

NUCLEAR REGULATORY COMMISSION

10 CFR Part 50

RIN 3150-AH24

Industry Codes and Standards; Amended Requirements

AGENCY: Nuclear Regulatory Commission.

ACTION: Final rule.

SUMMARY: The Nuclear Regulatory Commission (NRC) is amending its regulations to incorporate by reference the 2001 Edition and the 2002 and 2003 Addenda of Division 1 of Section III of the American Society of Mechanical Engineers (ASME) *Boiler and Pressure Vessel Code* (BPV Code); the 2001 Edition and the 2002 and 2003 Addenda of Division 1 rules of Section XI of the ASME BPV Code; and the 2001 Edition and the 2002 and 2003 Addenda of the ASME *Code for Operation and Maintenance of Nuclear Power Plants* (OM Code) to provide updated rules for constructing and inspecting components and testing pumps and valves in light-water cooled nuclear power plants. This final rule incorporates by reference the latest edition and addenda of the ASME BPV and OM Codes that have been approved for use by the NRC subject to certain limitations and modifications. The NRC is also withdrawing its approval of Subsection NH of the 1995 through 2000 Addenda of Section III of the ASME BPV Code.

EFFECTIVE DATE: (insert date 30 days after publication in the *Federal Register*). The incorporation by reference of certain publications in this rule is approved by the Director of the

Office of the Federal Register as of (insert date 30 days after publication in the *Federal Register*).

ADDRESSES: The NRC maintains an Agencywide Documents Access and Management System (ADAMS), which provides text and image files of NRC's public documents. The documents may be accessed through the NRC's Public Electronic Reading Room on the Internet at <http://www.nrc.gov/reading-rm/adams.html>. If you do not have access to ADAMS or if there are problems in accessing the documents located in ADAMS, contact the NRC at 1-800-397-4209, (301) 415-4737, or by email to pdr@nrc.gov. The availability of the Regulatory Analysis and the Environmental Assessment is further discussed in Section 5 of this rule.

FOR FURTHER INFORMATION CONTACT: Stephen Tingen, Division of Engineering, Office of Nuclear Reactor Regulation, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555-0001. Alternatively, you may contact Mr. Tingen at (301) 415-1280, or via e-mail at: sgt@nrc.gov.

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1. Background

On January 7, 2004 (69 FR 879), the NRC published a proposed rule to amend 10 CFR Part 50, "Domestic Licensing of Production and Utilization Facilities." The proposed rule presented revised requirements for construction, inservice inspection (ISI), and inservice testing (IST) of nuclear power plant components for public comment. For construction, the proposed rule would have permitted the use of Section III, Division 1, of the ASME BPV Code, 2001 Edition and the 2002 and 2003 Addenda for Class 1, Class 2, and Class 3 components with one new modification.

For ISI, the proposed rule would have permitted the use of Section XI, Division 1, of the ASME BPV Code, 2001 Edition and the 2002 and 2003 Addenda for Class 1, Class 2, Class 3, Class MC, and Class CC components with new modifications and limitations.

For IST, the proposed rule would have permitted the use of the ASME OM Code, 2001 Edition and the 2002 and 2003 Addenda for Class 1, Class 2, and Class 3 pumps and valves with no new modifications or limitations.

2.0 Public Comments Received on Proposed Rule; and Final Rule

Fifty-five comments on the proposed rule were received from utilities, service organizations, and individuals. In response to the public comments, the NRC has either removed or revised some modifications and limitations that were proposed. A summary of the public comments applicable to the proposed rule and their resolution are provided in the following sections.

The NRC has considered and resolved the public comments and incorporated changes into the final rule. The NRC is publishing the final rule in § 50.55a to incorporate by reference the 2001 Edition and the 2002 and 2003 Addenda of Division 1 rules of Section III of the ASME BPV Code; the 2001 Edition and the 2002 and 2003 Addenda of Division 1 rules of Section XI of the ASME BPV Code; and the 2001 Edition and the 2002 and 2003 Addenda of the ASME OM Code for construction, ISI, and IST of components in nuclear power plants. The 2001 Edition and the 2002 and 2003 Addenda of Sections III and XI of the ASME BPV Code are acceptable for use subject to limitations and modifications. The 2001 Edition and the 2002 and 2003 Addenda of the ASME OM Code is acceptable for use with no new limitations or modifications.

2.1 Section III

The proposed rule would have revised § 50.55a(b)(1) to incorporate by reference the 2001 Edition and the 2002 and 2003 Addenda of Division 1 of Section III of the ASME BPV Code subject to modifications and limitations. Accordingly, the existing modification and limitation for weld leg dimensions and independence of inspection in §§ 50.55a(b)(1)(ii) and 50.55a(b)(1)(v), respectively, would continue to apply when using the 2001 Edition through 2003 Addenda of Section III, Division 1, of the ASME BPV Code. The existing modification and limitation in §§ 50.55a(b)(1)(ii) and 50.55a(b)(1)(v) would continue to apply to the 2001 Edition through 2003 Addenda of Section III because the earlier Code provisions on which these regulations are based were not revised in the 2001 Edition through 2003 Addenda of Section III to address the underlying issues which led to the NRC to impose the modification and limitation. There were no public comments received on §§ 50.55a(b)(1) and 50.55a(b)(1)(v). Therefore, §§ 50.55a(b)(1) and 50.55a(b)(1)(v) are adopted without change in this final rule.

10 CFR 50.55a(b)(1)(ii) - Weld Leg Dimensions

One commenter stated that the footnote to circumferential fillet welded and socket welded joints in Figures NC-3673.2(b)-1 and ND-3673.2(b)-1 of Section III was renumbered in the Code. The NRC agrees. Footnote 11 to Figures NC-3673.2(b)-1 and ND-3673.2(b)-1 is referenced in the existing regulation in § 50.55a(b)(1)(ii). Footnote 11 to Figures NC-3673.2(b)-1 and ND-3673.2(b)-1 was renumbered as Footnote 7 in the 1997 Addenda. Footnote 7 was renumbered as Footnote 11 in the 2000 Addenda. Footnote 11 was renumbered as Footnote 13 in the 2002 Addenda. Although the footnote was

renumbered in the Code, the contents of the footnote have not been revised. In consideration of this public comment, the existing regulation in § 50.55a(b)(1)(ii) is revised in this final rule to reference the contents of the footnote instead of referencing the footnote number. The revised § 50.55a(b)(1)(ii) states that the footnote to circumferential fillet welded and socket welded joints in Figures NC-3673.2(b)-1 and ND-3673.2(b)-1 that permits a socket weld leg dimension to be less than 1.09 of the nominal wall thickness of the pipe is not approved for use when using the 1989 Addenda through 2003 Addenda of Section III. This revision does not change the requirements in a substantive manner.

10 CFR 50.55a(b)(1)(iii) and 10 CFR 50.55a(b)(1)(vi) - Seismic Design

The proposed rule would have revised the existing limitation for seismic design in § 50.55a(b)(1)(iii) to prohibit the use of Articles NB-3200, NB-3600, NC-3600, and ND-3600 when using the 1994 Addenda through 2000 Addenda of Section III. The proposed rule stated that the limitation in § 50.55a(b)(1)(iii) does not apply to the 2001 Edition through 2003 Addenda of Section III because the earlier Code provisions on which this regulation was based were revised in the 2001 Edition through 2003 Addenda of Section III to address a number of the underlying issues which led the NRC to impose the limitation on the ASME Code provisions. Section 50.55a(b)(1)(vi) in the proposed rule would have allowed use of these articles when using the 2001 Edition and 2002 and 2003 Addenda of Section III with certain limitations and modifications. However, in consideration of public comment, the revisions to § 50.55a(b)(1)(iii) and § 50.55a(b)(1)(vi) in the proposed rule are not adopted in this final rule.

Section 50.55a(b)(1)(vi) of the proposed rule would have permitted the use of the alternative method for evaluating reversing dynamic building filtered loads and seismic loads in the 2001 Edition and the 2002 and 2003 Addenda of Section III Division 1 of the ASME BPV Code subject to modifications and limitations. However, § 50.55a(b)(1)(vi)(A) of the proposed rule would have prohibited the use of the alternative method for evaluating reversing dynamic loads for piping subject to loads generated by reflected waves caused by flow transients in NB-3200, NB-3600, NC-3600, and ND-3600. In addition, § 50.55a(b)(1)(vi)(B) of the proposed rule would have prohibited the use of inelastic analyses for evaluating reversing dynamic loads in NB-3228.6. Also, § 50.55a(b)(1)(vi)(C) of the proposed rule would have provided an alternate Level B stress limit for reversing dynamic loads. Section 50.55a(b)(1)(vi)(D) of the proposed rule would have supplemented the requirements for the calculation of inertial moment. Section 50.55a(b)(1)(vi)(E) of the proposed rule would have prohibited the use of the B_2' stress indices specified in ND-3655(b)(3) and would have required that the allowable B_2' stress indices specified in NB-3656(b)(3) and NC-3655(b)(3) be used instead of the allowable B_2' stress indices specified in ND-3655(b)(3). Section 50.55a(b)(1)(vi)(F) of the proposed rule would have allowed the use of an allowable stress limit of $6S_M$ in the evaluation of the range of resultant moment only when it could be demonstrated that the global piping system response to the anchor movement does not create significant inelastic strain concentrations when using the provisions in NB-3656(b)(4), NC-3655(b)(4), and ND-3655(b)(4). S_M is the design stress intensity limit for a material and is tabulated in Section II of the ASME Code. A demonstration that the anchor movement does not create significant inelastic strain concentrations would not have been required if an allowable stress limit of $3S_M$ were used instead of $6S_M$ in the evaluation of the range of resultant moment.

The NRC received a large number of public comments on the modifications and limitations in § 50.55a(b)(1)(vi). The public comments provided technical reasoning why the modifications and limitations in § 50.55a(b)(1)(vi) were unnecessary and recommended their deletion. For example, ASME submitted an 83 page position paper in response to the modifications and limitations in (b)(1)(vi) of the proposed rule. It should be noted that the NRC's concerns regarding the alternative method for evaluating reversing dynamic building filtered loads and seismic loads began with changes in the 1994 Addenda through 1996 Addenda and were discussed in an amendment to § 50.55a issued in September 1999 (64 FR 51370). The ASME formed a special working group to evaluate the NRC's concerns. Although the special working group resolved some the NRC's concerns, a few significant issues remain.

The ASME submittal also recommended that the NRC prohibit the use of the revised seismic design provisions in the 2001 Edition and the 2002 and 2003 Addenda of Section III at this time. The ASME stated that the NRC and ASME should resolve their technical differences over the modifications and limitations in § 50.55a(b)(1)(vi) before permitting the use of revised seismic design provisions in the 2001 Edition and 2002 and 2003 Addenda of Section III. The NRC agrees. This would allow the NRC to discuss the technical details including recent piping dynamic testing in a more comprehensive manner. In consideration of public comments, the revision to § 50.55a(b)(1)(iii) in the proposed rule and the modifications and limitations in § 50.55a(b)(1)(vi) in the proposed rule are not adopted in this final rule. The existing limitation for seismic design in § 50.55a(b)(1)(iii) is revised in this final rule to prohibit the use of Articles NB-3200, NB-3600, NC-3600, and ND-3600 when using the 1994 Addenda through 2003 Addenda of Section III.

10 CFR 50.55a(b)(1)(vii) - Subsection NH

Section 50.55a(b)(1)(vii) in the proposed rule would have prohibited the use of Subsection NH of the 2001 Edition through 2003 Addenda of Section III of the ASME BPV Code and would have withdrawn current approval of Subsection NH of the 1995 Addenda through 2000 Addenda of Section III of the ASME BPV Code. The scope of Subsection NH includes Class 1 components that function in water, steam, sodium, helium, or any other process fluid. The special design provisions in Subsection NH apply to Class 1 components that are required to function at elevated metal temperatures where creep and relaxation effects may be significant and for which the stress limits and design provisions in Subsection NB of Section III are not applicable. These stress limits and design provisions of Subsection NB are applicable only to service conditions where creep and relaxation effects are do not exist. The proposed rule stated that the elevated temperature provisions in Subsection NH, applicable to certain Class 1 components in future advanced reactor designs such as liquid metal and high-temperature gas-cooled reactor designs, have not been reviewed by the NRC for technical adequacy because the design provisions in Subsection NH were thought not to be applicable to any currently operating nuclear power plant nor to any currently approved standard advanced light-water reactor plant design.

