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: Final rule.

SUMMARY: The U.S. Nuclear Regulatory Commission (NRC) is amending its regulations to incorporate by reference the 2019 Edition of the American Society of Mechanical Engineers Boiler and Pressure Vessel Code, Section III, Division 1, and Section XI, Division 1, 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 incorporating by reference the American Society of Mechanical Engineers OM Code Case OMN–28, ''Alternative Valve Position Verification Approach to Satisfy ISTC–3700 for Valves Not Susceptible to Stem-Disk Separation''; 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: This final rule is effective on November 28, 2022. The incorporation by reference of certain publications listed in the regulation is approved by the Director of the Federal Register as of November 28, 2022.

ADDRESSES: Please refer to Docket ID NRC–2018–0290 when contacting the NRC about the availability of information for this action. You may obtain publicly available information related to this action by any of the following methods:

- *Federal Rulemaking 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.
- *NRC's Agencywide Documents Access and Management System (ADAMS):* You may obtain publicly available documents online in the ADAMS Public Documents collection at *https://www.nrc.gov/reading-rm/adams.html.* To begin the search, select ''Begin Web-based ADAMS Search.'' For problems with ADAMS, please contact the NRC's Public Document Room (PDR) reference staff at 1–800–397–4209, at 301–415–4737, or by 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.
- *NRC's PDR:* You may examine and purchase copies of public documents, by appointment, at the NRC's Public Document Room (PDR), Room P1 B35, One White Flint North, 11555 Rockville Pike, Rockville, Maryland 20852. To make an appointment to visit the PDR, please send an email to *PDR.Resource@nrc.gov* or call 1–800–397–4209 or 301–415–4737, between 8:00 a.m. and 4:00 p.m. (ET), Monday through Friday, except Federal holidays.
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FOR FURTHER INFORMATION CONTACT: Caylee Kenny, Office of Nuclear Material Safety and Safeguards, telephone: 301–415–7150, email: *Caylee.Kenny@nrc.gov;* or Michael Benson, Office of Nuclear Reactor Regulation, telephone: 301–415–2425, email: *Michael.Benson@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 amending 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 incorporating by reference the ASME OM Code Case OMN–28, ''Alternative Valve Position Verification Approach to Satisfy ISTC–3700 for Valves Not Susceptible to Stem-Disk Separation;'' 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.''

ASME periodically revises and updates its codes for nuclear power plants by issuing new editions; this final rule is in accordance with the NRC's practice to incorporate those new editions into the NRC's regulations. This 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. ASME is a voluntary consensus standards organization, and 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 XIV of this document, ''Voluntary Consensus Standards.''

B. Major Provisions

Major provisions of this final rule include the incorporation by reference with conditions of the following ASME Codes and Code Case 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
- OM Code Case OMN–28, ''Alternative Valve Position Verification Approach to Satisfy ISTC–3700 for Valves Not Susceptible to Stem-Disk Separation''
- 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 regulatory analysis to determine the expected costs and benefits of this final rule. The regulatory analysis identifies costs and benefits in both a quantitative fashion as well as in a qualitative fashion.

Based on the analysis, the NRC concludes that this final rule results in a net quantitative averted cost to the industry and the NRC. This final rule, relative to the regulatory baseline, would result in a net averted cost for industry of $10.2 million based on a 7 percent net present value (NPV) and

$11.0 million based on a 3 percent NPV. The estimated incremental industry averted cost per reactor unit ranges from $112,087 based on a 7 percent NPV to $120,879 based on a 3 percent NPV. The 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 $0.91 million based on a 7 percent NPV to $0.99 million based on a 3 percent NPV.

Qualitative factors that were considered include regulatory stability and predictability, regulatory efficiency, and consistency with the provisions of the NTTAA. The regulatory analysis includes a discussion of the costs and benefits that were considered qualitatively. If the results of the regulatory analysis were based solely on quantified costs and benefits, the regulatory analysis would show that the rulemaking is justified because the total quantified benefits of the regulatory action exceed the costs of the 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 final 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 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 regulatory analysis (Accession No. ML21267A092 in the NRC's Agencywide Documents Access and Management System (ADAMS)).

Table of Contents

I. Background

The American Society of Mechanical Engineers (ASME) 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, 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, 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 (without 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 years[2] (*e.g.,* 2012, 2014, etc.). The new editions 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. New editions 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 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) and amended June 3, 2020 (85 FR 34087).

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 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

[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.

conditions are included in § 50.55a, typically in paragraph (b) of that section. NRC rulemakings adopting (incorporating by reference) a voluntary consensus standard identify and justify each part of the standard that is not adopted. For this final 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 the Code Case that are the subject of this final 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 XIV of this document, ''Voluntary Consensus Standards.''

II. Discussion

The NRC regulations incorporate by reference ASME Codes for nuclear power plants. This final 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 final 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 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 provision. 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 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 is amending 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 their use.
- The 2020 Edition to Division 1 of the ASME OM Code, with conditions on its use.
- ASME OM Code Case OMN–28, ''Alternative Valve Position Verification Approach to Satisfy ISTC–3700 for Valves Not Susceptible to Stem-Disk Separation,'' without conditions.
- ASME Standard NQA–1, ''Quality Assurance Requirements for Nuclear Facility Applications,'' including several editions and addenda to NQA–1. More specifically, the NRC is incorporating by reference the 2011 Addenda to ASME NQA–1b–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 their 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 final rule revises § 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 1973 Winter Addenda; and the 1974 Edition (Division 1) through the 2017 Edition (Division 1), subject to the conditions identified in the current § 50.55a(b)(2)(i) through (xlii). This final rule revises § 50.55a(a)(1)(ii) to incorporate by reference the 2019 Edition (Division 1) of the ASME BPV Code, Section XI. It also removes the incorporation by reference of older editions and addenda of Section XI prior to 2001 Edition that are no longer in use, and adds, removes, or revises some of the conditions as explained in the rule.

The current regulations in § 50.55a(a)(1)(iv) incorporate by reference ASME OM Code, 1995 Edition through the 2006 Addenda, and the 2009 Edition (Division 1) through the 2017 Edition (Division 1), subject to the conditions currently identified in § 50.55a(b)(3)(i) through (xi). This final rule revises § 50.55a(a)(1)(iv) to incorporate by reference the 2020 Edition of Division 1 of the ASME OM Code. As explained in Section II.C of this document, this final rule also revises § 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. This final rule also revises § 50.55a(a)(1)(iii) to add the incorporation by reference of the ASME OM Code Case OMN–28, which is referenced in paragraph (b)(3)(xi).

The current regulations in § 50.55a(a)(1)(v) incorporate by reference ASME NQA–1, 1983 Edition through the 2009 Addenda, subject to conditions identified in § 50.55a(b)(1)(iv) and (b)(2)(x). This final rule revises § 50.55a(a)(1)(v) 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 website 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.

