



NUCLEAR REGULATORY COMMISSION

10 CFR Part 50

[NRC-2018-0290]

RIN 3150-AK22

American Society of Mechanical Engineers 2019-2020 Code Editions

AGENCY: Nuclear Regulatory Commission.

ACTION: Proposed rule.

SUMMARY: The U.S. Nuclear Regulatory Commission (NRC) is proposing to amend its regulations to incorporate by reference the 2019 Edition of the American Society of Mechanical Engineers Boiler and Pressure Vessel Code and the 2020 Edition of the American Society of Mechanical Engineers Operation and Maintenance of Nuclear Power Plants, Division 1: OM Code: Section IST, for nuclear power plants. The NRC is also proposing to incorporate by reference the 2011 Addenda to ASME NQA-1-2008, Quality Assurance Requirements for Nuclear Facility Applications (ASME NQA-1b-2011), and the 2012 and 2015 Editions of ASME NQA-1, Quality Assurance Requirements for Nuclear Facility Applications. This action is in accordance with the NRC's policy to periodically update the regulations to incorporate by reference new editions of the American Society of Mechanical Engineers Codes and is intended to maintain the safety of nuclear power plants and to make NRC activities more effective and efficient.

DATES: Submit comments by **[INSERT DATE 60 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 website:** Go to <https://www.regulations.gov> and search for Docket ID NRC-2018-0290. Address questions about NRC dockets to Dawn Forder; telephone: 301-415-3407; email: Dawn.Forder@nrc.gov. For technical questions contact the individuals listed in the FOR FURTHER INFORMATION CONTACT section of this document.

- **Email comments to:** Rulemaking.Comments@nrc.gov. If you do not receive an automatic email 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: Victoria V. Huckabay, Office of Nuclear Material Safety and Safeguards, telephone: 301-415-5183, email: Victoria.Huckabay@nrc.gov; or Keith Hoffman, Office of Nuclear Reactor Regulation, telephone: 301-415-1294, email: Keith.Hoffman@nrc.gov. Both are staff of the U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001.

SUPPLEMENTARY INFORMATION:

EXECUTIVE SUMMARY:

A. Need for the Regulatory Action

The NRC is proposing to amend its regulations to incorporate by reference the 2019 Edition of the American Society of Mechanical Engineers (ASME) Boiler and

Pressure Vessel Code (BPV Code) and the 2020 Edition of the ASME Operation and Maintenance of Nuclear Power Plants, Division 1: OM Code: Section IST (OM Code), for nuclear power plants. The NRC is also proposing to incorporate by reference the 2011 Addenda to ASME NQA-1-2008, Quality Assurance Requirements for Nuclear Facility Applications (ASME NQA-1b-2011), and the 2012 and 2015 Editions of ASME NQA-1, Quality Assurance Requirements for Nuclear Facility Applications.

The ASME periodically revises and updates its codes for nuclear power plants by issuing new editions; this proposed rule is in accordance with the NRC's practice to incorporate those new editions into the NRC's regulations. This proposed rule maintains the safety of nuclear power plants, makes NRC activities more effective and efficient, and allows nuclear power plant licensees and applicants to take advantage of the latest ASME Codes. The ASME is a voluntary consensus standards organization, and the ASME Codes are voluntary consensus standards. The NRC's use of the ASME Codes is consistent with applicable requirements of the National Technology Transfer and Advancement Act (NTTAA). See also Section VIII of this document, "Voluntary Consensus Standards."

B. Major Provisions.

Major provisions of this proposed rule include the incorporation by reference with conditions of the following ASME Codes into NRC regulations and delineation of NRC requirements for the use of these Codes:

- The 2019 Edition of the BPV Code
- The 2020 Edition of the OM Code
- The 2011 Addenda to ASME NQA-1-2008, "Quality Assurance Requirements for Nuclear Facility Applications," (ASME NQA-1b-2011) and the 2012 and 2015 Editions of ASME NQA-1.

C. Costs and Benefits.

The NRC prepared a draft regulatory analysis to determine the expected costs and benefits of this proposed rule. The regulatory analysis identifies costs and benefits in both a quantitative fashion as well as in a qualitative fashion.

The analysis concludes that this proposed rule would result in a net quantitative averted cost to the industry and the NRC. This proposed rule, relative to the regulatory baseline, would result in a net averted cost for industry of \$6.26 million based on a 7 percent net present value (NPV) and \$6.99 million based on a 3 percent NPV. The proposed rulemaking alternative benefits the NRC by averting costs for reviewing and approving requests to use alternatives to the Codes on a plant-specific basis under § 50.55a(z) of title 10 of the *Code of Federal Regulations* (10 CFR). The NRC net benefit ranges from \$0.49 million based on a 7 percent NPV to \$0.57 million based on a 3 percent NPV. Qualitative factors that were considered include regulatory stability and predictability, regulatory efficiency, and consistency with the NTTAA. The regulatory analysis shows that the rulemaking is justified because the total quantified benefits of the proposed regulatory action exceed the costs of the proposed action. When the qualitative benefits (including the safety benefit and improvement in knowledge) are considered together with the quantified benefits, the benefits outweigh the identified quantitative and qualitative impacts.

The NRC has had a decades-long practice of approving and/or mandating the use of certain parts of editions and addenda of these ASME Codes in § 50.55a. Continuing this practice in this proposed rule ensures regulatory stability and predictability. This practice also provides consistency across the industry and provides assurance to the industry and the public that the NRC will continue to support the use of the most updated and technically sound techniques developed by the ASME to provide adequate protection to the public. In this regard, the ASME Codes are voluntary consensus standards developed by technical committees composed of mechanical engineers and others who represent the broad and varied interests of their industries, from manufacturers and installers to insurers, inspectors, distributors, regulatory

agencies, and end users. The standards have undergone extensive external review before being considered to be incorporated by reference by the NRC. Finally, the NRC's use of the ASME Codes is consistent with the NTTAA, which directs Federal agencies to adopt voluntary consensus standards instead of developing "government-unique" (i.e., Federal agency-developed) standards, unless inconsistent with applicable law or otherwise impractical.

For more information, please see the draft regulatory analysis (Accession No. ML20178A448 in the NRC's Agencywide Documents Access and Management System (ADAMS)).

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I. Obtaining Information and Submitting Comments

A. Obtaining Information

Please refer to Docket ID NRC-2018-0290 when contacting the NRC about the availability of information for this proposed rule. You may obtain information related to this proposed rule by any of the following methods:

- **Federal Rulemaking website:** Go to <https://www.regulations.gov> and search for Docket ID NRC-2018-0290.

- **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 “ADAMS Public Documents” and then select “Begin Web-based ADAMS Search.” For problems with ADAMS, please contact the NRC’s Public Document Room (PDR) reference staff at 1-800-397-4209, 301-415-4737, or by email 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 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, where you may examine industry codes and standards, is currently closed. You may submit your request to the Technical Library via 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

Please include Docket ID NRC-2018-0290 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 <http://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. Background

The American Society of Mechanical Engineers develops and publishes the ASME BPV Code, which contains requirements for the design, construction, and inservice inspection (ISI) of nuclear power plant components, and the ASME Operation and Maintenance of Nuclear Power Plants, Division 1: OM Code: Section IST (OM Code),¹ which contains requirements for inservice testing (IST) of nuclear power plant components. Until 2012, the ASME issued new editions of the ASME BPV Code every 3 years and addenda to the editions annually, except in years when a new edition was issued. Similarly, the ASME periodically published new editions and addenda of the ASME OM Code. Starting in 2012, the ASME decided to issue editions of its BPV and OM Codes (no addenda) every 2 years with the BPV Code to be issued on the odd years (e.g., 2013, 2015, etc.) and the OM Code to be issued on the even years² (e.g., 2012, 2014, etc.). The new editions and addenda typically revise provisions of the ASME Codes to broaden their applicability, add specific elements to current provisions, delete specific provisions, and/or clarify them to narrow the applicability of the provision. The revisions to the editions and addenda of the ASME Codes do not significantly change code philosophy or approach.

The NRC's practice is to establish requirements for the design, construction, operation, ISI (examination), and IST of nuclear power plants by approving the use of

¹ The editions and addenda of the ASME *Code for Operation and Maintenance of Nuclear Power Plants* have had different titles from 2005 to 2017 and are referred to collectively in this rule as the "OM Code."

² The 2014 Edition of the ASME OM Code was delayed and was designated the 2015 Edition. Similarly, the 2016 Edition of the OM Code was delayed and was designated the 2017 Edition.

editions and addenda of the ASME BPV and OM Codes (ASME Codes) in § 50.55a of title 10 of the *Code of Federal Regulations* (10 CFR). The NRC approves or mandates the use of certain parts of editions and addenda of these ASME Codes in § 50.55a through the rulemaking process of “incorporation by reference.” Upon incorporation by reference of the ASME Codes into § 50.55a, the provisions of the ASME Codes are legally-binding NRC requirements as delineated in § 50.55a, and subject to the conditions on certain specific ASME Codes’ provisions that are set forth in § 50.55a. The editions and addenda of the ASME BPV and OM Codes were last incorporated by reference into the NRC’s regulations in a final rule dated May 4, 2020 (85 FR 26540).

The ASME Codes are consensus standards developed by participants, including the NRC and licensees of nuclear power plants, who have broad and varied interests. The ASME’s adoption of new editions of, and addenda to, the ASME Codes does not mean that there is unanimity on every provision in the ASME Codes. There may be disagreement among the technical experts, including the NRC’s representatives on the ASME Code committees and subcommittees, regarding the acceptability or desirability of a particular code provision included in an ASME-approved Code edition or addenda. If the NRC believes that there is a significant technical or regulatory concern with a provision in an ASME-approved Code edition or addenda being considered for incorporation by reference, then the NRC conditions the use of that provision when it incorporates by reference that ASME Code edition or addenda into its regulations. In some instances, the condition increases the level of safety afforded by the ASME Code provision, or addresses a regulatory issue not considered by the ASME. In other instances, where research data or experience has shown that certain code provisions are unnecessarily conservative, the condition may provide that the code provision need not be complied with in some or all respects. The NRC’s conditions are included in § 50.55a, typically in paragraph (b) of that section. In a Staff Requirements Memorandum dated September 10, 1999, (ADAMS Accession No. ML003755050) the Commission indicated that NRC rulemakings adopting (incorporating by reference) a

voluntary consensus standard must identify and justify each part of the standard that is not adopted. For this proposed rule, the provisions of the 2019 Edition of Section III, Division 1; and the 2019 Edition of Section XI, Division 1, of the ASME BPV Code; and the 2020 Edition of the ASME OM Code that the NRC is not adopting, or is only partially adopting, are identified in the Discussion, Regulatory Analysis, and Backfitting and Issue Finality sections of this document. The provisions of those specific editions and code cases that are the subject of this proposed rule that the NRC finds to be conditionally acceptable, together with the applicable conditions, are also identified in the Discussion, Regulatory Analysis, and Backfitting and Issue Finality sections of this document.

The ASME Codes are voluntary consensus standards, and the NRC's incorporation by reference of these Codes is consistent with applicable requirements of the NTTAA. Additional discussion on the NRC's compliance with the NTTAA is set forth in Section VIII of this document, "Voluntary Consensus Standards."

III. Discussion

The NRC regulations incorporate by reference ASME Codes for nuclear power plants. This proposed rule is the latest in a series of rulemakings to amend the NRC's regulations to incorporate by reference revised and updated ASME Codes for nuclear power plants. This proposed rule is intended to maintain the safety of nuclear power plants and make NRC activities more effective and efficient.

The NRC follows a three-step process to determine acceptability of new provisions in new editions to the Codes and the need for conditions on the uses of these Codes. This process was employed in the review of the Codes that are the subjects of this proposed rule. First, the NRC staff actively participates with other ASME committee members with full involvement in discussions and technical debates in the development of new and revised Codes. This includes a technical justification of each new or revised Code. Second, the NRC's committee representatives discuss the Codes and technical

justifications with other cognizant NRC staff to ensure an adequate technical review.

Third, the NRC position on each Code is reviewed and approved by NRC management as part of this proposed rule amending § 50.55a to incorporate by reference new editions of the ASME Codes and conditions on their use. This regulatory process, when considered together with the ASME's own process for developing and approving the ASME Codes, assures that the NRC approves for use only those new and revised Code edition and addenda, with conditions as necessary, that provide reasonable assurance of adequate protection to the public health and safety, and that do not have significant adverse impacts on the environment.

The NRC reviewed changes to the Codes in the editions identified in this proposed rule. The NRC concluded, in accordance with the process for review of changes to the Codes, that these editions of the Codes, are technically adequate, consistent with current NRC regulations, and approved for use with the specified conditions upon the conclusion of the rulemaking process.

The NRC is proposing to amend its regulations to incorporate by reference:

- The 2019 Edition to the ASME BPV Code, Section III, Division 1 and Section XI, Division 1, with conditions on its use.
- The 2020 Edition to Division 1 of the ASME OM Code, with conditions on its use.
- The 2011 Addenda to ASME NQA-1-2008, Quality Assurance Requirements for Nuclear Facility Applications (ASME NQA-1b-2011) and the 2012 and 2015 Editions of ASME NQA-1, with conditions on its use.

The current regulations in § 50.55a(a)(1)(i) incorporate by reference ASME BPV Code, Section III, 1963 Edition through the 1970 Winter Addenda; and the 1971 Edition (Division 1) through the 2017 Edition (Division 1), subject to the conditions identified in current § 50.55a(b)(1)(i) through (xii). This proposed rule would revise § 50.55a(a)(1)(i) to incorporate by reference the 2019 Edition (Division 1) of the ASME BPV Code, Section III.

The current regulations in § 50.55a(a)(1)(ii) incorporate by reference ASME BPV Code, Section XI, 1970 Edition through the 1976 Winter Addenda; and the 1977 Edition (Division 1) through the 2017 Edition (Division 1), subject to the conditions identified in current § 50.55a(b)(2)(i) through (xlii). This proposed rule would revise § 50.55a(a)(1)(ii) to incorporate by reference the 2019 Edition (Division 1) of the ASME BPV Code, Section XI. It would also clarify the wording and add, remove, or revise some of the conditions as explained in this proposed rule.

The current regulations in § 50.55a(a)(1)(iv) incorporate by reference ASME OM Code, 1995 Edition through the 2017 Edition, subject to the conditions currently identified in § 50.55a(b)(3)(i) through (xi). This proposed rule would revise § 50.55a(a)(1)(iv) to incorporate by reference the 2020 Edition of Division 1 of the ASME OM Code. As explained in Section III.B of this document, this proposed rule would revise § 50.55a(a)(1)(iv) to remove the incorporation by reference of the 2011 Addenda of the ASME OM Code as well as the 2015 Edition of the ASME OM Code.

The current regulations in § 50.55a(a)(1)(v) incorporate by reference ASME NQA-1, Quality Assurance Requirements for Nuclear Facility Applications, subject to conditions identified in § 50.55a(b)(1)(iv) and (b)(2)(x). This proposed rule would revise § 50.55a(a)(1)(v)(B) to incorporate by reference the 2011 Addenda to ASME NQA-1-2008 (ASME NQA-1b-2011) and the 2012 and 2015 Editions of ASME NQA-1.

In the introductory discussion of its Codes, ASME specifies that errata to those Codes may be posted on the ASME Web site under the Committee Pages to provide corrections to incorrectly published items, or to correct typographical or grammatical errors in those Codes. Users of the ASME BPV Code and ASME OM Code should be aware of errata when implementing the specific provisions of those Codes. Applicants and licensees should monitor errata to determine when they might need to submit a request for an alternative under § 50.55a(z) to implement provisions specified in an errata to their ASME Code of record. Each of the proposed NRC conditions and the

reasons for each are discussed in the following sections of this document. The discussions are organized under the applicable ASME Code and Section.

The NRC prepared an unofficial redline strikeout version of the proposed changes to regulatory text which is intended to help the reader identify the proposed changes. The unofficial redline strikeout version of the proposed rule is publicly available and is listed in the “Availability of Documents” section.

A. ASME BPV Code, Section III

*Section 50.55a(a)(1)(i)(E) Rules for Construction of Nuclear Facility Components-
Division 1.*

The NRC proposes to revise § 50.55a(a)(1)(i)(E) to incorporate by reference the 2019 Edition of the ASME BPV Code, Section III, including Subsection NCA and Division 1 Subsections NB through NG and Appendices. As stated in § 50.55a(a)(1)(i), the Nonmandatory Appendices are excluded and not incorporated by reference. The Mandatory Appendices are incorporated by reference because they include information necessary for Division 1. However, the Mandatory Appendices also include material that pertains to other Divisions that have not been reviewed and approved by the NRC. Although this information is included in the sections and appendices being incorporated by reference, the NRC notes that the use of Divisions other than Division 1 has not been approved, nor are they required by NRC regulations and, therefore, such information is not relevant to current applicants and licensees. The NRC is not taking a position on the non-Division 1 information in the appendices and is including it in the incorporation by reference only for convenience. Therefore, this proposed rule would revise the introductory text to § 50.55a(a)(1)(i)(E) to reference the 2019 Edition of the ASME BPV Code, Section III, including Subsection NCA and Division 1 Subsections NB through NG and Appendices.

Section 50.55a(b)(1) Conditions on ASME BPV Code Section III.

The NRC proposes to revise the definition of Section III in § 50.55a(b)(1) to include the latest edition of the ASME BPV Code, Section III incorporated by reference in paragraph (a)(1)(i).

Section 50.55a(b)(1)(ii) Section III condition: Weld leg dimensions.

The NRC proposes to revise § 50.55a(b)(1)(ii) to extend the applicability of the condition through the latest edition of the ASME BPV Code, Section III incorporated by reference in paragraph (a)(1)(i). The 2019 Edition of Section III was not modified in a way that would make it possible for the NRC to remove this condition. Therefore, the NRC is proposing to revise this condition to apply to the latest edition incorporated by reference.

Section 50.55a(b)(1)(iii) Section III condition: Seismic design of piping.

The NRC proposes to revise § 50.55a(b)(1)(iii) to extend the applicability of the condition through the latest edition of the ASME BPV Code, Section III incorporated by reference in paragraph (a)(1)(i). The 2019 Edition of Section III was not modified in a way that would make it possible for the NRC to remove this condition. Therefore, the NRC is proposing to revise this condition to apply to the latest edition incorporated by reference.

Section 50.55a(b)(1)(iv) Section III condition: Quality Assurance.

The NRC is proposing to revise this condition to allow the use of the editions of NQA-1 that are both incorporated by reference in paragraph (a)(1)(v) of § 50.55a and specified in either NCA-4000 or NCA-7000 of the 1989 or later edition of Section III . This will allow applicants and licensees to use the 2011 Addenda to ASME NQA-1-2008, Quality Assurance Requirements for Nuclear Facility Applications (ASME NQA-1b-2011), and the 2012 and 2015 Edition of NQA-1 when using the 2019 and later Editions of Section III, which this rule is also incorporating by reference.

Section 50.55a(b)(1)(vii) Section III condition: Capacity certification and demonstration of function of incompressible-fluid pressure-relief valves.

The NRC proposes to revise § 50.55a(b)(1)(vii) to extend the applicability of the condition through the latest edition of the ASME BPV Code, Section III incorporated by reference in paragraph (a)(1)(i). The 2019 Edition of Section III was not modified in a way that would make it possible for the NRC to remove this condition. Therefore, the NRC is proposing to revise this condition to apply to the latest edition incorporated by reference.