A commenter stated that prohibiting the use of Subsection NH because the NRC has not performed a technical review is not adequate justification. The commenter stated that the NRC should provide technical reasons why Subsection NH is not approved for use. The NRC disagrees and, with the exception of the application of Subsection NH to pressurizer heater sleeves constructed from Type 316 stainless steel, is unable to provide technical comments on

Subsection NH at this time because it has not performed a comprehensive review of Subsection NH. A public comment on the proposed rule indicated that Subsection NH is used for the design and construction of pressurizer heater sleeves (a pressure boundary component). Accordingly, the NRC is approving the use of Subsection NH for this application. The maximum service condition for Type 316 stainless steel components that are designed and constructed in accordance with the currently approved provisions in Subsection NB is 800 °F because the reduction in material strength due to creep and relaxation effects are negligible at temperatures below 800 °F. Subsection NH provides specialized design and construction provisions when temperatures exceed 800 °F. The temperature of Type 316 stainless steel pressurizer heater sleeves reaches approximately 900 °F; therefore, Subsection NH is applicable. At 900 °F, creep and relaxation effects reduce the allowable stress at 800 °F by approximately 10 percent for Type 316 stainless steel. Therefore, a 100 °F increase in temperature above 800 °F does not significantly reduce the material strength of Type 316 stainless steel. The use of pressurizer heater sleeves constructed of Type 316 stainless steel is limited to only one type of reactor plant design in the United States. Pressurizer heater sleeves in other reactor plant designs are constructed of different materials and the temperature of the pressurizer heater sleeves in the other designs does not exceed 800 °F. Furthermore, many years operating experience indicate that pressurizer heater sleeves have not experienced creep and relaxation effects. Accordingly, the NRC concludes that the use of Subsection NH for Type 316 stainless steel pressurizer heater sleeves is technically acceptable and will provide reasonable assurance of adequate protection to public health and safety.

The NRC has not performed a full technical review of Subsection NH for other Class 1 components in future advanced reactor designs such as liquid metal and high-temperature

gas-cooled reactor designs where service conditions could reach 1500 °F. At these service conditions, creep and relaxation are more pronounced. Therefore, the NRC is unable to approve the use of Subsection NH for components other than Type 316 stainless steel pressurizer heater sleeves. In consideration of public comment, § 50.55a(b)(1)(vii) is revised to allow the application of Subsection NH to Type 316 stainless steel pressurizer heater sleeves only where service conditions do not cause the component to reach temperatures exceeding 900 °F. Section 50.55a(b)(1)(vii) in the proposed rule is renumbered as § 50.55a(b)(1)(vi) in this final rule. Section 11, “Backfit Analysis,” below, has been revised to address this last comment.

2.2 Section XI

The proposed rule would have revised § 50.55a(b)(2) to incorporate by reference the 2001 Edition and the 2002 and 2003 Addenda of Division 1 of Section XI of the ASME BPV Code subject to proposed modifications and limitations. Accordingly, the existing modifications and limitations for quality assurance, Class 1 piping, underwater welding, reconciliation of quality requirements, certification of nondestructive examination personnel, substitution of alternative method, and Table IWB-2500-1 examination requirements in § 50.55a(b)(2)(x), § 50.55a(b)(2)(xi), § 50.55a(b)(2)(xii), § 50.55a(b)(2)(xvii), § 50.55a(b)(2)(xviii), § 50.55a(b)(2)(xix), and § 50.55a(b)(2)(xxi), respectively, would continue to apply when using the 2001 Edition through 2003 Addenda of Section XI, Division 1, of the ASME BPV Code. The existing modifications and limitations in § 50.55a(b)(2)(x), § 50.55a(b)(2)(xi), § 50.55a(b)(2)(xii), § 50.55a(b)(2)(xvii), § 50.55a(b)(2)(xviii), § 50.55a(b)(2)(xix), and § 50.55a(b)(2)(xxi) would continue to apply to the 2001 Edition through

2003 Addenda of Section XI because the earlier Code provisions on which these regulations are based were not revised in the 2001 through 2003 Addenda of Section XI to address the underlying issues which led the NRC to impose the modifications and limitations. There were no public comments on § 50.55a(b)(2), § 50.55a(b)(2)(x), § 50.55a(b)(2)(xi), § 50.55a(b)(2)(xii), § 50.55a(b)(2)(xviii), § 50.55a(b)(2)(xix), and § 50.55a(b)(2)(xxi). Therefore, § 50.55a(b)(2), § 50.55a(b)(2)(x), § 50.55a(b)(2)(xi), § 50.55a(b)(2)(xii), § 50.55a(b)(2)(xviii), § 50.55a(b)(2)(xix), and § 50.55a(b)(2)(xxi) are adopted without change in this final rule.

10 CFR 50.55a(b)(2)(xvii) - Reconciliation of Quality Requirements

One commenter stated that the existing modification in § 50.55a(b)(2)(xvii) for the reconciliation of quality requirements is no longer applicable because a footnote was added to IWA-4222 that resolves the issue. The footnote was added in the 1999 Addenda to Section XI and clarifies that the provision in IWA-4222(a)(2) does not negate the requirement to implement the Owner's quality assurance program nor does it affect Owner commitments to regulatory and enforcement authorities. The NRC agrees that § 50.55a(b)(2)(xvii) is no longer applicable because the footnote addresses NRC reasons for initially implementing § 50.55a(b)(2)(xvii) in final rule dated September 22, 1999 (64 FR 51374). In consideration of this public comment, § 50.55a(b)(2)(xvii) is revised in this final rule to be applicable only when using the 1995 Addenda through 1998 Edition of Section XI.

10 CFR 50.55a(b)(2) - Footnote 10

The proposed rule would have added Footnote 10 to § 50.55a(b)(2) to indicate that the NRC has issued Order EA-03-009 which imposed enhanced reactor pressure vessel (RPV) head inspections at pressurized water reactors (PWRs). In February 2003, the NRC issued the Order to licensees of PWRs to establish interim inspection requirements that would ensure adequate protection of public health and safety. The Order was revised on February 20, 2004. The Order imposes enhanced requirements for PWR licensees that supplement areas of Section XI of the ASME BPV Code to ensure the structural and leakage integrity of the reactor coolant pressure boundary. The requirements imposed by the Order do not conflict with the requirements in Section XI of the ASME BPV Code but are needed to enhance Code requirements. Licensees are required to meet the requirements in the Order as a supplement to the requirements in the 2001 Edition with the 2002 and 2003 Addenda of Section XI of the ASME BPV Code. Licensees of PWRs using editions and addenda of Section XI of the ASME Code earlier than the 2001 Edition are currently required to apply the requirements in the Order to supplement the use of their applicable Code of record.

One commenter incorrectly interpreted Footnote 10 in the proposed rule. The commenter stated that Footnote 10 would incorporate the requirements of the Order into 10 CFR 50.55a. The NRC notes that it never intended to incorporate the requirements of the Order into 10 CFR 50.55a in this rulemaking. This final rule does not incorporate the requirements of the Order into 10 CFR 50.55a; it simply alerts the reader to the Order. Footnote 10 is adopted without change in this final rule.

10 CFR 50.55a(b)(2)(viii) - Examination of Concrete Containments

This proposed rule would have revised the existing modification for examination of concrete containments in § 50.55a(b)(2)(viii) to apply to the 2001 Edition through 2003 Addenda of Section XI, Division 1, of the ASME BPV Code. The modification in § 50.55a(b)(2)(viii) continues to apply to the 2001 Edition through 2003 Addenda of Section XI because the earlier ASME BPV Code provisions on which this regulation was based were not revised in the 2001 Edition through 2003 Addenda of Section XI to address the underlying issues which led the NRC to impose the modification of the ASME Code provisions. The proposed rule would have also revised the existing modification for examination of concrete containments in § 50.55a(b)(2)(viii) to require a new modification, which is discussed below, when using the 2001 Edition through 2003 Addenda of Section XI, Division 1, of the ASME BPV Code. There were no public comments received on § 50.55a(b)(2)(viii) in the proposed rule. Therefore, § 50.55a(b)(2)(viii) is adopted without change in this final rule.

10 CFR 50.55a(b)(2)(viii)(G) - Corrosion Protection Medium (CPM)

Section 50.55a(b)(2)(viii)(G) of the proposed rule would have required that CPM be restored in accordance with the quality assurance program requirements specified in IWA-1400 when using the 2001 Edition through 2003 Addenda of Section XI. IWL-4110 of Section XI defines the scope of the repair and replacement activities associated with concrete containments. IWL-4110(b) specifies those items that are exempt from repair and replacement activity requirements. A new provision, IWL-4110(b)(3), was added in the 2002 Addenda exempting the removal, replacement, or addition of the concrete containment post-tensioning

system CPM from repair and replacement requirements. Prior to the 2002 Addenda, IWL-4000 specifies that the CPM must be restored following a concrete containment post-tensioning system repair and replacement activity.

CPM is applied to containment post-tension system components to prevent corrosion. The function of the containment post-tension system is to ensure the structural integrity of the concrete containment structure under design basis loadings, and CPM is relied upon to maintain the integrity of the containment post-tension system. Therefore, the restoration of the concrete containment post-tensioning system CPM is important to ensure that the containment integrity and load capacity satisfy design basis requirements under accident conditions. For example, the acceptable concentration of water soluble chlorides, nitrates and sulfides of the replacement CPM must be verified. The amount of CPM to be installed and the method used to apply the CPM must be specified.

One commenter stated that the provisions in IWL-2500 must be applied to the restoration of CPM, and that these provisions were not revised in the 2002 Addenda. The commenter stated that quality assurance requirements must be applied when implementing IWL-2500. The NRC disagrees. The NRC believes that the provisions in IWL-2500 are not applicable to items that are exempt from Code repair and replacement activity requirements. Therefore, § 50.55a(b)(2)(viii)(G) is adopted without change in this final rule.

10 CFR 50.55a(b)(2)(ix) - Examination of Metal Containments and the Liners of Concrete Containments

The proposed rule would have revised the existing modification for examination of metal containments and the liners of concrete containments in § 50.55a(b)(2)(ix) to apply to the 2001 Edition through 2003 Addenda of Section XI, Division 1, of the ASME BPV Code. The proposed rule stated that with the exception of the visual examination requirements specified in § 50.55a(b)(2)(ix)(B), the modification in § 50.55a(b)(2)(ix) would continue to apply to the 2001 Edition through 2003 Addenda of Section XI because the earlier Code provisions on which this regulation was based were not revised in the 2001 Edition through 2003 Addenda of Section XI to address the underlying issues which led to the NRC to impose the modification on the ASME Code provisions. The minimum illumination and distance visual examination provisions in Table IWA-2210-1 in Section XI were revised in the 2003 Addenda and are equivalent to the minimum illumination and distance visual examination requirements in § 50.55a(b)(2)(ix)(B). Therefore, the proposed rule revised the existing modification for examination of metal containments and the liners of concrete containments in § 50.55a(b)(2)(ix) to specify that § 50.55a(b)(2)(ix)(B) does not apply when using the 2001 Edition with the 2002 and 2003 Addenda of Section XI, Division 1, of the ASME BPV Code.

Several commenters stated that the revision to Table IWA-2210-1 in the 2003 Addenda of Section XI was rescinded by a special Erratum in December 2003. Therefore, the existing modification in § 50.55a(b)(2)(ix)(B) should continue to apply when using the 2001 Edition with the 2002 and 2003 Addenda of Section XI, Division 1, of the ASME BPV Code. The NRC agrees. In consideration of the public comment, § 50.55a(b)(2)(ix) is revised in this final rule to

require that § 50.55a(b)(2)(ix)(B) continue to apply when using the 2001 Edition and the 2002 and 2003 Addenda of Section XI.

10 CFR 50.55a(b)(2)(xiii) - Flaws in Class 3 Piping

The proposed rule would have revised § 50.55a(b)(2)(xiii) to eliminate the authorization to use Code Case N-513. The existing regulation in § 50.55a(b)(2)(xiii) authorizes the use of Code Cases N-513 and N-523-1. Code Case N-513 is now approved in Regulatory Guide 1.147, "Inservice Inspection Code Case Acceptability, ASME Section XI, Division 1." Regulatory Guide 1.147 (Revision 13) was incorporated by reference into § 50.55a in a final rule dated July 8, 2003 (68 FR 40469). Thus, it is no longer necessary to authorize the use of Code Case N-513 in § 50.55a(b)(2)(xiii) because this code case is included in Regulatory Guide 1.147. Section 50.55a(b)(2)(xiii) would continue to approve the use of Code Case N-523-1 because Code Case N-523-1 is currently not included in Regulatory Guide 1.147. There were no public comments received on § 50.55a(b)(2)(xiii) and therefore is adopted without change in this final rule.