The NRC reviewed changes to the Codes in the editions identified in this final rule, and published a proposed rule in the **Federal Register** setting forth the NRC's proposal to incorporate by reference the ASME Codes, together with proposed conditions on their use (86 FR 16087; March 26, 2021). The NRC also corrected minor editorial and administrative errors, including spacing and typos. After consideration of the public comments received on the proposed rule (public comments are discussed in Section IV of this document, ''NRC Responses to Public Comments''), the NRC concludes, 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 set forth in this final rule. Each of the NRC conditions and the reasons for each condition are discussed in the following sections of this document. The discussions are organized under the applicable ASME Code and 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 is revising § 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 final rule revises 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 is revising 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 is revising § 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 revising 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 revising 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 that is incorporated by reference in § 50.55a. 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 or later Edition of Section III, that is incorporated by reference in § 50.55a.

Section 50.55a(b)(1)(vii) Section III Condition: Capacity Certification and Demonstration of Function of Incompressible-Fluid Pressure-Relief Valves

The NRC is revising § 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 revising 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 is revising § 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 revising 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 adding 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 adding 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 provide 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 is removing and reserving § 50.55a(a)(1)(ii)(A), removing § 50.55a(a)(1)(ii)(B)(*5*) through (*7*), and removing and reserving § 50.55a(a)(1)(ii)(C)(*1*) through (*32*) and (a)(1)(ii)(C)(*37*) through (*40*) because these sections 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 is amending regulations in § 50.55a(b)(2)(viii), (ix), (xii), (xiv), and (xv), (b)(2)(xviii)(A), (b)(2)(xix), and (b)(2)(xx)(A) to remove references to these older editions and addenda.

The NRC is amending 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 amendment revises 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 is revising 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 is amending 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 is deleting 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 is amending the regulations in § 50.55a(b)(2)(ix) to remove references to Section XI editions and addenda prior to the 2001 Edition that are no longer in use. With the removal of these earlier editions the NRC also is deleting 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 is revising 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 final rule incorporates by reference.

The NRC is revising 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 or the 2012 or 2015 Edition of NQA–1 when using the 2019 or later Edition of Section XI that is incorporated by reference in § 50.55a.

The NRC also is revising 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) Section XI Condition: NDE Personnel Certification: Fourth Provision

The NRC is amending 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, 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 is amending 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 is amending § 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) Section XI Condition: Table IWB–2500–1 Examination Requirements: Table IWB–2500–1 Examination

The NRC is amending 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) Section XI Condition: Mitigation of Defects by Modification: Second Provision

The NRC is amending 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 is amending 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 is providing 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 aging 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 is deleting 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 is deleting the refueling outage interval examinations and only requiring 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 a 2-times multiplier for known loss of material rates or a 4-times multiplier for estimated loss of material rates provides sufficient conservatism to allow a follow-up 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 in paragraph (b)(2)(xxv)(B)(*3*)(*i*) are editorial. The NRC is deleting 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.

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 is revising 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 is amending § 50.55a(b)(2)(xxvi) to remove references to Section XI pressure test and VT–2 examination. The NRC is relaxing 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. 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 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.

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) walkdowns of 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 the 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.

The NRC initially proposed requiring that licensees define a leak test to be applied, but received comments that licensees are already performing such tests to the standards of their quality assurance programs under appendix B to 10 CFR part 50 and that requiring licensees to create an additional program for such tests is duplicative and unnecessary. The NRC agrees with these comments. Therefore, the NRC is amending § 50.55a(b)(2)(xxvi) to require 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/replacement activity must be verified to be leak tight, and the verification must be performed to the standards of the licensee's appendix B program. To be clear, this condition requires licensees to verify that these mechanical joints are leak tight even under circumstances a licensee's program under appendix B to 10 CFR part 50 would not require such verification. However, licensees need not define a new leak test or personnel qualifications; instead, licensees will apply the quality standards of their appendix B programs.

Because the condition no longer requires an ASME Code pressure test, the ASME Code NDE examiner qualification requirements would no longer apply. Therefore, in this final rule the NRC also is removing the requirement for the NDE examiners to meet the requirements of the licensee's current ISI code of record. In contrast to the proposed rule, which indicated licensees would need to establish qualifications for personnel performing the licensee-defined leak test, the final rule relies on the qualification requirements of appendix B to part 50 to ensure that tests are conducted by qualified personnel.

Requiring verification of leak tightness ensures the leak tests are completed, and the NRC agrees that requirements of the licensee's program under appendix B to part 50 are sufficient to ensure the tests are conducted to an appropriate standard for nuclear applications. This requirement 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.

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 is amending § 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 Decision making for Inservice Inspection of Piping''; RG 1.200, ''An Approach for Determining the Technical Adequacy of Probabilistic Risk Assessment Results for Risk-Informed Activities''; and NRC Standard Review Plan Chapter 3.9.8, ''Review of Risk-Informed Inservice Inspection of Piping.'' 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 is amending 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 is relaxing the requirement for all licensees. Licensees using Section XI, Editions and Addenda prior to the 2010 Edition may utilize Code Case N–778, ''Alternative Requirements for Preparation and Submittal of Inservice Inspection Plans, Schedules, and Preservice and Inservice Inspection Summary Reports, Section XI, Division 1,'' to obtain the 120 day submittal relaxation.

Section 50.55a(b)(2)(xxxvi) Section XI Condition: Fracture Toughness of Irradiated Materials

The NRC is amending 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 is amending 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 is removing the existing condition § 50.55a(b)(2)(xl) and its proposed modification as a result of public comments, which provided information demonstrating that the condition is not necessary (see ''NRC Responses to Public Comments: Final Rule: American Society of Mechanical Engineers 2019–2020 Code Editions,'' as provided in the ''Availability of

Documents'' section of this document) on the proposed modification to the condition. Removal of this condition and its proposed modification will extend the applicability of the ASME BPV Code, Section XI procedures to certain ferritic steels with specified minimum yield strength greater than 50 kilopound per square inch (ksi).

Section 50.55a(b)(2)(xliii) Section XI Condition: Regulatory Submittal Requirements

The NRC is adding § 50.55a(b)(2)(xliii) 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 condition simply retains 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_{T0}) 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)(iii), ASME Code Cases: Nuclear Components

The NRC is amending the regulations in § 50.55a(a)(1)(iii) to incorporate by reference the ASME OM Code Case OMN–28, ''Alternative Valve Position Verification Approach to Satisfy ISTC–3700 for Valves Not Susceptible to Stem-Disk Separation.'' Public comments on § 50.55a(b)(3)(xi) requested that the NRC include acceptance of Code Case OMN–28 in this final rule for the purpose of extending the test interval for valves that have a stem-disk connection that is not susceptible to separation from two years to 12 years. The NRC agrees that Code Case OMN–28 provides a structured approach for the testing of these valves. The NRC is incorporating by reference ASME OM Code Case OMN–28 in § 50.55a(a)(1)(iii) because it is referenced in § 50.55a(b)(3)(xi).

