphs X.B.1 and X.B.2 of this appendix must be submitted as follows:

a. On the date that an application for a license referencing this appendix is submitted, the application must include the report and any updates to the generic DCD.

b. During the interval from the date of application for a license to the date the Commission makes its finding required by § 52.103(g) of this chapter, the report must be

submitted semi-annually. Updates to the plant-specific DCD must be submitted annually and may be submitted along with amendments to the application.

c. After the Commission makes the finding required by § 52.103(g), the reports and updates to the plant-specific DCD must be submitted, along with updates to the site-specific portion of the final safety analysis report for the facility, at the intervals required by §§ 50.59(d)(2) and 50.71(e)(4) of this chapter, respectively, or at shorter intervals as specified in the license.

Dated: XXXX XX, 202X.

For the Nuclear Regulatory Commission.

Annette Vietti-Cook,
Secretary of the Commission.

KLS edits

NUCLEAR REGULATORY COMMISSION

10 CFR Part 52

[NRC-2017-0090]

RIN 3150-AK04

Advanced Boiling Water Reactor (ABWR) Design Certification Renewal

AGENCY: Nuclear Regulatory Commission.

ACTION: Proposed rule and environmental assessment.

SUMMARY: The U.S. Nuclear Regulatory Commission (NRC) is proposing to amend its regulations to renew the U.S. Advanced Boiling Water Reactor standard design certification. Applicants or licensees intending to construct and operate a U.S. Advanced Boiling Water Reactor standard design may do so by referencing this design certification rule. The applicant for the renewal of the U.S. Advanced Boiling Water Reactor standard design certification is General Electric-Hitachi Nuclear Energy Americas, LLC. The NRC invites public comment on this proposed rule and environmental assessment.

DATES: Submit comments by **[INSERT DATE 30 DAYS AFTER DATE OF PUBLICATION IN THE *FEDERAL REGISTER*]**. Comments received after this date will be considered if it is practical to do so, but the NRC is able to ensure consideration only for comments received on or before this date.

ADDRESSES: You may submit comments by any of the following methods (unless this document describes a different method for submitting comments on a specific subject):

- **Federal Rulemaking Web Site:** Go to <https://www.regulations.gov> and search for Docket ID NRC-2017-0090. Address questions about NRC dockets to Dawn Forder; telephone: 301-415-3407; e-mail: Dawn.Forder@nrc.gov. For technical questions contact the individuals listed in the FOR FURTHER INFORMATION CONTACT section of this document.

- **E-mail comments to:** Rulemaking.Comments@nrc.gov. If you do not receive an automatic e-mail reply confirming receipt, then contact us at 301-415-1677.

For additional direction on obtaining information and submitting comments, see “Obtaining Information and Submitting Comments” in the SUPPLEMENTARY INFORMATION section of this document.

FOR FURTHER INFORMATION CONTACT: Dennis Andrukat, Office of Nuclear Material Safety and Safeguards, telephone: 301-415-3561, e-mail: Dennis.Andrukat@nrc.gov, or James Shea, Office of Nuclear Reactor Regulation, telephone: 301-415-1388, e-mail: James.Shea@nrc.gov. Both are staff of the U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001.

SUPPLEMENTARY INFORMATION:

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I. Obtaining Information and Submitting Comments

A. Obtaining Information.

Please refer to Docket ID NRC-2017-0090 when contacting the NRC about the availability of information for this action. You may obtain publicly available information related to this action by any of the following methods:

- **Federal Rulemaking Web Site:** Go to <https://www.regulations.gov> and search for Docket ID NRC-2017-0090.
- **NRC's Agencywide Documents Access and Management System (ADAMS):** You may obtain publicly-available documents online in the ADAMS Public Documents collection at <https://www.nrc.gov/reading-rm/adams.html>. To begin the search, 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, at 301-415-4737, or by e-mail to PDR.Resource@nrc.gov. For the convenience of the reader, instructions about obtaining materials referenced in this document are provided in the Availability of Documents section.
- **Attention:** The [Public Document Room \(PDR\)](#), where you may examine and order copies of public documents is currently closed. You may submit your request to the PDR via e-mail at PDR.Resource@nrc.gov or call 1-800-397-4209 between 8:00 a.m. and 4:00 p.m. (EST), Monday through Friday, except Federal holidays.
- **Attention:** The Technical Library, which is located at Two White Flint North, 11545 Rockville Pike, Rockville, Maryland 20852, is open by appointment only. Interested parties may make appointments to examine documents by contacting the

NRC Technical Library by e-mail at Library.Resource@nrc.gov between 8:00 a.m. and 4:00 p.m. (EST), Monday through Friday, except Federal holidays.

B. Submitting Comments.

The NRC encourages electronic comment submission through the **Federal Rulemaking Web Site** (<https://www.regulations.gov>). Please include Docket ID NRC-2017-0090 in your comment submission.

The NRC cautions you not to include identifying or contact information that you do not want to be publicly disclosed in your comment submission. The NRC will post all comment submissions at <https://www.regulations.gov> as well as enter the comment submissions into ADAMS. The NRC does not routinely edit comment submissions to remove identifying or contact information.

If you are requesting or aggregating comments from other persons for submission to the NRC, then you should inform those persons not to include identifying or contact information that they do not want to be publicly disclosed in their comment submission. Your request should state that the NRC does not routinely edit comment submissions to remove such information before making the comment submissions available to the public or entering the comment into ADAMS.

II. Rulemaking Procedure

Because the NRC anticipates that this action will be non-controversial, the NRC is publishing this proposed rule concurrently with a direct final rule in the Rules and Regulations section of this issue of the *Federal Register*. The direct final rule will become effective on **[INSERT DATE 90 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER]**. However, if the NRC receives significant adverse comments on this proposed rule or environment assessment by **[INSERT DATE 30**

DAYS AFTER DATE OF PUBLICATION IN THE *FEDERAL REGISTER*], then the NRC will publish a document that withdraws the direct final rule. If the direct final rule is withdrawn, the NRC would address the comments received in response to these proposed revisions in any subsequent final rule. Absent significant modifications to the proposed revisions requiring republication, the NRC does not intend to initiate a second comment period on this action in the event the direct final rule is withdrawn.

A significant adverse comment is a comment in which the commenter explains why the rule (including the environmental assessment) would be inappropriate, including challenges to the rule's underlying premise or approach, or would be ineffective or unacceptable without a change. A comment is adverse and significant if it meets the following criteria:

(1) The comment opposes the rule and provides a reason sufficient to require a substantive response in a notice-and-comment process. For example, a substantive response is required when—

(a) The comment causes the NRC to reevaluate (or reconsider) its position or conduct additional analysis;

(b) The comment raises an issue serious enough to warrant a substantive response to clarify or complete the record; or

(c) The comment raises a relevant issue that was not previously addressed or considered by the NRC.