10 CFR 50.55a(b)(2)(xiv) - Appendix VIII Personnel Qualification

The proposed rule would have revised the existing modification for Appendix VIII personnel qualification in § 50.55a(b)(2)(xiv) to apply to the 2001 Edition through 2003 Addenda of Section XI, Division 1, of the ASME BPV Code. The modification in § 50.55a(b)(2)(xiv) continues to apply to the 2001 Edition through 2003 Addenda of Section XI because the earlier Code provisions on which this regulation was based were not revised in the 2001 Edition

through 2003 Addenda of Section XI to address the underlying issues which led to the NRC to impose the modification. The proposed rule also revised § 50.55a(b)(2)(xiv) to correct an oversight. The existing regulation incorrectly states that the annual practice requirements in VII-4240 of Supplement VII of Section XI may be used. The reference to Supplement VII is incorrect; it should be Appendix VII. Therefore, the proposed rule stated that § 50.55a(b)(2)(xiv) should be revised to state that the annual practice requirements in VII-4240 of Appendix VII of Section XI may be used.

One commenter requested that the existing annual training requirements in § 50.55a(b)(2)(xiv) be revised to change the required number of hours of training that must be completed before performing ultrasonic examinations. The NRC declines to make this change because the proposed rule did not suggest an amendment to the required number of hours of training that must be completed before performing ultrasonic examinations, and the NRC currently does not have a basis for supporting such a change. There were no other public comments received on § 50.55a(b)(2)(xiv). Therefore, § 50.55a(b)(2)(xiv) is adopted without change in this final rule.

10 CFR 50.55a(b)(2)(xv) - Appendix VIII Qualification and Coverage Requirements

The proposed rule would have revised the existing modification for Appendix VIII specimen set and qualification requirements in § 50.55a(b)(2)(xv) to apply to the 2001 Edition of Section XI, Division 1, of the ASME BPV Code. The modification in § 50.55a(b)(2)(xv) would continue to apply to the 2001 Edition of Section XI because the earlier Code provisions on which this regulation was based were not revised in the 2001 Edition of Section XI to address

the underlying issues which led the NRC to impose the modification. There were no public comments received on § 50.55a(b)(2)(xv). Therefore, § 50.55a(b)(2)(xv) is adopted without change in this final rule.

The proposed rule would have revised the existing regulation in § 50.55a(b)(2)(xv)(C)(1) to specify that the flaw depth sizing provisions in Subparagraph 3.2(c) of Supplement 4 to Appendix VIII are not applicable when Appendix VIII is implemented in accordance with § 50.55a(b)(2)(xv). Section 50.55a(b)(2)(xv) currently provides an alternative method that licensees may use for implementing Appendix VIII and the supplements to Appendix VIII. The existing regulation specifies that the flaw depth sizing provisions in Subparagraph 3.2(a) of Supplement 4 to Appendix VIII are not applicable when using the flaw depth sizing provisions specified in § 50.55a(b)(2)(xv)(C)(1). This revision is needed to correct an oversight that the flaw depth sizing provisions in Subparagraph 3.2(c) of Supplement 4 to Appendix VIII also do not apply when using the flaw depth sizing provisions specified in § 50.55a(b)(2)(xv)(C)(1). Thus, the flaw depth sizing provisions in § 50.55a(b)(2)(xv)(C)(1) were revised in the proposed rule to also reference Subparagraph 3.2(c) of Supplement 4 to Appendix VIII. There were no public comments received on § 50.55a(b)(2)(xv)(C)(1). Therefore, § 50.55a(b)(2)(xv)(C)(1) is adopted without change in this final rule.

The proposed rule would have revised the existing regulation in § 50.55a(b)(2)(xv)(J) to eliminate the approval to use Code Case N-552. Code Case N-552 is now approved in Regulatory Guide 1.147, Revision 13, which was incorporated by reference into § 50.55a in a final rule dated July 8, 2003 (68 FR 40469). Thus, it is no longer necessary to approve the use of Code Case N-552 in § 50.55a(b)(2)(xv)(J) because this code case is included in

Regulatory Guide 1.147. There were no public comments received on § 50.55a(b)(2)(xv)(J). Therefore, § 50.55a(b)(2)(xv)(J) is adopted without change in this final rule.

10 CFR 50.55a(b)(2)(xx) - System Leakage Test

The proposed rule would have revised the existing modification for system leakage tests in § 50.55a(b)(2)(xx) to continue prohibiting the use of certain system leakage test provisions in the 1997 Addenda through 2001 Edition of Section XI, Division 1 of the ASME BPV Code. The proposed rule stated that the modification in § 50.55a(b)(2)(xx) does not apply to the 2002 and 2003 Addenda of Section XI because the earlier Code provisions on which this regulation was based were revised in the 2002 Addenda of Section XI to address the underlying issues which led to the NRC to impose the modification of the ASME Code provisions. The revised system leakage test provisions in IWA-5213(a) are equivalent to the existing requirements in § 50.55a(b)(2)(xx).

One commenter stated that the system leakage test provisions in IWA-5213(a) were revised in the 2003 Addenda of Section XI not the 2002 Addenda as stated in the proposed rule. The NRC agrees. In consideration of the public comment, § 50.55a(b)(2)(xx) is revised in this final rule so that the modification applies when using IWA-5213(a), 1997 through 2002 Addenda.

10 CFR 50.55a(b)(2)(xxii) - Surface Examination

Section 50.55a(b)(2)(xxii) in the proposed rule would have prohibited the use of a new provision in IWA-2220 allowing ultrasonic (UT) examination. The provisions of Code Case N-615, "Ultrasonic Examination as a Surface Examination Method for Category B-F and B-J Piping Welds," were incorporated into IWA-2220 in the 2001 Edition of Section XI of the ASME BPV Code. Code Case N-615 and IWA-2220 allow a surface examination to be conducted using a UT examination method. The UT examination is conducted from the inside surface of certain piping welds. Other allowable surface examination methods (magnetic particle or liquid penetrant) are conducted from the outside surface of certain piping welds. The purpose of these surface examinations is to identify flaws in the outer surface of the weld. Revision 13 to Regulatory Guide 1.147 did not approve the use of Code Case N-615 and the proposed rule would have prohibited the use of the same UT examination specified in IWA-2220. There are no provisions in Section XI that address qualification requirements and performance demonstration criteria and requirements to ensure proper consideration of flaws in the outer surface of a piping weld when conducting a UT examination from the inside surface of the piping weld.

One commenter stated that the proposed § 50.55a(b)(2)(xxii) should be deleted because IWA-2220 provides an acceptable UT performance demonstration requirement. The NRC disagrees. For example, IWA-2220 does not provide test specimen requirements, piping weld material requirements, acceptable flaw types, performance demonstration detection acceptance criteria, nor acceptable pipe specimen thickness.

A number of commenters requested that § 50.55a(b)(2)(xxii) be revised to allow IWA-2220 surface examinations be conducted by UT examination provided that the UT examination method has been demonstrated by a successful performance demonstration. The commenters stated that their revision addresses the NRC concern that there are no qualification requirements or performance demonstration criteria in Section XI for conducting a UT examination from the inside surface of the piping weld. The NRC disagrees. The revision, as proposed by the commenters, does not address the concern in the proposed rule. Appendix I of Section XI requires that all piping examinations be performed in accordance with Appendix VIII qualified procedures and personnel. The final rule dated September 22, 1999 (64 FR 51370), requires that licensees implement Appendix VIII and the supplements to Appendix VIII on an expedited basis. The NRC imposed this requirement on an expedited basis because there were shortcomings in the qualifications of personnel and procedures in ensuring the reliability of nondestructive examination of the reactor vessel and other components of the reactor coolant system pressure boundary. The NRC believes that the imposition of performance demonstration in Appendix VIII and its supplements has enhanced the overall level of assurance of the reliability of UT examination techniques in detecting and sizing flaws. The NRC is not approving the use of new UT provision in IWA-2220 because qualification requirements and performance demonstration criteria for the new UT provision are not addressed in Appendix VIII. Therefore, § 50.55a(b)(2)(xxii) is adopted without change in this final rule.

10 CFR 50.55a(b)(2)(xxiii) - IWA-4461.4.2 Evaluation of Thermally Cut Surfaces

Section 50.55a(b)(2)(xxiii) of the proposed rule would have required that all the adverse effects associated with the elimination of mechanical processing following a thermal removal process listed in IWA-4461.4.2(a)(1) through (5) be considered by tests, inspections and analyses. Tests, inspections and analyses are further discussed below. IWA-4461.4 requires that the surface left in service after the metal is removed by a thermal removal process be mechanically processed. A thermal removal process is used to remove metal from a weld or base metal. Thermal removal processes include oxyacetylene cutting, carbon arc gouging, plasma cutting, metal disintegration machining and electrodischarge machining. Thermal removal processes can leave cracks, stress risers, very rough surfaces or heavy oxidations on the surface of the metal. Mechanical processing involves the removal of any defects from a surface of the metal by grinding, machining or filing, for example. Subparagraph IWA-4461.4.2 was added in the 2001 Edition to allow the elimination of mechanical processing of a thermally cut surface when, due to field conditions, mechanical processing is deemed impractical. IWA-4461.4.2 allows the elimination of mechanical processing of thermally cut surfaces provided that the adverse effects associated with the elimination of mechanical processing listed in IWA-4461.4.2(a)(1) through (5) are considered by an evaluation. The adverse effects listed in IWA-4461.4.2(a)(1) through (5) include soundness of cut, material toughness, corrosion resistance, stresses, and oxidation or other contamination. The proposed rule stated that it is unclear if all the adverse effects listed in IWA-4461.4.2(a)(1) through (5) are required to be considered by evaluation or are licensees supposed to determine which of the adverse effects listed in IWA-4461.4.2(a)(1) through (5) would be applicable. The proposed rule stated that tests, inspections, and analyses would be required to evaluate the adverse effects listed in

IWA-4461.4.2(a)(1) through (5). The proposed rule did not describe any specific test, inspection or analysis. Licensees would be responsible for determining the appropriate test, inspection, and analysis for each of the items listed in IWA-4461.4.2(a)(1) through (5).

Several commenters explained that the provision IWA-4461.4.2(a) requires that the evaluation shall include all those adverse effects listed in IWA-4461.4.2(a)(1) through (5) in the evaluation. Other commenters stated that not all of the adverse effects listed in IWA-4461.4.2(a)(1) through (5) are applicable to all thermal processes and that IWA-4461.4.2(c) requires that the evaluation document any adverse effects listed in IWA-4461.4.2(a)(1) through (a)(5) that are not applicable in the Repair/Replacement Plan. Commenters also stated that it is unreasonable for NRC to require tests, inspections, and analyses to address each of the adverse effects listed in IWA-4461.4.2(a)(1) through (5) to eliminate mechanical processing of a thermally cut surface. The tests, inspections, and analyses as proposed in § 50.55a(b)(2)(xxiii) would make it impracticable for a licensee to use the provisions in IWA-4461.4.2.

The NRC believes that it is impracticable to justify the elimination of mechanical processing of a thermally cut surface in an evaluation as specified in IWA-4461.4.2. It is not possible to evaluate the adverse effects that can occur as a result of thermal cutting without performing appropriate tests, inspections, and analyses. For example, the provisions in IWA-4461.4.2 could be used to eliminate mechanical processing for a carbon arc-gouging cut that removed a hanger in a high radiation area. If the cut is made too close to the load-bearing component, the metal on the load-bearing component could be affected by an errant arc touching the load-bearing surface or allowing some of the cutting spatter to become attached to

the load-bearing surface leaving an arc strike, a heat-affected zone or a stress riser on the surface. The area around the cut must be inspected to make certain that the cutting has not damaged the surface of the component. Elimination of the inspection in a documented evaluation would not be adequate even for this simple thermal cutting example. Furthermore, the cut must be a safe distance from the surface of the component to eliminate any possibility of leaving a mechanical (a rough, oxidized or carburized surface) or metallurgical (a heat affected zone) stress riser near or in the surface of the component. If the cut is made too close to the final surface, a heat-affected zone from the cut could be left in the final load-bearing surface or a very rough, highly oxidized or carburized surface could be left very near the final load-bearing surface. The exact distance from the cut surface must be determined by an analysis or qualification testing of the configuration, not by a documented evaluation.