Although the proposed rule did not include this Code Case, the NRC has determined that the incorporation by reference of this Code Case at the final rule stage is a logical outgrowth of the proposed rule. The preamble for the proposed rule stated that the NRC was aware that the ASME OM Code committees were considering allowing up to 12 years as the maximum interval for valve position verification testing in a Code Case, and that if that Code Case was issued prior to publication of the final rule, the NRC may adopt the 12-year maximum interval specified in that Code Case (86 FR 16087; 16096). Although the Code Case number was not yet assigned at the time when the NRC was preparing the proposed rule, it was issued in March 2021 as OM Code Case OMN–28. Several public comments were received seeking approval of OM Code Case OMN–28. There were no comments in opposition to the adoption of such a Code Case. Therefore, the NRC concludes that it may incorporate by reference ASME OM Code Case OMN–28. See also Section XV. of this document for additional discussion on the reasonable availability of this standard during the comment period.

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

The NRC is amending the regulations in § 50.55a(a)(1)(iv)(B) to incorporate by reference the 2020 Edition of the ASME OM Code 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 is removing the incorporation by reference of the 2011 Addenda of the ASME OM Code from § 50.55a(a)(1)(iv)(B)(*2*), which allows 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 is removing 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 usable for applicants or updating licensees.

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

The NRC is simplifying § 50.55a(b)(3) to be consistent with the removal of 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 is simplifying § 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 is replacing 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 is amending § 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 becomes 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 is removing 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 is unnecessary because the NRC also is amending § 50.55a(a)(1)(iv)(B)(*2*) to remove the incorporation by reference of the 2011 Addenda of the ASME OM Code. The NRC is reserving 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 revised the subsection to be acceptable in the 2020 Edition of the ASME OM Code. Therefore, the NRC is not extending 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 is amending 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 is amending § 50.55a(a)(1)(iv)(B)(*2*) to remove the incorporation by reference of the 2011 Addenda and amending § 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 becomes 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 is amending § 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 is amending § 50.55a(b)(3)(xi) to allow schedule flexibility for valves not susceptible to stem-disk separation by accepting ASME OM Code Case OMN–28, ''Alternative Valve Position Verification Approach to Satisfy ISTC–3700 for Valves Not Susceptible to Stem-Disk Separation,'' directly in § 50.55a(b)(3)(xi). In the proposed rule, the NRC provided a revision to § 50.55a(b)(3)(xi) for public comment that would have allowed a 10-year interval (rather than the 2-year interval specified in ISTC–3700) for valves not susceptible to separation of the stem-disk connection where justification is documented and available for NRC review. In the **Federal Register** notice of proposed rulemaking, the NRC noted that the ASME OM Code committees were considering increased schedule flexibility for valve position verification testing with a 12-year interval as part of a proposed Code Case. The NRC stated that if that Code Case was issued before the final rule was published, the NRC may adopt the 12-year maximum interval in that Code Case. ASME has finalized that draft Code Case as Code Case OMN–28, which the NRC considers to be consistent with the intent of the proposed rule. Therefore, the NRC is incorporating by reference Code Case OMN–28 in this final rule for efficiency in the regulatory process. In response to a public comment, the NRC revised § 50.55a(b)(3)(xi) to include a provision indicating that where plant conditions make it impractical to perform the initial ISTC–3700 test as supplemented by § 50.55a(b)(3)(xi) by the date 2 years following the previously performed ISTC–3700 test, a licensee may justify an extension of this initial supplemental valve position verification provided the ISTC–3700 test as supplemented by § 50.55a(b)(3)(xi) is performed at the next available opportunity and no later than the next plant shutdown. This one-time extension of the ISTC–3700 test schedule as supplemented by § 50.55a(b)(3)(xi) is acceptable provided the licensee has available for NRC review documented justification based on information obtained over the previous 5 years of the structural integrity of the stem-disk connection for the applicable valves. The licensee's justification could be based on, for example, verification of the valve stem-disk connection through an appropriate weak link analysis, appropriate disk motion confirmed during diagnostic testing, or allowance and cessation of flow through the valves. The licensee's justification must provide reasonable assurance that the remote indicating lights accurately reveal the position of the valve obturator until the next ISTC–3700 test as supplemented by § 50.55a(b)(3)(xi) is performed.

The NRC provides the following discussion in response to public comment on the supplemental valve position indication requirement in § 50.55a(b)(3)(xi). The NRC regulations in § 50.55a(b)(3)(xi) apply to valves within the scope of ASME OM Code, Subsection ISTC, and allow the valve position verification methods and frequencies in the ASME OM Code appendices, such as Appendix III, ''Preservice and Inservice Testing of Active Electric Motor-Operated Valve Assemblies in Water-Cooled Reactor Nuclear Power Plants,'' and Appendix IV, ''Preservice and Inservice Testing of Active Pneumatically Operated Valve Assemblies in Nuclear Reactor Power Plants.'' The condition in

§ 50.55a(b)(3)(xi) applies when the remote position indication test required by ISTC–3700 is performed (*i.e.,* 2 years from the previous remote position indication test). The NRC regulations in § 50.55a(b)(3)(xi) emphasize the intent of the valve position verification requirement in ISTC–3700 to provide assurance that the remote indicating lights provide accurate indication of the position of the valve obturator. The supplemental valve position verification requirement in § 50.55a(b)(3)(xi) is not a separate test from the valve position verification requirement in ISTC–3700.

The NRC agrees that the statement in ISTC–3700 that the observations need not be concurrent is confusing, because the purpose of observing such parameters as flow is to provide reasonable assurance that the indicating lights are accurately monitoring the valve obturator position. Therefore, the lights and supplemental observations need to be monitored together to demonstrate that the lights are performing properly. Although ISTC–3700 is not clear, this ASME OM Code paragraph allows flexibility regarding when someone physically is located at the valve to monitor stem travel and when someone is monitoring flow at another location. Further, the NRC considers the discussion of non-concurrent testing in ISTC–3700 to apply to the open and close function of each valve. For example, licensees might find it more convenient to verify that the remote indicating light for the open function is operating properly on a different day than the remote indicating light for the close function. The ASME OM Code allows non-concurrent testing for both the open and close function as long as the 2-year test frequency required by IST–3700 is satisfied for each stroke direction.

Supplemental position verification observations are required to start during performance of the first remote position indication test required by ISTC–3700 following licensee implementation of the ASME OM Code, 2012 Edition through the latest edition of the ASME OM Code incorporated by reference in § 50.55a(a)(1)(iv). The wording presented by the NRC staff during the public meeting on June 14, 2021, that ISTC–3700 requires valve position verification testing every 2 years and the § 50.55a(b)(3)(xi) condition applies when the ISTC–3700 test is performed (2 years from the previous ISTC–3700 test) does not reflect a change of the NRC's the intent for the condition. The condition in § 50.55a(b)(3)(xi) does not modify the schedule for valve position indication testing either in ISTC–3700 or ASME OM Code, Appendix III.