Section 50.55a(b)(1)(x) Section III condition: Visual examination of bolts, studs, and nuts.

The NRC proposes to revise § 50.55a(b)(1)(x) to extend the applicability of the condition through the latest edition of the ASME BPV Code, Section III incorporated by reference in paragraph (a)(1)(i). The 2019 Edition of Section III was not modified in a way that would make it possible for the NRC to remove this condition. Therefore, the NRC is proposing to revise this condition to apply to the latest edition incorporated by reference.

Section 50.55a(b)(1)(xiii) Section III condition: Preservice Inspection of Steam Generator Tubes.

The NRC is proposing to add a new condition § 50.55a(b)(1)(xiii) to condition the provisions of NB-5283 in the 2019 Edition of Section III, which exempted steam generator tubing from preservice examinations. The condition is in two provisions as follows:

Section 50.55a(b)(1)(xiii)(A) Section III condition: Preservice Inspection of Steam Generator Tubes, First provision.

The NRC is proposing to add a condition to require that a full-length preservice examination of 100 percent of the steam generator tubing in each newly installed steam generator be performed prior to plant startup. Preservice examinations provide a baseline for future required inservice examinations and provides assurance of its structural integrity and ability to perform its intended function. The 2019 Edition does not require these preservice examinations to be performed. Therefore, the NRC is adding § 50.55a(b)(1)(xiii)(A) to condition the provisions of NB-5283 in the 2019 Edition of Section III to require that preservice examination of steam generator tubing shall be performed, in order to ensure that the steam generator tubing which is part of the reactor coolant pressure boundary has an adequate baseline examination for future inservice examinations and ensures the tubing's structural integrity to perform its intended function.

Section 50.55a(b)(1)(xiii)(B) Section III condition: Preservice Inspection of Steam Generator Tubes, Second provision.

The provisions of NB-5360 in the 2019 Edition of Section III removed the requirements for eddy current preservice examination of installed steam generator tubing and the criteria for evaluating flaws found during the preservice examination. A preservice examination is important because it ensures that the steam generator tubes, which are part of the reactor coolant pressure boundary, are acceptable for initial operation. In addition, preservice examination provides the baseline condition of the tubes, which is essential in assessing the nature of indications found in the tubes during subsequent inservice examinations. These inspections must be performed with the objective of finding and characterizing the types of preservice flaws that may be present in the tubes and flaws that may occur during operation. Therefore, the NRC is adding § 50.55a(b)(1)(xiii)(B) to condition the provisions of NB-5360 in the 2019 Edition of Section III, to require that flaws revealed during preservice examination of steam generator tubing shall be evaluated using the criteria in the design specifications.

B. ASME BPV Code, Section XI

Section 50.55a(a)(1)(ii) ASME Boiler and Pressure Vessel Code, Section XI.

The NRC proposes to remove and reserve § 50.55a(a)(1)(ii)(A), remove § 50.55a(a)(1)(ii)(B)(5) through (7), and remove and reserve § 50.55a(a)(1)(ii)(C)(1) through (32) and (37) through (40) because they incorporate by reference older editions and addenda of Section XI prior to 2001 Edition which are no longer in use. As a result of removing those older editions that are no longer in use, the NRC proposes to amend regulations in § 50.55a(b)(2)(viii), (ix), (xii), (xiv), and (xv), (b)(2)(xviii)(A), and (b)(2)(xix), and (b)(2)(xx)(A) to remove references to these older editions and addenda.

The NRC proposes to amend the regulations in § 50.55a(a)(1)(ii)(C) to incorporate by reference the 2019 Edition (Division 1) of the ASME BPV Code, Section XI. The current regulations in § 50.55a(a)(1)(ii)(C) incorporate by reference ASME BPV Code, Section XI, the 1977 Edition (Division 1) through the 2017 Edition (Division 1), subject to the conditions identified in current § 50.55a(b)(2)(i) through (xlii). The proposed amendment would revise the introductory text to § 50.55a(a)(1)(ii)(C) to reference the 2019 Edition (Division 1) of the ASME BPV Code, Section XI.

Section 50.55a(b)(2) Conditions on ASME BPV Code Section XI.

The NRC proposes to revise the definition of Section XI in § 50.55a(b)(2) to include the latest edition of the ASME BPV Code, Section XI incorporated by reference in paragraph (a)(1)(ii).

Section 50.55a(b)(2)(viii) Section XI condition: Concrete containment examinations.

As stated above, the NRC proposes to amend the regulations in § 50.55a(b)(2)(viii) to remove references to Section XI editions and addenda prior to the 2001 Edition. With the removal of these earlier editions the NRC also proposes to delete paragraphs (b)(2)(viii)(A) through (D) as these conditions apply to these earlier editions.

Section 50.55a(b)(2)(ix) Section XI condition: Metal containment examinations.

As stated above, the NRC proposes to amend the regulations in § 50.55a(b)(2)(ix) to remove references to Section XI editions and addenda prior to the 2001 Edition. With the removal of these earlier editions the NRC also proposes to delete paragraphs (b)(2)(ix)(C) through (E) as these conditions apply to these earlier editions.

Section 50.55a(b)(2)(x) Section XI condition: Quality Assurance.

The NRC proposes to revise this condition to extend it to the versions of NQA-1 referenced in the 2019 Edition of the ASME BPV Code, Section XI, Table IWA 1600-1, “Referenced Standards and Specifications,” which this proposed rule would also incorporate by reference.

The NRC is proposing to revise this condition to allow the use of the editions of NQA-1 that are both incorporated by reference in paragraph (a)(1)(v) of § 50.55a and specified in Table IWA 1600-1 of the 1989 or later Editions of Section XI. In the 2019 Edition of ASME BPV Code, Section XI, Table IWA 1600-1 was updated to specify that licensees use the 1994 Edition or 2008 Edition through 2015 Editions of NQA-1 when using the 2019 Edition of Section XI. These revisions will allow licensees to use the 2011 Addenda to ASME NQA-1-2008, and the 2012 and 2015 Edition of NQA-1 when using the 2019 and later Editions of Section XI, which this rule is also incorporating by reference.

The NRC also proposes to revise this condition to remove the reference to IWA-1400 because it does not reference editions of NQA-1. The removal of reference to IWA-1400 clarifies the text of the condition because Table IWA 1600-1 specifies the editions of NQA-1 to be used, while IWA-1400 simply refers to using NQA-1 generally, without specifying any particular edition.

Section 50.55a(b)(2)(xviii)(D) NDE personnel certification: Fourth provision.

The NRC proposes to amend the condition found in § 50.55a(b)(2)(xviii) to address the removal of ASME BPV Code, Section XI, 2011 Addenda from § 50.55a(a)(1)(ii).

In addition, research performed at the Pacific Northwest National Laboratory (PNNL) has shown that laboratory practice can be effective in developing the skill to find flaws, and on-the-job training is effective at developing the ability to perform examinations in a nuclear reactor environment. Based on the research described in Technical Letter Report PNNL-29761 (ADAMS Accession No. ML20079E343), the 250 experience hours for a Level I certification can be reduced to 175 hours, with 125 experience hours and 50 hours of laboratory practice, and the experience hours for Level II Certification can be reduced to 720 hours, with 400 experience hours and 320 hours of laboratory practice, without significantly reducing the capabilities of the examiners to navigate in a nuclear reactor environment. The NRC is therefore adding an option to § 50.55a(b)(2)(xviii) to allow these requirements as an alternative to Appendix VII, Table VII-4110-1 and Appendix VIII, Subarticle VIII-2200 in the 2010 Edition.

Section 50.55a(b)(2)(xx)(C) Section XI condition: System leakage tests: Third provision.

The NRC proposes to amend the regulations in § 50.55a(b)(2)(xx)(C) to extend the applicability of the condition through the latest edition of the ASME BPV Code, Section XI incorporated by reference in paragraph (a)(1)(ii) of this section. The NRC also proposes to amend § 50.55a(b)(2)(xx)(C) to reflect that IWB-5210(c) was deleted from the 2019 Edition because it contained verbiage that was redundant to the language in IWA-5213(b)(2) and IWB-5221(d).

Section 50.55a(b)(2)(xxi)(B) Table IWB-2500-1 examination.

The NRC proposes to amend the regulations in § 50.55a(b)(2)(xxi)(B) to extend the applicability of the condition through the latest edition of the ASME BPV Code,

Section XI incorporated by reference in paragraph (a)(1)(ii) of this section.

Section 50.55a(b)(2)(xxv)(B) Mitigation of defects by modification: Second provision.

The NRC proposes to amend the regulations in § 50.55a(b)(2)(xxv)(B) to extend the applicability of the condition through the latest edition of the ASME BPV Code, Section XI incorporated by reference in paragraph (a)(1)(ii) of this section. The NRC also proposes to amend the conditions found in § 50.55a(b)(2)(xxv)(B) by revising requirements associated with: (1) conducting wall thickness examinations at alternative locations; and (2) follow on examination requirements for external corrosion of buried piping.

Paragraph (b)(2)(xxv)(B)(2) currently requires the licensee to establish a loss of material rate by conducting wall thickness examinations at the location of the defect. The condition also establishes the timing of the examinations (i.e., two prior consecutive or nonconsecutive refueling outage cycles in the 10 year period prior to installation of the modification). The NRC proposes to provide an alternative by allowing loss of material rates to be measured at an alternative location with similar corrosion conditions, similar flow characteristics, and the same piping configuration (e.g., straight run of pipe, elbow, tee). The NRC had already accepted these characteristics as those necessary to establish equivalency for internal corrosion on buried piping configurations. The NRC recognizes that many licensees are conducting periodic wall thickness examinations of piping systems as part of asset management plans. Allowing an alternative equivalent location to be used to obtain loss of material rates provides flexibility and reduces unnecessary burden. In addition, the NRC proposes to delete the timing of the examination requirements because the 2 times multiplier required by the condition provides a conservative bias for measured loss of material rates.

Paragraph (b)(2)(xxv)(B)(3) currently requires the licensee to conduct wall thickness examinations on a refueling outage interval until projected flaw growth rates have been validated. After validation of the flaw growth rate, the modification would be

examined at half its expected life or, if the modification has an expected life greater than 19 years, once per interval. The NRC proposes to delete the refueling outage interval examinations and only require the examination to occur at half the modification's expected life or, if the modification has an expected life greater than 19 years, once per interval. The NRC has concluded that the 2 times multiplier for known loss of material rates or 4 times multiplier for estimated loss of material rates provides sufficient conservatism to allow a followup examination to occur at half the modification's expected life or, if the modification has an expected life greater than 19 years, once per interval.

The changes proposed in paragraph (b)(2)(xxv)(B)(3)(i) are editorial. The NRC proposes to delete the term "through wall" from the clarification of extent of degradation differences. The NRC recognizes that it would be unlikely that through wall leakage would be occurring in two locations (i.e., modification location, different examination location). The term "percent wall loss plus or minus 25 percent" is sufficient to capture through wall, if it should occur at the different examination location as well as any other level of wall loss.

Paragraph (b)(2)(xxv)(B)(3)(ii) currently requires licensees to examine a buried pipe modification location where loss of material has occurred due to external corrosion at half its expected life or 10 years, whichever is sooner. The NRC proposes to revise this condition to include a provision that would allow an extension of the required inspection to any time in the first full 10-year inspection interval after installation if the modification is recoated prior to backfill following modification. This could mean that the modification might not be inspected until as much as 19 years after installation. The NRC and industry recognize that effective coatings can isolate the base material from the environment and prevent further degradation. If coating holidays (e.g., voids in coating) were to go undetected, only localized loss of material would occur versus widespread general corrosion. The NRC has reached this conclusion for two reasons: (1) effective coatings ensure isolation of the modification site from the environment such that only the areas with coating holidays would be affected by the environment; and (2)

because pitting corrosion that might occur due to holidays would not affect the intended function of the piping (i.e., to deliver flow), extension of the examination timing will not challenge the intended function of the piping system.

Section 50.55a(b)(2)(xxvi), Section XI condition: Pressure Testing of Class 1, 2, and 3 Mechanical Joints.

The NRC proposes to amend § 50.55a(b)(2)(xxvi) to to remove references to Section XI pressure test and VT-2 examination. The NRC proposes to relax the requirement to perform an ASME Section XI pressure test in accordance with IWA-5211(a) and VT-2 examination of mechanical joints disassembled and reassembled during the course of repair/replacement activities. This condition was established in the final rule dated October 1, 2004 (69 FR 58804) to supplement the test provisions in IWA-4540 of the 2001 Edition and the 2002 and 2003 Addenda of Section XI of the ASME BPV Code to require that Class 1, 2, and 3 mechanical joints be pressure tested in accordance with IWA-4540(c) of the 1998 Edition of Section XI. Over the years and in several rulemakings commenters have stated this condition was not required because licensee post-maintenance test programs in accordance with appendix B to 10 CFR part 50, "Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants," specify requirements for leak testing mechanical connections following reassembly.

The final rule issued on May 4, 2020 (85 FR 26540) revised this condition to clarify examiner and pressure test code requirements. But this change caused confusion, because the industry interpreted the rule to mean that some exemptions from pressure testing allowed by the code were no longer allowable and that certain pressure testings would now be required, whereas they were not required prior to this change. Following the publication of the final rule, the NRC held a public meeting on June 4, 2020, to discuss this condition (ADAMS Accession No. ML20163A609). The industry asked the NRC to reevaluate the interpretation and the need for the condition. The NRC performed a qualitative risk analysis to judge the safety significance of performing the

Section XI pressure test and VT-2 examinations. The NRC looked at several risk scenarios and leveraged the principles of risk-informed decision-making with technical work completed through closure of Generic Safety Issue 29 (GSI-29): Bolting Degradation of Failure in Nuclear Power Plants (ADAMS Accession No. ML031430208) and current operational experience; the NRC concluded that the risk of failure of mechanical joints in the absence of pressure testing and VT-2 examination after repair/replacement activities is very low. The NRC found that the risk analyses suggest that the absence of the pressure test after repair/replacement activities imposes a minimal safety concern when taking into account the additional measures conducted by the industry to ensure leak tightness. The NRC concluded that failure of a mechanical joint in the absence of a pressure test and VT-2 exam is unlikely, and the corresponding condition for Section XI pressure testing after repair/replacement activities is not needed for safety. The NRC presented the results of this risk analysis at a public meeting held June 25, 2020 (ADAMS Accession No. ML20189A286).

In performing the risk determination, the NRC considered several principles of risk-informed decision-making. While not relying fully on these concepts, the NRC determined that the following additional measures help reduce the uncertainty associated with the qualitative risk assessment discussed above. With respect to performance monitoring, the NRC considered: (1) leak tests conducted as part of the licensee quality assurance programs, (2) the twice daily walkdowns in all accessible areas by Operations staff, including inspecting for leaks as part of plant rounds, (3) containment monitoring for identified and unidentified leakage, and (4) pressure testing of reactor coolant loop performed after each refueling outage. With respect to defense-in-depth, the NRC considered that many systems, including the emergency core cooling system, are in place to maintain core cooling if a primary system has a flange failure, and that many Code systems have redundant trains. With respect to safety margins, the NRC considered that leak-before-break analysis of nuclear power plant primary systems have illustrated that significant safety margins exist for leaking joints, and the results of

studies conducted during closure of GSI-29 showed that a joint will leak with a sufficient rate to be detected and mitigated by the licensees before joint rupture occurs.

Therefore, the NRC is proposing to amend § 50.55a(b)(2)(xxvi) to require a licensee defined leak test to demonstrate the leak tightness of Class 1, 2, and 3 mechanical joints. The proposed change would require that the owner establish the type of leak test, test medium, test pressure, and acceptance criteria that would demonstrate the joint's leak tightness. Because the condition would no longer require an ASME Code pressure test, the ASME Code NDE examiner qualification requirements would no longer apply. Therefore the NRC is also removing the requirement for the NDE examiners to meet the requirements of the licensee's current ISI code of record. The licensee must also specify the qualifications of the person performing the leak test.

Requiring the licensee defined leak test ensures the tests are done in accordance with the licensee's appendix B program as described by commenters in the past. The licensee defined test is consistent with recommendations of the ASME Post Construction Committee (PCC), which develops and maintains standards addressing common issues and technologies related to post construction activities. The PCC works with other consensus committees on the development of separate, product-specific, codes and standards that address issues encountered after initial construction for equipment and piping covered by Pressure Technology Codes and Standards. The PCC-developed standards generally follow "Recognized and Generally Accepted Good Engineering Practice." The PCC has developed PCC-1, "Guidelines for Pressure Boundary Bolted Flange Joint Assembly," for maintaining flanged joints, which has been referenced in American Petroleum Institute and National Board of Boiler and Pressure Vessel Inspectors Inspection Code standards. PCC-1 requires an owner defined leak test, which is generally accepted as a good engineering practice.

This licensee defined leak test must be performed on mechanical joints in Class 1, 2, and 3 piping and components greater than NPS-1 that are disassembled and reassembled during the performance of a Section XI repair or replacement activity

requiring documentation on a Form NIS-2. The licensee defined leak test should be of sufficient rigor to ensure leak tightness under operational conditions of mechanical joints affected by repair/replacement activities. The licensee defined leak test will achieve what the imposition of the original condition in the 2004 rulemaking sought to achieve, which was leak tightness of mechanical joints impacted by repair/replacement activities. The NRC will continue to monitor operating experience related to mechanical joints to determine if this condition merits modification in the future.

Section 50.55a(b)(2)(xxix), Section XI condition: Nonmandatory Appendix R.

The NRC proposes to amend § 50.55a(b)(2)(xxix) to allow the use of Supplement 2 of Nonmandatory Appendix R of Section XI in the 2017 and 2019 Editions without submittal of an alternative in accordance with § 50.55a(z). Currently § 50.55a(b)(2)(xxix) requires licensees who desire to implement a Risk-Informed Inservice Inspection (RI-ISI) program in accordance with Appendix R to obtain prior authorization of an alternative in accordance with § 50.55a(z). The NRC has reviewed the latest revisions to Appendix R and have found that Supplement 2 of Appendix R in the 2017 and 2019 Editions of ASME Section XI would ensure that future RI-ISI programs continue to comply with RG 1.178, "An Approach for Plant-Specific Risk-Informed Decisionmaking for Inservice Inspection of Piping," (ADAMS Accession No. ML032510128), RG 1.200, "An Approach for Determining the Technical Adequacy of Probabilistic Risk Assessment Results for Risk-Informed Activities," (ADAMS Accession No. ML090410014), and NRC Standard Review Plan Chapter 3.9.8, "Review of Risk-Informed Inservice Inspection of Piping," (ADAMS Accession No. ML032510135). Therefore, the NRC is amending § 50.55a(b)(2)(xxix) to allow RI-ISI programs in accordance with Supplement 2 of Appendix R in ASME Section XI editions 2017 and later to be used without submittal of an alternative in accordance with § 50.55a(z). The submittal of an alternative is still required for RI-ISI programs in accordance with Supplement 1 of Appendix R or to use Supplement 2 of Section XI editions prior to 2017.

Section 50.55a(b)(2)(xxxii) Section XI condition: Summary report submittal.