(2) The comment proposes a change or an addition to the rule, and it is apparent that the rule would be ineffective or unacceptable without incorporation of the change or addition.

(3) The comment causes the NRC to make a change (other than editorial) to the rule.

For additional information, including procedural information, see the direct final

rule published in the Rules and Regulations section of this issue of the *Federal Register*.

III. Background

The General Electric Company (GE) submitted the U.S. Advanced Boiling Water Reactor (U.S. ABWR) standard design certification initial application on September 29, 1987. The NRC initially docketed the application (Docket No. STN 50-605) on February 22, 1988, but later changed the docket number to 52-001 on March 20, 1992 (57 FR 9749) to reflect GE's request [or the applicant's request] to review the application under part 52, [“Licenses, Certifications, and Approvals for Nuclear Power Plants,” of title 10 of the Code of Federal Regulations \(10 CFR\)](#). The NRC documented its review in NUREG-1503, “Final Safety Evaluation Report Related to the Certification of the Advanced Boiling Water Reactor Design,” in July 1994 (ADAMS Accession No. ML080670592), and NUREG-1503, Supplement 1, “Final Safety Evaluation Report Related to the Certification of the Advanced Boiling Water Reactor Design,” in May 1997 (ADAMS Accession No. ML080710134). The NRC issued the agency’s first design certification (DC) rule, for the U.S. ABWR, in the *Federal Register* (62 FR 25800), effective June 11, 1997. In 2007, GE and Hitachi Nuclear Energy formed an alliance, and General Electric-Hitachi Nuclear Energy Americas, LLC, (GEH) became the entity retaining the U.S. ABWR design from GE.

On December 7, 2010, GEH submitted its application to renew the certification of the U.S. ABWR standard design to the NRC under subpart B, [“Standard design certifications.”](#) to part 52-~~of title 10 of the Code of Federal Regulations (10 CFR),~~ ~~“Standard design certifications.”~~ The NRC published a notice of receipt of the application in the *Federal Register* on January 27, 2011 (76 FR 4948). On February 18, 2011, the NRC formally accepted the design certification renewal application for

docketing (76 FR 9612). The preapplication information submitted before the NRC formally accepted the application for docketing can be found in ADAMS under Docket No. PROJ0774.

Subpart B to 10 CFR part 52, ~~“Licenses, certifications, and approvals for nuclear power plants,”~~ presents the processes for obtaining governing standard design certifications. Under § 52.57(a), an application for DC renewal must contain all information necessary to bring the information and data contained in the previous application up to date. Updates pursuant to under § 52.57(a) include clarifications consistent with the original understanding of the design information, and changes to correct known errors, including typographical errors, or defects, as defined in ~~10 CFR part § 21.3, “Reporting of defects and noncompliance.”~~ For the NRC to issue a rule granting the DC renewal, as stated in under § 52.59(a), the design, either as originally certified or as modified during the rulemaking on renewal, must comply with (1) the Atomic Energy Act of 1954, as amended (AEA), (2) the NRC regulations applicable and in effect at the time the certification was issued, and (3) the applicable requirements of § 50.150, “Aircraft impact assessment,”¹ ~~because this is the first renewal of the U.S. ABWR and the U.S. ABWR certification was in effect on July 13, 2009. The NRC uses the term “modification” to refer to updates under § 52.57(a) and changes to meet the renewal standards in § 52.59(a); modifications are reviewed against the § 52.59(a) standards.~~

A DC renewal applicant may propose to amend the design ~~in accordance with under~~ § 52.59(c). An amendment is an applicant-proposed change that ~~does is~~ not

¹ The requirement for modifications in DC renewals to address § 50.150 was added to § 52.59(a) by a rule published June 12, 2009, requiring applicants for new nuclear power reactors to perform a design-specific assessment of the effects of the impact of a large, commercial aircraft (74 FR 28111). This requirement is applicable to the U.S. ABWR DC renewal because this is its first renewal the U.S. ABWR DC was in effect on July 13, 2009.

~~fall within the definition of a modification~~ an update under § 52.57(a) or a change to meet the renewal standards in § 52.59(a). Amendments must comply with the AEA and the NRC's regulations applicable and in effect at the time of renewal rather than the § 52.29(a) standards. ~~If the amendment request entails such an extensive change to the certified design that an essentially new standard design is being proposed, a new DC application must be submitted.~~

In addition, NRC regulations at § 52.59(b) ~~state that~~ allow the Commission may to impose other requirements providing certain conditions are met. ~~if it determines any of the following:-~~

- ~~1. They are necessary for adequate protection to public health and safety or common defense and security;-~~
- ~~2. They are necessary for compliance with the NRC's regulations and orders applicable and in effect at the time the certification was issued; or-~~
- ~~3. There is a substantial increase in overall protection of the public health and safety or the common defense and security to be derived from the new requirements, and the direct and indirect costs of implementing those requirements are justified in view of this increased protection.~~

The final U.S. ABWR DC rule for the original certification ~~(62 FR 25800),~~ Supplementary Information, Section II.A.1, "~~Issue Resolution (Issue Finality),~~" stated that the NRC "does not plan or expect to be able to conduct a de novo review of the entire design if a certification renewal application is filed under § 52.59[,]" "Criteria for renewal:" (62 FR 25800, 25805). Instead, the NRC stated that it expects that the focus of the review would be on changes to the design that are proposed by the applicant and insights from relevant operating experience with the certified design or other designs, or other material new information arising after the NRC staff's review of the design certification. Furthermore, the standards s in § 52.59(b) controls the ~~development-~~

imposition of new requirements during the review of applications for renewal. When GEH applied to renew the U.S. ABWR DC, the NRC affirmed this position, reviewed only those aspects of the design that were amended or modified, and determined whether operating experience or other material new information indicated that additional changes to the design were necessary. The staff reviewed GEH's proposed amendments and modifications to the design; the staff did not impose changes under 10 CFR 52.59(b).

~~On June 12, 2009, the NRC published a rule requiring applicants for new nuclear power reactors to perform a design specific assessment of the effects of the impact of a large, commercial aircraft (74 FR 28111). By letter dated December 7, 2010, GEH included Revision 5 to the design control document (DCD) for the U.S. ABWR design with submitted its application for renewal at the U.S. ABWR DC to the NRC, which included Revision 5 to the design control document.~~ This revision includes a containment re-analysis amendment and the necessary changes to meet the requirements of § 50.150, ~~"Aircraft impact assessment."~~ ~~Revision 5 of the DCD also also including a description~~ of the aircraft impact assessment results and identifications and incorporations of design features and functional capabilities to show, with reduced use of operator actions, that the reactor core remains cooled and spent fuel pool integrity is maintained.