ASME OM Code, Subsection ISTC, paragraph ISTC–3700, specifies that position verification testing for motor-operated valves will follow ASME OM Code, Appendix III. Therefore, the supplemental position indication testing required by § 50.55a(b)(3)(xi) will follow the IST intervals specified in ASME OM Code, Appendix III, and extended IST intervals allowed in ASME OM Code Case OMN–26, ''Alternate Risk-Informed and Margin Based Rules for Inservice Testing of Motor Operated Valves,'' where a licensee has authorization to apply that Code Case.

Section 50.55a(f)(4): Inservice Testing Standards Requirement for Operating Plants

The NRC is modifying § 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 is including 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.

In response to public comments on the proposed revision to paragraph (f)(4), the NRC is revising this paragraph to clarify that an augmented IST program may be implemented for pumps and valves that are within the scope of the ASME OM Code but are not ASME BPV Code Class 1, 2, or 3 components. This use of an augmented IST program is acceptable without prior NRC approval (*i.e.,* without relief under § 50.55a(f)(5) or an alternative under § 50.55a(z)), provided the basis for deviations from the ASME OM Code, as incorporated by reference in § 50.55a, 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.

Section 50.55a(f)(7), Inservice Testing Reporting Requirements

The NRC is adding § 50.55a(f)(7) to require nuclear power plant applicants and licensees to submit their IST Plans related to pumps and valves, and IST Plans 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, 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 condition retains a requirement from previous editions of the ASME OM Code. In response to public comments, this final rule does not include the proposed requirement to submit interim IST Program Plans together with final safety analysis report updates. As noted in public comments, the NRC can request a licensee to submit an updated IST Program Plan if needed for the evaluation of relief or alternative requests submitted by a licensee.

Section 50.55a(g)(4), Inservice Inspection Standards Requirement for Operating Plants

The NRC is modifying § 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.

III. Opportunities for Public Participation

The proposed rule was published on March 26, 2021, for a 60-day comment period (86 FR 16087). The public comment period closed on May 25, 2021.

During the public comment period, the NRC held a public meeting on May 6, 2021, to discuss the proposed rule, to answer questions on specific provisions of the proposed rule, and to encourage public input on the proposed rule. The public meeting summary is available in ADAMS as provided in the ''Availability of Documents'' section of this document.

IV. NRC Responses to Public Comments

The NRC received eight letters and emails in response to the opportunity for public comment on the proposed rule. These comment submissions were submitted by the following commenters (listed in order of receipt):

1. Dominion Energy
2. Inservice Testing Owners Group
3. Private citizen, Terence Chan
4. Nuclear Energy Institute
5. American Society of Mechanical Engineers
6. Exelon Generation Company, LLC
7. Electric Power Research Institute
8. Tennessee Valley Authority

In general, the comments:

- Suggested revising or rewording conditions to make them clearer.
- Opposed proposed conditions.
- Supplied additional information for NRC's consideration.
- Supported the proposed changes to revise or remove conditions.
- Proposed removal of several conditions.

Due to the large number of comments received and the length of the NRC's response, a summary of the NRC's response to comments in areas of particular interest to stakeholders is included in this final rule. Special attention has been made to discuss comments that prompted the NRC to make more than editorial changes in this final rule from what the NRC had proposed. As such, comments on ASME BPV Code, Section III are not discussed since no changes were made in response to public comments. The public comment submittals are available from the Federal e-Rulemaking website at *https://www.regulations.gov* under Docket ID NRC–2018–0290. A discussion of all comments and complete NRC responses are presented in a separate document, ''NRC Responses to Public Comments: Final Rule: American Society of Mechanical Engineers 2019–2020 Code Editions,'' as provided in the ''Availability of Documents'' section of this document.

A. ASME BPV Code, Section XI

10 CFR 50.55a(b)(2)(xxv), Mitigation of Defects by Modification

One commenter recommended that the reexamination required by § 50.55a(b)(2)(xxv)(B)(*3*) be changed from ''once per interval'' to ''once every ten years'' to clarify that the reexamination need not be performed in the current inspection interval if less than 10 years remain in that inspection interval. Another commenter suggested that § 50.55a(b)(2)(xxv)(B)(*3*)(*ii*) should be revised for clarity and provided recommended text. The NRC agrees with the comments but made further revisions to the suggested clarifications to afford licensees additional flexibility. The NRC has revised § 50.55a(b)(2)(B)(*3*) to reflect these changes.

10 CFR 50.55a(b)(2)(xxvi), Pressure Testing Class 1, 2, and 3 Mechanical Joints

One commenter was concerned that the proposed rule language in § 50.55a(b)(2)(xxvi) contained requirements that were more specific than those utilized in licensees' existing non-Code leak test procedures and for which the technical basis for such differentiation is unclear. The commenter suggested that the condition be deleted or replaced with an alternative language. The NRC disagrees with the commenter's suggestion to delete the condition but agrees with the commenter's recommendation to clarify the rule language. In response to this comment, the NRC revised § 50.55a(b)(2)(xxvi).

10 CFR 50.55a(b)(2)(xl), Prohibitions and Restrictions on Use of IWB–3510.4(b), IWC–3510.5(b), Table A–4200–1, and Table G–2110–1

A commenter did not support the restriction on the use of IWB–3510.4(b)(5) and IWC–3510.5(b)(5) for SA–508 Class 1 material, and recommended that this condition be revised in the final rule to not to apply to SA–508 Class 1 material. Further, the commenter stated that the prohibition or restriction on SA–533 Type B Class 2 material is unnecessary and recommended that the condition be deleted. The NRC agrees that the prohibition or restriction on the use of SA–508 Class 1 and SA–533 Type B Class 2 material can be removed. As a result of this comment, the proposed condition is not included in this final rule.

B. ASME OM Code

10 CFR 50.55a(b)(3)(xi), Valve Position Indication

One comment asserted that establishing a requirement to verify obturator position on every valve in the IST program with remote position indication could place a significant burden on the licensee to develop new test methods and procedures for valves that do not have supplemental means available, such as a flow or pressure indication. The comment further recommended that the condition be revised to provide greater flexibility to licensees and allow for the supplemental position obturator verification to be credited by existing performance-based test methods and frequencies such as appendix J to 10 CFR part 50, Code Cases OMN–23 and OMN–27, and performance-based testing in Mandatory Appendices II, III, and IV. One comment recommended that the condition be deleted because the condition represents a significant burden for licensees to implement, or alternatively revised to clarify the starting point for the condition or the timeframe when the implementation must be completed. Another comment suggested a complete revision to § 50.55a(b)(3)(xi) that went beyond the changes in the proposed rule. Several comments recommended directly accepting ASME Code Case OMN–28 in § 50.55a(b)(3)(xi). No comments opposed the adoption of a Code Case such as OMN–28.