The NRC proposes to amend the condition in § 50.55a(b)(2)(xxxii) to relax the timeframe for submittal of Summary Reports (pre-2015 Edition) or Owner Activity Reports (2015 Edition and later) for inservice examinations and repair replacement activities. Through the 2017 Edition of ASME BPV Code, Section XI, owners were required to prepare Summary Reports or Owner Activity Reports of preservice examination, inservice examinations and repair replacement activities within 90 calendar days of the completion of each refueling outage. In the 2019 Edition of Section XI this timeframe was extended to 120 days. The NRC has no objections to allowing licensees up to 120 days to submit the reports and sees no reason to require earlier submittal for users of previous editions. Therefore, the NRC proposes to relax the requirement for all licensees.

Section 50.55a(b)(2)(xxxvi) Section XI condition: Fracture toughness of irradiated materials.

The NRC proposes to amend the regulations in § 50.55a(b)(2)(xxxvi) to extend the applicability of the condition through the latest edition of the ASME BPV Code, Section XI incorporated by reference in paragraph (a)(1)(ii) of this section.

Section 50.55a(b)(2)(xxxix) Section XI condition: Defect removal.

The NRC proposes to amend the regulations in § 50.55a(b)(2)(xxxix) to extend the applicability of the condition through the latest edition of the ASME BPV Code, Section XI incorporated by reference in paragraph (a)(1)(ii) of this section.

Section 50.55a(b)(2)(xl) Section XI Condition: Prohibitions on use of IWB-3510.4(b).

The NRC proposes to amend the regulations in § 50.55a(b)(2)(xl) to extend the applicability of the condition through the latest edition of the ASME BPV Code, Section

XI incorporated by reference in paragraph (a)(1)(ii) of this section. The NRC also proposes to add prohibitions on the use of ASME BPV Code, Section XI, IWC-3510.5(b)(4), IWC-3510.5(b)(5), and Tables A-4200-1 and G-2110-1. This proposed condition does not change the current requirements. Rather, it maintains existing testing requirements that licensees/applicants may use to show that the ASME Section XI toughness curve is applicable to high-strength ferritic steels.

ASME has revised certain provisions to extend methods for characterizing fracture toughness of high-strength ferritic steels and associated flaw acceptance standards that the NRC prohibited in a previous rulemaking (85 FR 26540: May 4, 2020) to IWC-3510.5 and Tables A-4200-1 and G-2110-1 (for SA-533 Type B Class 2). The NRC proposes to extend the application of this condition to these revised provisions for the same reasons as outlined in the previous rulemaking. In addition to amending the text of § 50.55a(b)(2)(xi), the NRC proposes to change the heading of the paragraph to read: “*Section 50.55a(b)(2)(xi) Section XI Condition: Prohibitions and Restrictions Related to Fracture Toughness of Certain High-Strength Ferritic Steels.*”

Section 50.55a(b)(2)(xl) *Section XI Condition: Regulatory submittal requirements.*

The NRC proposes to add § 50.55a(b)(2)(xl) to require licensees to submit certain analyses for NRC review. In the 2019 Edition of the Code, ASME elected to remove a number of submittal requirements related to flaw evaluation. The subparagraphs where these requirements were removed included IWA-3100(b), IWB-3410.2(d), IWB-3610(e), IWB-3640, IWC-3640, IWD-3640, IWB-3720(c), IWB-3730(c), G-2216, G-2510, G-2520, A-4200(c), A-4400(b), and G-2110(a). The NRC reviewed each of these subparagraphs and determined that three of these removed submittal requirements were necessary to allow the NRC to review plant safety with respect to violation of pressure-temperature limits, ductile-to-brittle transition behavior of ferritic steels, and the effects of radiation embrittlement. Therefore, the proposed condition would simply retain the requirement from previous editions of ASME Section XI.

The IWB-3720 addresses the scenario where plant pressure-temperature limits are violated due to an unanticipated operating event. Pressure-temperature limits provide important operational limitations that protect against brittle fracture of the Reactor Coolant System. In the case that such limits are exceeded, IWB-3720(a) directs the plant owner to perform an analysis that determines the effect of the out-of-limit condition on the structural integrity of the Reactor Coolant System. Given the important safety implications of violating pressure-temperature limits, the NRC determined that licensees shall submit analyses performed under IWB-3720(a) for NRC review.

Nonmandatory Appendix A, subparagraph A-4200(c) and Nonmandatory Appendix G, subparagraph G-2110(c) allow owners to use a reference temperature based upon T_0 (called RT_{T_0}) instead of RT_{NDT} . RT_{NDT} is a long-accepted method for accounting for ductile-to-brittle transition behavior of ferritic steels, including the effects of radiation embrittlement. T_0 has not been extensively used in the nuclear power industry, at this time. Determination of plant-specific T_0 values requires careful consideration of the operating characteristics of the plant. Given the safety significance of the reactor pressure vessel and the relative lack of experience with using T_0 , the NRC determined that licensees shall submit analyses to determine T_0 for NRC review.

C. ASME OM Code

Section 50.55a(a)(1)(iv), *ASME Operation and Maintenance Code*.

The NRC proposes to amend the regulations in § 50.55a(a)(1)(iv)(B) to incorporate by reference the 2020 Edition of the American Society of Mechanical Engineers Operation and Maintenance of Nuclear Power Plants, Division 1: OM Code: Section IST, for nuclear power plants.

The current NRC regulations in § 50.55a(a)(1)(iv)(B)(2) incorporate by reference the 2011 Addenda of the ASME OM Code into § 50.55a. The NRC is streamlining § 50.55a wherever possible to provide clearer IST regulatory requirements for nuclear power plant licensees and applicants. As part of this effort, the NRC has determined

that the incorporation by reference of the 2011 Addenda of the ASME OM Code into § 50.55a is not necessary. There are no licensees or applicants currently implementing the 2011 Addenda of the ASME OM Code. Further, the NRC regulations would have required updating licensees or applicants to implement the 2012 Edition of the ASME OM Code (rather than the 2011 Addenda) because it is a later edition and was incorporated by reference into § 50.55a on the same date. Therefore, the NRC proposes to remove the incorporation by reference of the 2011 Addenda of the ASME OM Code from § 50.55a(a)(1)(iv)(B)(2), which would allow the NRC to remove the condition on the use of the 2011 Addenda specified in § 50.55a(b)(3)(xi) as well as the reference to the 2011 Addenda in § 50.55a(b)(3)(ix). For similar reasons, the NRC proposes to remove the incorporation by reference of the 2015 Edition of the ASME OM Code from § 50.55a(a)(1)(iv)(C)(2) because the 2017 Edition of the ASME OM Code was incorporated by reference into § 50.55a on the same date as the 2015 Edition. In the case of both the 2011 Addenda and 2015 Edition, the NRC incorporated these editions of the Code on the same date as a later Edition, and as a result neither was ever eligible for use by applicants or updating licensees; if similar circumstances occur in the future, the NRC will consider skipping an edition rather than incorporating a revision that would not be useable for applicants or updating licensees.

Section 50.55a(b)(3) Conditions on ASME OM Code.

The NRC proposes to simplify § 50.55a(b)(3) to be consistent with the proposal to remove specific editions or addenda from § 50.55a(a)(1)(iv) as previously mentioned and further discussed in the following.

Section 50.55a(b)(3)(iii) OM condition: New reactors.

The NRC proposes to simplify § 50.55a(b)(3)(iii) by revising the applicability date to read “April 17, 2018” instead of “the date 12 months after April 17, 2017.” This editorial correction does not change the applicability date of the condition.

Section 50.55a(b)(3)(iv) *OM condition: Check valves (Appendix II)*.

The NRC proposes to replace the reference to the 2015 Edition of the ASME OM Code with the 2012 Edition of the ASME OM Code in this paragraph because the NRC proposes to amend § 50.55a(a)(1)(iv)(C)(2) to remove the incorporation by reference of the 2015 Edition of the ASME OM Code. The 2012 Edition would become the latest edition that this condition applies to because changes were made to the 2017 and later Editions that allowed the NRC not to extend the condition to the newer Editions.

Section 50.55a(b)(3)(vii) *OM condition: Subsection ISTB*.

The NRC proposes to remove this condition on the use of Subsection ISTB, “Inservice Testing of Pumps in Light-Water Reactor Nuclear Power Plants – Pre-2000 Plants,” in the 2011 Addenda of the ASME OM Code from § 50.55a. The condition would become unnecessary because the NRC also proposes to amend § 50.55a(a)(1)(iv)(B)(2) to remove the incorporation by reference of the 2011 Addenda of the ASME OM Code. The NRC proposes to reserve this paragraph for future use.

Section 50.55a(b)(3)(viii) *OM condition: Subsection ISTE*.

The current NRC regulations in § 50.55a(b)(3)(viii) specify that licensees may not implement the risk-informed approach for IST of pumps and valves specified in Subsection ISTE, “Risk-Informed Inservice Testing of Components in Light-Water Reactor Nuclear Power Plants,” in the ASME OM Code, 2009 Edition through the latest edition and addenda of the ASME OM Code incorporated by reference in § 50.55a(a)(1)(iv), without first obtaining NRC authorization to use Subsection ISTE as an alternative to the applicable IST requirements in the ASME OM Code pursuant to § 50.55a(z). In its review of Subsection ISTE, “Risk-Informed Inservice Testing of Components in Water-Cooled Nuclear Power Plants,” in the 2020 Edition of the ASME OM Code, the NRC has found that the ASME has revised the subsection to be

acceptable in the 2020 Edition of the ASME OM Code. Therefore, the NRC proposes to not to extend this condition to the 2020 Edition of the ASME OM Code. The NRC notes that a licensee will be expected to address performance issues with pumps and valves regardless of the risk ranking of the pumps and valves during the extent of condition review as part of the corrective action program to avoid common cause safety concerns at the applicable nuclear power plant.

Section 50.55a(b)(3)(ix), *OM condition: Subsection ISTF.*

The NRC proposes to amend the condition on the use of Subsection ISTF in § 50.55a(b)(3)(ix) by removing the references to the 2011 Addenda and the 2015 Edition of the ASME OM Code. The references are unnecessary because the NRC also proposes to amend § 50.55a(a)(1)(iv)(B)(2) to remove the incorporation by reference of the 2011 Addenda and amend § 50.55a(a)(1)(iv)(C)(2) to remove the incorporation by reference of the 2015 Edition of the ASME OM Code. The 2012 Edition would become the latest edition that this condition applies to because changes were made to the 2017 and later Editions that allowed the NRC not to extend the condition to the newer Editions.

Section 50.55a(b)(3)(xi) *OM condition: Valve Position Indication.*

The NRC proposes to amend § 50.55a(b)(3)(xi) for the implementation of paragraph ISTC-3700, "Position Verification Testing," in the ASME OM Code to clarify the condition by removing the reference to addenda of the ASME OM Code. ASME stopped publishing addenda after the 2011 Addenda to the 2009 Edition, and the condition applies only to the 2012 or later editions.

In addition, the NRC proposes to amend § 50.55a(b)(3)(xi) to allow schedule flexibility for valves not susceptible to stem-disk separation by specifying that position verification testing required by paragraph ISTC-3700 may be performed on a 10-year interval (rather than the 2-year interval specified in ISTC-3700) where justification is

documented and available for NRC review. Such documentation would be required to demonstrate that the stem-disk connection is not susceptible to separation based on the internal design and evaluation of the stem-disk connection using plant-specific and industry operating experience, and vendor recommendations. This allows design information and performance data to be applied in demonstrating that a valve is not susceptible to stem-disk separation. For example, some valves with a threaded stem-disk connection are susceptible to stem-disk separation based on industry operating experience. In the event of unsuccessful position verification testing, the valve would no longer be considered to be not susceptible to stem-disk separation, and would return to the ISTC-3700 testing interval together with the results of the extent of condition review under the corrective action program. The ASME OM Code committees are considering increased schedule flexibility for position verification testing as part of a proposed Code Case. The NRC is proposing to allow up to 10 years in this condition for valve position verification testing in line with other 10-year/120-month testing intervals in the ASME OM Code and § 50.55a. However, the NRC is aware that the ASME committees are considering allowing up to 12 years as the maximum interval for valve position verification testing in a Code Case. If that Code Case is issued before the final rule is published, the NRC may adopt the 12-year maximum interval in that Code Case.

Section 50.55a(f)(4): *Inservice testing standards requirement for operating plants.*

The NRC proposes to modify § 50.55a(f)(4) to clarify the relationship between § 50.55a(f)(4) and (g)(4) regarding the IST or ISI programs for dynamic restraints (snubbers). In the 2006 Addenda of the BPV Code, Section XI, ASME moved the requirements for snubbers to Subsection ISTD, "Preservice and Inservice Requirements for Dynamic Restraints (Snubbers) in Water-Cooled Reactor Nuclear Power Plants," of the OM Code. The NRC proposes to include provisions in this paragraph that for dynamic restraints (snubbers), inservice examination, testing, and service life monitoring must meet the inservice examination and testing requirements set forth in the applicable

ASME OM Code or ASME BPV Code, Section XI, as specified in § 50.55a(b)(3)(v)(A) and (B). When using the 2006 Addenda or later of the ASME BPV Code, Section XI, the inservice examination, testing, and service life monitoring requirements for dynamic restraints (snubbers) must meet the requirements set forth in the applicable ASME OM Code as specified in § 50.55a(b)(3)(v)(B). When using the 2005 Addenda or earlier edition or addenda of the ASME BPV Code, Section XI, the inservice examination, testing, and service life monitoring requirements for dynamic restraints (snubbers) must meet the requirements set forth in either the applicable ASME OM Code or ASME BPV Code, Section XI, as specified in § 50.55a(b)(3)(v). This change to § 50.55a(f)(4), coupled with the change to § 50.55a(g)(4), clarifies the applicability of the inservice examination, testing, and service life monitoring requirements for dynamic restraints (snubbers) with either the ASME OM Code or ASME BPV Code, Section XI.

Section 50.55a(f)(7), Inservice testing reporting requirements.

The NRC proposes to add § 50.55a(f)(7) to require nuclear power plant applicants and licensees to submit their IST Plans and interim IST Plan updates related to pumps and valves, and IST Plans and interim Plan updates related to snubber examination and testing to the NRC.

The ASME OM Code editions prior to the 2020 Edition state in paragraph (a) of ISTA-3200, “Administrative Requirements,” that “IST Plans shall be filed with the regulatory authorities having jurisdiction at the plant site.” However, the ASME has removed this provision from the 2020 Edition of the ASME OM Code, asserting this provision is more appropriate as a regulatory requirement rather than a Code requirement. The NRC needs these IST Plans for use in evaluating relief and alternative requests and to review deferral of quarterly testing to cold shutdowns and refueling outages. Therefore, the proposed condition retains a requirement from previous editions of the ASME OM Code.

Section 50.55a(g)(4), Inservice inspection standards requirement for operating plants.

The NRC proposes to modify § 50.55a(g)(4) to parallel proposed revisions to § 50.55a(f)(4) to clarify the relationship between § 50.55a(f)(4) and (g)(4) regarding the IST and ISI programs for dynamic restraints (snubbers). This change to § 50.55a(g)(4), coupled with the change to § 50.55a(f)(4), clarifies the applicability of the inservice examination, testing, and service life monitoring requirements for dynamic restraints (snubbers) with either the ASME OM Code or ASME BPV Code, Section XI.

As discussed in public meetings on August 21, 2020, September 24, 2020, and January 19, 2021, the NRC also considered revising § 50.55a(g)(4) to clarify requirements for operational leakage. (Meeting summaries for the first two are available at ADAMS Accession Nos. ML20265A083 and ML20338A553; the summary for the January meeting is not yet available). The intent of the revision being considered was to clarify that ASME Code methodologies, or approved alternatives, must be used to evaluate structural integrity when operational leakage occurs regardless of the plant operating state during which the through-wall leakage is discovered. This has been the NRC's longstanding position on this issue. Because there is no change in agency position or interpretation of this requirement, the NRC determined that the issuance of a generic communication, rather than a rule change, should be sufficient to communicate the agency's requirements. Therefore, the NRC decided not to propose revisions to clarify the existing operational leakage requirements in the proposed rule. The NRC will follow its established procedures for development of any generic communications, including appropriate opportunities for stakeholder input.

IV. Section-by-Section Analysis

Paragraph (a)(1)(i)(E)

This proposed rule would revise paragraphs (a)(1)(i)(E)(18) and (19) and add new paragraph (a)(1)(i)(E)(20) to include the 2019 Edition of the ASME BPV Code.

Paragraph (a)(1)(ii)(A)

This proposed rule would remove and reserve paragraph (a)(1)(ii)(A).

Paragraph (a)(1)(ii)(B)

This proposed rule would revise paragraph (a)(1)(ii)(B) and remove paragraphs (a)(1)(ii)(B)(5) through (7).

Paragraph (a)(1)(ii)(C)

This proposed rule would remove and reserve paragraphs (a)(1)(ii)(C)(1) through (32) and paragraphs (a)(1)(ii)(C)(37) through (40), revise paragraphs (a)(1)(ii)(C)(54) and (55), and add new paragraph (a)(1)(ii)(C)(56) to include the 2019 Edition of the ASME BPV Code.

Paragraph (a)(1)(iv)

This proposed rule would revise paragraph (a)(1)(iv)(B)(1) and remove and reserve paragraph (a)(1)(iv)(B)(2) and it would revise paragraphs (a)(1)(iv)(C)(2) and (3) to replace the 2015 Edition with the 2017 Edition and the 2017 Edition with the 2020 Edition of the ASME OM Code, respectively.

Paragraph (a)(1)(v)(B)

This proposed rule would revise paragraphs (a)(1)(v)(B)(2) and (3) and add new paragraphs (a)(1)(v)(B)(4) through (6) to include the 2011 addenda, and the 2012 and the 2015 Editions of the ASME NQA-1 Code.

Paragraph (b)(1)

This proposed rule would revise paragraphs (b)(1) introductory text, Table 1 in paragraphs (b)(1)(ii), (iii), and (iv) to retain the applicability to users of the latest edition incorporated by reference in paragraph (a)(1)(i). It would also revise paragraph (b)(1)(iv)

to include the use of the 2015 Edition of NQA-1 and paragraph (b)(1)(x) introductory text and paragraphs (b)(1)(x)(A) and (B) to add “through the latest edition and addenda incorporated by reference in paragraph (a)(1)(i).” New paragraph (b)(1)(xiii) introductory text and paragraphs (b)(1)(xiii)(A) and (B) which apply to preservice inspection of steam generator tubes would also be added.

Paragraph (b)(2)

This proposed rule would revise paragraph (b)(2) introductory text to retain the applicability to users of the latest edition incorporated by reference in paragraph (a)(1)(ii).

Paragraph (b)(2)(viii)

This proposed rule would remove and reserve paragraphs (b)(2)(viii)(A) through (D).

Paragraph (b)(2)(ix)

This proposed rule would revise paragraph (b)(2)(ix) to remove references to Section XI editions and addenda prior to the 2001 Edition and to retain the applicability to users of the latest edition incorporated by reference in paragraph (a)(1)(ii). This proposed rule would also revise paragraph (b)(2)(ix)(B) to remove references to Section XI editions and addenda prior to the 2001 Edition. This proposed rule would also remove and reserve paragraphs (b)(2)(ix)(C) through (E).

Paragraph (b)(2)(x)

This proposed rule would revise paragraph (b)(2)(x) to include the use of NQA-1b-2011 Addenda to NQA-1-2008 Edition, and the 2012 and the 2015 Editions of NQA-1. The proposed rule would also remove the reference to IWA-1400.