The NRC agrees with the comment that the test, inspection, and analysis provisions in § 50.55a(b)(2)(xxiii) of the proposed rule would make it impracticable for a licensee to use IWA-4461.4.2. Therefore, § 50.55a(b)(2)(xxiii) is revised in this final rule to prohibit the use of the new provisions in IWA-4461.4.2.

10 CFR 50.55a(b)(2)(xxiv) - UT Performance Demonstration and Coverage Requirements

Section 50.55a(b)(2)(xxiv) in the proposed rule would have prohibited the use of Appendix VIII and the supplements to Appendix VIII, and Article I-3000 in the 2002 and 2003 Addenda of Section XI of the ASME BPV Code. The elements of the Performance Demonstration Initiative (PDI) program were added to Appendix VIII and its supplements and Article I-3000 in the 2002 Addenda. PDI is an organization formed for the purpose of

developing efficient, cost-effective, and technically sound UT performance demonstration methods to meet Appendix VIII requirements. The PDI program has evolved as programs were developed for each Appendix VIII supplement. Article I-3000, Examination Coverage, was also added in the 2002 Addenda to provide UT examination coverage criteria for certain welds.

The final rule dated September 22, 1999 (64 FR 51370), requires licensees to implement Appendix VIII and its supplements. The essential elements of the PDI program were added to the final rule as § 50.55a(b)(2)(xv). Section 50.55a(b)(2)(xv) also provides UT examination coverage criteria. Licensees are currently implementing Appendix VIII and its supplements in accordance with § 50.55a(b)(2)(xv). Although the NRC, ASME, and PDI have made considerable progress in the development of UT qualification and inspection requirements, the addition of the PDI program into Section XI are not complete at this time. As a result, differences exist between the modifications in § 50.55a(b)(2)(xv), and the provisions in Appendix VIII and its supplements and Article I-3000 in the 2002 and 2003 Addenda of Section XI of the ASME BPV Code. Therefore, Appendix VIII and its supplements and the UT coverage criteria in Article I-3000 can not be implemented in accordance with § 50.55a(b)(2)(xv) when using the 2002 and 2003 Addenda. Consequently, the proposed rule would have prohibited the use of Appendix VIII and its supplements and Article I-3000 beyond the 2001 Edition.

The proposed rule stated that conflicts exist between the modifications in § 50.55a(b)(2)(xv), and the UT coverage provisions in Article I-3000 in the 2002 and 2003 Addenda. Several commenters stated that the use of the term “conflicts” in the proposed rule was inappropriate. The NRC agrees and should have used term “differences” instead of

“conflicts.” Commenters acknowledged that there are differences between the UT coverage requirements in Article I-3000 and the UT coverage requirements in § 50.55a(b)(2)(xv).

A number of commenters requested that the proposed limitation in § 50.55a(b)(2)(xxiv) be revised to allow the use of the UT coverage requirements in Article I-3000. Commenters stated that the NRC should accept the UT coverage requirements in Article I-3000 as an alternative to the UT coverage requirements in § 50.55a(b)(2)(xv). The NRC disagrees. Article I-3000 requires that the UT coverage provisions be applied when using UT examination procedures, equipment, and personnel qualified by performance demonstration in accordance with Appendix VIII. The NRC believes that allowing the use of the UT coverage requirements in Article I-3000 would require revising the existing UT coverage requirements in § 50.55a(b)(2)(xv) to provide licensees the choice of continuing to use the existing UT coverage requirements in § 50.55a(b)(2)(xv) or using the UT coverage requirements in Article I-3000. It is not the NRC’s intention to periodically revise § 50.55a(b)(2)(xv) to add new elements of the PDI program as the program evolves. The purpose of the modification in § 50.55a(b)(2)(xv) is to provide a short-term solution that allows licensees to implement an Appendix VIII program. The long-term solution is to add the elements of the PDI program to Section XI or develop a code case that can be used to implement Appendix VIII and remove § 50.55a(b)(2)(xv) from 10 CFR 50.55a. Therefore, § 50.55a(b)(2)(xxiv) is adopted without change in this final rule.

10 CFR 50.55a(b)(2)(xxv) - Mitigation of Defects by “Modification”

Section 50.55a(b)(2)(xxv) in the proposed rule would have prohibited the use of the provisions in IWA-4340 when using the 2001 Edition and the 2002 and 2003 Addenda of Section XI of the ASME BPV Code. IWA-4340 was added in the 2000 Addenda and provides

requirements for the mitigation of defects by “modification.” Paragraph IWA-4340 allows a defect to remain in a component provided that the defect can be eliminated from the pressure boundary by “modification.”

Commenters stated that although additional provisions were added in the 2000 Addenda, Section XI has always allowed mitigation of defects by “modification.” Commenters objected to the NRC prohibiting the use of this longstanding Code requirement. Commenters also stated that prohibiting the use of IWA-4340 would significantly impact licensees in terms of cost, resources, and plant shutdowns. IWA-4340 “modifications” can be designed and installed by most plants within the 72-hour technical specification allowed outage time. These “modifications” are typically used when replacement or excavation and repair welding of the defect cannot be performed within the technical specification allowed outage time. Commenters stated that it is not unusual for a plant to install several “modifications” in an operating cycle. Commenters stated that licensees would have to request authorization of an alternative pursuant to § 50.55a(a)(3) to install modifications if use of IWA-4340 is prohibited. This would result in a significant increase in regulatory burden, costs, and plant outage time and would also adversely impact NRC resources. The NRC disagrees that the mitigation of a defect by “modification” in Section XI is a longstanding Code provision. Section XI does not specifically address mitigation of defects by “modification” in the editions and addenda prior to the 2000 Addenda. The NRC is also unaware of any ASME Section XI interpretation that specifically addresses mitigation of defects by “modification.” Furthermore, the NRC has authorized many alternatives pursuant to § 50.55a(a)(3) that are similar to those in IWA-4340. These alternatives were authorized on a case-by-case basis and addressed pressure testing, flaw growth evaluation, and reexamination requirements. Licensees believed these

modifications were not permitted by the ASME Code, and therefore, concluded that authorizations of alternatives were necessary. Although some Section XI code cases address repair of defects on a limited basis, such as the use of weld overlays, new provisions for repairing defects were added in the 2000 Addenda.

One commenter stated that the NRC had previously approved the use of provisions that are similar to those in IWA-4340. The commenter stated that the NRC should approve the same provisions in IWA-4340. The NRC agrees that, in some instances, it had previously approved the use of mitigative methods or alternatives that could fall under the provisions of IWA-4340, but the methods approved by the NRC were significantly more comprehensive than those in IWA-4340. For example, the NRC approved the use of Code Case N-504-2, "Alternative Rule for Repair of Class 1, 2, and 3 Austenitic Stainless Steel Piping," in Regulatory Guide 1.147. The NRC notes that the provisions in Code Case N-504-2 are significantly more comprehensive than the provisions required by IWA-4340. The NRC has also authorized use of weld overlays as corrective action for intergranular stress corrosion cracking in plant-specific submittals. Authorization was based on adequate flaw evaluation, examination frequency, and pressure testing provided by licensees in their proposed alternative. However, the NRC has also disapproved the use of mitigative methods that would be allowed under IWA-4340. For example, the NRC disapproved the use of Code Case N-562-1, "Alternative Requirements for Wall Thickness Restoration of Class 3 Moderate Energy Carbon Steel Piping," in Regulatory Guide 1.193, "ASME Code Cases Not Approved For Use." The NRC disapproved the use of Code Case N-562-1 because the ASME Code and the code case do not provide criteria for determining the rate of the extent of degradation of the repair or surrounding base metal and do not specify examination requirements.

The proposed rule stated that IWA-4520(b)(2) exempts piping, pump and valve welding or brazing that does not penetrate through the pressure boundary from any pressure test. Since the modification to mitigate the defect will become the new pressure boundary and the modification may be attached to the pressure boundary by welds that do not penetrate through the pressure boundary, pressure testing would not be required. The NRC proposed to not accept the elimination of pressure testing requirements for a modification that will function as a pressure boundary.

Commenters stated that the reference to IWA-4520(b)(2) in the proposed rule is incorrect. The NRC agrees. The NRC intended to reference IWA-4540(b)(3) in the proposed rule. IWA-4540(b)(3) exempts piping, pump and valve welding or brazing that does not penetrate through the pressure boundary from pressure testing, not IWA-4520(b)(2).

Commenters did not discuss if the pressure test exemption in IWA-4540(b)(3) would be applicable to IWA-4340 “modifications.” They simply stated that Section XI requires a pressure test for new welds that are a part of the pressure boundary. The NRC agrees that pressure testing for new pressure boundary weld is a requirement. However, the NRC is concerned that licensees could interpret the provisions in IWA-4540(b)(3) that pressure tests are not required for certain IWA-4340 modifications such as an encapsulation of a defect that does not yet, but eventually could, breach the pressure boundary for example. The NRC believes that pressure testing the “modification” is necessary to validate the structural integrity of the “modification.”

The proposed rule stated that IWA-4340(c) requires that each licensee define the successive examinations to be performed after the completion of the “modification.” The

purpose of the successive examinations is to monitor the defect to detect propagation beyond the limits of the “modification” and, when practicable, to validate the projected growth of the defect. The Code is unclear as to whether it permits a defect to propagate outside the physical boundary of the “modification” or requires that a licensee’s examination program predict propagation of the defect such that the licensee would be able to identify, in advance, a defect that is expected to propagate outside the area physically modified such that corrective action could be taken.

Commenters explained that a flaw outside of the modification might be acceptable until it reached the condition of a defect. The condition would be unacceptable if the flaw propagated into a defect. Commenters also indicated that because each “modification” is unique, it is not possible to specify examination frequency criteria that could be applied to all defects that are mitigated by “modification.” Commenters stated that IWA-4340(c) requires that, if practicable, the growth of the defect be predicted and licensees establish an examination method that would demonstrate that the defect has not propagated beyond the limits of the “modification.” The examinations would also validate the predicted growth assumptions. In other cases, it may not be practical to predict the growth of the defect. Commenters stated that the examination frequency would have to account for this condition. The NRC believes that IWA-4340(c) is unacceptable because it does not specify minimum periodic examinations that are capable of validating the predicted defect growth assumptions. The NRC believes that it is appropriate for the Code to establish minimum periodic examination requirements. Licensees may always do more than Code minimum requirements.

One commenter states that it is inappropriate for the NRC to modify the use of Code provisions that were previously accepted by the NRC. The NRC disagrees. The modification in § 50.55a(b)(2)(xxv) was not included in the final rule that incorporated by reference the 2000 Addenda of Section XI in § 50.55a (67 FR 60520: September 26, 2002) due to an oversight by the NRC. The NRC did not identify that these Code provisions were added when it reviewed the 2000 Addenda of Section XI. The NRC has determined that this modification should only apply to those licensees who implement the 2001 Edition and later editions and addenda of Section XI, and should not be backfit to those licensees who update their ISI programs to the 1998 Edition with the 1999 and 2000 Addenda in accordance with § 50.55a(g)(4)(ii). The NRC has determined it is acceptable not to backfit the licensees who update their ISI programs to the 1998 Edition with the 1999 and 2000 Addenda because those licensees will be required at the next 10-year interval to update their ISI programs to prohibit the relevant Code provisions. Thus, any problems would be caught during the next 10-year interval. The prohibition of the relevant Code provisions is not considered a backfit because they are imposed only as part of the routine updating required as part of the 120-month updating and do not constitute a significant change to, or fundamental modification of, the existing ISI program.

Although not discussed in the proposed rule, the NRC has additional concerns about the use of IWA-4340. For example, Section XI, Appendix I, Ultrasonic Examination, directs users to the specific examination methods to be followed, including the performance demonstration requirements of Appendix VIII for certain components. IWA-4340(a) states that defects shall be characterized using nondestructive examination but has no specific requirements regarding nondestructive examination methods to be used. The NRC believes that IWA-4340(a) should

specify the qualification requirements and examination methods by reference to existing rules in the Code where applicable, or where not applicable, the process to be followed to demonstrate the capability of the techniques to be used.