In a letter dated July 20, 2012, the NRC identified proposed changes that were regulatory improvements or that could meet the criteria in § 52.59(b). The NRC suggested that GEH consider the recommendations contained in SECY-12-0025, "Proposed Orders and Requests for Information in Response to Lessons Learned from Japan's March 11, 2011, Great Tohoku Earthquake and Tsunami," dated February 17, 2012, addressing Recommendations 4.2, 7.1, and 9.3 from SECY-11-0093, "Near-Term Report and Recommendations for Agency Actions Following the Events in Japan," enclosure 1, "Recommendations for Enhancing Reactor Safety in the 21st Century; tThe

~~NRC's Fukushima~~ Near-Term Task Force Review of Insights from the Fukushima Dai-ichi Accident report," dated July 12, 2011, ~~and SECY-11-0093, "Near-Term Report and Recommendations for Agency Actions Following the Events in Japan," dated July 12, 2011.~~ Subsequently, during the Mitigation of Beyond-Design-Basis Events rulemaking that ~~created~~ resulted in § 50.155, "Mitigation of beyond-design-basis events," the Commission ~~decided not~~ determined that it would be inappropriate to impose mitigation strategies requirements on DCs.²

After the NRC's July 20, 2012, letter to GEH, the NRC issued several requests for additional information to identify additional items or clarify the items communicated in the 2012 letter. By letter dated February 19, 2016, GEH submitted DCD, Revision 6, to incorporate changes to the U.S. ABWR DCD made in response to NRC's 2012 letter and to the NRC's requests for additional information. In addition, this revision transmitted corrections of typographical ~~mistakes~~ errors, ~~that~~ which were identified during document development, and other required formatting changes. These corrections represent non-substantive changes that are editorial in nature. The NRC reviewed these typographical changes and determined that the changes do not affect the NRC's findings in the final safety evaluation report for original certification and are acceptable. On December 20, 2019, the applicant submitted DCD, Revision 7, ~~that~~ incorporat ing the remaining changes provided in earlier responses to requests for additional information. The NRC reviewed DCD, Revision 7, against the changes proposed in responses to requests for

² In the Mitigation of Beyond-Design-Basis Events proposed rule regulatory analysis, dated October 2015, the Commission ~~proposed~~ explained that its proposal to ~~not~~ make the Mitigation of Beyond-Design-Basis Events ~~proposed~~ rule inapplicable to existing DCs, which included the U.S. ABWR, because was based on concluding that "[t]he issues that may be resolved in a DC and accorded issue finality may not include operational matters, such as the elements of the [Mitigation of Beyond-Design-Basis Events] proposed rule." However, as ~~noted~~ discussed in SECY-19-0066, "Staff Review of NuScale Power's Mitigation Strategy for Beyond-Design-Basis External Events," the design certification can provide for finality under 10 CFR 52.63 and Section VI of appendix A to 10 CFR part 52 for the adequacy of the structures, systems, and components to perform their mitigation strategies functions, as analyzed in the final safety analysis report.

additional information and noted that two short paragraphs were missing from Chapter 5. On March 16, 2020, the applicant resubmitted DCD, Revision 7, Chapter 5, including ~~those previously missing~~ paragraphs. To ensure that the public can reference a single ADAMS package for this document, the NRC copied the original DCD, Revision 7, ADAMS package, ~~and replaced~~ Chapter 5 with the corrected file. This corrected ADAMS package is the collection of DCD, Revision 7, chapters that the NRC has reviewed (ADAMS Accession No. ML20093K254). The NRC's review is documented in Supplement 2 to NUREG-1503, "Final Safety Evaluation Report Related to the Certification of the Advanced Boiling Water Reactor Design" (ADAMS Accession No. ML20301A886). This proposed rule would certify Revision 7 of the U.S. ABWR DCD as provided in ADAMS Accession No. ML20093K254.

~~In a letter dated June 22, 2018, the only U.S. ABWR combined license (COL) holder, Nuclear Innovation North America LLC, requested NRC approval to withdraw the COLs for South Texas Project, Units 3 and 4 (COLs NPF 97 and NPF 98). The NRC approved the termination of these COLs on July 12, 2018.~~

On December 16, 2011, the NRC published a final rule amending the design certification rule for the U.S. ABWR design to comply with 10 CFR 50.150 by incorporating an aircraft impact assessment. The applicant for that amendment was the South Texas Project Nuclear Operating Company (STPNOC), which held combined licenses (COLs) using the U.S. ABWR design for South Texas Project, Units 3 and 4 (COLs NPF 97 and NPF 98). The amended design is identified in the current appendix A to 10 CFR part 52 as the STPNOC DCD. ~~In a letter dated June 9, 2016~~ Separately, Toshiba Corporation Energy Systems and Solutions Company (Toshiba) sought renewal of the U.S. ABWR DC, incorporating the Toshiba-specific aircraft impact assessment amendment used in the STPNOC DCD. On June 9, 2016, Toshiba withdrew its renewal application to renew for the original U.S. ABWR DC design certification with its version of

~~the U.S. ABWR design certification. The Toshiba ABWR was to incorporate the Toshiba-specific aircraft impact assessment amendment of the U.S. ABWR design certification, identified in the current appendix A to 10 CFR part 52 as the South Texas Project Nuclear Operating Company (STPNOC) DCD. Because T~~the original U.S. ABWR design certification has expired, along with its STPNOC DCD aircraft impact assessment amendment, and Toshiba has withdrawn its renewal U.S. ABWR DC application; ~~therefore, Toshiba's~~ the STPNOC DCD with its Toshiba-specific aircraft impact assessment amendment is not ~~longer considered to be~~ in a timely renewal status under ~~as described in~~ § 52.57(b).

On June 22, 2018, the only U.S. ABWR COL holder, Nuclear Innovation North America LLC,³ requested NRC approval to withdraw the COLs for South Texas Project, Units 3 and 4. The NRC approved the termination of these COLs on July 12, 2018. Additionally, Ssince the only COLs ~~or COL applicant who~~that referenced the Toshiba STPNOC DCD has been terminated ~~its licenses~~, and no other license or application referencing the U.S. ABWR DC exists, the Toshiba STPNOC DCD no longer meets the requirement for validity beyond the date of expiration ~~as described in~~ under § 52.55(b). Finally, GEH has not requested to renew the STPNOC amendment. For ~~all~~ these reasons, the NRC is not proposing to retaining the original DCD or the STPNOC DCD option in Appendix A to 10 CFR part 52. Instead, the NRC is proposing to replace appendix A to 10 CFR part 52 with a rule certifying the renewed GEH U.S. ABWR design.