The NRC partially agrees and partially disagrees with these comments. The NRC disagrees that the condition should be revised to include a general reference to performance-based verification methods, with the intent to allow various methods for leakage testing intervals in appendix J to 10 CFR part 50 and other performance-based test methods and frequencies in the ASME OM Code and various Code Cases. The NRC notes that the appendix J to 10 CFR part 50 test program may be referenced in an alternative request in describing the proposed alternative schedule for valve position verification. However, appendix J to 10 CFR part 50 addresses, in part, containment valve leakage, and does not provide justification for verifying the valve position indicating lights. Therefore, an alternative request in accordance with § 50.55a(z) must be submitted if the appendix J to 10 CFR part 50 test program is proposed as part

of an alternative to ISTC–3700 as supplemented by § 50.55a(b)(3)(xi).

In response to comments recommending that § 50.55a(b)(3)(xi) be deleted, the NRC disagrees with these comments because the condition is necessary to ensure that licensees implement the provisions of the ASME OM Code, Subsection ISTC, paragraph ISTC–3700, to verify that valve obturator position is accurately indicated. The NRC disagrees that § 50.55a(b)(3)(xi) should be revised to clarify the start date for the condition because the start date was previously discussed in the final rule that incorporated by reference the 2012 Edition of the ASME OM Code (82 FR 32934). The NRC agrees that the condition should be revised to include a direct reference to ASME OM Code Case OMN–28, which would allow licensees to extend the 2-year interval for valve position indication testing specified in Subsection ISTC, paragraph ISTC–3700, to 12 years for valves with a stem-disk connection that is not susceptible to separation.

As a result of these comments, the NRC replaced the proposed provision allowing a 10-year interval for valve position indication testing for valves that have a stem-disk connection that is not susceptible to separation with a direct reference to the recently issued ASME Code Case OMN–28 in this final rule.

The NRC agrees with a public comment to include a provision for a one-time extension and revised 10 CFR 50.55a(b)(3)(xi) in response. More detail is provided in this document in the ''Availability of Documents'' section under the heading ''Section 50.55a(b)(3)(xi) OM Condition: Valve Position Indication.''

10 CFR 50.55a(f)(4), Inservice Testing Standards Requirement for Operating Plants

Several commenters were concerned that the proposed removal of the phrase ''without requesting relief under paragraph (f)(5) of this section or alternatives under paragraph (z) of this section'' caused confusion. The commenters indicated that the language is necessary to clarify that formal submittals of request for relief or alternatives are not required for augmented IST program related components. The NRC agrees with these comments that the removal of the phrase ''without requesting relief under paragraph (f)(5) of this section or alternatives under paragraph (z) of this section'' from the current language of § 50.55a(f)(4) as proposed has caused confusion. The NRC's proposed revision to § 50.55a(f)(4) was intended only to clarify the transition from the ASME BPV Code, Section XI, to the ASME OM Code for the IST requirements for dynamic restraints as licensees update their IST Programs to the more recent editions of the ASME OM Code. There was no intent to require submittal of requests for non-Code Class components when using augmented testing provisions. The phrase ''without requesting relief under paragraph (f)(5) of this section or alternatives under paragraph (z) of this section'' was determined to be unnecessary during a final review of the proposed rule language because this aspect is understood. In response to public comments, the NRC has revised this paragraph to clarify that an augmented IST program may be implemented for pumps and valves that are within the scope of the ASME OM Code but are not ASME BPV Code Class 1, 2, or 3 components. This use of an augmented IST program is acceptable without prior NRC approval (*i.e.,* without relief under § 50.55a(f)(5) or an alternative under § 50.55a(z)) provided the basis for deviations from the ASME OM Code, as incorporated by reference in § 50.55a, 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.

10 CFR 50.55a(f)(7), Inservice Testing Reporting Requirements

Several commenters were concerned that the proposed wording in § 50.55a(f)(7) would expand the requirement for licensees to submit their IST Plans and interim IST Plan updates related to pumps and valves, and IST Plans and interim IST Plan updates related to snubber examination and testing to the NRC when the final safety analysis report is updated. The commenters indicated that this requirement would increase the frequency of the IST program plan submittals and would be unnecessary and overly burdensome. The NRC agrees that submittal of interim IST Program Plans by licensees is not necessary because, as indicated by public comments, the NRC can request that licensees provide the updated IST Program Plan if needed to evaluate a relief or alternative request. Therefore, the NRC revised § 50.55a(f)(7) to reflect this change.

V. Section-by-Section Analysis

This section describes the primary revisions made by this final rule; minor editorial and administrative corrections to correct spacing, administrative errors, and typos are not identified in this analysis.

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

This final rule revises paragraphs (a)(1)(i)(E)(*18*) and (*19*) and adds new paragraph (a)(1)(i)(E)(*20*) to include the 2019 Edition of the ASME BPV Code.

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

This final rule removes and reserves paragraph (a)(1)(ii)(A).

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

This final rule revises paragraph (a)(1)(ii)(B) and removes paragraphs (a)(1)(ii)(B)(*5*) through (*7*).

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

This final rule removes and reserves paragraphs (a)(1)(ii)(C)(*1*) through (*32*) and paragraphs (a)(1)(ii)(C)(*37*) through (*40*), revises paragraphs (a)(1)(ii)(C)(*54*) and (*55*), and adds new paragraph (a)(1)(ii)(C)(*56*) to include the 2019 Edition of the ASME BPV Code.

Paragraph (a)(1)(iii)

This final rule adds new paragraph (a)(1)(iii)(H) to include ASME OM Code Case OMN–28.

Paragraph (a)(1)(iv)

This final rule revises paragraph (a)(1)(iv)(B)(*1*) and removes and reserves paragraph (a)(1)(iv)(B)(*2*) and it revises 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 final rule revises paragraphs (a)(1)(v)(B)(*2*) and (*3*) and adds 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 final rule revises paragraphs (b)(1) introductory text and (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 also revises 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 are also added.

Paragraph (b)(2)

This final rule revises 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 final rule removes and reserves paragraphs (b)(2)(viii)(A) through (D).

Paragraph (b)(2)(ix)

This final rule revises 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 final rule also revises paragraph (b)(2)(ix)(B) to remove references to Section XI editions and addenda prior to the 2001 Edition. This final rule also removes and reserves paragraphs (b)(2)(ix)(C) through (E).

Paragraph (b)(2)(x)

This final rule revises 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. This final rule also removes the reference to IWA–1400.

Paragraph (b)(2)(xii)

This final rule revises 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 final rule revises paragraph (b)(2)(xiv) to replace the reference to the 1999 Addenda with the reference to the 2001 Edition.