IWA-4340 could be used to mitigate non-planar defects, such as caused by flow accelerated corrosion or microbiological induced corrosion. The ASME has issued certain code cases, such as Code Cases N-561-1, "Alternative Requirements for Wall Thickness Restoration of Class 2 and High Energy Class 3 Carbon Steel Piping," and N-562-1, dealing with wall thickness restoration for non-planar defects. The NRC has found these code cases to be unacceptable because of the absence of criteria concerning the extent and rate of degradation of the repair and reinspection frequencies and because the root cause of the degradation may not be mitigated. For similar reasons, the NRC finds IWA-4340 unacceptable for use to mitigate non-planar defects.

Licensees have proposed to mitigate circumferential defects above the partial penetration weld in control rod drive nozzles by partially removing the defect and replacing the removed material with weldment, thereby "embedding" the defect. The NRC has found such proposals to be unacceptable because of the possibility of additional cracking in the embedding weld and because of safety concerns posed by severance of the nozzle. The NRC finds IWA-4340 unacceptable because it could be used to mitigate such defects.

Under IWA-4340, if a defect were to propagate beyond the limits of a modification, a licensee could perform repeated repairs to the same location. The NRC believes this is

unacceptable because it would represent a failure of the original evaluation to correctly predict the projected growth of the defect.

For these reasons, § 50.55a(b)(2)(xxv) is adopted without change in this final rule.

10 CFR 50.55a(b)(2)(xxvi) - Pressure Testing Mechanical Joints

Section 50.55a(b)(2)(xxvi) of the proposed rule would have supplemented 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. The requirements to pressure test Class 1, 2, and 3 mechanical joints undergoing repair and replacement activities were deleted in the 1999 Addenda of Section XI. Therefore, pressure testing of mechanical joints is no longer required by Section XI when performing IWA-4000 repair and replacement activities. The proposed rule would have retained the pressure and testing requirements in IWA-4540(c) of the 1998 Edition when using the 2001 Edition through 2003 Addenda because there was no justification for eliminating the requirements for pressure testing Class 1, 2, and 3 mechanical joints. Pressure testing of mechanical joints affected by repair and replacement activities is necessary to ensure and verify the integrity of the pressure boundary. In the proposed rule, the NRC requested that commenters provide additional information that can be used to justify the elimination of the pressure tests requirements in IWA-4540(c) of the 1998 Edition of Section XI.

Several commenters stated that the Code requirement to conduct a system leakage test during operation at nominal operating pressure to verify leakage after reassembly of a

mechanical joint was deleted in the 1999 Addenda of Section XI. The commenters indicated that this Code requirement was deleted because mechanical joint leakage is not prohibited by Section XI. The commenters contend that Section XI does not provide leakage acceptance criteria, and it has always been the responsibility of each licensee to determine if the leakage is acceptable and if corrective action is required. Furthermore, they contend that the purpose of the system leakage test in the 1998 Edition and earlier editions and addenda of Section XI is to monitor for leakage not verify the structural integrity of the pressure boundary. One commenter pointed out that the revised system leakage test requirements in the 1999 Addenda and later editions and addenda are consistent with the construction requirements for mechanical joint leakage in Section III of the ASME Code. Section III does not prohibit leakage at mechanical connections and only requires that mechanical connection leakage not mask leakage at other joints. Commenters stated that operators and system engineers periodically monitor systems for leakage and evaluate if corrective action is warranted when leakage is identified. Commenters also stated that post maintenance test programs specify requirements for leak testing mechanical connections following reassembly. Section XI does not provide any acceptance criteria for mechanical joint leakage following reassembly, and it has always been the responsibility of licensees to determine if corrective action is warranted.

The NRC and commenters generally agree that repaired or replaced mechanical joints should be pressure tested following Code repair and replacement activities. However, the NRC and commenters disagree on the role of the Code for providing this guidance. The NRC believes that it is inappropriate to rely on regulations or programs other than the Code, such as testing requirements in Appendix B of 10 CFR Part 50, "Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants," to provide detailed test requirements for

mechanical joint repair and replacement activities. With the exception of Section XI, there are no other NRC regulations that provide detailed guidance on pressure testing mechanical joints that are repaired or replaced in accordance with Section XI. The test requirements in Section XI are technically correct and are also consistent with the test requirements in Appendix B of 10 CFR Part 50. After consideration of public comments, the NRC finds that Code pressure testing of mechanical joints after repair and replacement activities is still warranted, and that reliance on programs which are not under Code jurisdiction is not an appropriate substitute for specifying Code repair and replacement requirements.

One commenter states that it is inappropriate for the NRC to modify the use of Code provisions that were previously accepted by the NRC. The NRC disagrees. The modification in § 50.55a(b)(2)(xxvi) was not included in the final rule that incorporated by reference the 1999 Addenda of Section XI in § 50.55a (67 FR 60520: September 26, 2002) due to an oversight by the NRC. The NRC did not identify that these Code provisions were added when it reviewed the 1999 Addenda of Section XI. The NRC has determined that this modification should only apply to those licensees who implement the 2001 Edition and later editions and addenda of Section XI, and should not be backfit to those licensees who update their ISI programs to the 1998 Edition with the 1999 and 2000 Addenda in accordance with § 50.55a(g)(4)(ii). The NRC has determined it is acceptable not to backfit the licensees who update their ISI programs to the 1998 Edition with the 1999 and 2000 Addenda, because those licensees will be required at the next 10-year interval to update their ISI programs to prohibit the relevant Code provisions. Thus, any problems would be caught during the next 10-year interval. The prohibition of the relevant Code provisions is not considered a backfit because they are imposed only as part of the routine updating required as part of the 120-month

updating and do not constitute a significant change to, or fundamental modification of, the existing ISI program.

For these reasons, § 50.55a(b)(2)(xxvi) is adopted without change in this final rule.

10 CFR 50.55a(b)(2)(xxvii) - Removal of Insulation

The proposed modification in § 50.55a(b)(2)(xxvii) consisted of two parts. The first part would have supplemented a new provision in IWA-5242(a) to require that insulation be removed before conducting visual examinations on bolting susceptible to stress corrosion cracking (SCC). The purpose of IWA-5242 is to periodically examine bolted connections for evidence of boric acid leakage. The 17-4 precipitation-hardened (PH) stainless steels and the 410 stainless steels installed in borated systems are susceptible to SCC when aged at a temperature below 1100°F or have a Rockwell Method C hardness value above 30. A-286 stainless steel studs or bolts are also susceptible to SCC when preloaded to 100,000 pounds per square inch or higher. Thus, the insulation must be removed to visually examine these bolting materials. Code Case N-616, "Alternative Requirements for VT-2 Visual Examination of Classes 1, 2, and 3 Insulated Pressure Retaining Bolted Connections Section XI, Division 1," included, among other things, a provision allowing bolted connections with certain bolting materials to be examined without removing the insulation. However, this could prevent identification of signs of degraded bolting if the bolting is susceptible to SCC. The provisions of Code Case N-616 were added to IWA-5242(a) in the 2003 Addenda of Section XI of the ASME BPV Code. The NRC also conditionally accepted the use of Code Case N-616 in Regulatory Guide 1.147, by requiring that insulation be removed to examine 17-4 PH stainless steel or 410 stainless steel studs or

bolts aged at a temperature below 1100°F or with a Rockwell Method C hardness value above 30; and A-286 stainless steel studs or bolts preloaded to 100,000 pounds per square inch or higher.

One commenter stated that the ASME determined that a VT-2 visual examination may not be able to detect SCC in 17-4 PH and 410 stainless steel installed in borated systems and recommended that NRC not adopt the modification in § 50.55a(b)(2)(xxvii) requiring removal of insulation prior to examining 17-4 PH and 410 stainless steel studs or bolts. The NRC agrees that it is not the intent of a VT-2 visual examination to detect SCC. However, VT-2 visual examination is an effective method for determining when conditions necessary to support SCC, such as boric acid leakage on or near a bolted connection, are present. The NRC believes that it is not prudent to attempt to detect boric acid leakage with insulation in place on connections bolted with materials susceptible to SCC. For these reasons, § 50.55a(b)(2)(xxvii) requiring that insulation be removed when conducting visual examinations on bolting susceptible to SCC is adopted without change in this final rule.

The second part of § 50.55a(b)(2)(xxvii) in the proposed rule would have supplemented IWA-5242(a) to require that a VT-2 examination of bolted connections be performed during system leakage tests. One commenter noted that the reason for this part of the proposed modification was not specifically addressed in the statement of considerations for the proposed rule. The NRC agrees. The proposed rule identified two areas in IWA-5242(a) that need to be supplemented, and the statement of considerations only described one of the areas. The reason for the second part of § 50.55a(b)(2)(xxvii) is as follows. Requirement (a) of Code Case N-533-1, "Alternative Requirements for VT-2 Visual Examination of Class 1, 2, and 3 Insulated

Pressure-Retaining Bolted Connections,” states that a “system pressure test and VT-2 visual examination shall be performed each refueling outage for Class 1 connections and each period for Class 2 and 3 connections without removal of insulation.” With the exception of Requirement (a), the other provisions of Code Case N-533-1 were added to IWA-5242(a) in the 2003 Addenda of Section XI of the ASME BPV Code. The NRC proposed this modification because it appeared that all of the provisions of Code Case N-533-1 were not added in the 2003 Addenda. After further review, the NRC concludes that VT-2 examination of insulated bolted connections during system leakage tests is required by Tables IWB/C/D-2500-1 and by IWA-5241 of Section XI. Tables IWB/C/D-2500-1 require VT-2 visual examination during system leakage testing for all pressure retaining components. Paragraph IWA-5241 requires VT-2 visual examination of the accessible external exposed surfaces of pressure-retaining components for evidence of leakage and applies to insulated and non-insulated components. Therefore, the proposed requirement that a VT-2 examination of bolted connections be performed during system leakage tests is not adopted in this final rule.

10 CFR 50.55a(b)(2)(xxviii) - Reconciliation of Quality Assurance Requirements

Section 50.55a(b)(2)(xxviii) of the proposed rule would have supplemented a new provision in IWA-4226.1 to require that repair/replacement components be manufactured, procured, and controlled as safety-related under a quality assurance program meeting the requirements of Appendix B to 10 CFR Part 50. The proposed rule stated that the purpose of IWA-4226.1 (2003 Addenda) and Code Case N-554-2, “Alternative Requirements for Reconciliation of Replacement Items and Addition of New Systems,” Section XI, Division 1 is to provide requirements for reconciling design requirements when using later editions of a

construction code or Section III. The proposed rule stated that IWA-4226.1 and Code Case N-554-2 do not require reconciliation of the quality assurance requirements for certification, Code symbol stamping, data reports, and authorized inspection. For example, a component manufactured in a commercial shop that does not have a quality assurance program could be used in a safety-related application without having to reconcile quality assurance requirements. In Regulatory Guide 1.147, the NRC conditionally accepted the use of Code Case N-554-2 by requiring that repair/replacement components be manufactured, procured, and controlled as safety-related under a quality assurance program meeting the requirements of Appendix B to 10 CFR Part 50. The modification in § 50.55a(b)(2)(xxviii) in the proposed rule would have imposed the same quality assurance requirements on IWA-4226.1.

One commenter stated that the proposed modification in § 50.55a(b)(2)(xxviii) would prevent licensees from using a commercial grade dedication program to fabricate or procure components that are no longer available through an Appendix B supplier. The commenter proposed a revision to § 50.55a(b)(2)(xxviii) that would allow licensees to use a commercial grade dedication program to fabricate or procure components, if necessary. The NRC notes that it was not the intent of the modification in § 50.55a(b)(2)(xxviii) in the proposed rule to prevent licensees from using a commercial grade dedication program to fabricate or procure components that are no longer available through an Appendix B supplier. Another commenter stated the proposed modification in § 50.55a(b)(2)(xxviii) is unnecessary because the revision to IWA-4226.1 in the 2003 Addenda is not associated with the fabrication or procurement of components. This same commenter stated that a component manufactured in a commercial shop that does not have a quality assurance program would not be permitted in an application within the jurisdiction of Section XI unless that practice was permitted by the original

Construction Code. In this case, a licensee may purchase replacement material, parts, or components from a commercial vendor and dedicate them for use in a nuclear power plant in accordance with its quality assurance program. The NRC agrees with the second commenter. The proposed modification in § 50.55a(b)(2)(xxviii) is unnecessary because the revision to IWA-4226.1 (2003 Addenda) does not change component procurement or fabrication requirements. Furthermore, the existing modification in § 50.55a(b)(2)(xvii), Reconciliation of Quality Requirements, requires that replacement parts be purchased, to the extent necessary, in accordance with the licensee's quality assurance program. In consideration of public comments, § 50.55a(b)(2)(xxviii) is not adopted in this final rule.