³ NINA assumed the role of lead applicant for COLs NPF 97 and NPF 98 from STPNOC on January 24, 2011, while consideration of the amendment to the U.S. ABWR design certification and the subsequent rulemaking were in progress.

IV. Voluntary Consensus Standards

The National Technology Transfer and Advancement Act of 1995, Pub. L. 104-113, requires that Federal agencies use technical standards that are developed or adopted by voluntary consensus standards bodies unless the use of such a standard is inconsistent with applicable law or otherwise impractical. In this proposed rule, the NRC intends to certify the renewal for the U.S. ABWR standard ~~plant~~-design for use in nuclear power plant licensing under 10 CFR part 50, “Domestic licensing of production and utilization facilities,” or part 52. Design certifications are not generic rulemakings establishing a generally applicable standard with which all 10 CFR parts 50 and 52 nuclear power plant licensees must comply. Design certifications are Commission approvals of specific nuclear power plant designs by rulemaking. Furthermore, design certifications are initiated by an applicant for rulemaking, rather than by the NRC. This action does not constitute the establishment of a standard that contains generally applicable requirements.

V. Plain Writing

The Plain Writing Act of 2010 (Pub. L. 111-274) requires Federal agencies to write documents in a clear, concise, and well-organized manner that also follows other best practices appropriate to the subject or field and the intended audience. The NRC has written this document to be consistent with the Plain Writing Act as well as the Presidential Memorandum, “Plain Language in Government Writing,” published June 10, 1998 (63 FR 31883). The NRC requests comment on the proposed rule with respect to clarity and effectiveness of the language used.

VI. Environmental Assessment and Final Finding of No Significant Impact

The NRC has determined under the National Environmental Policy Act of 1969, as amended (NEPA), and the NRC's regulations in subpart A of 10 CFR part 51, that this proposed rule, if issued, would not be a major Federal action significantly affecting the quality of the human environment and, therefore, an environmental impact statement is not required. The Commission has determined in § 51.32 that there is no significant environmental impact associated with the issuance of the standard design certification or its amendment, as applicable. Comments on the environmental assessment will be limited to the consideration of severe accident mitigation design alternatives as required by § 51.30(d).

VII. Paperwork Reduction Act Statement

This proposed rule does not contain any new or amended collections of information subject to the Paperwork Reduction Act of 1995 (44 U.S.C. 3501 et seq.). Existing collections of information were approved by the Office of Management and Budget, ~~approval-control~~ number 3150-0151.

Public Protection Notification

The NRC may not conduct or sponsor, and a person is not required to respond to, a collection of information unless the document requesting or requiring the collection displays a currently valid OMB control number.

VIII. 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.

Documents Related to U.S. ABWR Design Certification Renewal Rule

DOCUMENT	ADAMS ACCESSION NO. / FEDERAL REGISTER CITATION
SECY- 2020-XXXX 0112, "Direct Final Rule—Advanced Boiling Water Reactor Design Certification Renewal (RIN 3150-AK04; NRC-2017-0090)," {Date} December 9, 2020	ML20170A520
GE-Hitachi ABWR Design Control Document Tier 1 & 2, Revision 7, October 2019 (includes correction noted, as of March 2020)	ML20093K254
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Letter from Nuclear Innovation North America LLC, South Texas Project Units 3 and 4 Termination of Combined Licenses NPF-97 and NPF-98, July 12, 2018	ML18179A217
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~~⁴ The regulatory history of the NRC’s design certification reviews is a package of documents that is available in the NRC’s PDR and NRC Library: Reactor Regulatory History on Design Certification Rules, April 26, 2000. This history spans the period during which the NRC simultaneously developed the regulatory standards for reviewing these designs and the form and content of the rules that certified the designs. This document predates this rulemaking and therefore does not contain a regulatory history for this rulemaking.~~

Dated: XXXX XX, 202X.

For the Nuclear Regulatory Commission.

Annette Vietti-Cook,
Secretary of the Commission.

| [KLS edits](#)

ENVIRONMENTAL ASSESSMENT BY THE
U.S. NUCLEAR REGULATORY COMMISSION
RELATING TO RENEWAL OF THE U.S. ABWR STANDARD DESIGN CERTIFICATION
DOCKET NO. 52-045

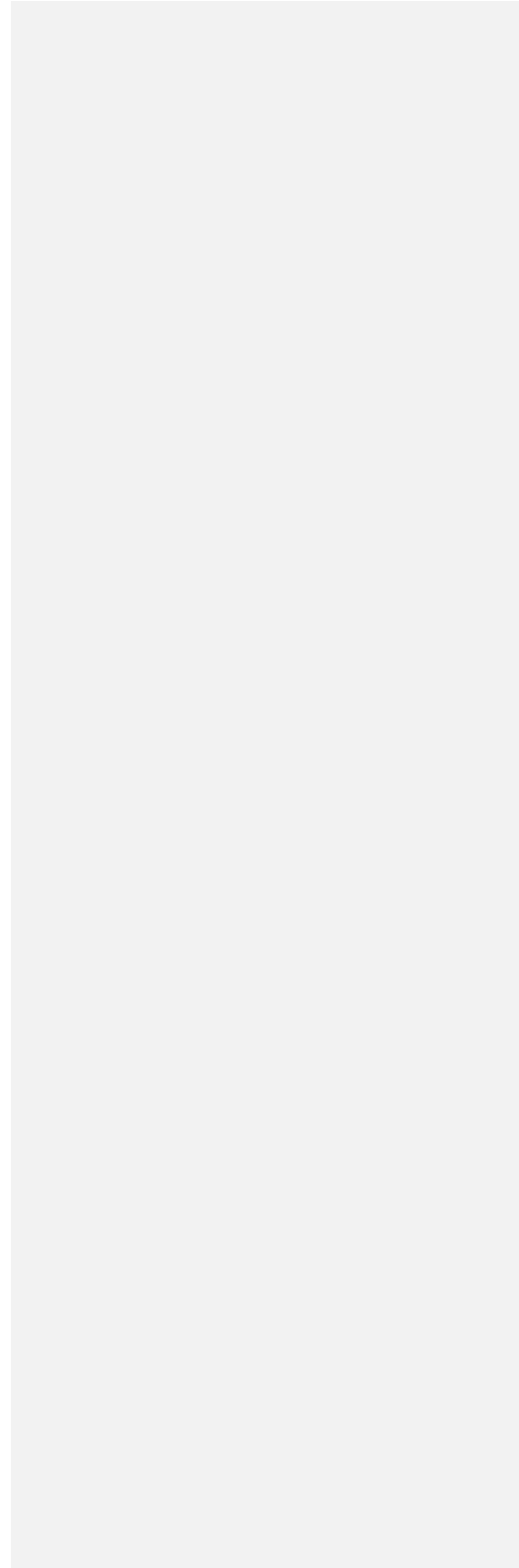


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TABLE OF ABBREVIATIONS

ABWR	Advanced Boiling Water Reactor
ADAMS	Agencywide Documents Access and Management System
BLS	Bureau of Labor Statistics
CDF	core damage frequency
COL	combined license
CPI	Consumer Price Index
DCD	Design Control Document
EA	environmental assessment
ER	environmental report
ESP	early site permit
FSER	final safety evaluation report
GEH	GE-Hitachi Nuclear Energy Americas, LLC
GENE	GE Nuclear Energy Americas, LLC
NEPA	National Environmental Policy Act of 1969, as amended
NRC	U.S. Nuclear Regulatory Commission
OL	operating license
PDR	Public Document Room (NRC)
PRA	probabilistic risk assessment
SAMA	severe accident mitigation alternatives
SAMDA	severe accident mitigation design alternatives
SRP	Standard Review Plan (NUREG-0800)