Paragraph (b)(2)(xv)

This final rule revises paragraph (b)(2)(xv) to remove the phrase ''the 1995 Edition through.''

Paragraph (b)(2)(xviii)

This final rule revises 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 final rule also revises 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 final rule revises paragraph (b)(2)(xix) to remove references to Section XI editions and addenda prior to the 2001 Edition.

Paragraph (b)(2)(xx)

This final rule revises paragraph (b)(2)(xx)(A) to replace the reference to the 1997 Addenda with the reference to the 2001 Edition. This final rule also revises paragraph (b)(2)(xx)(C) to retain the applicability to users of the latest edition incorporated by reference in paragraph (a)(1)(ii) and to remove reference to IWB–5210(c).

Paragraph (b)(2)(xxi)

This final rule revises 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 final rule revises paragraph (b)(2)(xxv) introductory text and revises paragraph (b)(2)(xxv)(B) to extend the applicability to users of the latest edition incorporated by reference in paragraph (a)(1)(ii). This final rule also revises 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 final rule also revises 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 final rule also revises paragraph (b)(2)(xxv)(B)(*3*)(*i*) to make editorial changes and revises 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 final rule revises paragraph (b)(2)(xxvi) to remove the requirements for pressure testing in accordance with IWA–5211(a) and NDE examination. This final rule also revises paragraph (b)(2)(xxvi) to add a requirement for the owner to perform the leak check to the standards of their appendix B to 10 CFR part 50 quality assurance program to demonstrate the joint's leak tightness.

Paragraph (b)(2)(xxix)

This final rule revises 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 final rule revises 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 final rule revises 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 final rule revises 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 final rule removes and reserves paragraph (b)(2)(xl).

Paragraph (b)(2)(xliii)

This final rule adds new paragraph (b)(2)(xliii) to require submission of certain analyses to the NRC for review.

Paragraph (b)(3)

This final rule revises 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 final rule revises paragraph (b)(3)(iii) for clarity of the date of application of this condition.

Paragraph (b)(3)(iv)

This final rule revises 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 revises the paragraph for clarity.

Paragraph (b)(3)(vii)

This final rule removes and reserves paragraph (b)(3)(vii).

Paragraph (b)(3)(viii)

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

Paragraph (b)(3)(xi)

This final rule revises paragraph (b)(3)(xi) to remove reference to ASME OM Code addenda, revises the paragraph for clarity, and to allow increased flexibility in the schedule for position verification testing of valves not susceptible to stem-disk separation as specified in ASME OM Code Case OMN–28. The final rule also allows schedule flexibility for the initial ASME OM Code, Subsection ISTC, paragraph ISTC–3700 testing as supplemented by paragraph (b)(3)(xi) by the date 2 years after the previous ISTC–3700 test where plant conditions make such testing impractical.

Paragraph (f)(4)

This final rule revises paragraph (f)(4) to clarify the relationship between paragraphs (f)(4) and (g)(4) regarding the IST and ISI programs for dynamic restraints. The final rule clarifies that prior NRC approval is not required to implement the augmented IST program activities for pumps and valves within the scope of the ASME OM Code, but are not ASME BPV Code Class 1, 2, or 3 components, where justification is available for NRC review.

Paragraph (f)(7)

This final rule adds new paragraph (f)(7) to include the requirements for IST Program Plans at the outset of the 10-year IST Program interval.

Paragraph (g)(4)

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

VI. Generic Aging Lessons Learned Report

Background

In December 2010, the NRC issued ''Generic Aging Lessons Learned (GALL) Report,'' NUREG–1801, Revision 2, 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, 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 AMPs 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, 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 2013 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, 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. 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 final 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 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 final 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 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.

VII. Regulatory Flexibility Certification

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

VIII. Regulatory Analysis

The NRC has prepared a final regulatory analysis on this regulation. The analysis examines the costs and benefits of the alternatives considered by the NRC. The regulatory analysis is available as indicated in the ''Availability of Documents'' section of this document.

IX. 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 final rule incorporates 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.

This final rule also incorporates by reference Code Case OMN–28, the 2011 Addenda to ASME NQA–1–2008, and the 2012 and 2015 Editions of ASME NQA–1. However, each of these are voluntary alternatives to provisions of the ASME Codes, and their incorporation by reference does not constitute backfitting, because there is no imposition of a new requirement or new position. Similarly, voluntary application of OMN–28, the 2011 Addenda to ASME NQA–1–2008, or the 2012 and 2015 Editions of ASME NQA–1 by a 10 CFR part 52 applicant or licensee does not represent NRC imposition of a requirement or action, and therefore is not inconsistent with any issue finality provision in 10 CFR part 52.

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 must 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 final rule, the NRC's elimination of some Section XI editions and addenda from the regulations does not constitute 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 prepare 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: 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 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 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 change is not a backfit.

2. Add § 50.55a(b)(1)(xiii)(A) and (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 maintain the current 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 through1994 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 removal of 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 removal of 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 removal of 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 revised 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 revised 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 revised 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 revised 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 revised condition represents a relaxation from the current requirements. Therefore, the revision of this condition is not a backfit.

11. Remove § 50.55a(b)(2)(xl) to allow use of Subparagraphs IWB–3510.4(b)(4), IWB–3510.4(b)(5), IWC–3510.5(b)(4), and IWC–3510(b)(5), and Table A–4200–1, Table G–2110–1, Figure A–4200–1, and Figure G–220–1 as it relates to the toughness of certain ferritic steels with specified minimum yield strength greater than 50 ksi. Removing this condition represents a relaxation from the current requirements. Therefore, the removal of this condition is not a backfit.

12. Add § 50.55a(b)(2)(xliii) 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 condition on regulatory submittal requirements does not constitute a new or changed NRC position. Therefore, the addition of this 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 removal of 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 change allows 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. The final rule also allows schedule flexibility for the initial ASME OM Code, Subsection ISTC, paragraph ISTC–3700 testing as supplemented by paragraph (b)(3)(xi) by the date 2 years after the previous ISTC–3700 test where plant conditions make such testing impractical. These changes allow increased flexibility in the testing interval where justified and, therefore, are 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 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 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 maintaining 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.

X. 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).

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

This final 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 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 final 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.

XII. Paperwork Reduction Act

This final rule amends collections of information subject to the Paperwork Reduction Act of 1995 (44 U.S.C. 3501 *et seq.*). The collections of information were approved by the Office of Management and Budget (OMB), approval number 3150–0011.

Because the rule will reduce the burden for existing information collections, the public burden for the information collections is expected to be decreased by 240 hours per response. This reduction includes the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the information collection.