Paragraph (b)(2)(xii)

This proposed rule would revise paragraph (b)(2)(xii) to replace the reference to Section XI, 1997 Addenda with the reference to Section XI, 2001 Edition.

Paragraph (b)(2)(xiv)

This proposed rule would revise paragraph (b)(2)(xiv) to replace the reference to the 1999 Addenda with the reference to the 2001 Edition.

Paragraph (b)(2)(xv)

This proposed rule would revise paragraph (b)(2)(xv) to remove the phrase “the 1995 Edition through.”

Paragraph (b)(2)(xviii)

This proposed rule would revise paragraph (b)(2)(xviii) to remove references to Section XI editions and addenda prior to the 2001 Edition and to retain the applicability to users of the latest edition incorporated by reference in paragraph (a)(1)(ii). This proposed rule would also revise paragraph (b)(2)(xviii)(D) to add an option to allow the requirement in the 2019 Edition, Appendix VII, Table VII-4110-1 as an alternative to Table VII-4110-1 and Appendix VIII, Subarticle VIII-2200.

Paragraph (b)(2)(xix)

This proposed rule would revise paragraph (b)(2)(xix) to remove references to Section XI editions and addenda prior to the 2001 Edition.

Paragraph (b)(2)(xx)

This proposed rule would revise paragraph (b)(2)(xx)(A) to replace the reference to the 1997 Addenda with the reference to the 2001 Edition. This proposed rule would also revise paragraph (b)(2)(xx)(C) to retain the applicability to users of the latest edition

incorporated by reference in paragraph (a)(1)(ii) and remove reference to IWB-5210(c).

Paragraph (b)(2)(xxi)

This proposed rule would revise paragraph (b)(2)(xxi)(B) to retain the applicability to users of the latest edition incorporated by reference in paragraph (a)(1)(ii).

Paragraph (b)(2)(xxv)

This proposed rule would revise paragraph (b)(2)(xxv) introductory text and revise paragraph (b)(2)(xxv)(B) to extend the applicability to users of the latest edition incorporated by reference in paragraph (a)(1)(ii). This proposed rule would also revise paragraph (b)(2)(xxv)(B)(2) to provide an alternative by allowing loss of material rates to be measured at an alternative location with similar corrosion conditions, similar flow characteristics, and the same piping configuration. This proposed rule would also revise paragraph (b)(2)(xxv)(B)(3) to delete the refueling outage interval examination requirement and only require the examination to occur at half the modification's expected life or, if the modification has an expected life greater than 19 years, once per interval. This proposed rule would also revise paragraph (b)(2)(xxv)(B)(3)(i) to make editorial changes and revise paragraph (b)(2)(xxv)(B)(3)(ii) to include a provision that would allow an extension of the required inspection if the modification location is recoated prior to backfill.

Paragraph (b)(2)(xxvi)

This proposed rule would revise paragraph (b)(2)(xxvi) to remove the requirements for pressure testing in accordance with IWA-5211(a) and NDE examination. This proposed rule would also revise paragraph (b)(2)(xxvi) to add a requirement for the owner to establish the type of leak test, test medium, test pressure, and acceptance criteria that would demonstrate the joint's leak tightness.

Paragraph (b)(2)(xxix)

This proposed rule would revise paragraph (b)(2)(xxix) to add paragraphs (b)(2)(xxix)(A), (B), and (C) to allow the use of Supplement 2 of Nonmandatory Appendix R of Section XI in the 2017 and 2019 Editions without submittal of an alternative in accordance with § 50.55a(z).

Paragraph (b)(2)(xxxii)

This proposed rule would revise the reporting requirements in paragraph (b)(2)(xxxii) to extend the timeframe for submittal of Summary Reports or Owner Activity Reports to 120 days.

Paragraph (b)(2)(xxxvi)

This proposed rule would revise paragraph (b)(2)(xxxvi) to retain applicability to users of the latest edition incorporated by reference in paragraph (a)(1)(ii).

Paragraph (b)(2)(xxxix)

This proposed rule would revise paragraph (b)(2)(xxxix) to retain applicability to users of the latest edition incorporated by reference in paragraph (a)(1)(ii).

Paragraph (b)(2)(xl)

This proposed rule would revise paragraph (b)(2)(xl) to extend applicability to users of the latest edition incorporated by reference in paragraph (a)(1)(ii) and to extend the prohibitions and restrictions on the use of certain characteristics of high-strength steels in IWB-3510.4(b) to IWC-3510.5(b), Table A-4200-1, and Table G-2110-1 in the 2020 Edition of ASME Code, Section XI.

Paragraph (b)(2)(xliii)

This proposed rule would add new paragraph (b)(2)(xliii) to require submission

of certain analyses to the NRC for review.

Paragraph (b)(3)

This proposed rule would revise paragraph (b)(3) to remove references to specific editions or addenda and to extend the applicability to users of the latest edition incorporated by reference in paragraph (a)(1)(iv).

Paragraph (b)(3)(iii)

This proposed rule would revise paragraph (b)(3)(iii) for clarity of the date of application of this condition.

Paragraph (b)(3)(iv)

This proposed rule would revise paragraph (b)(3)(iv) to update the conditions for use of Appendix II of the ASME OM Code, 2003 Addenda through the 2012 Edition and revise the paragraph for clarity.

Paragraph (b)(3)(vii)

This proposed rule would remove and reserve paragraph (b)(3)(vii).

Paragraph (b)(3)(viii)

This proposed rule would revise paragraph (b)(3)(viii) to prevent it from applying to editions later than the 2017 Edition of the ASME OM Code.

Paragraph (b)(3)(ix)

This proposed rule would revise paragraph (b)(3)(ix) to remove the reference to Subsection ISTF of the 2011 Addenda and 2015 Edition.

Paragraph (b)(3)(xi)

This proposed rule would revise paragraph (b)(3)(xi) to remove reference to ASME OM Code addenda, revise the paragraph for clarity, and allow increased flexibility in the schedule for position verification testing of valves not susceptible to stem-disk separation.

Paragraph (f)(4)

This proposed rule would revise paragraph (f)(4) to clarify the relationship between paragraphs (f)(4) and (g)(4) regarding the IST and ISI programs for dynamic restraints.

Paragraph (f)(7)

This proposed rule would add new paragraph (f)(7) to include the requirements for inservice testing reporting.

Paragraph (g)(4)

This proposed rule would revise paragraph (g)(4) to clarify the relationship between paragraphs (f)(4) and (g)(4) regarding the IST and ISI programs for dynamic restraints.

V. Generic Aging Lessons Learned Report

Background

In December 2010, the NRC issued “Generic Aging Lessons Learned (GALL) Report,” NUREG-1801, Revision 2 (ADAMS Accession No. ML103490041), for applicants to use in preparing license renewal applications. The GALL Report provides aging management programs (AMPs) that the NRC has concluded are sufficient for aging management in accordance with the license renewal rule, as required in § 54.21(a)(3). In addition, “Standard Review Plan for Review of License Renewal

Applications for Nuclear Power Plants,” NUREG-1800, Revision 2 (ADAMS Accession No. ML103490036), was issued in December 2010, to ensure the quality and uniformity of NRC reviews of license renewal applications and to present a well-defined basis on which the NRC evaluates the applicant’s aging management programs and activities. In April 2011, the NRC also issued “Disposition of Public Comments and Technical Bases for Changes in the License Renewal Guidance Documents NUREG-1801 and NUREG-1800,” NUREG-1950 (ADAMS Accession No. ML11116A062), which describes the technical bases for the changes in Revision 2 of the GALL Report and Revision 2 of the standard review plan (SRP) for review of license renewal applications.

Revision 2 of the GALL Report, in Sections XI.M1, XI.S1, XI.S2, XI.M3, XI.M5, XI.M6, XI.M11B and XI.S3, describes the evaluation and technical bases for determining the sufficiency of ASME BPV Code Subsections IWB, IWC, IWD, IWE, IWF, or IWL for managing aging during the period of extended operation (i.e., up to 60 years of operation). In addition, many other AMPs in the GALL Report rely, in part but to a lesser degree, on the requirements specified in the ASME BPV Code, Section XI. Revision 2 of the GALL Report also states that the 1995 Edition through the 2004 Edition of the ASME BPV Code, Section XI, Subsections IWB, IWC, IWD, IWE, IWF, or IWL, as modified and limited by § 50.55a, were found to be acceptable editions and addenda for complying with the requirements of § 54.21(a)(3), unless specifically noted in certain sections of the GALL Report. The GALL Report further states that future *Federal Register* documents that amend § 50.55a will discuss the acceptability of editions and addenda more recent than the 2004 Edition for their applicability to license renewal. In a final rule issued on June 21, 2011 (76 FR 36232), subsequent to Revision 2 of the GALL Report, the NRC also found that the 2004 Edition with the 2005 Addenda through the 2007 Edition with the 2008 Addenda of Section XI of the ASME BPV Code, Subsections IWB, IWC, IWD, IWE, IWF, or IWL, as subject to the conditions in § 50.55a, are acceptable for the AMPs in the GALL Report and the conclusions of the GALL Report remain valid with the augmentations specifically noted in the GALL Report. In a final rule

issued on July 18, 2017 (82 FR 32934), the NRC further finds that the 2009 Addenda through the 2017 Edition of Section XI of the ASME BPV Code, Subsections IWB, IWC, IWD, IWE, IWF, or IWL, as subject to the conditions in § 50.55a, will be acceptable for the AMPs in the GALL Report. Also, in a final rule issued on May 4, 2020 (85 FR 26540), the NRC further finds that Subsections IWB, IWC, IWD, IWE, IWF, or IWL of Section XI of the 2015 Edition and the 2017 Edition of the ASME BPV Code, as subject to the conditions in § 50.55a, will be acceptable for the AMPs in the GALL Report.

In July 2017, the NRC issued “Generic Aging Lessons Learned for Subsequent License Renewal (GALL-SLR) Report,” NUREG-2191 (ADAMS Accession Nos. ML17187A031 and ML17187A204), for applicants to use in preparing applications for subsequent license renewal. The GALL-SLR Report provides AMPs that are sufficient for aging management for the subsequent period of extended operation (i.e., up to 80 years of operation), as required in § 54.21(a)(3). The NRC also issued “Standard Review Plan for Review of Subsequent License Renewal Applications for Nuclear Power Plants” (SRP-SLR), NUREG-2192 in July 2017 (ADAMS Accession No. ML17188A158). In a similar manner as the GALL Report does, the GALL-SLR Report, in Sections XI.M1, XI.S1, XI.S2, XI.M3, XI.11B, and XI.S3, describes the evaluation and technical bases for determining the sufficiency of ASME BPV Code Subsections IWB, IWC, IWD, IWE, IWF, or IWL for managing aging during the subsequent period of extended operation. Many other AMPs in the GALL-SLR Report rely, in part but to a lesser degree, on the requirements specified in the ASME BPV Code, Section XI. The GALL-SLR Report also indicates that the 1995 Edition through the 2013 Edition of the ASME BPV Code, Section XI, Subsections IWB, IWC, IWD, IWE, IWF, or IWL, as subject to the conditions in § 50.55a, are acceptable for complying with the requirements of § 54.21(a)(3), unless specifically noted in certain sections of the GALL-SLR Report.

Evaluation with Respect to Aging Management

As part of this proposed rule, the NRC evaluated whether those AMPs in the GALL Report and GALL-SLR Report that rely upon Subsections IWB, IWC, IWD, IWE, IWF, or IWL of Section XI in the editions and addenda of the ASME BPV Code incorporated by reference into § 50.55a, in general continue to be acceptable if the AMP relies upon these Subsections in the 2019 Edition. The NRC finds that the 2019 Edition of Section XI of the ASME BPV Code, Subsections IWB, IWC, IWD, IWE, IWF, or IWL, as subject to the conditions of this proposed rule, are acceptable for the AMPs in the GALL Report and GALL-SLR Report with the exception of augmentation, as specifically noted in those reports, and the NRC finds that the conclusions of the GALL Report and GALL-SLR Report remain valid. Accordingly, an applicant for license renewal (including subsequent license renewal) may use, in its plant-specific license renewal application, Subsections IWB, IWC, IWD, IWE, IWF, or IWL of Section XI of the 2019 Edition of the ASME BPV Code, as subject to the conditions in this proposed rule, without additional justification. Similarly, a licensee approved for license renewal that relied on the AMPs may use Subsections IWB, IWC, IWD, IWE, IWF, or IWL of Section XI of the 2019 Edition of the ASME BPV Code. However, applicants must assess and follow applicable NRC requirements with regard to licensing basis changes and evaluate the possible impact on the elements of existing AMPs.

Some of the AMPs in the GALL Report and GALL-SLR Report recommend augmentation of certain Code requirements in order to ensure adequate aging management for license renewal. The technical and regulatory aspects of the AMPs for which augmentations are recommended also apply if the 2019 Edition of Section XI of the ASME BPV Code is used to meet the requirements of § 54.21(a)(3). The NRC evaluated the changes in the 2019 Edition of Section XI of the ASME BPV Code to determine if the augmentations described in the GALL Report and GALL-SLR Report remain necessary; the NRC's evaluation has concluded that the augmentations described in the GALL and GALL-SLR Reports are necessary to ensure adequate aging management.

For example, GALL-SLR Report AMP XI.S3, “ASME Section XI, Subsection IWF”, recommends that volumetric examination consistent with that of the ASME BPV Code, Section XI, Table IWB-2500-1, Examination Category B-G-1 should be performed to detect cracking for high strength structural bolting (actual measured yield strength greater than or equal to 150 kilopound per square inch (ksi)) in sizes greater than 1 inch nominal diameter. The GALL-SLR Report also indicates that this volumetric examination may be waived with adequate plant-specific justification. This guidance for aging management in the GALL-SLR Report is the augmentation of the visual examination specified in Subsection IWF of the 2019 Edition of the ASME BPV Code, Section XI.

A license renewal applicant may either augment its AMPs as described in the GALL Report and GALL-SLR Report (for operation up to 60 and 80 years respectively), or propose alternatives for the NRC to review as part of the applicant’s plant-specific justification for its AMPs.

VI. 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. 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 this document with respect to the clarity and effectiveness of the language used.

VII. Voluntary Consensus Standards

The National Technology Transfer and Advancement Act of 1995, Public Law 104-113 (NTTAA), and implementing guidance in U.S. Office of Management and Budget (OMB) Circular A-119 (revised on January 27, 2016), requires that Federal

agencies use technical standards that are developed or adopted by voluntary consensus standards bodies unless using such a standard is inconsistent with applicable law or is otherwise impractical. The NTTAA requires Federal agencies to use industry consensus standards to the extent practical; it does not require Federal agencies to endorse a standard in its entirety. Neither the NTTAA nor Circular A-119 prohibit an agency from adopting a voluntary consensus standard while taking exception to specific portions of the standard, if those provisions are deemed to be “inconsistent with applicable law or otherwise impractical.” Furthermore, taking specific exceptions furthers the Congressional intent of Federal reliance on voluntary consensus standards because it allows the adoption of substantial portions of consensus standards without the need to reject the standards in their entirety because of limited provisions that are not acceptable to the agency.

In this proposed rule, the NRC is continuing its existing practice of establishing requirements for the design, construction, operation, ISI (examination) and IST of nuclear power plants by approving the use of the latest editions and addenda of the ASME BPV and OM Codes (ASME Codes) in § 50.55a. The ASME Codes are voluntary consensus standards, developed by participants with broad and varied interests, in which all interested parties (including the NRC and licensees of nuclear power plants) participate. Therefore, the NRC’s incorporation by reference of the ASME Codes is consistent with the overall objectives of the NTTAA and OMB Circular A-119.

As discussed in Section III of this document, this proposed rule would condition the use of certain provisions of the 2019 Edition to the ASME BPV Code, Section III, Division 1 and the ASME BPV Code, Section XI, Division 1, as well as the 2020 Edition to the ASME OM Code. In addition, the NRC proposes not to adopt (exclude) certain provisions of the ASME Codes as discussed in this document, and in the regulatory and backfit analysis for this proposed rule. The NRC finds that this proposed rule complies with the NTTAA and OMB Circular A-119 despite these conditions and “exclusions.”

If the NRC did not conditionally accept the ASME editions, addenda, and code

cases, the NRC would disapprove them entirely. The effect would be that licensees and applicants would submit a larger number of requests for the use of alternatives under § 50.55a(z), requests for relief under § 50.55a(f) and (g), or requests for exemptions under § 50.12 and/or § 52.7. These requests would likely include broad-scope requests for approval to issue the full scope of the ASME Code editions and addenda which would otherwise be approved as proposed in this proposed rule (i.e., the request would not be simply for approval of a specific ASME Code provision with conditions). These requests would be an unnecessary additional burden for both the licensee and the NRC, inasmuch as the NRC has already determined that the ASME Codes and Code Cases that are the subject of this proposed rule are acceptable for use (in some cases with conditions). For these reasons, the NRC concludes that this proposed rule's treatment of ASME Code editions and addenda, and code cases and any conditions placed on them does not conflict with any policy on agency use of consensus standards specified in OMB Circular A-119.

The NRC did not identify any other voluntary consensus standards developed by U.S. voluntary consensus standards bodies for use within the U.S. that the NRC could incorporate by reference instead of the ASME Codes. The NRC also did not identify any voluntary consensus standards developed by multinational voluntary consensus standards bodies for use on a multinational basis that the NRC could incorporate by reference instead of the ASME Codes. The NRC identified codes addressing the same subject as the ASME Codes for use in individual countries. At least one country, Korea, directly translated the ASME Code for use in that country. In other countries (e.g., Japan), the ASME Codes were the basis for development of the country's codes, but the ASME Codes were substantially modified to accommodate that country's regulatory system and reactor designs. Finally, there are countries (e.g., the Russian Federation) where that country's code was developed without regard to the ASME Code. However, some of these codes may not meet the definition of a voluntary consensus standard because they were developed by the state rather than a voluntary consensus standards

body. Evaluation by the NRC of the countries' codes to determine whether each code provides a comparable or enhanced level of safety when compared against the level of safety provided under the ASME Codes would require a significant expenditure of agency resources. This expenditure does not seem justified, given that substituting another country's code for the U.S. voluntary consensus standard does not appear to substantially further the apparent underlying objectives of the NTTAA.

In summary, this proposed rule satisfies the requirements of the NTTAA and OMB Circular A-119.

VIII. Incorporation by Reference—Reasonable Availability to Interested Parties

The NRC proposes to incorporate by reference two recent editions to the ASME Codes for nuclear power plants. The NRC is also proposing to incorporate by reference the 2011 Addenda to ASME NQA-1-2008, Quality Assurance Requirements for Nuclear Facility Applications (ASME NQA-1b-2011), and the 2012 and 2015 Editions of ASME NQA-1, Quality Assurance Requirements for Nuclear Facility Applications. As described in the "Background" and "Discussion" sections of this document, these materials contain standards for the design, fabrication, and inspection of nuclear power plant components.

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. On November 7, 2014, the OFR adopted changes to its regulations governing incorporation by reference (79 FR 66267). The OFR regulations require an agency to include in a proposed rule a discussion of the ways that the materials the agency proposes to incorporate 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 proposed rules as set forth in § 51.5(a)(1).

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-recognized³ 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 that the NRC proposes to incorporate by reference by rulemaking in order to participate in the rulemaking process.

³ State-recognized Indian tribes are not within the scope of § 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.