UNITED STATES NUCLEAR REGULATORY COMMISSION
ENVIRONMENTAL ASSESSMENT AND
FINDING OF NO SIGNIFICANT IMPACT
RELATING TO RENEWAL OF THE
U.S. ABWR STANDARD DESIGN CERTIFICATION
DOCKET NO. 52-045

1.0 Introduction

The U.S. Nuclear Regulatory Commission (NRC) is issuing a renewal for the design certification (DC) for the U.S. Advanced Boiling Water Reactor (ABWR) standard design in response to an application submitted on December 7, 2010 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML110040176) and revised December 20, 2019 (ADAMS Accession No. ML20093K254), by General Electric-Hitachi Nuclear Energy Americas, LLC, hereinafter referred to as GEH or the applicant. The NRC adopts DC rules as appendices to Part 52 of Title 10 of the *Code of Federal Regulations* (10 CFR).

On July 13, 1994, the NRC issued the Final Safety Evaluation Report (FSER) related to certification of the U.S. ABWR design (NUREG-1503, "Final Safety Evaluation Report Related to the Certification of the Advanced Boiling Water Reactor Design"). On May 12, 1997, the NRC issued the final design certification rule for the original U.S. ABWR design in the *Federal Register* (62 FR 25800). Applicants or licensees intending to construct and operate a plant based on the U.S. ABWR design may do so by referencing the DC rule, as set forth in Appendix A to Part 52 of Title 10 of the Code of Federal Regulations (10 CFR Part 52, Appendix

Commented [A1]: *Passim* – Staff should follow the guidance of NUREG-1379, Revision 2, "NRC Editorial Style Guide," Section 6, "Punctuation," paragraph 16 and use two spaces between sentences unless separate style guidance is provided by the office for which the document is being prepared.

A). A design certification is valid for 15 years from the date of issuance under 10 CFR 52.55(a) and may be subsequently renewed for a period of 10 to 15 years under 10 CFR 52.61.

The NRC staff developed this environmental assessment (EA) of the ~~environmental~~ impacts of the new rule and documented the staff's finding of no significant impact consistent with the requirements of 10 CFR 51.21, "Criteria for and Identification of Licensing and Regulatory Actions Requiring Environmental Assessments," 10 CFR 51.31, "Determinations based on environmental assessment," and the National Environmental Policy Act of 1969, as amended (NEPA). This EA addresses the severe accident mitigation design alternatives (SAMDA) that the NRC staff evaluated for the renewed U.S. ABWR standard design. This EA does not address the site-specific environmental impacts of constructing and operating any facility that references the renewed U.S. ABWR DC at a particular site; those impacts will be evaluated as part of any application(s) for the siting, construction, or operation of such a facility.

Per Section 6 of this EA, the NRC staff has determined that issuing this DC renewal does not constitute a major Federal action significantly affecting the quality of the human environment. This finding is based on the generic finding made in 10 CFR 51.32(b)(1) ~~and (2)~~ that there is no significant environmental impact associated with the certification of a standard design under 10 CFR Part 52, Subpart B or an amendment to a design certification. This design certification rule renewal does not authorize the siting, construction, or operation of a facility referencing the U.S. ABWR standard design; but only codifies the renewed U.S. ABWR standard design in a rule. Furthermore, because the certification is a rule rather than a physical action, it does not involve the commitment of any resources that have alternative uses. The ~~generic finding under 10 CFR 51.32(b)(1) and (2) generic finding~~ of no significant impact is, essentially, the legal equivalent of a categorical exclusion (72 FR 4935~~12~~, 49427). Therefore, the NRC staff has not prepared an environmental impact statement for the action.

Under 10 CFR 51.30(d), an ~~environmental assessment~~EA for a DC must identify the proposed action and is limited to consideration of the costs and benefits of SAMDA and the

bases for not incorporating SAMDAs in the DC. Additionally, under 10 CFR 51.30(d), an ~~environmental assessment~~EA for an amendment to a ~~design certification~~DC is limited to the consideration of whether the design change which is the subject of the proposed amendment renders a severe accident mitigation design alternative previously rejected in the earlier ~~environmental assessment~~EA to become cost-beneficial, or results in the identification of new SAMDAs, in which case the costs and benefits of new SAMDAs and the bases for not incorporating new SAMDAs in the ~~design certification~~DC must be addressed.

The purpose of the NRC staff's SAMDA technical analysis is to document the review of the design changes, new information, and the analysis of GEH's supplemental consideration of SAMDAs with regards to the original SAMDA EA related to the U.S. ABWR DC (Attachment 2 to SECY-96-077, "Certification of Two Evolutionary Designs," (ADAMS Accession No. ML003708129). Based on the results of the NRC staff's SAMDA technical review (ADAMS Accession No. ML20024D602), the staff determined that there were no design changes or new information that would change the original SAMDA determination.

As discussed in Section 4.0 of this EA, the NRC staff also reviewed GEH's assessment of SAMDAs that generically apply to the U.S. ABWR standard design. The NRC staff finds that GEH's assessment considered a reasonable set of SAMDAs, and that no additional SAMDAs beyond those currently incorporated into the U.S. ABWR standard design would be cost-beneficial. This finding is applicable whether SAMDAs are to be considered at the time of the certification of the U.S. ABWR standard design or SAMDAs considered with respect to licensing a potential future facility referencing the U.S. ABWR DC rule, provided that the plant referencing the U.S. ABWR DC rule is sited at a location bounded by the averted radiological risk from severe accidents for each SAMDA as provided by the original "Technical Support Document for the ABWR" (ML100210563).

2.0 Identification of the Proposed Action

The proposed action is to renew the U.S. ABWR standard design certification in Appendix A to 10 CFR Part 52. The new rule allows applicants to reference the renewed certified U.S. ABWR standard design as part of a COL application under 10 CFR Part 52, or by an applicant for a construction permit or operating license under 10 CFR Part 50.