The information collection is being conducted to document the plans for and the results of ISI and IST programs. The records are generally historical in nature and provide data on which future activities can be based. The practical utility of the information collection for the NRC is that appropriate records are available for auditing by NRC personnel to determine if ASME BPV and OM Code provisions for construction, inservice inspection, repairs, and inservice testing are being properly implemented in accordance with § 50.55a, or whether specific enforcement actions are necessary. Responses to this collection of information are generally mandatory under § 50.55a.

You may submit comments on any aspect of the information collections, including suggestions for reducing the burden, by the following methods:

- *Federal Rulemaking Website:* Go to *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: *oira_submission@omb.eop.gov.*

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.

XIII. Congressional Review Act

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

XIV. 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 final 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.

In this final rule, the NRC also is continuing its existing practice of approving the use of an ASME OM Code Case, which is an ASME-approved alternative to compliance with various provisions of the ASME OM Code. The ASME Code Cases are national consensus standards as defined in the NTTAA and OMB Circular A–119. The ASME Code Cases constitute voluntary consensus standards, in which all interested parties (including the NRC and licensees of nuclear power plants) participate. Therefore, the NRC's approval of the use of the ASME Code Case in this final rule is consistent with the overall objectives of the NTTAA and OMB Circular A–119.

As discussed in Section II of this document, this final rule conditions 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. This final rule also includes the 2011 Addenda to ASME NQA–1–2008, (ASME NQA–1b–2011), the 2012 and 2015 Editions of ASME NQA–1, and Code Case OMN–28. In addition, this final rule does not adopt (''excludes'') certain provisions of the ASME Codes as discussed in this document, and in the regulatory and backfit analyses for this final rule. The NRC finds that this final 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 and addenda, 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 in this final 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 Case that are the subject of this final rule are acceptable for use (in some cases with conditions). For these reasons, the NRC concludes that this final rule's treatment of ASME Code editions and addenda 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 final rule satisfies the requirements of the NTTAA and OMB Circular A–119.

XV. Incorporation by Reference—Reasonable Availability to Interested Parties

The NRC is incorporating by reference two recent editions to the ASME Codes for nuclear power plants. The NRC also is incorporating by reference the ASME OM Code Case OMN–28, ''Alternative Valve Position Verification Approach to Satisfy ISTC–3700 for Valves Not Susceptible to Stem-Disk Separation,'' 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 discuss, in the preamble of the final rule, the ways that the materials it incorporates by reference are reasonably available to interested parties and how interested parties can obtain the materials. The discussion in this section complies with the requirement for final rules as set forth in § 51.5(b)(2).

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

- Individuals and small entities regulated or otherwise subject to the NRC's regulatory oversight (this class also includes applicants and potential applicants for licenses and other NRC regulatory approvals) and who are subject to the material to be incorporated by reference by rulemaking. In this context, ''small entities'' has the same meaning as a ''small entity'' under 10 CFR 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-recognized [3] 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 is incorporating by reference by rulemaking in order to participate in the rulemaking process.

The NRC makes the materials to be incorporated by reference available for inspection to all interested parties, by appointment, at the NRC Technical Library, which is located at Two White Flint North, 11545 Rockville Pike, Rockville, Maryland 20852; telephone: 301–415–7000; email: *Library.Resource@nrc.gov.* 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 Drive, 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 that are incorporated by reference in order to participate in the

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

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 rulemaking, 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. On April 14, 2020, ASME agreed to make the materials available online in a read-only electronic access format during the public comment period.

During the public comment period, the ASME made publicly available 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 proposed to incorporate by reference. ASME made these materials publicly available in read-only format at the ASME website *https://go.asme.org/NRC-ASME.* In addition, on March 16, 2021, ASME made Code Case OMN–28 available at the ASME website *https://go.asme.org/OMcommittee.*

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

XVI. Availability of Guidance

The NRC will not be issuing guidance for this final rule. The ASME BPV Code and OM Code provide direction for the performance of activities to satisfy the Code requirements for design, inservice inspection, and inservice testing of nuclear power plant structures, systems, and components (SSCs). In addition, the NRC provides guidance in this document for the implementation of the new conditions on the ASME BPV code and OM Code, as necessary. The NRC has a number of standard review plans (SRPs) that provide guidance to NRC reviewers and make communication and understanding of NRC review processes available to members of the public and the nuclear power industry. NUREG–0800, ''Review of Safety Analysis Reports for Nuclear Power Plants,'' has numerous sections which discuss implementation of various aspects of the ASME BPV Code and OM Code (*e.g.,* Sections 3.2.2, 3.8.1, 3.8.2, 3.9.3, 3.9.6, 3.9.7, 3.9.8, 3.13, 5.2.1.1, 5.2.1.2, 5.2.4, and 6.6). The NRC also publishes Regulatory Guides and Generic Communications (*i.e.,* Regulatory Issue Summaries and Information Notices) to communicate and clarify NRC technical or policy positions on regulatory matters which may contain guidance relative to this final rule.

Revision 3 of NUREG–1482, ''Guidelines for Inservice Testing at Nuclear Power Plants,'' provides guidance for the development and implementation of IST programs at nuclear power plants. With direction provided in the ASME BPV and OM Codes, and guidance in this document, the NRC has determined that preparation of a separate guidance document is not necessary for this update to § 50.55a. However, the NRC will consider preparing a revision to NUREG–1482 in the future to address the latest edition of the ASME OM Code incorporated by reference in § 50.55a.

XVII. Availability of Documents

The documents identified in the following table are available to interested persons through one or more of the following methods, as indicated.

Document	ADAMS Accession No./web link/ **Federal Register** citation
Proposed Rule Documents	
Proposed Rule—**Federal Register** Document (March 26, 2021)	86 FR 16087
Draft Regulatory Analysis (March 2021)	ML20178A448
Final Rule Documents	
Final Regulatory Analysis (September 2022)	ML21267A092
NRC Responses to Public Comments: Final Rule: American Society of Mechanical Engineers 2019–2020 Code Editions (September 2022).	ML21267A094
Annotated Public Comments on Proposed Rule: American Society of Mechanical Engineers 2019–2020 Code Editions (September 2022).	ML21267A098
Related Documents	
Email 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
Email 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 May 6, 2021, Public Meeting on the Proposed Rule to Incorporate by Reference the 2019 and 2020 Editions of ASME Codes into 10 CFR 50.55a.	ML21139A222
Summary of the June 4, 2020, Public Meeting with the Nuclear Industry to Discuss Title 10 of the *Code of Federal Regulations,* 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 *Code of Federal Regulations,* Section 50.55a(b)(xxvi) Condition of Pressure Testing of Class 1, 2, and 3 Mechanical Joints.	ML20189A286
Staff Requirements Memorandum—Affirmation Session, 11:30 a.m., Friday, September 10, 1999, Commissioners' Conference Room, One White Flint North, Rockville, Maryland (Open to Public Attendance).	ML003755050