The Technical Library, where you may examine industry codes and standards, is currently closed. You may submit your request to the Technical Library via e-mail at Library.Resource@nrc.gov between 8:00 a.m. and 4:00 p.m. (EST), Monday through Friday, except Federal holidays.

Interested parties may purchase a copy of the ASME materials from ASME at Three Park Avenue, New York, NY 10016, or at the ASME website <https://www.asme.org/shop/standards>. The materials are also accessible through third-party subscription services such as IHS (15 Inverness Way East, Englewood, CO 80112; <https://global.ihs.com>) and Thomson Reuters Techstreet (3916 Ranchero Dr., Ann Arbor, MI 48108; <https://www.techstreet.com>). The purchase prices for individual documents range from \$225 to \$720 and the cost to purchase all documents is approximately \$9,000.

For the class of interested parties constituting members of the general public who wish to gain access to the materials to be incorporated by reference in order to participate in the rulemaking, the NRC recognizes that the \$9,000 cost may be so high that the materials could be regarded as not reasonably available for purposes of commenting on this proposed rule, despite the NRC's actions to make the materials available at the NRC's PDR. Accordingly, the NRC requested that ASME consider enhancing public access to these materials during the public comment period (ADAMS Accession No. ML20127H677). On April 14, 2020, the ASME agreed to make the materials available online in a read-only electronic access format during the public comment period (ADAMS Accession No. ML20127H684). Therefore, the two editions to the ASME Codes for nuclear power plants, the 2011 Addenda to ASME NQA-1-2008, and the 2012 and 2015 Editions of ASME NQA-1 that the NRC proposes to incorporate by reference in this rulemaking are available in read-only format at the ASME Web site <http://go.asme.org/NRC-ASME>.

The materials are available to all interested parties in multiple ways and in a manner consistent with their interest in this proposed rule. Therefore, the NRC

concludes that the materials the NRC proposes to incorporate by reference in this proposed rule are reasonably available to all interested parties.

IX. Environmental Assessment and Final Finding of No Significant Environmental Impact

This proposed rule action is in accordance with the NRC's policy to incorporate by reference in § 50.55a new editions and addenda of the ASME BPV and OM Codes to provide updated rules for constructing and inspecting components and testing pumps, valves, and dynamic restraints (snubbers) in light-water nuclear power plants. The ASME Codes are national voluntary consensus standards and are required by the NTTAA to be used by Government agencies unless the use of such a standard is inconsistent with applicable law or otherwise impractical. The National Environmental Policy Act (NEPA) requires Federal agencies to study the impacts of their "major Federal actions significantly affecting the quality of the human environment," and prepare detailed statements on the environmental impacts of the proposed action and alternatives to the proposed action (42 U.S.C. 4332(c); NEPA Sec. 102(C)).

The NRC has determined under NEPA, as amended, and the NRC's regulations in subpart A of 10 CFR part 51, that this proposed rule is not a major Federal action significantly affecting the quality of the human environment and, therefore, an environmental impact statement is not required. The rulemaking does not significantly increase the probability or consequences of accidents, no changes are being made in the types of effluents that may be released off-site, and there is no significant increase in public radiation exposure. The NRC concludes that the increase in occupational exposure would not be significant. This proposed rule does not involve non-radiological plant effluents and has no other environmental impact. Therefore, no significant non-radiological impacts are associated with this action. The determination of this environmental assessment is that there will be no significant off-site impact to the public

from this action.

X. Paperwork Reduction Act Statement

This proposed rule contains new or amended collections of information subject to the Paperwork Reduction Act of 1995 (44 U.S.C. 3501 et seq). This proposed rule has been submitted to the Office of Management and Budget for review and approval of the information collections.

Type of submission, new or revision: Revision.

The title of the information collection: Domestic Licensing of Production and Utilization Facilities: Incorporation by Reference of American Society of Mechanical Engineers Codes and Code Cases.

The form number if applicable: Not applicable.

How often the collection is required or requested: On occasion.

Who will be required or asked to respond: Power reactor licensees and applicants for power reactors under construction.

An estimate of the number of annual responses: -22 (reduction).

The estimated number of annual respondents: -22 (reduction).

An estimate of the total number of hours needed annually to comply with the information collection requirement or request: -5,280 (reduction or reporting hours).

Abstract: This proposed rule is the latest in a series of rulemakings to amend the NRC's regulations to incorporate by reference revised and updated ASME Codes for nuclear power plants.

The U.S. Nuclear Regulatory Commission is seeking public comment on the potential impact of the information collections contained in this proposed rule and on the following issues:

1. Is the proposed information collection necessary for the proper performance of the functions of the NRC, including whether the information will have practical utility?

2. Is the estimate of the burden of the proposed information collection accurate?
3. Is there a way to enhance the quality, utility, and clarity of the information to be collected?
4. How can the burden of the proposed information collection on respondents be minimized, including the use of automated collection techniques or other forms of information technology?

A copy of the OMB clearance package and proposed rule is available in ADAMS (Accession Nos. ML20178A449 and ML20178A439) or may be viewed free of charge at the NRC's PDR, One White Flint North, 11555 Rockville Pike, Room O-1 F21, Rockville, MD 20852. You may obtain information and comment submissions related to the OMB clearance package by searching on <https://www.regulations.gov> under Docket ID NRC-2018-0290.

You may submit comments on any aspect of these proposed information collection(s), including suggestions for reducing the burden and on the previously stated issues, by the following methods:

- **Federal Rulemaking website:** <https://www.regulations.gov> and search for Docket ID NRC-2018-0290.
- **Mail comments to:** FOIA, Library, and Information Collections Branch, Office of the Chief Information Officer, Mail Stop: T6-A10M, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001 or to the OMB reviewer at: OMB Office of Information and Regulatory Affairs (3150-0011), Attn: Desk Officer for the Nuclear Regulatory Commission, 725 17th Street, NW, Washington, DC 20503; email: oir_submission@omb.eop.gov.

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

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.

XI. Regulatory Analysis

The NRC has prepared a draft regulatory analysis on this proposed rule. The analysis examines the costs and benefits of the alternatives considered by the Commission. The NRC requests public comments on the draft regulatory analysis, (ADAMS Accession No. ML20178A448). Comments on the draft analysis may be submitted to the NRC by any method provided in the **ADDRESSES** section of this document.

XII. Backfitting and Issue Finality

Introduction

The NRC's Backfit Rule in § 50.109 states that the NRC shall require the backfitting of a facility only when it finds the action to be justified under specific standards stated in the rule. Section 50.109(a)(1) defines backfitting as the modification of or addition to systems, structures, components, or design of a facility; the design approval or manufacturing license for a facility; or the procedures or organization required to design, construct, or operate a facility. Any of these modifications or additions may result from a new or amended provision in the NRC's rules or the imposition of a regulatory position interpreting the NRC's rules that is either new or different from a previously applicable NRC position after issuance of the construction permit or the operating license or the design approval.

Section 50.55a requires nuclear power plant licensees to:

- Construct ASME BPV Code Class 1, 2, and 3 components in accordance with the rules provided in Section III, Division 1, of the ASME BPV Code (“Section III”).
- Inspect, examine, and repair or replace Class 1, 2, 3, Class MC, and Class CC components in accordance with the rules provided in Section XI, Division 1, of the ASME BPV Code (“Section XI”).
- Test Class 1, 2, and 3 pumps and valves in accordance with the rules provided in the ASME OM Code.
- Inspect, examine, repair or replace, and test Class 1, 2, and 3 dynamic restraints (snubbers) in accordance with the rules provided in either the ASME OM Code or Section XI, depending on the Code Edition.

This rulemaking proposes to incorporate by reference the 2019 Edition to the ASME BPV Code, Section III, Division 1 and ASME BPV Code, Section XI, Division 1, as well as the 2020 Edition to the ASME OM Code.

The ASME BPV and OM Codes are national consensus standards developed by participants with broad and varied interests, in which all interested parties (including the NRC and utilities) participate. A consensus process involving a wide range of stakeholders is consistent with the NTTAA, inasmuch as the NRC has determined that there are sound regulatory reasons for establishing regulatory requirements for design, maintenance, ISI, and IST by rulemaking. The process also facilitates early stakeholder consideration of backfitting issues. Thus, the NRC finds that the NRC need not address backfitting with respect to the NRC’s general practice of incorporating by reference updated ASME Codes.

Overall Backfitting Considerations: Section III of the ASME BPV Code

Incorporation by reference of more recent editions and addenda of Section III of the ASME BPV Code does not affect a plant that has received a construction permit or an operating license or a design that has been approved. This is because the edition and addenda to be used in constructing a plant are, under § 50.55a, determined based

on the date of the construction permit or combined license, and are not changed thereafter, except voluntarily by the licensee. The incorporation by reference of more recent editions and addenda of Section III ordinarily applies only to applicants after the effective date of the final rule incorporating these new editions and addenda. Thus, incorporation by reference of a more recent edition and addenda of Section III does not constitute “backfitting” as defined in § 50.109(a)(1).

Overall Backfitting Considerations: Section XI of the ASME BPV Code and the ASME OM Code

Incorporation by reference of more recent editions and addenda of Section XI of the ASME BPV Code and the ASME OM Code affects the ISI and IST programs of operating reactors. However, the Backfit Rule generally does not apply to incorporation by reference of later editions and addenda of the ASME BPV Code (Section XI) and OM Code. As previously mentioned, the NRC’s longstanding regulatory practice has been to incorporate later versions of the ASME Codes into § 50.55a. Under § 50.55a, licensees shall revise their ISI and IST programs every 120 months to the latest edition and addenda of Section XI of the ASME BPV Code and the ASME OM Code incorporated by reference into § 50.55a 18 months before the start of a new 120-month ISI and IST interval. Thus, when the NRC approves and requires the use of a later version of the Code for ISI and IST, it is implementing this longstanding regulatory practice and requirement. In this rulemaking, the NRC’s proposal to eliminate some older Section XI editions and addenda from the regulations these revisions would not be a backfit because the editions and addenda of codes being removed are no longer in use or available for use by licensees.

Other circumstances where the NRC does not apply the Backfit Rule to the approval and requirement to use later Code editions and addenda are as follows:

1. When the NRC takes exception to a later ASME BPV Code or OM Code provision but merely retains the current existing requirement, prohibits the use of the

later Code provision, limits the use of the later Code provision, or supplements the provisions in a later Code, the Backfit Rule does not apply because the NRC is not imposing new requirements. However, the NRC explains any such exceptions to the Code in the preamble to and regulatory analysis for the rule.

2. When an NRC exception relaxes an existing ASME BPV Code or OM Code provision but does not prohibit a licensee from using the existing Code provision, the Backfit Rule does not apply because the NRC is not imposing new requirements.

3. Modifications and limitations imposed during previous routine updates of § 50.55a have established a precedent for determining which modifications or limitations are backfits, or require a backfit analysis (e.g., final rule dated September 10, 2008 (73 FR 52731), and a correction dated October 2, 2008 (73 FR 57235)). The application of the backfit requirements to modifications and limitations in the current rule are consistent with the application of backfit requirements to modifications and limitations in previous rules.

The incorporation by reference and adoption of a requirement mandating the use of a later ASME BPV Code or OM Code may constitute backfitting in some circumstances. In these cases, the NRC would perform a backfit analysis or documented evaluation in accordance with § 50.109. These include the following:

1. When the NRC endorses a later provision of the ASME BPV Code or OM Code that takes a substantially different direction from the existing requirements, the action is treated as a backfit (e.g., 61 FR 41303; August 8, 1996).

2. When the NRC requires implementation of a later ASME BPV Code or OM Code provision on an expedited basis, the action is treated as a backfit. This applies when implementation is required sooner than it would be required if the NRC simply endorsed the Code without any expedited language (e.g., 64 FR 51370; September 22, 1999).

3. When the NRC takes an exception to an ASME BPV Code or OM Code provision and imposes a requirement that is substantially different from the existing

requirement as well as substantially different from the later Code (e.g., 67 FR 60529; September 26, 2002).

Detailed Backfitting Discussion: Proposed Changes Beyond Those Necessary to Incorporate by Reference the New ASME BPV and OM Code Provisions

This section discusses the backfitting considerations for all the proposed changes to § 50.55a that go beyond the minimum changes necessary and required to adopt the new ASME Code Addenda into § 50.55a.

ASME BPV Code, Section III

1. Revise § 50.55a(b)(1)(iv) to require that when applying editions and addenda later than the 1989 Edition of Section III, the requirements of NQA-1 the 1994 Edition, the 2008 Edition, the 2009-1a Addenda to 2008 Edition and the 2015 Edition are acceptable for use, provided that the edition and addenda of NQA-1 specified in either NCA-4000 or NCA-7000 is used in conjunction with the administrative, quality, and technical provisions contained in the edition and addenda of Section III being used. This proposed revision clarifies the current requirements and is considered to be consistent with the meaning and intent of the current requirements, and therefore is not considered to result in a change in requirements. As such, this proposed change is not a backfit.

2. Add § 50.55a(b)(1)(xiii)(A) through (B) to require compliance with two new provisions related to preservice examination of steam generator tubing. The 2017 Edition of the ASME Code contains requirements for preservice examination of steam generator tubing, however, the 2019 Edition does not require these preservice examinations of steam generator tubing to be performed including the acceptance criteria. Therefore, the NRC is adding two conditions to ensure the tubing's structural integrity and ability to perform its intended function along with an adequate preservice examination baseline for future required inservice examinations. Because the new conditions restore requirements that were removed from the latest Edition of the ASME

Code, the conditions do not constitute a new or changed NRC position. Therefore, this change is not a backfit.

ASME BPV Code, Section XI

1. Revise § 50.55a(a)(1)(ii) to remove the incorporation by reference of the addenda 1975 Winter Addenda, 1976 Summer Addenda 1976 Winter Addenda, and the Division 1 1977 Edition through 1994 Addenda and 1998 Edition through 2000 Addenda because they incorporate by reference older editions and addenda of Section XI that are no longer in use or available for use by licensees. The revisions do not modify the current inservice inspection regulatory requirements and, therefore, are not backfits.

2. Revise § 50.55a(b)(2)(viii), (ix), (xii), (xiv), and (xv), (b)(2)(xviii)(A), and (b)(2)(xix) and (xx) to be consistent with the proposal to remove specific editions and addenda from § 50.55a(a)(1)(ii). These changes do not modify current requirements and, therefore, are not backfits.

3. Revise § 50.55a(b)(2)(viii), to delete § 50.55a(b)(2)(viii)(A) through (D), to be consistent with the proposal to remove specific editions and addenda from § 50.55a(a)(1)(ii). These changes to § 50.55a(b)(2)(viii) reflect the removal of conditions that are no longer needed because they were applicable only to the addenda and editions being removed. Therefore, this change is not a backfit.

4. Revise § 50.55a(b)(2)(ix), to delete § 50.55a(b)(2)(ix)(C) through (E), to be consistent with the proposal to remove specific editions and addenda from § 50.55a(a)(1)(ii). These changes to § 50.55a(b)(2)(ix) reflect the removal of conditions that are no longer needed because they were applicable only to the addenda and editions being removed. Therefore, this change is not a backfit.

5. Revise § 50.55a(b)(2)(x), to remove the reference to IWA-1400. This revision clarifies the condition because the editions of NQA-1 are specified in Table IWA 1600-1 instead of IWA-1400. Therefore, the revision of this condition is not a backfit.

6. Revise § 50.55a(b)(2)(xviii)(D) to add an alternative to the requirements of

Table VII-4110-1 which allows NDE examiners to achieve qualification with reduced experience hours based on hours of laboratory practice. The proposed condition represents a relaxation in the current requirements. Therefore, the revision of this condition is not a backfit.

7. Revise § 50.55a(b)(2)(xxv), by revising requirements associated with: (a) conducting wall thickness examinations at alternative locations; and (b) follow on examination requirements for external corrosion of buried piping.

The proposed condition represents a relaxation in the current requirements. Therefore, the revision of this condition is not a backfit.

8. Revise § 50.55a(b)(2)(xxvi), to allow the use of a licensee defined leak check in lieu of a Section XI pressure test and VT-2 examination of mechanical joints. The proposed condition represents a relaxation in the current requirements and allows licensees to perform a leak check in accordance with their post maintenance test program and Quality Assurance program. Therefore, the revision of this condition is not a backfit.

9. Revise § 50.55a(b)(2)(xxix), to allow the use of Nonmandatory Appendix R, Supplement 2 in the 2019 and future editions of the code. The proposed condition represents a relaxation from the current requirements. Therefore, the revision of this condition is not a backfit.

10. Revise § 50.55a(b)(2)(xxxii), to extend the timeframe for licensees to submit Summary Reports and Owner Activity Reports following completion of a refueling outage for users of the 2019 and future editions of the code. The proposed condition represents a relaxation from the current requirements. Therefore, the revision of this condition is not a backfit.

11. Revise § 50.55a(b)(2)(xl) to prohibit the use of the ASME BPV Code, Section XI, 2017 and 2019 Editions, Subparagraphs IWB-3510.4(b)(4) and IWB-3510.4(b)(5). Further, revise § 50.55a(b)(2)(xl) to prohibit the use of the ASME BPV Code, Section XI, 2019 Edition, Tables A-4200-1 and G-2110-1. The proposed updated condition on the

use of IWC-3510.5(b) and the new tables does not constitute a new or changed NRC position. Therefore, the addition of this proposed condition is not a backfit.

12. Add § 50.55a(b)(2)(xlili) to require submittals of analyses performed under IWB-3720, Nonmandatory Appendix A, subparagraph A-4200(c), and Nonmandatory Appendix G, subparagraph G-2110(c). The proposed condition on regulatory submittal requirements does not constitute a new or changed NRC position. Therefore, the addition of this proposed condition is not a backfit.

ASME OM Code

1. Revise § 50.55a(a)(1)(iv) to remove the incorporation by reference of the 2011 Addenda and the 2015 Edition of the ASME OM Code, as well as make corresponding changes to § 50.55a(b)(3)(iv), (vii), and (ix) to reflect that the 2011 Addenda and the 2015 Edition are not incorporated by reference in § 50.55a. These changes remove editions of the code that are not in use. The revisions do not modify the current IST regulatory requirements and, therefore, are not backfits.

2. Revise § 50.55a(b)(3) to be consistent with the proposal to remove specific editions or addenda from § 50.55a(a)(1)(iv). These changes to § 50.55a(b)(3) are editorial and, therefore, are not backfits.

3. Revise § 50.55a(b)(3)(viii) to specify that the condition on the use of Subsection ISTE applies through the 2017 Edition of the ASME OM Code incorporated by reference in § 50.55a(a)(1)(iv). This proposed rule change would allow the use of Subsection ISTE in the 2020 Edition of the ASME OM Code without conditions and, therefore, is not a backfit.

4. Revise § 50.55a(b)(3)(xi) to allow increased flexibility in the schedule for position verification testing of valves not susceptible to stem-disk separation. This proposed change would allow increased flexibility in the testing interval where justified and, therefore, is not a backfit.

5. Revise § 50.55a(f)(4) to clarify the relationship between § 50.55a(f)(4) and

(g)(4) regarding the IST and ISI programs for dynamic restraints (snubbers). This modification reflects a clarification of § 50.55a(f)(4) and (g)(4) and, therefore, is not a backfit.