2.3 ASME OM Code

The proposed rule would have revised § 50.55a(b)(3) to incorporate by reference the 2001 Edition and the 2002 and 2003 Addenda of the ASME OM Code. Accordingly, the existing modifications for motor-operated valves, snubbers, and manual valves in § 50.55a(b)(3)(ii), § 50.55a(b)(3)(v), and § 50.55a(b)(3)(vi), respectively, would continue to apply when using the 2001 Edition through 2003 Addenda of the ASME OM Code. The modifications in § 50.55a(b)(3)(ii), § 50.55a(b)(3)(v), and § 50.55a(b)(3)(vi) continue to apply to the 2001 Edition through 2003 Addenda of ASME OM Code because the earlier Code provisions on which these regulations are based were not revised in the 2001 Edition through 2003 Addenda of the ASME OM Code to address the underlying issues which led to the NRC to impose the modifications. There were no public comments received on § 50.55a(b)(3), § 50.55a(b)(3)(ii), § 50.55a(b)(3)(v), and § 50.55a(b)(3)(vi) and, therefore, these provisions are adopted without change in this final rule.

10 CFR 50.55a(b)(3)(i) - Quality Assurance

The proposed rule would have revised the existing quality assurance requirements in § 50.55a(b)(3)(i) to state that ISTA-1500 is applicable when using the 1998 Edition and later editions and addenda of the ASME OM Code. Subsections of the ASME OM Code were renumbered in the 1998 Edition; therefore, § 50.55a(b)(3)(i) is revised to account for the renumbering. This revision does not change requirements in a substantive manner. There were no public comments received on § 50.55a(b)(3)(i) and, therefore, this provision is adopted without change in this final rule.

10 CFR 50.55a(b)(3)(iii) - Code Case OMN-1

The proposed rule would have revised § 50.55a(b)(3)(iii) to eliminate the authorization to use Code Case OMN-1. The existing regulation in § 50.55a(b)(3)(iii) authorizes the use of Code Case OMN-1. Code Case OMN-1 is now approved in Regulatory Guide 1.192, "Operation and Maintenance Code Case Acceptability, ASME OM Code." Regulatory Guide 1.192 (Revision 0) was incorporated by reference into § 50.55a in a final rule dated July 8, 2003 (68 FR 40469). Thus, it is no longer necessary to authorize the use of Code Case OMN-1 in § 50.55a(b)(3)(iii) because this code case is now included in Regulatory Guide 1.192. There were no public comments received on § 50.55a(b)(3)(iii) and, therefore, this provision is adopted without change in this final rule.

10 CFR 50.55a(b)(3)(iv) - Check Valve Monitoring Program

The proposed rule would have revised the existing modification for the check valve monitoring program in § 50.55a(b)(3)(iv) to continue prohibiting use of the 1995 Edition through 2002 Addenda of the ASME OM Code. The modification in (b)(3)(iv) does not apply to the 2003 Addenda of the ASME OM Code because the earlier Code provisions on which this regulation was based were revised in the 2003 Addenda of the ASME OM Code to address the underlying issues which led to the NRC to impose the modification. The check valve monitoring program requirements in Appendix II of the 2003 Addenda of the ASME OM Code are equivalent to the check valve monitoring program requirements in § 50.55a(b)(3)(iv). There were no public comments received on (b)(3)(iv) and, therefore, this provision is adopted without change in this final rule.

3. Section-by-Section Analysis for 50.55a

Paragraph (b)(1). This paragraph requires new applicants for a nuclear power plant who submit an application for a construction permit under 10 CFR Part 50 after the effective date of this rule use the 2001 Edition and the 2002 and 2003 Addenda of Section III, Division 1 of the ASME BPV Code for the design and construction of the reactor coolant pressure boundary and Quality Group B and C components. The statement of considerations for the proposed rule (69 FR 886) indicated that the proposed rule would require, inter alia, applicants for design certifications under 10 CFR Part 52 to use the 2001 Edition and the 2002 and 2003 Addenda of Section III, Division 1 of the ASME BPV Code. However, the language of the proposed rule did not provide for such applicability, and upon further consideration, the NRC

believes that additional issues relating to the application of ASME Code to design certifications and other regulatory processes in Part 52 need to be considered. Accordingly, the NRC has decided not to extend by rulemaking these ASME BPV Code provisions to design certifications, and no rule change is necessary to accomplish this. This paragraph also requires that existing modifications and limitations for weld leg dimensions, seismic design, and independence of inspection in §§ 50.55a(b)(1)(ii), 50.55a(b)(1)(iii), and 50.55a(b)(1)(v), respectively, apply to the 2001 Edition through 2003 Addenda of Section III, Division 1 of the ASME BPV Code.

Paragraph (b)(1)(ii). This paragraph reconciles the change in footnote numbers in Figures NC-3673.2(b)-1 and ND-3673.2(b)-1 in Section III, Division 1 of the ASME BPV Code that were renumbered. There are no substantive changes in this paragraph.

Paragraph (b)(1)(vi). This paragraph approves the use of Subsection NH, “Class 1 Components in Elevated Temperature Service,” 1995 Addenda through 2003 Addenda, for only the design and construction of Type 316 stainless steel pressurizer heater sleeves where service conditions do not cause the component to reach temperatures exceeding 900 °F. Licensees may not employ the special design methodologies for high temperatures described in Subsection NH for the design and construction of other Class 1 reactor coolant pressure boundary component applications absent specific approval by the NRC.

Paragraph (b)(2). This paragraph requires licensees of nuclear power plants to use the 2001 Edition and the 2002 and 2003 Addenda of Section XI, Division 1 of the ASME BPV Code when updating their inservice inspection programs in their subsequent 120-month interval under § 50.55a(g)(4)(ii). Existing modifications and limitations for quality assurance, Class 1 piping,

underwater welding, certification of nondestructive examination personnel, substitution of alternative method, and Table IWB-2500-1 examination requirements in §§ 50.55a(b)(2)(x), 50.55a(b)(2)(xi), 50.55a(b)(2)(xii), 50.55a(b)(2)(xviii), 50.55a(b)(2)(xix), and 50.55a(b)(2)(xxi), respectively, apply to the 2001 Edition through 2003 Addenda of Section XI, Division 1 of the ASME BPV Code. This paragraph also adds Footnote 10 which states that enhanced reactor pressure vessel head inspections have been imposed by order at pressurized water reactors, and that the NRC will determine the need for supplemental inspection requirements to be imposed through rulemaking.

Paragraph (b)(2)(viii). This paragraph requires that the existing modification for examination of concrete containments in § 50.55a(b)(2)(viii) apply to the 2001 Edition through 2003 Addenda of Section XI, Division 1 of the ASME BPV Code, and that a new modification, § 50.55a(b)(2)(viii)(G), apply to the 2001 Edition through 2003 Addenda of Section XI, Division 1 of the ASME BPV Code.

Paragraph (b)(2)(viii)(G). This new paragraph requires that corrosion protection medium be restored in accordance with the quality assurance program requirements specified in IWA-1400 following IWL-4000 repair and replacement activities conducted on concrete containment post-tensioning systems when using the 2001 Edition through 2003 Addenda Section XI, Division 1 of the ASME BPV Code.

Paragraph (b)(2)(ix). This paragraph requires that the existing modification for examination of metal containments and the liners of concrete containments in § 50.55a(b)(2)(ix)

apply to the 2001 Edition through 2003 Addenda of Section XI, Division 1 of the ASME BPV Code.

Paragraph (b)(2)(xiii). This paragraph no longer includes the authorization to use Code Case N-513. Authorization to use Code Case N-513 is now provided in Regulatory Guide 1.147, which has been incorporated by reference into § 50.55a.

Paragraph (b)(2)(xiv). The paragraph requires that the existing modification for Appendix VIII personnel qualification in § 50.55a(b)(2)(xiv) apply to the 2001 Edition through 2003 Addenda of Section XI, Division 1, of the ASME BPV Code. The paragraph also corrects an oversight by clarifying that the annual practice requirements in VII-4240 of Appendix VII of Section XI, Division 1 of the ASME BPV Code may be used.

Paragraph (b)(2)(xv). This paragraph requires the existing modification for Appendix VIII specimen set and qualification requirements in § 50.55a(b)(2)(xv) apply to the 2001 Edition of Section XI, Division 1 of the ASME BPV Code.

Paragraph (b)(2)(xv)(C)(1). This paragraph specifies that the flaw depth sizing provisions in Subparagraph 3.2(c) of Supplement 4 to Appendix VIII of Section XI, Division 1 of the ASME BPV Code are not applicable when Appendix VIII is implemented in accordance with the provisions in § 50.55a(b)(2)(xv).

Paragraph (b)(2)(xv)(J). This paragraph no longer includes the authorization to use Code Case N-552. Authorization to use Code Case N-552 is now provided in Regulatory Guide

1.147, which has been incorporated by reference into § 50.55a. Paragraph (b)(2)(xv)(J) is reserved for future use.

Paragraph (b)(2)(xvii). This paragraph limits the existing modification for reconciliation of quality requirements in § 50.55a(b)(2)(xvii) to apply only to the 1995 Addenda through 1998 Edition of Section XI, Division 1 of the ASME BPV Code.

Paragraph (b)(2)(xx). This paragraph limits the existing modification for system leakage tests in § 50.55a(b)(2)(xx) to apply only to the 1997 Addenda through 2002 Addenda of Section XI, Division 1 of the ASME BPV Code.

Paragraph (b)(2)(xxii). This new paragraph prohibits the use of the provision in IWA-2220, 2001 Edition and the 2002 and 2003 Addenda of Section XI, Division 1 of the ASME BPV Code, that allows the use of an ultrasonic examination method to conduct a surface examination. Licensees must conduct an IWA-2220 surface examination using magnetic particle, liquid penetrant, or eddy current method.

Paragraph (b)(2)(xxiii). This new paragraph prohibits the use of the provisions for eliminating mechanical processing of thermally cut surfaces in IWA-4461.4.2 of the 2001 Edition through 2003 Addenda of Section XI, Division 1 of the ASME BPV Code.

Paragraph (b)(2)(xxiv). This new paragraph prohibits the use of Appendix VIII and the supplements to Appendix VIII and Article I-3000 of the 2002 and 2003 Addenda of Section XI, Division 1 of the ASME BPV Code. Licensees are required to implement Appendix VIII and its

supplements in accordance with the alternative provided in paragraph (b)(2)(xv). Licensees are also required to use the coverage requirements in paragraph (b)(2)(xv).

Paragraph (b)(2)(xxv). This new paragraph prohibits the use of IWA-4340, 2001 Edition and the 2002 and 2003 Addenda of Section XI that allows the mitigation of defects by modification.

Paragraph (b)(2)(xxvi). This new paragraph requires that the Class 1, 2, and 3 mechanical joint pressure and test provisions in IWA-4540(c) of the 1998 Edition of Section XI of the ASME Code be used when repair and replacement activities are conducted in accordance with the 2001 Edition and the 2002 and 2003 Addenda of Section XI of the ASME BPV Code.

Paragraph (b)(2)(xxvii). This new paragraph requires that the insulation be removed from 17-4 PH or 410 stainless steel studs or bolts aged at a temperature below 1100°F or having a Rockwell Method C hardness value above 30, and from A-286 stainless steel studs or bolts preloaded to 100,000 pounds per square inch or higher when performing visual examinations in accordance with IWA-5242 of the 2003 Addenda of Section XI, Division 1 of the ASME BPV Code.

Paragraph (b)(3). This paragraph requires licensees of nuclear power plants to use the 2001 Edition and the 2002 and 2003 Addenda of the ASME OM Code when updating their inservice test programs in their subsequent 120-month inspection intervals under § 50.55a(f)(4)(ii). This paragraph also requires the existing modifications and limitations for

quality assurance, motor-operated valve testing, snubbers, and manual valves in §§ 50.55a(b)(3)(i), 50.55a(b)(3)(ii), 50.55a(b)(3)(v), and 50.55a(b)(3)(vi), respectively, apply to the 2001 Edition through 2003 Addenda of the ASME OM Code.

Paragraph (b)(3)(i). This paragraph reconciles the different subsection and paragraph numbers of the ASME OM Code that were renumbered in the 1998 Edition and subsequent editions and addenda. There are no substantive changes in this paragraph.

Paragraph (b)(3)(iii). This paragraph no longer includes the authorization to use Code Case OMN-1. Authorization to use Code Case OMN-1 is now provided in Regulatory Guide 1.192 which has been incorporated by reference into § 50.55a. Paragraph (b)(3)(iii) is reserved for future use.