3.0 Need for the Proposed Action

The proposed action will issue an amendment to 10 CFR Part 52 to renew the U.S. ABWR standard design certification. The renewal allows an applicant to reference the renewed certified U.S. ABWR standard design as part of a COL application under 10 CFR Part 52, or by an applicant for a construction permit or operating license under 10 CFR Part 50. Those portions of the U.S. ABWR standard design included in the scope of the ~~design certification~~DC rulemaking are not subject to further safety review or approval in a COL proceeding. In addition, the DC rule could resolve SAMDAs for any future applications for facilities that reference the certified U.S. ABWR standard design.

4.0 Environmental Impact of the Proposed Action

The proposed action constitutes issuance of the DC as an amendment to 10 CFR Part 52 to certify the U.S. ABWR standard design. As stated in 10 CFR 51.32(b)(1) and (2), the NRC staff has determined that there is no significant environmental impact associated with the issuance or amendment of a DC. The DC merely codifies the NRC staff's approval of the U.S. ABWR standard design, which is documented in NUREG-1503, "Final Safety Evaluation Report Related to the Certification of the Advanced Boiling Water Reactor Design," and its supplements (ADAMS Accession Nos. ML080670592, ML080710134, and ML20301A886). Furthermore, because the certification of the design constitutes a rule rather than a physical action, it would not involve the commitment of any resources that have alternative uses.

As described in Section 5 of this EA, the NRC staff reviewed various alternative design features for preventing and mitigating severe accidents. NEPA requires consideration of alternatives to show that the DC rule is the appropriate course of action. The NRC's regulations at 10 CFR 51.30(d) in part require consideration of the costs and benefits of SAMDAs and the bases for not incorporating SAMDAs in the design certification.

Through an independent analysis, described in Section 5, the NRC staff concludes that GEH adequately considered an appropriate set of SAMDAs and that none in the set met the cost-beneficial criteria. Although GEH made no design changes as a result of considering SAMDAs as part of the initial design certification, GEH incorporated certain features in the U.S. ABWR standard design on the basis of probabilistic risk assessment (PRA). GEH evaluated the renewal SAMDAs using guidance in NEI 05-01, Revision A, "Severe Accident Mitigation Alternatives (SAMA) Guidance Document" (Adams Accession No. ML060530203) and reviewed the SAMDAs under current cost-benefit methods to determine if any of the BWR SAMAs in NEI 05-01, Revision A may become cost-beneficial.

Finally, this ~~design certification~~DC renewal rule itself does not authorize the siting, construction, or operation of a nuclear power plant facility. An applicant that references the renewed U.S. ABWR standard design for a COL or early site permit under 10 CFR Part 52, or for a construction permit or operating license under 10 CFR Part 50 will be required to address the environmental impacts of construction and operation for its specific site. The NRC staff will then evaluate the environmental impacts for that particular site and issue an environmental impact statement ~~in accordance with~~under 10 CFR Part 51 and NEPA. However, the SAMDA analysis that has been completed as part of this EA can be incorporated by reference into an environmental impact statement related to an application for siting, construction, or operation of a nuclear plant that references the U.S. ABWR standard design.

5.0 Severe Accident Mitigation Design Alternative Evaluation

The proposed action provides finality in licensing proceedings on a ~~combined-~~ ~~license~~ COL application under 10 CFR Part 52 referencing the U.S. ABWR DC rule and proposing a plant located on a site with averted risk values less than or equal to the values in Table 5 of the original "Technical Support Document for the ABWR" (ADAMS Accession No. ML100210563), as described in the "ABWR Design Control Document" (ADAMS Package Accession No. ML11126A129) and recent revisions (ADAMS Accession No. ML20093K254).

This EA section provides a summary of the NRC staff's review of GEH's "Revised Supplement to ABWR Design Certification Environmental Report" (ADAMS Accession No. ML16235A415) and the related U.S. ABWR SAMDAs, as provided in the "ABWR Design Control Document" (ADAMS Accession No. ML11126A129) and recent revisions (ADAMS Accession No. ML20093K254). The specific details of the NRC staff's SAMDA evaluation, summarized in this EA, are provided in the staff's technical SAMDA analysis (ADAMS Accession No. ML20024D602).

5.1. Original U.S. ABWR Design Certification EA

The original (1996) SAMDA EA (ADAMS Accession No. ML003708129) evaluated the initial 1994 SAMDA analysis as provided in the original "Technical Support Document for the ABWR"¹ (ADAMS Accession No. ML100210563) against guidance provided in NUREG/BR-0058, Revision 2, "Regulatory Analysis Guidelines of the U.S. Nuclear Regulatory Commission," (ADAMS Accession No. ML111180434). The NRC staff's 1996 SAMDA evaluation determined that the U.S. ABWR design already included numerous plant features to reduce core damage frequency and risk and found significant margins in the results of the cost-

¹ Prior to the issuance on August 28, 2007 of 10 CFR 51.55, "Environmental report – standard design certification" (72 FR 49513), the SAMDA analysis was included in "Technical Support Document for the ABWR." The SAMDA analysis for standard design certifications is currently provided in a separate document entitled "Applicant's Environmental Report – Standard Design Certification," ~~herein noted as an Environmental Report (ER).~~

benefit analysis of the original SAMDAs; therefore, additional plant improvements would not significantly reduce the risk of either internally or externally initiated events. The NRC staff further determined that any other design modifications would be unlikely to be justifiable on the basis of population exposure considerations due to estimated core damage frequencies (CDFs) and risk estimates remaining very low on an absolute scale.

5.2. New Information Subsequent to the Original U.S. ABWR EA

GEH submitted a 2010 U.S. ABWR DC renewal application (Adams Accession No. ML110040176), including a supplemental environmental report (ER) (Accession No. ML110040178), which was accepted by NRC for review in 2011 (76 FR 9612). GEH subsequently provided a revised supplemental ER, "Revised Supplement to ABWR Design Certification Environmental Report," ~~in a 2016 letter package (ADAMS Accession No. ML16235A415). Under the original U.S. ABWR Design Certification (ADAMS Legacy Library Accession No. 9406130027), the applicant's SAMDA assessment was documented in the 1994 original "Technical Support Document for the ABWR" submittal (ADAMS Accession No. ML100210563). In the 2016 letter package, GEH provided~~ a list of the U.S. ABWR design changes along with their impact on the U.S. ABWR PRA, and a brief description of the design changes (ADAMS Accession No. ML16235A415). GEH determined that the design changes included in the Design Control Document (DCD) amendments for the U.S. ABWR DC renewal did not require a modification to the U.S. ABWR PRA nor did the design changes impact the original SAMDA analysis.