6. Add § 50.55a(f)(7) to state that IST Plans and interim IST Plan updates for pumps, valves, and dynamic restraints (snubbers) must be submitted to the NRC. This requirement was specified in the ASME OM Code up to the 2020 Edition, but the ASME removed this requirement from the 2020 Edition of the ASME OM Code as more appropriate to the regulatory authority responsibilities. Therefore, this rule change is not a backfit because the NRC is continuing the current requirement and is not imposing a new requirement.

7. Modify § 50.55a(g)(4) to clarify the relationship between § 50.55a(f)(4) and (g)(4) regarding the IST and ISI programs for dynamic restraints (snubbers). This modification reflects a clarification of § 50.55a(f)(4) and (g)(4) and, therefore, is not a backfit.

Conclusion

The NRC finds that incorporation by reference into § 50.55a of the 2019 Edition of Section III, Division 1, of the ASME BPV Code subject to the identified conditions; the 2019 Edition of Section XI, Division 1, of the ASME BPV Code, subject to the identified conditions; and the 2020 Edition of the ASME OM Code subject to the identified conditions, does not constitute backfitting or represent an inconsistency with any issue finality provisions in 10 CFR part 52.

XIV. Regulatory Flexibility Certification

Under the Regulatory Flexibility Act of 1980 (5 U.S.C. 605(b)), the NRC certifies that this proposed rule does not impose a significant economical impact on a substantial number of small entities. This proposed rule affects only the licensing and operation of

commercial nuclear power plants. A licensee who is a subsidiary of a large entity does not qualify as a small entity. The companies that own these plants are not "small entities" as defined in the Regulatory Flexibility Act or the size standards established by the NRC (§ 2.810), as the companies:

- Provide services that are not engaged in manufacturing, and have average gross receipts of more than \$6.5 million over their last 3 completed fiscal years, and have more than 500 employees;
- Are not governments of a city, county, town, township or village;
- Are not school districts or special districts with populations of less than 50; and
- Are not small educational institutions.

XV. Availability of Documents

The NRC is making the documents identified in Table 1 available to interested persons through one or more of the following methods, as indicated. To access documents related to this action, see the ADDRESSES section of this document.

Table 1 – Availability of Documents

Document	ADAMS Accession No.
Proposed Rule Documents	
Rulemaking: Proposed Rule: Regulatory Analysis RE: Proposed Rule to Incorporate by Reference American Society of Mechanical Engineers Codes	ML20178A448
Rulemaking: Proposed Rule: Unofficial Redline Strikeout of the NRC's Proposed Rule: RE: Proposed Rule to Incorporate by Reference American Society of Mechanical Engineers Codes	ML20178A464
Related Documents	
E-mail from Louise Lund, NRC, to Allyson B. Byk, ASME, "NRC Request for Public Access to ASME Materials – Correction Needed (Docket No. NRC-2018-0290," January 5, 2021	ML21014A012
E-mail from Louise Lund, NRC, to Allyson B. Byk, ASME, "NRC Request for Public Access to ASME Material the NRC Seeks to Incorporate by Reference into its Regulations (Docket No. NRC-2018-0290)," October 22, 2020	ML20308A511
Email from Louise Lund, NRC, to Christian A. Sanna, ASME, "NRC Request for Public Access to ASME Material the NRC Seeks to Incorporate by Reference into its Regulations (Docket No. NRC-2018-0290)," April 14, 2020	ML20127H677

Email from Christian A. Sanna, ASME, to Louise Lund, NRC, "NRC Request for Public Access to ASME Material the NRC Seeks to Incorporate by Reference into its Regulations (Docket No. NRC-2018-0290)," April 14, 2020	ML20127H684
Summary of the June 4, 2020, Public Meeting with the Nuclear Industry to Discuss Title 10 of the <i>Code of Federal Regulations</i> , Section 50.55a(b)(xxvi) Condition of Pressure Testing of Class 1, 2, and 3 Mechanical Joints	ML20163A609
Summary of the June 25, 2020 Public Meeting with the Nuclear Industry to Discuss Title 10 of the <i>Code of Federal Regulations</i> , Section 50.55a(b)(xxvi) Condition of Pressure Testing of Class 1, 2, and 3 Mechanical Joints	ML20189A286
Staff Requirements – Affirmation Session, 11:30 A.M., Friday, September 10, 1999, Commissioners' Conference Room, One White Flint North, Rockville, Maryland (Open to Public Attendance)	ML003755050
Enforcement Guidance Memorandum 14-003, "Enforcement Discretion not to Cite Violations Involving Bolt and Stud Non-Destructive Examination Qualification Programs, while Rulemaking Changes are Being Developed," January 16, 2015	ML14169A582
Information to Licensees Regarding Two NRC Inspection Manual Sections on Resolution of Degraded and Nonconforming Conditions and on Operability (Generic Letter 91-18), November 7, 1991	ML031140549
NRC Regulatory Issue Summary 2004-16, "Use of Later Editions and Addenda to ASME Code Section XI for Repair/Replacement Activities," October 19, 2004	ML042590067
Regulatory Guide 1.28, Revision 5, "Quality Assurance Program Criteria (Design and Construction)," October 2017	ML17207A293
Regulatory Guide 1.147, Revision 19, "Inservice Inspection Code Case Acceptability, ASME Section XI, Division 1," October 2019	ML19128A244
Regulatory Guide 1.178, Revision 1, "An Approach for Plant-Specific Risk-Informed Decisionmaking for Inservice Inspection of Piping," September 2003	ML032510128
Regulatory Guide 1.200, Revision 2, "An Approach for Determining the Technical Adequacy of Probabilistic Risk Assessment Results for Risk-Informed Activities," March 2009	ML090410014
NUREG-0800, NRC Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants: LWR Edition (NUREG-0800), Chapter 3.9.8, "Risk-Informed Inservice Inspection of Piping," September 2003	ML032510135
NUREG-1339, "Resolution of Generic Safety Issue 29: Bolting Degradation or Failure in Nuclear Power Plants," June 1990	ML031430208
NUREG-1801, Revision 2, "Generic Aging Lessons Learned (GALL) Report," December 2010	ML103490041
NUREG-1800, Revision 2, "Standard Review Plan for Review of License Renewal Applications for Nuclear Power Plants," December 2010	ML103490036
NUREG-2191, "Generic Aging Lessons Learned for Subsequent License Renewal (GALL-SLR) Report," July 2017	ML17187A031 ML17187A204
NUREG-1950, "Disposition of Public Comments and Technical Bases for Changes in the License Renewal Guidance Documents NUREG-1801 and NUREG-1800," April 2011	ML11116A062
NUREG-2192, "Standard Review Plan for Review of Subsequent License Renewal Applications for Nuclear Power Plants," July 2017	ML17188A158

Report Number PNNL-29761, "Nondestructive Examination (NDE) Training and Qualifications: Implications of Research on Human Learning and Memory, Instruction and Expertise," March 2020	ML20079E343
ASME Codes, Standards, and Code Cases	
ASME BPV Code, Section III, Division 1: 2019 Edition	http://go.asme.org/NRC-ASME
ASME BPV Code, Section XI, Division 1: 2019 Edition	http://go.asme.org/NRC-ASME
ASME OM Code, Division 1: 2020 Edition	http://go.asme.org/NRC-ASME
ASME NQA-1b-2011	http://go.asme.org/NRC-ASME
ASME NQA-1-2012	http://go.asme.org/NRC-ASME
ASME NQA-1-2015	http://go.asme.org/NRC-ASME

Throughout the development of this rulemaking, the NRC may post documents related to this proposed rule, including public comments, on the Federal rulemaking Web site at <https://www.regulations.gov> under Docket ID NRC-2018-0290. 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 for NRC-2018-0290; 2) click the "Sign up for Email Alerts" link; and 3) enter your email address and select how frequently you would like to receive emails (daily, weekly, or monthly).

List of Subjects in 10 CFR Part 50

Administrative practice and procedure, Antitrust, Backfitting, Classified information, Criminal penalties, Education, Emergency planning, Fire prevention, Fire protection, Incorporation by reference, Intergovernmental relations, Nuclear power plants and reactors, Penalties, Radiation protection, Reactor siting criteria, Reporting and recordkeeping requirements, Whistleblowing.

For the reasons set forth in the preamble, and under the authority of the Atomic Energy Act of 1954, as amended; the Energy Reorganization Act of 1974, as amended; and 5 U.S.C. 553, the NRC proposes to adopt the following amendments to 10 CFR part 50:

PART 50 -- DOMESTIC LICENSING OF PRODUCTION AND UTILIZATION

FACILITIES

1. The authority citation for part 50 continues to read as follows:

Authority: Atomic Energy Act of 1954, secs. 11, 101, 102, 103, 104, 105, 108, 122, 147, 149, 161, 181, 182, 183, 184, 185, 186, 187, 189, 223, 234 (42 U.S.C. 2014, 2131, 2132, 2133, 2134, 2135, 2138, 2152, 2167, 2169, 2201, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2239, 2273, 2282); Energy Reorganization Act of 1974, secs. 201, 202, 206, 211 (42 U.S.C. 5841, 5842, 5846, 5851); Nuclear Waste Policy Act of 1982, sec. 306 (42 U.S.C. 10226); National Environmental Policy Act of 1969 (42 U.S.C. 4332); 44 U.S.C. 3504 note; Sec. 109, Pub. L. 96-295, 94 Stat. 783.

2. In § 50.55a:

a. In paragraph (a)(1)(i)(E)(18), remove “, and” and add a semicolon in its place;

b. Revise paragraph (a)(1)(i)(E)(19) and add paragraph (a)(1)(i)(E)(20);

c. Revise and republish paragraphs (a)(1)(ii) and (iv), (a)(1)(v)(B), (b)(1), (b)(2) introductory text, and (b)(2)(viii) through (xiv);

d. In paragraph (b)(2)(xv) introductory text, remove the phrase “the 1995 Edition through”;

e. Revise and republish paragraphs (b)(2)(xviii) through (xxi), (xxv), (xxvi), (xxix), (xxxii), (xxxvi), (xxxix), and (xl);

f. Add paragraph (b)(2)(xliii);

g. In paragraph (b)(3) introductory text, remove the phrase “1995 Edition through the latest edition” and add in its place the word “editions”;

h. Revise and republish paragraph (b)(3)(iii);

i. In paragraph (b)(3)(iv), remove the year “2015” and add in its place the year “2012” and remove the word “shall” and add in its place the word “must” everywhere it appears;

j. Revise and republish paragraphs (b)(3)(vii) through (xi) and (f)(4);

k. Add paragraph (f)(7); and

l. Revise paragraph (g)(4) introductory text.

The revisions, republications, and additions read as follows:

§ 50.55a Codes and standards.

(a) * * *

(1) * * *

(i) * * *

(E) * * *

(19) 2017 Edition (including Subsection NCA; and Division 1 subsections NB through NG and Appendices); and

(20) 2019 Edition (including Subsection NCA; and Division 1 subsections NB through NG and Appendices).

(ii) *ASME Boiler and Pressure Vessel Code, Section XI*. The editions and addenda for Section XI of the ASME Boiler and Pressure Vessel Code are listed in this paragraph (a)(1)(ii), but limited by those provisions identified in paragraph (b)(2) of this section.

(A) [Reserved]

(B) "Rules for Inservice Inspection of Nuclear Power Plant Components:"

(1) 1974 Edition;

(2) 1974 Summer Addenda;

(3) 1974 Winter Addenda; and

(4) 1975 Summer Addenda.

(C) "Rules for Inservice Inspection of Nuclear Power Plant Components - Division 1:"

(1) – (32) [Reserved]

(33) 1995 Edition;

(34) 1995 Addenda;

(35) 1996 Addenda;

- (36) 1997 Addenda;
- (37) – (40) [Reserved]
- (41) 2001 Edition;
- (42) 2001 Addenda;
- (43) 2002 Addenda;
- (44) 2003 Addenda;
- (45) 2004 Edition;
- (46) 2005 Addenda;
- (47) 2006 Addenda;
- (48) 2007 Edition;
- (49) 2008 Addenda;
- (50) 2009b Addenda;
- (51) 2010 Edition;
- (52) 2011a Addenda;
- (53) 2013 Edition;
- (54) 2015 Edition;
- (55) 2017 Edition; and
- (56) 2019 Edition.

* * * * *

(iv) *ASME Operation and Maintenance Code*. The editions and addenda for the ASME Operation and Maintenance of Nuclear Power Plants are listed in this paragraph (a)(1)(iv), but limited by those provisions identified in paragraph (b)(3) of this section.

(A) “Code for Operation and Maintenance of Nuclear Power Plants:”

- (1) 1995 Edition;
- (2) 1996 Addenda;
- (3) 1997 Addenda;
- (4) 1998 Edition;
- (5) 1999 Addenda;

- (6) 2000 Addenda;
- (7) 2001 Edition;
- (8) 2002 Addenda;
- (9) 2003 Addenda;
- (10) 2004 Edition;
- (11) 2005 Addenda; and
- (12) 2006 Addenda.

(B) “Operation and Maintenance of Nuclear Power Plants, Division 1: Section IST Rules for Inservice Testing of Light-Water Reactor Power Plants:”

- (1) 2009 Edition.
- (2) [Reserved]
- (C) Operation and Maintenance of Nuclear Power Plants:
 - (1) 2012 Edition, “Division 1: OM Code: Section IST”;
 - (2) 2017 Edition; and
 - (3) 2020 Edition.
 - (v) * * *

(B) ASME NQA-1, “Quality Assurance Requirements for Nuclear Facility Applications:”

- (1) NQA-1—1994 Edition;
- (2) NQA-1—2008 Edition;
- (3) NQA-1a—2009;
- (4) NQA-1b—2011 Addenda;
- (5) NQA-1—2012 Edition; and
- (6) NQA-1—2015 Edition.

* * * * *

- (b) * * *

(1) *Conditions on ASME BPV Code Section III.* Each manufacturing license, standard design approval, and design certification under 10 CFR part 52 is subject to the

following conditions. As used in this section, references to Section III refer to Section III of the ASME BPV Code and include the 1963 Edition through 1973 Winter Addenda and the 1974 Edition (Division 1) through the latest edition and addenda incorporated by reference in paragraph (a)(1)(i) of this section, subject to the following conditions:

(i) *Section III condition: Section III materials.* When applying the 1992 Edition of Section III, applicants or licensees must apply the 1992 Edition with the 1992 Addenda of Section II of the ASME Boiler and Pressure Vessel Code.

(ii) *Section III condition: Weld leg dimensions.* When applying the 1989 Addenda through the latest edition and addenda incorporated by reference in paragraph (a)(1) of this section, applicants and licensees may not apply the Section III provisions identified in Table I of this section for welds with leg size less than 1.09 tn:

Table I—Prohibited Code Provisions

Editions and addenda	Code provision
1989 Addenda through the latest edition and addenda incorporated by reference in paragraph (a)(1)(i) of this section	Subparagraph NB-3683.4(c)(1); Subparagraph NB-3683.4(c)(2).
1989 Addenda through 2003 Addenda	Footnote 11 to Figure NC-3673.2(b)-1; Note 11 to Figure ND-3673.2(b)-1.
2004 Edition through 2010 Edition	Footnote 13 to Figure NC-3673.2(b)-1; Note 13 to Figure ND-3673.2(b)-1.
2011 Addenda through the latest edition and addenda incorporated by reference in paragraph (a)(1)(i) of this section	Footnote 11 to Table NC-3673.2(b)-1; Note 11 to Table ND-3673.2(b)-1.

(iii) *Section III condition: Seismic design of piping.* Applicants or licensees may use Subarticles NB-3200, NB-3600, NC-3600, and ND-3600 for seismic design of piping, up to and including the 1993 Addenda, subject to the condition specified in paragraph (b)(1)(ii) of this section. Applicants or licensees may not use these subarticles for seismic design of piping in the 1994 Addenda through the 2005 Addenda incorporated by reference in paragraph (a)(1) of this section, except that Subarticle NB-3200 in the 2004 Edition through the 2017 Edition may be used by applicants and licensees, subject to the condition in paragraph (b)(1)(iii)(A) of this section. Applicants or licensees may use Subarticles NB-3600, NC-3600, and ND-3600 for the seismic design of piping in the 2006 Addenda through the latest edition and addenda incorporated by reference in paragraph (a)(1)(i) of this section, subject to the conditions of this paragraph (b)(1)(iii) corresponding to those subarticles.

(A) *Seismic design of piping: First provision.* When applying Note (1) of Figure NB-3222-1 for Level B service limits, the calculation of Pb stresses must include reversing dynamic loads (including inertia earthquake effects) if evaluation of these loads is required by NB-3223(b).

(B) *Seismic design of piping: Second provision.* For Class 1 piping, the material and Do/t requirements of NB-3656(b) must be met for all Service Limits when the Service Limits include reversing dynamic loads, and the alternative rules for reversing dynamic loads are used.

(iv) *Section III condition: Quality assurance.* When applying editions and addenda later than the 1989 Edition of Section III, an applicant or licensee may use the requirements of NQA-1, "Quality Assurance Requirements for Nuclear Facility Applications," that is both incorporated by reference in paragraph (a)(1)(v) of this section and specified in either NCA-4000 or NCA-7000 of that Edition and Addenda of Section III, provided that the administrative, quality, and technical provisions contained in that Edition and Addenda of Section III are used in conjunction with the applicant's or licensee's appendix B to this part quality assurance program; and that the applicant's or

licensee's Section III activities comply with those commitments contained in the applicant's or licensee's quality assurance program description. Where NQA-1 and Section III do not address the commitments contained in the applicant's or licensee's appendix B quality assurance program description, those licensee commitments must be applied to Section III activities.

(v) *Section III condition: Independence of inspection.* Applicants or licensees may not apply the exception in NCA-4134.10(a) of Section III, 1995 Edition through 2009b Addenda of the 2007 Edition, from paragraph 3.1 of Supplement 10S-1 of NQA-1-1994 Edition.

(vi) *Section III condition: Subsection NH.* The provisions in Subsection NH, "Class 1 Components in Elevated Temperature Service," 1995 Addenda through all editions and addenda up to and including the 2013 Edition incorporated by reference in paragraph (a)(1) of this section, may only be used for the design and construction of Type 316 stainless steel pressurizer heater sleeves where service conditions do not cause the components to reach temperatures exceeding 900 °F.

(vii) *Section III condition: Capacity certification and demonstration of function of incompressible-fluid pressure-relief valves.* When applying the 2006 Addenda through all editions and addenda up to and including the latest edition and addenda incorporated by reference in paragraph (a)(1)(i) of this section, applicants and licensees may use paragraph NB-7742, except that paragraph NB-7742(a)(2) may not be used. For a valve design of a single size to be certified over a range of set pressures, the demonstration of function tests under paragraph NB-7742 must be conducted as prescribed in NB-7732.2 on two valves covering the minimum set pressure for the design and the maximum set pressure that can be accommodated at the demonstration facility selected for the test.

(viii) *Section III condition: Use of ASME certification marks.* When applying editions and addenda earlier than the 2011 Addenda to the 2010 Edition, licensees may use either the ASME BPV Code Symbol Stamps or the ASME Certification Marks with the appropriate certification designators and class designators as specified in the 2013

Edition through the latest edition and addenda incorporated by reference in paragraph (a)(1) of this section.

(ix) *Section III Condition: NPT Code Symbol Stamps.* Licensees may use the NPT Code Symbol Stamp with the letters arranged horizontally as specified in ASME BPV Code Case N-852 for the service life of a component that had the NPT Code Symbol Stamp applied during the time period from January 1, 2005, through December 31, 2015.