Paragraph (b)(3)(iv). This paragraph limits the existing modification for the check valve monitoring program in § 50.55a(b)(3)(iv) to the 1995 Edition through 2002 Addenda of the ASME OM Code.

4. Generic Aging Lessons Learned Report

In July 2001, the NRC issued, "Generic Aging Lessons Learned (GALL) Report," NUREG-1801, Volumes 1 and 2, for use by applicants in preparing their license renewal applications. The GALL report evaluates existing generic programs, documents the bases for determining when generic existing programs are adequate without change, and documents when generic existing programs should be augmented for license renewal. Section XI,

Division 1 of the ASME BPV Code is one of the generic existing programs in the GALL report that is evaluated as an aging management program (AMP) for license renewal. Subsections IWB, IWC, IWD, IWF, IWE, and IWL of the 1995 Edition up to and including the 1996 Addenda of Section XI of the ASME BPV Code for inservice inspection were evaluated in the GALL report, and the conclusions in the GALL report are valid for these edition and addenda.

In the GALL report Sections XI.M1, "ASME Section XI Inservice Inspection, Subsections IWB, IWC, and IWD," XI.S1, "ASME Section XI, Subsection IWE," XI.S2, "ASME Section XI, Subsection IWL," and XI.S3, "ASME Section XI, Subsection IWF," describe the evaluation and technical bases for determining the adequacy of Subsections IWB, IWC, IWD, IWE, IWL, and IWF, respectively. In addition, many other AMPs in the GALL report rely in part, but to a lesser degree, on the requirements in the ASME Code, Section XI (i.e., XI.M3, XI.M4, XI.M5, XI.M6, XI.M7, XI.M8, XI.M9, XI.M11, XI.M12, XI.M13, XI.M14, XI.M15, XI.M16, XI.M18, XI.M24, XI.M25, and XI.M32).

The NRC has completed an evaluation of Subsections IWB, IWC, IWD, IWE, IWF, and IWL of Section XI of the ASME BPV Code (2001 Edition and the 2002 and 2003 Addenda) as part of the § 50.55a amendment process to determine if the conclusions of the GALL report are also applicable for AMPs that rely upon the ASME Code editions and addenda which are incorporated by reference into § 50.55a by the final rule. The NRC finds that the 2001 Edition and 2002 and 2003 Addenda of Sections III and XI of the ASME BPV Code are acceptable and the conclusions of the GALL report remain valid. Accordingly, an applicant may use Subsections IWB, IWC, IWD, IWE, IWF, and IWL of Section XI of the ASME BPV Code (2001 Edition and the 2002 and 2003 Addenda) as acceptable alternatives to the requirements

of the 1995 Edition up to and including the 1996 Addenda of the ASME Code, Section XI referenced in the GALL AMPs without the need to submit these alternatives for NRC review in its plant-specific license renewal application. Similarly, a licensee approved for license renewal that relied on the GALL AMPs may use Subsections IWB, IWC, IWD, IWE, IWF, and IWL of Section XI of the ASME BPV Code (2001 Edition and the 2002 and 2003 Addenda) as acceptable alternatives to the AMPs described in the GALL report. However, a licensee must assess and follow applicable NRC requirements with regard to changes to its licensing basis.

The GALL report identified areas of the 1995 Edition with the 1996 Addenda of Section XI of the ASME Code that require augmentation for license renewal. A license renewal applicant may either augment their AMPs in these areas as described in the GALL report or propose alternatives for NRC review in its plant-specific license renewal application. The GALL report's conclusions with respect to augmentation in connection with a license renewal application also apply when implementing the 2001 Edition and the 2002 and 2003 Addenda of Section XI of the ASME Code.

5. Availability of Documents

The NRC is making the documents identified below available to interested persons through one or more of the following methods as indicated.

Public Document Room (PDR). The NRC Public Document Room is located at 11555 Rockville Pike, Rockville, Maryland.

Rulemaking Website (Web). The NRC's interactive rulemaking Website is located at <http://ruleforum.llnl.gov>. These documents may be viewed and downloaded electronically via this Website.

NRC's Public Electronic Reading Room (PERR). The NRC's public electronic reading room is located at <http://www.nrc.gov/reading-rm/adams.html>.

NRC Staff Contact. Single copies of the *Federal Register* Notice, Regulatory Analysis, Environmental Assessment, and Resolution of Public Comments can be obtained from Stephen Tingen, Division of Engineering, Office of Nuclear Reactor Regulation, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555-0001. Alternatively, you may contact Mr. Tingen at (301) 415-1280, or via e-mail at: sgt@nrc.gov.

Document	PDR	Web	PERR	NRC Staff
Order EA-03-009	X	X	ML 030380470	X
Revised Order EA-03-009	X	X	ML 040220181	X
SECY-03-0078	X	X	ML 030700408	X
Federal Register Notice	X	X	ML 041200758	X
Regulatory Analysis	X	X	ML 041200761	X
Environmental Assessment	X	X	ML 041200768	X
Regulatory Guide 1.147, "Inservice Inspection Code Case Acceptability, ASME Section XI, Division 1," Revision 13	X	X	ML 040230509	
Regulatory Guide 1.192, "Operation and Maintenance Code Case Acceptability, ASME OM Code," Revision 0	X	X	ML 030730430	
NUREG-1801, "Generic Aging Lessons Learned (GALL) Report"	X	X	Volume 1 - ML 012060392 Volume 2 - ML 012060514	

6. Voluntary Consensus Standards

The National Technology Transfer and Advancement Act of 1995, Pub. L. 104-113, requires that if agencies establish technical standards, the agencies use technical standards that are developed or adopted by voluntary consensus standards bodies unless the use of such a standard is inconsistent with applicable law or is otherwise impractical. Pub. L. 104-113 requires Federal agencies to use industry consensus standards to the extent practical, however, it does not require Federal agencies to endorse a standard in its entirety. The law

does not prohibit an agency from generally 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 which are not acceptable to the agency.

The NRC is amending its regulations to incorporate by reference a more recent edition and addenda of Sections III and XI of the ASME BPV Code and ASME OM Code for construction, inservice inspection, and inservice testing of nuclear power plant components. 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 licensees of nuclear power plants) participate. In a staff requirements memorandum dated September 10, 1999, the Commission indicated its intent that a rulemaking identify all portions of an adopted voluntary consensus standard which are not adopted and to provide a justification for not adopting such portions. The portions of the ASME BPV Code and OM Code which the NRC does not adopt, or partially adopts, are identified in Section 2 of this final rule and the regulatory analysis. The justification for not adopting portions of the ASME BPV Code, as set forth in these statements of consideration and regulatory analysis for this rule satisfy the requirements of Section 12(d)(3) of Pub. L. 104-113, Office of Management and Budget (OMB) Circular A-119 and the Commission’s direction in the staff requirements memorandum dated September 10, 1999.

7. Finding of No Significant Environmental Impact: Availability

The Commission has determined, under the National Environmental Policy Act of 1969, as amended, and the Commission's regulations in Subpart A of 10 CFR Part 51, that this rule is not be a major Federal action significantly affecting the quality of the human environment, and therefore, an environmental impact statement is not required.

This rulemaking will 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; there is no increase in occupational exposure; and, there is no significant increase in public radiation exposure. Therefore, there are no significant radiological impacts associated with the proposed action. The rulemaking does not involve non-radiological plant effluents and has no other environmental impact. Therefore, no significant non-radiological impacts are associated with the action.

The determination of this environmental assessment is that there will be no significant off-site impact to the public from this action. The NRC has prepared an environmental assessment on this final rule. The environmental assessment is available as indicated in Section 5, Availability of Documents, under the Supplementary Information heading.

The NRC requested the views of the States on the environmental assessment for the rule and did not receive any comments from the States.

8. Paperwork Reduction Act Statement

This final rule decreases the burden on licensees for recordkeeping requirements related to examinations, tests, and repair and replacement activities. The industry annual public burden reduction for this information collection is estimated at 713 hours. Because the burden reduction for this information collection is insignificant, Office of Management and Budget (OMB) clearance is not required. Existing requirements were approved by the OMB, approval number 3150-0011.

Public Protection Notification

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

9. Regulatory Analysis

The NRC has prepared a regulatory analysis on this final rule. The analysis is available for review in the NRC's Public Document Room, located in One White Flint North, 11555 Rockville Pike, Rockville, Maryland. The regulatory analysis is available as indicated in Section 5, Availability of Documents, under the Supplementary Information heading.

10. Regulatory Flexibility Certification

In accordance with the Regulatory Flexibility Act of 1980, 5 U.S.C. 605(b), the Commission certifies that this rule will not, if promulgated, have a significant economic impact on a substantial number of small entities. This 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 Small Business Size Standards set forth in regulations issued by the Small Business Administration at 13 CFR Part 121.

11. Backfit Analysis

The NRC's Backfit Rule, 10 CFR 50.109, states that the Commission 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; or the design approval or manufacturing license for a facility; or the procedures or organization required to design, construct or operate a facility; any of which may result from a new or amended provision in the Commission rules or the imposition of a regulatory staff position interpreting the Commission rules that is either new or different from a previously applicable staff 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; inspect 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; and test Class 1, 2, and 3 pumps and valves in accordance with the rules provided in the ASME OM Code. This rule incorporates by reference the 2001 Edition and the 2002 and 2003 Addenda of Section III, Division 1 of the ASME BPV Code; Section XI, Division 1 of the ASME BPV Code; and the ASME OM Code.

Incorporation by reference of more recent editions and addenda of Section III, Division 1 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 because the edition and addenda to be used in constructing a plant are, by rule, determined on the basis of the date of the construction permit and are not changed thereafter except voluntarily by the licensee. Thus, incorporation by reference of a more recent edition and addenda of Section III, Division 1 does not constitute a “backfitting” as defined in § 50.109(a)(1).

Incorporation by reference of more recent editions and addenda of Section XI, Division 1, of the ASME BPV Code and the ASME OM Code affect the inservice inspection (ISI) and inservice testing (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. The NRC’s longstanding policy has been to incorporate later versions of the ASME Codes into its regulations. This is codified in § 50.55a which requires licensees to 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 that is in effect 12 months prior to the start of a new 120-month ISI and

IST interval. Thus, when the NRC endorses a later version of the Code, it is implementing this longstanding policy and requirement.

Other circumstances where the NRC does not apply the Backfit Rule to the endorsement of a later Code 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 Statement of Considerations 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 (final rules dated August 6, 1992 (57 FR 34666), August 8, 1996 (61 FR 41303), September 22, 1999 (64 FR 51370), and September 26, 2002 (67 FR 60520)). 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.

There are some circumstances in which the endorsement of a later ASME BPV Code or OM Code introduces a backfit. In these cases, the NRC would perform a backfit analysis or documented evaluation in accordance with § 50.109. These include the following:

(1) When the NRC endorses a later provision of the ASME BPV Code or OM Code that takes a substantially different direction from the existing requirements, the action is treated as a backfit. An example was the NRC's initial endorsement of Subsections IWE and IWL of Section XI which imposed containment inspection requirements on operating reactors for the first time. The final rule dated August 8, 1996 (61 FR 41303), incorporated by reference in § 50.55a the 1992 Edition with the 1992 Addenda of IWE and IWL of Section XI to require that containments be routinely inspected to detect defects that could compromise a containment's structural integrity. This action expanded the scope of § 50.55a to include components that were not considered by the existing regulations to be within the scope of ISI. Since those requirements involved a substantially different direction, they were treated as backfits, and justified in accordance with the standards of 10 CFR 50.109.

(2) When the NRC requires implementation of 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. An example was the rule dated September 22, 1999 (64 FR 51370), which incorporated by reference the 1989 Addenda through the 1996 Addenda of Section III and Section XI of the ASME BPV Code and the 1995 Edition with the 1996 Addenda of the ASME OM Code. The final rule expedited the implementation of the 1995 Edition with the 1996 Addenda of Appendix VIII of Section XI of the ASME BPV Code for

qualification of personnel and procedures for performing ultrasonic examinations. The expedited implementation of Appendix VIII was considered a backfit because licensees were required to implement the new requirements in Appendix VIII prior to the next 120-month ISI program inspection interval update. Another example was the final rule dated August 6, 1992 (57 FR 34666), which incorporated by reference in § 50.55a the 1986 Addenda through the 1989 Edition of Section III and Section XI of the ASME BPV Code. The final rule added a requirement to expedite the implementation of the revised reactor vessel shell weld examinations in the 1989 Edition of Section XI. Imposing these examinations was considered a backfit because licensees were required to implement the examinations prior to the next 120-month ISI program inspection interval update.