5.2.1. Evaluation of New Information

Subsequent to the 1997 U.S. ABWR Design Certification rule, operating experience has been gained and interim improvements in PRA methods have occurred. Although GEH determined that the original PRA was adequate, and ~~that~~ no DCD descriptions needed to be changed, the NRC staff reviewed the determination ~~to satisfy the then current~~ under 10 CFR 52.47(a)(1)(v), codified as of May 2, 1997, and the need for a modification under 10 CFR

52.59(a) ~~using the regulations in effect at the time of initial certification as a basis.~~ As documented in the NRC staff's supplemental FSER, Chapter 19.0, "Severe Accidents" (ADAMS Accession No. ML20301A886), the staff determined that these proposed design changes have negligible impact on the U.S. ABWR PRA results, including accident sequences and frequencies that could lead to the release of radioactive fission products to the environment. Based on its review, the NRC staff found that the process used by GEH to evaluate the risk impact of design changes is acceptable and meets the intent of staff guidance in [NUREG-0800, "Standard Review Plan \(SRP\) for the Review of Safety Analysis Reports for Nuclear Power Plants: LWR Edition."](#) Section 19.0, Revision 3, "Probabilistic Risk Assessment and Severe Accident Evaluation for New Reactors,"² ~~and that GEH's conclusion that no changes to the PRA were necessary is justified.~~ Therefore, the NRC staff determined that no changes to the associated U.S. ABWR DCD descriptions of the PRA and corresponding results are warranted.

5.2.2. Review of the U.S. ABWR Supplemental Environmental Report

Information provided by GEH in the revised supplemental ER, "Revised Supplement to ABWR Design Certification Environmental Report", (ADAMS Accession No. ML16235A415) indicated that the design changes submitted as part of the U.S. ABWR DC renewal would not have an impact on the U.S. ABWR severe accident risk. GEH included a discussion of the NRC staff's original SAMDA EA (ADAMS Accession No. ML003708129), which determined that there were no cost-beneficial SAMDAs; staff determined, however, that the original U.S. ABWR SAMDA analysis in the original "Technical Support Document for the ABWR" (ADAMS Accession No. ML100210563) differs from those used as described in the original SAMDA EA. To address the potential discrepancies in methods and an accounting for new and relevant information subsequent to the original U.S. ABWR certification, the staff requested additional

² [The staff used this guidance, which was issued in December 2015, because guidance on PRA did not exist when GEH completed its PRA for the initial ABWR DC. However, the staff recognizes that GEH is not held specifically to this SRP guidance because GEH must instead meet the regulations applicable and in effect at initial certification.](#)

information (ADAMS Accession No. ML17032A537). GEH's response was reviewed by NRC staff and incorporated into the staff's evaluation as described in the following sections.

5.2.3. Risk Estimate for U.S. ABWR Renewal

Because the NRC staff determined that the GEH U.S. ABWR PRA results in the "Revised Supplement to ABWR Design Certification Environmental Report" (ADAMS Accession No. ML16235A415) remain unchanged when compared to the staff's evaluation in the supplemental FSER (ADAMS Accession No. ML20301A886) for the original U.S. ABWR DC PRA results (ADAMS Accession No. ML11126A129) staff determined that the offsite environmental consequences and resulting risk remain unchanged from the original "Technical Support Document for the ABWR" (ADAMS Accession No. ML100210563).

5.2.4. Potential Plant Improvements

NRC staff requested that GEH evaluate relevant new or additional information that could result in new SAMDAs (ADAMS Accession No. ML17032A537) subsequent to those SAMDAs associated with the ~~1996~~-U.S. ABWR DC as described in the original SAMDA EA (ADAMS Accession No. ML003708129). Based on GEH's response (ADAMS Accession No. ML17080A064) and independent confirmatory analysis, NRC staff determined that there are no additional SAMDA candidates to consider and the list of SAMDAs given in the original SAMDA EA (~~ADAMS Accession No. ML003708129~~) is adequate for further assessment.

5.2.5. Maximum Benefit Evaluation

To evaluate the design changes and new information available subsequent to original U.S. ABWR DC EA maximum benefit analyses, the NRC staff reproduced the analyses contained in the original SAMDA EA (ADAMS Accession No. ML003708129) as a first step in adjusting the original assumptions to 2016 dollars for comparison with the applicant's analysis (ADAMS Accession No. ML17080A064) performed in 2016. For this SAMDA evaluation, staff also performed a sensitivity analysis using a draft ~~later~~ revision to the cost-benefit guidance applied in the NRC staff's original EA, (ADAMS Accession No. ML19261A277), which is

pending approval by the Commission. This draft guidance would states that two sets of estimates should be developed considering a 3 percent and a 7 percent discount rate. The reproduced original SAMDA analysis was updated based-onto reflect this draft revised cost-benefit guidance, a draft revision to NUREG-1530 entitled "Reassessment of NRC's Dollar per Person-Rem Conversion Factor Policy" (ADAMS Accession No. ML16147A392), also pending approval by the Commission, and by applying inflation factors to bring cost values and parameters into 2016 dollars based on the Bureau of Labor Statistics (BLS) Consumer Price Index (CPI) inflation calculator (https://www.bls.gov/data/inflation_calculator.htm).

The original U.S. ABWR DC EA population dose cases were based on an assumed plant life of 60 years with the measure of the population exposure calculated as the average dose per individual (in rem) multiplied by the number of people exposed. NRC staff applied the updated current values to four population dose cases assessed in the staff's original EA and presents the revised maximum benefit values in Table 1. The first case based on the population dose in the applicant's original "Technical Support Document for the ABWR" (ADAMS Accession No. ML100210563) and the other three cases as analyzed in Section 3.5 of the original SAMDA EA (ADAMS Accession No. ML003708129).

Table 1. NRC Staff's Updated Maximum Benefit Values

Population Dose (person-rem over 60 years)	Maximum Benefit for 7 Percent Discount Rate	Maximum Benefit for 3 Percent Discount Rate
0.269 ^a	\$21,600	\$56,900
1 ^b	\$23,600	\$60,800
40 ^b	\$130,400	\$272,100
200 ^b	\$568,800	\$1,138,900

^a Original "Technical Support Document for the ABWR" population dose value.

^b Cases analyzed in Section 3.5 of the original SAMDA EA.

The NRC staff's resulting analyses determined that the updates to the cost values and parameters would result in a maximum benefit increase of approximately 2.5 times relative to the values in Section 3.5 of the original U.S. ABWR DC EA. The largest maximum benefit (approximately \$1,139,000) was found to be the 3 percent discount rate for the maximum

population dose (i.e., 200 person-rem over 60 years) from the original "Technical Support Document for the ABWR" (ADAMS Accession No. ML100210563). NRC staff used the conservative valuation of 200 person-rem over 60 years for the sensitivity evaluation of potential cost-benefits of the U.S. ABWR SAMDAs as described below.