(x) *Section III Condition: Visual examination of bolts, studs and nuts.* Applicants or licensees applying the provisions of NB-2582, NC-2582, ND-2582, NE-2582, NF-2582, NG-2582 in the 2017 Edition of Section III through the latest edition and addenda incorporated by reference in paragraph (a)(1)(i) of this section, must apply paragraphs (b)(1)(x)(A) through (B) of this section.

(A) *Visual examination of bolts, studs, and nuts: First provision.* When applying the provisions of NB-2582, NC-2582, ND-2582, NE-2582, NF-2582, NG-2582 in the 2017 Edition of Section III through the latest edition and addenda incorporated by reference in paragraph (a)(1)(i) of this section, the visual examinations are required to be performed in accordance with procedures qualified to NB-5100, NC-5100, ND-5100, NE-5100, NF-5100, NG-5100 and performed by personnel qualified in accordance with NB-5500, NC-5500, ND-5500, NE-5500, NF-5500, and NG-5500.

(B) *Visual examination of bolts, studs, and nuts: Second provision.* When applying the provisions of NB-2582, NC-2582, ND-2582, NE-2582, NF-2582, and NG-2582 in the 2017 Edition of Section III through the latest edition and addenda incorporated by reference in paragraph (a)(1)(i) of this section, bolts, studs, and nuts must be visually examined for discontinuities including cracks, bursts, seams, folds, thread lap, voids, and tool marks.

(xi) *Section III condition: Mandatory Appendix XXVI.* When applying the 2015 and 2017 Editions of Section III, Mandatory Appendix XXVI, "Rules for Construction of Class 3 Buried Polyethylene Pressure Piping," applicants or licensees must meet the following

conditions:

(A) *Mandatory Appendix XXVI: First provision.* When performing fusing procedure qualification testing in accordance with XXVI-2300 and XXVI-4330 the following essential variables must be used for the performance qualification tests of butt fusion joints:

(1) Joint Type: A change in the type of joint from that qualified, except that a square butt joint qualifies as a mitered joint.

(2) Pipe Surface Alignment: A change in the pipe outside diameter (O.D.) surface misalignment of more than 10 percent of the wall thickness of the thinner member to be fused.

(3) PE Material: Each lot of polyethylene source material to be used in production (XXVI-2310(c)).

(4) Wall Thickness: Each thickness to be fused in production (XXVI-2310(c)).

(5) Diameter: Each diameter to be fused in production (XXVI-2310(c)).

(6) Cross-sectional Area: Each combination of thickness and diameter (XXVI-2310(c)).

(7) Position: Maximum machine carriage slope when greater than 20 degrees from horizontal (XXVI-4321(c)).

(8) Heater Surface Temperature: A change in the heater surface temperature to a value beyond the range tested (XXVI-2321).

(9) Ambient Temperature: A change in ambient temperature to less than 50 °F (10 °C) or greater than 125 °F (52 °C) (XXVI-4412(b)).

(10) Interfacial Pressure: A change in interfacial pressure to a value beyond the range tested (XXVI-2321).

(11) Decrease in Melt Bead Width: A decrease in melt bead size from that qualified.

(12) Increase in Heater Removal Time: An increase in heater plate removal time from that qualified.

(13) Decrease in Cool-down Time: A decrease in the cooling time at pressure from that qualified.

(14) Fusing Machine Carriage Model: A change in the fusing machine carriage model from that tested (XXVI-2310(d)).

(B) *Mandatory Appendix XXVI: Second provision.* When performing procedure qualification for high speed tensile impact testing of butt fusion joints in accordance with XXVI-2300 or XXVI-4330, breaks in the specimen that are away from the fusion zone must be retested. When performing fusing operator qualification bend tests of butt fusion joints in accordance with XXVI-4342, guided side bend testing must be used for all thicknesses greater than 1.25 inches.

(C) *Mandatory Appendix XXVI: Third provision.* When performing fusing procedure qualification tests in accordance with 2017 Edition of BPV Code Section III XXVI-2300 and XXVI-4330, the following essential variables must be used for the testing of electrofusion joints:

(1) Joint Design: A change in the design of an electrofusion joint.

(2) Fit-up Gap: An increase in the maximum radial fit-up gap qualified.

(3) Pipe PE Material: A change in the PE designation or cell classification of the pipe from that tested (XXVI-2322(a)).

(4) Fitting PE Material: A change in the manufacturing facility or production lot from that tested (XXVI-2322(b)).

(5) Pipe Wall Thickness: Each thickness to be fused in production (XXVI-2310(c)).

(6) Fitting Manufacturer: A change in fitting manufacturer.

(7) Pipe Diameter: Each diameter to be fused in production (XXVI-2310(c)).

(8) Cool-down Time: A decrease in the cool time at pressure from that qualified.

(9) Fusion Voltage: A change in fusion voltage.

(10) Nominal Fusion Time: A change in the nominal fusion time.

(11) Material Temperature Range: A change in material fusing temperature

beyond the range qualified.

(12) Power Supply: A change in the make or model of electrofusion control box (XXVI-2310(f)).

(13) Power Cord: A change in power cord material, length, or diameter that reduces current at the coil to below the minimum qualified.

(14) Processor: A change in the manufacturer or model number of the processor. (XXVI-2310(f)).

(15) Saddle Clamp: A change in the type of saddle clamp.

(16) Scraping Device: A change from a clean peeling scraping tool to any other type of tool.

(xii) *Section III condition: Certifying Engineer.* When applying the 2017 and later editions of ASME BPV Code Section III, the NRC does not permit applicants and licensees to use a Certifying Engineer who is not a Registered Professional Engineer qualified in accordance with paragraph XXIII-1222 for Code-related activities that are applicable to U.S. nuclear facilities regulated by the NRC. The use of paragraph XXIII-1223 is prohibited.

(xiii) *Section III Condition: Preservice Inspection of Steam Generator Tubes.* Applicants or licensees applying the provisions of NB-5283 and NB-5360 in the 2019 Edition of Section III, must apply paragraphs (b)(1)(xiii)(A) through (B) of this section.

(A) *Preservice Inspection of Steam Generator Tubes: First provision.* When applying the provisions of NB-5283 in the 2019 Edition of Section III, a full-length preservice examination of 100 percent of the steam generator tubing in each newly installed steam generator must be performed prior to plant startup.

(B) *Preservice Inspection of Steam Generator Tubes: Second provision.* When applying the provisions of NB-5360 in the 2019 Edition of Section III, flaws revealed during preservice examination of steam generator tubing performed in accordance with paragraph (b)(1)(xiii)(A) of this section must be evaluated using the criteria in the design specifications.

(2) *Conditions on ASME BPV Code, Section XI.* As used in this section, references to Section XI refer to Section XI, Division 1, of the ASME BPV Code, and include the 1970 Edition through the 1976 Winter Addenda and the 1977 Edition through the latest edition incorporated by reference in paragraph (a)(1)(ii) of this section, subject to the following conditions:

* * * * *

(viii) *Section XI condition: Concrete containment examinations.* Applicants or licensees applying Subsection IWL, 2001 Edition through the 2004 Edition, up to and including the 2006 Addenda, must apply paragraphs (b)(2)(viii)(E) through (G) of this section. Applicants or licensees applying Subsection IWL, 2007 Edition up to and including the 2008 Addenda must apply paragraph (b)(2)(viii)(E) of this section. Applicants or licensees applying Subsection IWL, 2007 Edition with the 2009 Addenda through the latest edition and addenda incorporated by reference in paragraph (a)(1)(ii) of this section, must apply paragraphs (b)(2)(viii)(H) and (I) of this section.

(A) – (D) [Reserved]

(E) *Concrete containment examinations: Fifth provision.* For Class CC applications, the applicant or licensee must evaluate the acceptability of inaccessible areas when conditions exist in accessible areas that could indicate the presence of or the result in degradation to such inaccessible areas. For each inaccessible area identified, the applicant or licensee must provide the following in the ISI Summary Report required by IWA-6000:

(1) A description of the type and estimated extent of degradation, and the conditions that led to the degradation;

(2) An evaluation of each area, and the result of the evaluation; and

(3) A description of necessary corrective actions.

(F) *Concrete containment examinations: Sixth provision.* Personnel that examine containment concrete surfaces and tendon hardware, wires, or strands must meet the

qualification provisions in IWA-2300. The “owner-defined” personnel qualification provisions in IWL-2310(d) are not approved for use.

(G) *Concrete containment examinations: Seventh provision.* Corrosion protection material must be restored following concrete containment post-tensioning system repair and replacement activities in accordance with the quality assurance program requirements specified in IWA-1400.

(H) *Concrete containment examinations: Eighth provision.* For each inaccessible area of concrete identified for evaluation under IWL-2512(a), or identified as susceptible to deterioration under IWL-2512(b), the licensee must provide the applicable information specified in paragraphs (b)(2)(viii)(E)(1), (2), and (3) of this section in the ISI Summary Report required by IWA-6000.

(I) *Concrete containment examinations: Ninth provision.* During the period of extended operation of a renewed license under part 54 of this chapter, the licensee must perform the technical evaluation under IWL-2512(b) of inaccessible below-grade concrete surfaces exposed to foundation soil, backfill, or groundwater at periodic intervals not to exceed 5 years. In addition, the licensee must examine representative samples of the exposed portions of the below-grade concrete, when such below-grade concrete is excavated for any reason.

(ix) *Section XI condition: Metal containment examinations.* Applicants or licensees applying Subsection IWE, 2001 Edition up to and including the 2003 Addenda, must satisfy the requirements of paragraphs (b)(2)(ix)(A) and (B), (F) through (I), and (K) of this section. Applicants or licensees applying Subsection IWE, 2004 Edition, up to and including the 2005 Addenda, must satisfy the requirements of paragraphs (b)(2)(ix)(A) and (B), (F) through (H), and (K) of this section. Applicants or licensees applying Subsection IWE, 2004 Edition with the 2006 Addenda, must satisfy the requirements of paragraphs (b)(2)(ix)(A)(2) and (b)(2)(ix)(B) and (K) of this section. Applicants or licensees applying Subsection IWE, 2007 Edition through the 2015 Edition, must satisfy the requirements of paragraphs (b)(2)(ix)(A)(2) and (b)(2)(ix)(B), (J), and (K) of this

section. Applicants or licensees applying Subsection IWE, 2017 Edition, through the latest edition and addenda incorporated by reference in paragraph (a)(1)(ii) of this section must satisfy the requirements of paragraphs (b)(2)(ix)(A)(2) and (b)(2)(ix)(B) and (J) of this section.

(A) *Metal containment examinations: First provision.* For Class MC applications, the following apply to inaccessible areas.

(1) The applicant or licensee must evaluate the acceptability of inaccessible areas when conditions exist in accessible areas that could indicate the presence of or could result in degradation to such inaccessible areas.

(2) For each inaccessible area identified for evaluation, the applicant or licensee must provide the following in the ISI Summary Report as required by IWA-6000:

(i) A description of the type and estimated extent of degradation, and the conditions that led to the degradation;

(ii) An evaluation of each area, and the result of the evaluation; and

(iii) A description of necessary corrective actions.

(B) *Metal containment examinations: Second provision.* When performing remotely the visual examinations required by Subsection IWE, the maximum direct examination distance specified in Table IWA-2210-1 (2001 Edition through 2004 Edition) or Table IWA-2211-1 (2005 Addenda through the latest edition and addenda incorporated by reference in paragraph (a)(1) of this section) may be extended and the minimum illumination requirements specified may be decreased provided that the conditions or indications for which the visual examination is performed can be detected at the chosen distance and illumination.

(C) – (E) [Reserved]

(F) *Metal containment examinations: Sixth provision.* VT-1 and VT-3 examinations must be conducted in accordance with IWA-2200. Personnel conducting examinations in accordance with the VT-1 or VT-3 examination method must be qualified in accordance with IWA-2300. The “owner-defined” personnel qualification

provisions in IWE-2330(a) for personnel that conduct VT-1 and VT-3 examinations are not approved for use.

(G) *Metal containment examinations: Seventh provision.* The VT-3 examination method must be used to conduct the examinations in Items E1.12 and E1.20 of Table IWE-2500-1, and the VT-1 examination method must be used to conduct the examination in Item E4.11 of Table IWE-2500-1. An examination of the pressure-retaining bolted connections in Item E1.11 of Table IWE-2500-1 using the VT-3 examination method must be conducted once each interval. The “owner-defined” visual examination provisions in IWE-2310(a) are not approved for use for VT-1 and VT-3 examinations.

(H) *Metal containment examinations: Eighth provision.* Containment bolted connections that are disassembled during the scheduled performance of the examinations in Item E1.11 of Table IWE-2500-1 must be examined using the VT-3 examination method. Flaws or degradation identified during the performance of a VT-3 examination must be examined in accordance with the VT-1 examination method. The criteria in the material specification or IWB-3517.1 must be used to evaluate containment bolting flaws or degradation. As an alternative to performing VT-3 examinations of containment bolted connections that are disassembled during the scheduled performance of Item E1.11, VT-3 examinations of containment bolted connections may be conducted whenever containment bolted connections are disassembled for any reason.

(I) *Metal containment examinations: Ninth provision.* The ultrasonic examination acceptance standard specified in IWE-3511.3 for Class MC pressure-retaining components must also be applied to metallic liners of Class CC pressure-retaining components.

(J) *Metal containment examinations: Tenth provision.* In general, a repair/replacement activity such as replacing a large containment penetration, cutting a large construction opening in the containment pressure boundary to replace steam

generators, reactor vessel heads, pressurizers, or other major equipment; or other similar modification is considered a major containment modification. When applying IWE-5000 to Class MC pressure-retaining components, any major containment modification or repair/replacement must be followed by a Type A test to provide assurance of both containment structural integrity and leak-tight integrity prior to returning to service, in accordance with appendix J to this part, Option A or Option B, on which the applicant's or licensee's Containment Leak-Rate Testing Program is based. When applying IWE-5000, if a Type A, B, or C Test is performed, the test pressure and acceptance standard for the test must be in accordance with appendix J to this part.

(K) Metal Containment Examinations: Eleventh provision. A general visual examination of containment leak chase channel moisture barriers must be performed once each interval, in accordance with the completion percentages in Table IWE 2411-1 of the 2017 Edition. Examination shall include the moisture barrier materials (caulking, gaskets, coatings, etc.) that prevent water from accessing the embedded containment liner within the leak chase channel system. Caps of stub tubes extending to or above the concrete floor interface may be inspected, provided the configuration of the cap functions as a moisture barrier as described previously. Leak chase channel system closures need not be disassembled for performance of examinations if the moisture barrier material is clearly visible without disassembly, or coatings are intact. The closures are acceptable if no damage or degradation exists that would allow intrusion of moisture against inaccessible surfaces of the metal containment shell or liner within the leak chase channel system. Examinations that identify flaws or relevant conditions shall be extended in accordance with paragraph IWE 2430 of the 2017 Edition.

(x) Section XI condition: Quality assurance. When applying the editions and addenda later than the 1989 Edition of ASME BPV Code, Section XI, licensees may use any edition or addenda of NQA-1, "Quality Assurance Requirements for Nuclear Facility Applications," that is both incorporated by reference in paragraph (a)(1)(v) of this section and specified in Table IWA 1600-1 of that edition and addenda of Section XI, provided

that the licensee uses its appendix B to this part quality assurance program in conjunction with Section XI requirements and the commitments contained in the licensee's quality assurance program description. Where NQA-1 and Section XI do not address the commitments contained in the licensee's appendix B quality assurance program description, those licensee commitments must be applied to Section XI activities.

(xi) [Reserved]

(xii) *Section XI condition: Underwater welding.* The provisions in IWA-4660, "Underwater Welding," of Section XI, 2001 Edition through the latest edition and addenda incorporated by reference in paragraph (a)(1)(ii) of this section, are approved for use on irradiated material with the following conditions:

(A) *Underwater welding: First provision.* Licensees must obtain NRC approval in accordance with paragraph (z) of this section regarding the welding technique to be used prior to performing welding on ferritic material exposed to fast neutron fluence greater than 1×10^{17} n/cm² ($E > 1$ MeV).

(B) *Underwater welding: Second provision.* Licensees must obtain NRC approval in accordance with paragraph (z) of this section regarding the welding technique to be used prior to performing welding on austenitic material other than P-No. 8 material exposed to thermal neutron fluence greater than 1×10^{17} n/cm² ($E < 0.5$ eV). Licensees must obtain NRC approval in accordance with paragraph (z) regarding the welding technique to be used prior to performing welding on P-No. 8 austenitic material exposed to thermal neutron fluence greater than 1×10^{17} n/cm² ($E < 0.5$ eV) and measured or calculated helium concentration of the material greater than 0.1 atomic parts per million.

(xiii) [Reserved]

(xiv) *Section XI condition: Appendix VIII personnel qualification.* All personnel qualified for performing ultrasonic examinations in accordance with Appendix VIII must receive 8 hours of annual hands-on training on specimens that contain cracks.

Licensees applying the 2001 Edition through the latest edition and addenda incorporated

by reference in paragraph (a)(1)(ii) of this section may use the annual practice requirements in VII-4240 of Appendix VII of Section XI in place of the 8 hours of annual hands-on training provided that the supplemental practice is performed on material or welds that contain cracks, or by analyzing prerecorded data from material or welds that contain cracks. In either case, training must be completed no earlier than 6 months prior to performing ultrasonic examinations at a licensee's facility.

* * * * *

(xviii) *Section XI condition: NDE personnel certification--(A) NDE personnel certification: First provision.* Level I and II nondestructive examination personnel must be recertified on a 3-year interval in lieu of the 5-year interval specified in IWA-2314(a) and IWA-2314(b) of the 2001 Edition through the latest edition and addenda incorporated by reference in paragraph (a)(1)(ii) of this section.

(B) *NDE personnel certification: Second provision.* When applying editions and addenda prior to the 2007 Edition of Section XI, paragraph IWA-2316 may only be used to qualify personnel that observe leakage during system leakage and hydrostatic tests conducted in accordance with IWA 5211(a) and (b).

(C) *NDE personnel certification: Third provision.* When applying editions and addenda prior to the 2005 Addenda of Section XI, licensee's qualifying visual examination personnel for VT-3 visual examination under paragraph IWA-2317 of Section XI must demonstrate the proficiency of the training by administering an initial qualification examination and administering subsequent examinations on a 3-year interval.

(D) *NDE personnel certification: Fourth provision.* The use of Appendix VII, Table VII-4110-1 and Appendix VIII, Subarticle VIII-2200 of the 2011 Addenda through the latest edition incorporated by reference in paragraph (a)(1)(ii) of this section is prohibited. When using ASME BPV Code, Section XI editions and addenda later than the 2010 Edition, licensees and applicants must use the prerequisites for ultrasonic

examination personnel certifications in Appendix VII, Table VII-4110-1 and Appendix VIII, Subarticle VIII-2200 in the 2010 Edition.

(1) As an alternative to Note (c) in Table VII-4110-1 of ASME BPV Code, Section XI, 2010 Edition, the 250 hours of Level I experience time may be reduced to 175 hours, if the experience time includes a minimum of 125 hours of field experience and 50 hours of laboratory practice beyond the requirements of for training in accordance with Appendix VII Subarticle 4220, provided those practice hours are dedicated to the Level I or Level II skill areas as described in ANSI/ASNT CP-189.