Document	ADAMS Accession No./web link/ **Federal Register** citation
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–1482, Revision 3, ''Guidelines for Inservice Testing at Nuclear Power Plants,'' July 2020	ML20202A473
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, Vols. 1 and 2, ''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 and Standards	
ASME BPV Code, Section III, Division 1: 2019 Edition	*https://go.asme.org/NRC-ASME*
ASME BPV Code, Section XI, Division 1: 2019 Edition	*https://go.asme.org/NRC-ASME*
ASME OM Code, Division 1: 2020 Edition	*https://go.asme.org/NRC-ASME*
ASME OM Code Case OMN–28, ''Alternative Valve Position Verification Approach to Satisfy ISTC–3700 for Valves Not Susceptible to Stem-Disk Separation''.	*https://go.asme.org/OMcommittee*
ASME NQA–1b–2011, ''Quality Assurance Requirements for Nuclear Facility Applications'' (2011 Addenda)	*https://go.asme.org/NRC-ASME*
ASME NQA–1–2012, ''Quality Assurance Requirements for Nuclear Facility Applications''	*https://go.asme.org/NRC-ASME*
ASME NQA–1–2015, ''Quality Assurance Requirements for Nuclear Facility Applications''	*https://go.asme.org/NRC-ASME*

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. 552 and 553, the NRC is adopting 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) through (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 text ''the 1995 Edition through'';

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

■ f. Remove and reserve paragraph (b)(2)(xl);

■ g. Add paragraph (b)(2)(xliii);

■ h. In paragraph (b)(3) introductory text, remove the text ''1995 Edition through the latest edition'' and add in its place the word ''editions'';

■ i. Revise and republish paragraph (b)(3)(iii);

■ j. 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;

■ k. Remove and reserve paragraph (b)(3)(vii);
■ l. Revise and republish paragraphs (b)(3)(viii) through (xi) and (f)(4);
■ m. Add paragraph (f)(7); and
■ n. 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.

(iii) *ASME Code Cases: Nuclear Components*—(A) *ASME BPV Code Case N–513–3 Mandatory Appendix I.* ASME BPV Code Case N–513–3, ''Evaluation Criteria for Temporary Acceptance of Flaws in Moderate Energy Class 2 or 3 Piping Section XI, Division 1,'' Mandatory Appendix I, ''Relations for F_m, F_b, and F for Through-Wall Flaws'' (Approval Date: January 26, 2009). ASME BPV Code Case N–513–3 Mandatory Appendix I is referenced in paragraph (b)(2)(xxxiv)(B) of this section.

(B) *ASME BPV Code Case N–722–1.* ASME BPV Code Case N–722–1, ''Additional Examinations for PWR Pressure Retaining Welds in Class 1 Components Fabricated with Alloy 600/82/182 Materials, Section XI, Division 1'' (Approval Date: January 26, 2009), with the conditions in paragraph (g)(6)(ii)(E) of this section.

(C) *ASME BPV Code Case N–729–6.* ASME BPV Code Case N–729–6, ''Alternative Examination Requirements for PWR Reactor Vessel Upper Heads With Nozzles Having Pressure-Retaining Partial-Penetration Welds Section XI, Division 1'' (Approval Date: March 3, 2016), with the conditions in paragraph (g)(6)(ii)(D) of this section.

(D) *ASME BPV Code Case N–770–5.* ASME BPV Code Case N–770–5, ''Alternative Examination Requirements and Acceptance Standards for Class 1 PWR Piping and Vessel Nozzle Butt Welds Fabricated with UNS N06082 or UNS W86182 Weld Filler Material With or Without Application of Listed Mitigation Activities Section XI, Division 1'' (Approval Date: November 7, 2016), with the conditions in paragraph (g)(6)(ii)(F) of this section.

(E) [Reserved]

(F) *ASME BPV Code Case N–852.* ASME BPV Code Case N–852, ''Application of the ASME NPT Stamp, Section III, Division 1; Section III, Division 2; Section III, Division 3; Section III, Division 5'' (Approval Date: February 9, 2015). ASME BPV Code Case N–852 is referenced in paragraph (b)(1)(ix) of this section.

(G) [Reserved]

(H) *ASME OM Code Case OMN–28.* ASME OM Case OMN–28, ''Alternative Valve Position Verification Approach to Satisfy ISTC–3700 for Valves Not Susceptible to Stem-Disk Separation.'' Issued March 4, 2021. OMN–28 is referenced in paragraph (b)(3)(xi) of this section.

(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; and
(*6*) NQA–1—2015.

* * * * *

(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 1 to this paragraph (b)(1)(ii) for welds with leg size less than 1.09 t_n:

TABLE 1 TO PARAGRAPH (b)(1)(ii)—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) and (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) and (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/cm^2 (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/cm^2 (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/cm^2 (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 starting with the interval subsequent to the mitigation, 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 subsequent 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 that are disassembled and reassembled during the performance of a Section XI repair/replacement activity requiring documentation on a Form NIS–2 must be verified to be leak tight. The verification must be performed to the standards of the licensee's appendix B to this part quality assurance program.

* * * * *

(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.

* * * * *

(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.

* * * * *

(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_{T0} in establishing fracture toughness of irradiated materials.

* * * * *

(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.

* * * * *

(xliii) *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_{T0}, as described in Nonmandatory Appendix A, A–4200(c); and

(C) Determination of T_0 and RT_{T0}, 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.

* * * * *

(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, licensees may implement ASME OM Code Case OMN–28, ''Alternative Valve Position Verification Approach to Satisfy ISTC–3700 for Valves Not Susceptible to Stem-Disk Separation,'' which is incorporated by

reference in paragraph (a)(1)(iii)(H) of this section. Where plant conditions make it impractical to perform the initial ISTC–3700 test as supplemented by paragraph (b)(3)(xi) of this section by the date 2 years following the previously performed ISTC–3700 test, a licensee may justify an extension of this initial supplemental valve position verification provided the ISTC–3700 test as supplemented by paragraph (b)(3)(xi) of this section is performed at the next available opportunity and no later than the next plant shutdown. This one-time extension of the ISTC–3700 test schedule as supplemented by paragraph (b)(3)(xi) of this section is acceptable provided the licensee has available for NRC review documented justification based on information obtained over the previous 5 years of the structural integrity of the stem-disk connection for the applicable valves. The licensee's justification could be based on, for example, verification of the valve stem-disk connection through an appropriate weak link analysis, appropriate disk motion confirmed during diagnostic testing, or allowance and cessation of flow through the valves. The licensee's justification must provide reasonable assurance that the remote indicating lights accurately reveal the position of the valve obturator until the next ISTC–3700 test as supplemented by paragraph (b)(3)(xi) of this section is performed.

* * * * *

(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. This use of an augmented IST program is acceptable without prior NRC approval 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. 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 October 20, 2022.

For the Nuclear Regulatory Commission.

Andrea D. Veil,

Director, Office of Nuclear Reactor Regulation.

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