5.3. Cost-Benefit Analysis of Potential Plant Improvements

The NRC staff performed a sequential screening analysis of the potential cost-beneficial SAMDAs proceeding through the screening of the costs and benefits by: 1) evaluating the new implementation costs of the U.S. ABWR SAMDAs in current dollars; 2) comparing each implementation cost to the new maximum benefit assuming all of the risk can be removed; and, 3) reassessing the maximum benefit that the SAMDA could affect based on its individual contribution to the total risk. In addition, the NRC staff assessed the sensitivity of the U.S. ABWR SAMDA cost-benefit analysis to certain risk factors that contribute to averted risk as described in the section below.

5.3.1. Cost-Benefit and Sensitivity Analysis

In response to the NRC staff's request for additional information (ADAMS Accession No. ML17032A537), GEH provided inflation-adjusted estimates to 2016 dollars for the SAMDA implementation costs (ADAMS Accession No. ML17080A064). The NRC staff used the updated 2016 values in the next step of comparing each SAMDA implementation cost. The NRC staff found that the original DC application (ADAMS Accession No. ML100210563), which considered representative site results for the 0.269 person-rem case and the 1 person-rem case, still results in no cost-beneficial SAMDAs. To assess the sensitivity of the results to external events, the NRC staff applied the upper maximum benefit value based on the 3 percent discount rate and largest seismic effect (i.e., the 200 person-rem case with a maximum benefit of \$1,139,000). The sensitivity analysis determined that the implementation costs of the five SAMDAs were ~~found to be~~ below the upper maximum benefit value even if each SAMDA removed all of the risk

(see Table 2 of the NRC staff's technical SAMDA analysis, ADAMS Accession No.

ML20024D602). The five SAMDAs are:

- SAMDA 2c - Suppression Pool Jockey Pump
- SAMDA 3c - Improved Vacuum Breakers (Redundant valves in each line)
- SAMDA 7a - Drywell Head Flooding (Firewater crosstie to drywell head area)
- SAMDA 11a - ATWS Sized Vent
- SAMDA 13a - Reactor Building Sprays (Firewater crosstie for reactor building sprays)

All other SAMDA implementation costs are greater than the maximum benefit for the 3 percent discount rate which demonstrates that they are not potentially cost-beneficial. The above five SAMDAs are determined to be potentially cost-beneficial if they could remove all risks and were further evaluated based on based on their individual contribution to the total averted risk. Due to ambiguity in the discussions of assumptions used in the analyses as described in the original SAMDA EA (ADAMS Accession No. ML003708129) and in the original "Technical Support Document for the ABWR" (ADAMS Accession No. ML100210563), the NRC staff evaluated, through a sensitivity analysis, several assumptions associated with the bases for the risk fraction that the five SAMDAs may affect.

For the sensitivity analysis, the NRC staff evaluated the averted risk, which is the principal measure of risk in the original SAMDA EA (ADAMS Accession No. ML003708129) for each SAMDA. The NRC staff used the averted risk value from the original U.S. SAMDA EA and a bounding (conservative) averted risk value to assess the specific fraction of risk that each of the five SAMDA candidates could affect. As a result of the NRC staff's sensitivity analysis and the resulting SAMDA risk contributions, the staff determined that the revised cost-benefit analysis confirmed that the five remaining SAMDAs are not potentially cost-beneficial for the U.S. ABWR DC renewal. Therefore, after incorporating the new information available subsequent to the original U.S. ABWR EA, the NRC staff arrived at similar conclusions and findings as determined in the original SAMDA EA (ADAMS Accession No. ML003708129) indicating that none of the SAMDAs are justified based on cost-benefit considerations.

5.4. SAMDA Finality Criteria

The NRC staff evaluated the original SAMDA EA (ADAMS Accession No. ML003708129) to determine if the design changes and new information subsequent to the original analysis could be applied to the current renewal request for specific U.S. ABWR DC evaluation criteria. Based on a review of available documents from the original U.S. ABWR DC, NRC staff determined that a future ABWR construction and operating application should demonstrate for SAMDA finality that the proposed site would have an averted risk person-rem value for each SAMDA that is less than or equal to the averted risk person-rem value for that SAMDA in Table 5 of the amendment to the original [GE Nuclear Energy Americas, LLC \(GENE\)](#) SAMDA analysis (ADAMS Accession No. ML100210563).

5.5. Conclusions on SAMDAs

Based on a review of the U.S. ABWR DC and associated submittals, GEH responses to the NRC staff's request for additional information (ADAMS Accession No. ML17080A064) and the staff's independent confirmatory analysis, the staff determined that none of the design changes evaluated affect the U.S. ABWR PRA and that no design changes as described in GEH's recent submittal (ADAMS Accession No. ML20093K254) impact the results of the SAMDA analysis provided in the original SAMDA EA (ADAMS Accession No. ML003708129). For SAMDA finality in a future U.S. ABWR application, an applicant should demonstrate that the proposed site would have an averted risk person-rem value for each SAMDA that is less than or equal to the averted risk person-rem value for that SAMDA in Table 5 of the amendment to the original GENE SAMDA analysis (ADAMS Accession No. ML100210563). For any future U.S. ABWR application, the consideration of inflation of cost parameters and revised cost-benefit

guidance in the intervening time from this analysis using 2016 dollars should be considered in determining the significance of the SAMDA conclusions described above.

6.0 Conclusions

On the basis of 10 CFR 51.32(b)(1) and (2), the NRC staff's technical SAMDA analysis (ADAMS Accession No. ML20024D602), and this EA, the NRC staff concludes that the proposed action will not have a significant effect on the quality of the human environment. Accordingly, the NRC staff is not required to prepare an environmental impact statement for the proposed action.

Further details with respect to the proposed action are found in the documents referenced in the statement of considerations for the final rule. The [Public Document Room \(PDR\)](#), where you may examine and order copies of public documents is currently closed. You may submit your request to the PDR via e-mail at PDR.Resource@nrc.gov or call 1-800-397-4209 between 8:00 a.m. and 4:00 p.m. (EST), Monday through Friday, except Federal holidays. Publicly available records will be accessible electronically from the ADAMS Public Electronic Reading Room on the NRC Web site at <https://www.nrc.gov/reading-rm/adams.html>. Persons who do not have access to ADAMS or who encounter problems in accessing the documents in ADAMS should contact the NRC's Public Document Room (PDR) reference staff at 1-800-397-4209, at 301-415-4737, or by e-mail to PDR.Resource@nrc.gov.