(2) As an alternative to Note (d) in Table VII-4110-1 of ASME BPV Code, Section XI, 2010 Edition, the 800 hours of Level II experience time may be reduced to 720 hours, if the experience time includes a minimum of 400 hours of field experience and a minimum of 320 hours of laboratory practice. The practice must be dedicated to scanning specimens containing flaws in materials representative of those in actual power plant components. Additionally, for Level II Certification, the candidate must pass a Mandatory Appendix VIII, Supplement 2 performance demonstration for detection and length sizing.

(xix) *Section XI condition: Substitution of alternative methods.* The provisions for substituting alternative examination methods, a combination of methods, or newly developed techniques in the 1997 Addenda of IWA-2240 must be applied when using the 2001 Edition through the 2004 Edition of Section XI of the ASME BPV Code. The provisions in IWA-4520(c), 2001 Edition through the 2004 Edition, allowing the substitution of alternative methods, a combination of methods, or newly developed techniques for the methods specified in the Construction Code, are not approved for use. The provisions in IWA-4520(b)(2) and IWA-4521 of the 2008 Addenda through the latest edition and addenda incorporated by reference in paragraph (a)(1)(ii) of this section, allowing the substitution of ultrasonic examination for radiographic examination specified in the Construction Code, are not approved for use.

(xx) *Section XI condition: System leakage tests—(A) System leakage tests: First*

provision. When performing system leakage tests in accordance with IWA-5213(a), 2001 Edition through 2002 Addenda, the licensee must maintain a 10-minute hold time after test pressure has been reached for Class 2 and Class 3 components that are not in use during normal operating conditions. No hold time is required for the remaining Class 2 and Class 3 components provided that the system has been in operation for at least 4 hours for insulated components or 10 minutes for uninsulated components.

(B) *System leakage tests: Second provision.* The nondestructive examination method and acceptance criteria of the 1992 Edition or later of Section III shall be met when performing system leakage tests (in lieu of a hydrostatic test) in accordance with IWA-4520 after repair and replacement activities performed by welding or brazing on a pressure retaining boundary using the 2003 Addenda through the latest edition and addenda of Section XI incorporated by reference in paragraph (a)(1)(ii) of this section. The nondestructive examination and pressure testing may be performed using procedures and personnel meeting the requirements of the licensee's/applicant's current ISI code of record.

(C) *System leakage tests: Third provision.* The use of the provisions for an alternative BWR pressure test at reduced pressure to satisfy IWA-4540 requirements as described in IWB-5210(c) of Section XI, 2017 Edition and IWA-5213(b)(2) and IWB-5221(d) of Section XI, 2017 Edition through the latest edition incorporated by reference in paragraph (a)(1)(ii) of this section may be used subject to the following conditions:

(1) The use of nuclear heat to conduct the BWR Class 1 system leakage test is prohibited (*i.e.*, the reactor must be in a non-critical state), except during refueling outages in which the ASME Section XI Category B-P pressure test has already been performed, or at the end of mid-cycle maintenance outages fourteen (14) days or less in duration.

(2) In lieu of the test condition holding time of IWA-5213(b)(2), after pressurization to test conditions, and before the visual examinations commence, the holding time shall be 1 hour for non-insulated components.

(xxi) *Section XI condition: Table IWB-2500-1 examination requirements. (A)*

[Reserved]

(B) *Table IWB-2500-1 examination.* Use of the provisions of IWB-2500(f) and (g) and Table IWB-2500-1 Notes 6 and 7 of Section XI, 2017 Edition through the latest edition incorporated by reference in paragraph (a)(1)(ii) of this section, for examination of Examination Category B-D Item Numbers B3.90 and B3.100 shall be subject to the following conditions:

(1) A plant-specific evaluation demonstrating the criteria of IWB-2500(f) are met must be maintained in accordance with IWA-1400(l).

(2) The use of the provisions of IWB-2500(f) and Table IWB-2500-1 Note 6 for examination of Examination Category B-D Item Numbers B3.90 is prohibited for plants with renewed licenses in accordance with 10 CFR part 54.

(3) The provisions of IWB-2500(g) and Table IWB-2500-1 Notes 6 and 7 for examination of Examination Category B-D Item Numbers B3.90 and B3.100 shall not be used to eliminate the preservice or inservice volumetric examination of plants with a Combined Operating License pursuant to 10 CFR part 52, or a plant that receives its operating license after October 22, 2015.

* * * * *

(xxv) *Section XV Condition: Mitigation of defects by modification.* Use of the provisions of IWA-4340 must be subject to the following conditions:

(A) *Mitigation of defects by modification: First person.* The use of the provisions for mitigation of defects by modification in IWA-4340 of Section XI 2001 Edition through the 2010 Addenda, is prohibited.

(B) *Mitigation of defects by modification: Second provision.* The provisions for mitigation of defects by modification in IWA-4340 of Section XI, 2011 Edition through the latest edition incorporated by reference in paragraph (a)(1)(ii) of this section, may be used subject to the following conditions:

(1) The use of the provisions in IWA 4340 to mitigate crack-like defects or those associated with flow accelerated corrosion are prohibited.

(2) The design of a modification that mitigates a defect must incorporate a loss of material rate either 2 times the actual measured corrosion rate, which must be established based on wall thickness measurements conducted at least twice, in that pipe location or another location with similar corrosion conditions, similar flow characteristics, and the same piping configuration (e. g., straight run of pipe, elbow, tee) as the encapsulated area, or 4 times the estimated maximum corrosion rate for the piping system.

(3) The licensee must perform a wall thickness examination in the vicinity of the modification and relevant pipe base metal at half its expected life or, if the modification has an expected life greater than 19 years, once per interval, and the results must be used to confirm corrosion rates, determine the next inspection date, and confirm the design inputs.

(i) For buried pipe locations where the loss of material has occurred due to internal corrosion, the wall thickness examinations may be conducted at a different location in the same system as long as: wall thickness measurements were conducted at the different location at the same time as installation of the modification; the flow rate is the same or higher at the different location; the piping configuration is the same (e.g., straight run of pipe, elbow, tee); and if pitting occurred at the modification location, but not the different location, wall loss values must be multiplied by four (instead of two) times the actual measured corrosion rate. Where wall loss values are greater than that assumed during the design of the modification, the structural integrity of the modification must be reanalyzed. Additionally, if the extent of degradation is different (i.e., percent wall loss plus or minus 25 percent) or the corrosion mechanism (e.g., general, pitting) is not the same at the different location as at the modification location, the modification must be examined at half its expected life or 10 years, whichever is sooner.

(ii) For buried pipe locations where loss of material has occurred due to external corrosion, the modification must be examined at half its expected life or 10 years, whichever is sooner. Alternatively, when the modification has been recoated prior to return to service, the modification may be examined at half its expected life or during the first full 10-year inspection interval after installation, whichever is sooner.

(xxvi) *Section XI condition: Pressure Testing of Class 1, 2, and 3 Mechanical Joints.* Mechanical joints in Class 1, 2, and 3 piping and components greater than NPS-1 which are disassembled and reassembled during the performance of a Section XI repair/replacement activity requiring documentation on a Form NIS-2 shall be leak tested to ensure leak tightness. The owner shall establish the type of leak test, test medium, test pressure, acceptance criteria that would demonstrate the joint's leak tightness, and the qualifications of the personnel who will perform the leak test.

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(xxix) *Section XI condition: Nonmandatory Appendix R.* (A) Nonmandatory Appendix R, "Risk-Informed Inspection Requirements for Piping Supplement 1 – Risk-Informed Selection Process – Method A," of Section XI, 2005 Addenda through the latest edition and addenda incorporated by reference in paragraph (a)(1)(ii) of this section, may not be implemented without prior NRC authorization of the proposed alternative in accordance with paragraph (z) of this section.

(B) Nonmandatory Appendix R, "Risk-Informed Inspection Requirements for Piping, Supplement 2 – Risk-Informed Selection Process – Method B" of Section XI, 2005 Addenda through the 2015 Edition, may not be implemented without prior NRC authorization of the proposed alternative in accordance with paragraph (z) of this section.

(C) Nonmandatory Appendix R, "Risk-Informed Inspection Requirements for Piping, Supplement 2 – Risk-Informed Selection Process – Method B" of Section XI, 2017 Edition through the latest edition and addenda incorporated by reference in

paragraph (a)(1)(ii) of this section, may be implemented without prior NRC authorization of the proposed alternative in accordance with paragraph (z) of this section.

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(xxxii) *Section XI condition: Summary report submittal.* When using ASME BPV Code, Section XI, 2010 Edition through the latest edition and addenda incorporated by reference in paragraph (a)(1)(ii) of this section, Summary Reports and Owner's Activity Reports described in IWA-6230 must be submitted to the NRC. Preservice inspection reports for examinations prior to commercial service must be submitted prior to the date of placement of the unit into commercial service. For preservice and inservice examinations performed following placement of the unit into commercial service, reports must be submitted within 120 calendar days of the completion of each refueling outage.

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(xxxvi) *Section XI condition: Fracture toughness of irradiated materials.* When using the 2013 Edition through the latest edition incorporated by reference in paragraph (a)(1)(ii) of this section of the ASME BPV Code, Section XI, Appendix A paragraph A-4400, the licensee shall obtain NRC approval under paragraph (z) of this section before using irradiated T_0 and the associated RT_{T_0} in establishing fracture toughness of irradiated materials.

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(xxxix) *Section XI condition: Defect Removal.* The use of the provisions for removal of defects by welding or brazing in IWA-4421(c)(1) and IWA-4421(c)(2) of Section XI, 2017 Edition through the latest edition incorporated by reference in paragraph (a)(1)(ii) of this section may be used subject to the following conditions:

(A) *Defect removal requirements: First provision.* The provisions of subparagraph IWA 4421(c)(1) shall not be used to contain or isolate a defective area without removal of the defect.

(B) *Defect removal requirements: Second provision.* The provisions of subparagraph IWA-4421(c)(2) shall not be used for crack-like defects.

(xl) *Section XI condition: Prohibitions and Restrictions on use of IWB-3510.4(b), IWC-3510.5(b), Table A-4200-1, and Table G-2110-1.* The use of Subparagraphs IWB-3510.4(b)(4) and IWB-3510.4(b)(5) of ASME BPV Code, Section XI, 2017 Edition through the latest edition incorporated by reference in paragraph (a)(1)(ii) of this section is prohibited. The use of ASME BPV Code, Section XI, 2019 Edition, Subparagraphs IWC-3510.5(b)(4) and IWC-3510.5(b)(5), is prohibited. For ASME BPV Code, Section XI, 2019 Edition, Table A-4200-1 and Table G-2110-1, use of Figure A-4200-1 and Figure G-2210-1 to describe the toughness of material SA-533 Type B Class 2 is prohibited without satisfying the requirements of IWB-3510.4(c) or IWC-3510.5(c).

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(xl) *Section XI condition: Section XI Condition: Regulatory Submittal Requirements.* Licensees shall submit for NRC review and approval the following analyses:

(A) The analytical evaluation determining the effects of an out-of-limit condition on the structural integrity of the Reactor Coolant System, as described in IWB-3720(a);

(B) Determination of T_0 and RT_{T_0} , as described in Nonmandatory Appendix A, A-4200(c); and

(C) Determination of T_0 and RT_{T_0} , as described in Nonmandatory Appendix G, G-2110(c).

(3) * * *

(iii) *OM condition: New reactors.* In addition to complying with the provisions in the ASME OM Code with the conditions specified in paragraph (b)(3) of this section, holders of operating licenses for nuclear power reactors that received construction permits under this part on or after August 17, 2018, and holders of combined licenses issued under 10 CFR part 52, whose initial fuel loading occurs on or after August 17, 2018, must also comply with the following conditions, as applicable:

(A) *Power-operated valves.* Licensees must periodically verify the capability of power-operated valves to perform their design-basis safety functions.

(B) *Check valves*. Licensees must perform bi-directional testing of check valves within the IST program where practicable.

(C) *Flow-induced vibration*. Licensees must monitor flow-induced vibration from hydrodynamic loads and acoustic resonance during preservice testing or inservice testing to identify potential adverse flow effects on components within the scope of the IST program.

(D) *High risk non-safety systems*. Licensees must assess the operational readiness of pumps, valves, and dynamic restraints within the scope of the Regulatory Treatment of Non-Safety Systems for applicable reactor designs.

* * * * *

(vii) [Reserved]

(viii) *OM condition: Subsection ISTE*. Licensees may not implement the risk-informed approach for inservice testing (IST) of pumps and valves specified in Subsection ISTE, "Risk-Informed Inservice Testing of Components in Light-Water Reactor Nuclear Power Plants," in the ASME OM Code, 2009 Edition through the 2017 Edition, without first obtaining NRC authorization to use Subsection ISTE as an alternative to the applicable IST requirements in the ASME OM Code, pursuant to paragraph (z) of this section.

(ix) *OM condition: Subsection ISTF*. Licensees applying Subsection ISTF, 2012 Edition must satisfy the requirements of Mandatory Appendix V, "Pump Periodic Verification Test Program," of the ASME OM Code in that edition.

(x) [Reserved]

(xi) *OM condition: Valve Position Indication*. When implementing paragraph ISTC-3700, "Position Verification Testing," in the ASME OM Code, 2012 Edition through the latest edition of the ASME OM Code incorporated by reference in paragraph (a)(1)(iv) of this section, licensees must verify that valve operation is accurately indicated by supplementing valve position indicating lights with other indications, such as flow meters or other suitable instrumentation to provide assurance of proper obturator

position for valves with remote position indication within the scope of Subsection ISTC including its mandatory appendices and their verification methods and frequencies. For valves not susceptible to stem-disk separation, the position verification testing specified in paragraph ISTC-3700 may be performed on a 10-year interval where the licensee documents a justification, which is made available for NRC review, demonstrating that the stem-disk connection is not susceptible to separation based on the internal design and evaluation of the stem-disk connection using plant-specific and industry operating experience and vendor recommendations.

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(f) * * *

(4) *Inservice testing standards requirement for operating plants.* Throughout the service life of a boiling or pressurized water-cooled nuclear power facility, pumps and valves that are within the scope of the ASME OM Code must meet the inservice test requirements (except design and access provisions) set forth in the ASME OM Code and addenda that become effective subsequent to editions and addenda specified in paragraphs (f)(2) and (3) of this section and that are incorporated by reference in paragraph (a)(1)(iv) of this section, to the extent practical within the limitations of design, geometry, and materials of construction of the components. The inservice test requirements for pumps and valves that are within the scope of the ASME OM Code but are not classified as ASME BPV Code Class 1, Class 2, or Class 3 may be satisfied as an augmented IST program in accordance with paragraph (f)(6)(ii) of this section. This use of an augmented IST program may be acceptable provided the basis for deviations from the ASME OM Code, as incorporated by reference in this section, demonstrates an acceptable level of quality and safety, or that implementing the Code provisions would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety, where documented and available for NRC review. When using the 2006 Addenda or later of the ASME BPV Code, Section XI, the inservice examination, testing, and service life monitoring requirements for dynamic restraints (snubbers) must

meet the requirements set forth in the applicable ASME OM Code as specified in paragraph (b)(3)(v)(B) of this section. When using the 2005 Addenda or earlier edition or addenda of the ASME BPV Code, Section XI, the inservice examination, testing, and service life monitoring requirements for dynamic restraints (snubbers) must meet the requirements set forth in either the applicable ASME OM Code or ASME BPV Code, Section XI as specified in paragraph (b)(3)(v) of this section.

(i) *Applicable IST Code: Initial 120-month interval.* Inservice tests to verify operational readiness of pumps and valves, whose function is required for safety, conducted during the initial 120-month interval must comply with the requirements in the latest edition and addenda of the ASME OM Code incorporated by reference in paragraph (a)(1)(iv) of this section on the date 18 months before the date of issuance of the operating license under this part, or 18 months before the date scheduled for initial loading of fuel under a combined license under part 52 of this chapter (or the optional ASME OM Code Cases listed in NRC Regulatory Guide 1.192, as incorporated by reference in paragraph (a)(3)(iii) of this section, subject to the conditions listed in paragraph (b) of this section).

(ii) *Applicable IST Code: Successive 120-month intervals.* Inservice tests to verify operational readiness of pumps and valves, whose function is required for safety, conducted during successive 120-month intervals must comply with the requirements of the latest edition and addenda of the ASME OM Code incorporated by reference in paragraph (a)(1)(iv) of this section 18 months before the start of the 120-month interval (or the optional ASME Code Cases listed in NRC Regulatory Guide 1.147 or NRC Regulatory Guide 1.192 as incorporated by reference in paragraphs (a)(3)(ii) and (iii) of this section, respectively), subject to the conditions listed in paragraph (b) of this section.

(iii) [Reserved]

(iv) *Applicable IST Code: Use of later Code editions and addenda.* Inservice tests of pumps and valves may meet the requirements set forth in subsequent editions and addenda that are incorporated by reference in paragraph (a)(1)(iv) of this section,

subject to the conditions listed in paragraph (b) of this section, and subject to NRC approval. Portions of editions or addenda may be used, provided that all related requirements of the respective editions or addenda are met.

* * * * *

(7) *Inservice testing reporting requirements.* Inservice Testing Program Test and Examination Plans (IST Plans) for pumps, valves, and dynamic restraints (snubbers) prepared to meet the requirements of the ASME OM Code must be submitted to the NRC as specified in § 50.4. IST Plans must be submitted within 90 days of their implementation for the applicable 120-month IST Program interval. IST Plan revisions must be submitted when the final safety analysis report for the applicable nuclear power plant is updated. Electronic submission is preferred.

(g) * * *

(4) *Inservice inspection standards requirement for operating plants.* Throughout the service life of a boiling or pressurized water-cooled nuclear power facility, components (including supports) that are classified as ASME Code Class 1, Class 2, and Class 3 must meet the requirements, except design and access provisions and preservice examination requirements, set forth in Section XI of editions and addenda of the ASME BPV Code that become effective subsequent to editions specified in paragraphs (g)(2) and (3) of this section and that are incorporated by reference in paragraph (a)(1)(ii) or (iv) of this section for snubber examination and testing of this section, to the extent practical within the limitations of design, geometry, and materials of construction of the components. Components that are classified as Class MC pressure retaining components and their integral attachments, and components that are classified as Class CC pressure retaining components and their integral attachments, must meet the requirements, except design and access provisions and preservice examination requirements, set forth in Section XI of the ASME BPV Code and addenda that are incorporated by reference in paragraph (a)(1)(ii) of this section subject to the condition listed in paragraph (b)(2)(vi) of this section and the conditions listed in paragraphs

(b)(2)(viii) and (ix) of this section, to the extent practical within the limitation of design, geometry, and materials of construction of the components. When using the 2006 Addenda or later of the ASME BPV Code, Section XI, the inservice examination, testing, and service life monitoring requirements for dynamic restraints (snubbers) must meet the requirements set forth in the applicable ASME OM Code as specified in paragraph (b)(3)(v)(B) of this section. When using the 2005 Addenda or earlier edition or addenda of the ASME BPV Code, Section XI, the inservice examination, testing, and service life monitoring requirements for dynamic restraints (snubbers) must meet the requirements set forth in either the applicable ASME OM Code or ASME BPV Code, Section XI as specified in paragraph (b)(3)(v) of this section.

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Dated March 18, 2021.

For the Nuclear Regulatory Commission.

Andrea D. Veil, Director,
Office of Nuclear Reactor Regulation.

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