(3) When the NRC takes an exception to a ASME BPV Code or OM Code provision and imposes a requirement that is substantially different from the existing requirement as well as substantially different than the later Code. An example was the adoption of dissimilar metal piping weld UT examination coverage requirements in the final rule dated September 26, 2002 (67 FR 60529), that incorporated by reference in § 50.55a the 1997 through 2000 Addenda of Section XI. Dissimilar metal piping weld examination coverage requirements, although contained in the 1989 Edition and earlier editions and addenda of Section XI, are not addressed in the 1989 Addenda and later editions and addenda of Section XI. Therefore, the addition of dissimilar metal piping weld examination coverage requirements to the regulation was necessary.

10 CFR 50.55a(b)(1)(vi) - Subsection NH

The modification, § 50.55a(b)(1)(b)(vi), adds a new limitation on the use of Subsection NH of the 1995 through 2003 Addenda of Section III of the ASME BPV Code for the design and construction of Class 1 reactor coolant pressure boundary components. Subsection NH was added to Section III of the ASME BPV Code in the 1995 Addenda. The NRC has determined that this subsection was adopted in a final rule dated September 22, 1999 (64 FR 51370), without performing an adequate technical review.

As discussed earlier, the NRC has determined that Subsection NH has been used to design and construct Type 316 stainless steel pressurizer heater sleeves that reach temperatures of up to 900 °F, and that the use of Subsection NH for this application is acceptable. However, the NRC has not performed a full technical review of Subsection NH for other Class 1 components in future advanced reactor designs such as liquid metal and high-temperature gas-cooled reactor designs where service conditions could reach 1500 °F. Section 50.55a(b)(1)(vi) in this final rule limits the application of Subsection NH to only pressurizer heater sleeves constructed from Type 316 stainless steel material where service conditions do not cause the component to reach temperatures exceeding 900 °F. The Backfit Rule does not apply to this limitation because, with the exception of Type 316 stainless steel pressurizer heater sleeves, licensees have not applied the provisions in Subsection NH to other Class 1 reactor coolant pressure boundary components. The Backfit Rule does not apply to rules that revise requirements that existing licensees have not applied or for future combined license applicants and design certification applicants even though such a rule may impact an applicant or licensee who was considering applying the provisions of Subsection NH to Class 1

reactor coolant pressure boundary components. For these reasons, the NRC concludes that limiting the application of Subsection NH to only Type 316 stainless steel pressurizer heater sleeves where service conditions do not cause the component to reach temperatures exceeding 900 °F does not constitute a backfit as defined in 10 CFR 50.109(a)(1).

12. Small Business Regulatory Enforcement Fairness Act

In accordance with the Small Business Regulatory Enforcement Fairness Act of 1996, the NRC has determined that this action is not a major rule and has verified this determination with the Office of Information and Regulatory Affairs of OMB.

13. Miscellaneous Public Comments on Proposed Rule

Class MC Supports

Several commenters stated that the ISI requirements for Class MC supports are not specifically addressed in § 50.55a(g). The commenters requested that NRC revise § 50.55a(g)(4) to clarify that Class MC supports must be included in ISI programs. The NRC disagrees with the commenters. The existing regulation in § 50.55a(g) states that Class MC components and their "integral attachments" must meet the ISI requirements set forth in Section XI. The use of "integral attachment" in the regulation is consistent with the terminology used in Subsection IWF of Section XI (see Figure IWF-1300-1). The provisions for the ISI of Class 1, 2, 3, and MC Component supports are included in the scope of Subsection IWF. The

use of the term "integral attachment" is used in Table IWF-1300-1 and includes welded supports to MC components.

NRC Participation on ASME Code Committees

Several commenters stated that the number of modifications and limitations imposed by the NRC on later editions and addenda of the ASME Codes have significantly increased and that the ASME and NRC committee members should strive to minimize the number of modifications and limitations. The NRC agrees that the number of modifications and limitations should be kept to a minimum. OMB Circular A-119, "Federal Participation in the Development and Use of voluntary Consensus Standards and in Conformity Assessment Activities," requires agency representatives on committees to ascertain the views of the agency to the extent possible and express views consistent with established agency views. It should be noted, however, that unanticipated events occasionally change the NRC position on an issue during final consideration.

List of Subjects in 10 CFR Part 50

Antitrust, Classified information, Criminal penalties, Fire protection, Incorporation by reference, Intergovernmental relations, Nuclear power plants and reactors, Radiation protection, Reactor siting criteria, Reporting and recordkeeping requirements.

For the reasons set out in the preamble and under the authority of the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, 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: Secs 102, 103, 104, 105, 161, 182, 183, 186, 189, 68 Stat. 936, 938, 948, 953, 954, 955, 956, as amended, sec. 234, 83 Stat. 444, as amended (42 U.S.C. 2132, 2133, 2134, 2135, 2201, 2232, 2233, 2239, 2282); secs. 201, as amended, 202, 206, 88 Stat. 1242, as amended, 1244, 1246 (42 U.S.C. 5841, 5842, 5846); sec. 1704, 112 Stat. 2750 (44 U.S.C. 3504 note).

Section 50.7 also issued under Pub. L. 95-601, sec. 10, 92 Stat. 2951(42 U.S.C. 5841). Section 50.10 also issued under secs. 101, 185, 68 Stat. 936, 955 as amended (42 U.S.C. 2131, 2235), sec. 102, Pub. L. 91-190, 83 Stat. 853 (42 U.S.C. 4332). Sections 50.13, 50.54(dd), and 50.103 also issued under sec. 108, 68 Stat. 939, as amended (42 U.S.C. 2138). Sections 50.23, 50.35, 50.55, and 50.56 also issued under sec. 185, 68 Stat. 955 (42 U.S.C. 2235). Sections 50.33a, 50.55a and Appendix Q also issued under sec. 102, Pub. L. 91-190, 83 Stat. 853 (42 U.S.C. 4332). Sections 50.34 and 50.54 also issued under sec. 204, 88 Stat. 1245 (42 U.S.C. 5844). Sections 50.58, 50.91, and 50.92 also issued under Pub. L. 97-415, 96 Stat. 2073 (42 U.S.C. 2239). Section 50.78 also issued under sec. 122, 68 Stat. 939 (42 U.S.C.

2152). Sections 50.80-50.81 also issued under sec. 184, 68 Stat. 954, as amended (42 U.S.C. 2234). Appendix F also issued under sec. 187, 68 Stat. 955 (42 U.S.C. 2237).

2. Section 50.55a is amended by:

(a) Removing and Reserving paragraphs (b)(2)(xv)(J) and (b)(3)(iii).

(b) Revising the introductory text of paragraph (b)(1), paragraph (b)(1)(ii), the introductory text of paragraph (b)(2), the introductory text of paragraphs (b)(2)(viii) and (b)(2)(ix), paragraph (b)(2)(xiii), paragraph (b)(2)(xiv), and the introductory text of paragraph (b)(2)(xv), paragraph (b)(2)(xv)(C)(1), paragraph (b)(2)(xvii), paragraph (b)(2)(xx), the introductory text of paragraph (b)(3), paragraph (b)(3)(i), and the introductory text of paragraph (b)(3)(iv).

(c) Adding paragraphs (b)(1)(vi), (b)(2)(viii)(G), and (b)(2)(xxii) through (b)(2)(xxvii), and Footnote 10.

§ 50.55a Codes and standards.

* * * * *

(b) * * *

(1) As used in this section, references to Section III of the ASME *Boiler and Pressure Vessel Code* refer to Section III, and include the 1963 Edition through 1973 Winter Addenda, and the 1974 Edition (Division 1) through the 2003 Addenda (Division 1), subject to the following limitations and modifications:

* * * * *

(ii) Weld leg dimensions. When applying the 1989 Addenda through the latest edition and addenda incorporated by reference in paragraph (b)(1) of this section, licensees may not apply paragraph NB-3683.4(c)(1), the footnote to circumferential fillet welded and socket welded joints in Figure NC-3673.2(b)-1 that permit a socket weld leg dimension to be less than 1.09 of the nominal wall thickness of the pipe or the footnote to circumferential fillet welded and socket welded joints in figure ND-3673.2(b)-1 that permit a socket weld leg dimension to be less than 1.09 of the nominal wall thickness of the pipe.

* * * * *

(vi) Subsection NH. The provisions in Subsection NH, “Class 1 Components in Elevated Temperature Service,” 1995 Addenda through the latest edition and addenda incorporated by reference in paragraph (b)(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 component to reach temperatures exceeding 900 °F.

(2) As used in this section, references to Section XI of the ASME *Boiler and Pressure Vessel Code* refer to Section XI, and include the 1970 Edition through the 1976 Winter Addenda, and the 1977 Edition (Division 1) through the 2003 Addenda (Division 1), subject to the following limitations and modifications:¹⁰

* * * * *

(viii) Examination of concrete containments. Licensees applying Subsection IWL, 1992 Edition with the 1992 Addenda, shall apply paragraphs (b)(2)(viii)(A) through (b)(2)(viii)(E) of this section. Licensees applying Subsection IWL, 1995 Edition with the 1996 Addenda, shall apply paragraphs (b)(2)(viii)(A), (b)(2)(viii)(D)(3), and (b)(2)(viii)(E) of this section. Licensees applying Subsection IWL, 1998 Edition through the 2000 Addenda shall apply paragraphs (b)(2)(viii)(E) and (b)(2)(viii)(F) of this section. Licensees applying Subsection IWL, 2001 Edition through the latest edition and addenda incorporated by reference in paragraph (b)(2) of this section, shall apply paragraphs (b)(2)(viii)(E) through (b)(2)(viii)(G) of this section.

* * * * *

(G) 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.

(ix) Examination of metal containments and the liners of concrete containments. Licensees applying Subsection IWE, 1992 Edition with the 1992 Addenda, or the 1995 Edition with the 1996 Addenda, shall satisfy the requirements of paragraphs (b)(2)(ix)(A) through (b)(2)(ix)(E) of this section. Licensees applying Subsection IWE, 1998 Edition through the latest edition and addenda incorporated by reference in paragraph (b)(2) of this section, shall satisfy the requirements of paragraphs (b)(2)(ix)(A), (b)(2)(ix)(B), and (b)(2)(ix)(F) through (b)(2)(ix)(I) of this section.

* * * * *

(xiii) Mechanical clamping devices. Licensees may use the provisions of Code Case N-523-1, "Mechanical Clamping Devices for Class 2 and 3 Piping." Licensee choosing to apply Code Case N-523-1 shall apply all of its provisions.

(xiv) Appendix VIII personnel qualification. All personnel qualified for performing ultrasonic examinations in accordance with Appendix VIII shall receive 8 hours of annual hands-on training on specimens that contain cracks. Licensees applying the 1999 Addenda through the latest edition and addenda incorporated by reference in paragraph (b)(2) 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.

(xv) Appendix VIII specimen set and qualification requirements. The following provisions may be used to modify implementation of Appendix VIII of Section XI, 1995 Edition through the 2001 Edition. Licensees choosing to apply these provisions shall apply all of the following provisions under this paragraph except for those in § 50.55a(b)(2)(xv)(F) which are optional.

* * * * *

(C) * * *

(1) A depth sizing requirement of 0.15 inch RMS must be used in lieu of the requirements in Subparagraphs 3.2(a) and 3.2(c), and a length sizing requirement of 0.75 inch RMS must be used in lieu of the requirement in Subparagraph 3.2(b).

* * * * *

(J) [Reserved]

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(xvii) Reconciliation of Quality Requirements. When purchasing replacement items, in addition to the reconciliation provisions of IWA-4200, 1995 Addenda through 1998 Edition, the replacement items must be purchased, to the extent necessary, in accordance with the licensee's quality assurance program description required by 10 CFR 50.34(b)(6)(ii).

* * * * *

(xx) System leakage tests. When performing system leakage tests in accordance IWA-5213(a), 1997 through 2002 Addenda, a 10-minute hold time after attaining test pressure is required for Class 2 and Class 3 components that are not in use during normal operating conditions, and 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.

* * * * *

(xxii) Surface Examination. The use of the provision in IWA-2220, "Surface Examination," of Section XI, 2001 Edition through the latest edition and addenda incorporated by reference in paragraph (b)(2) of this section, that allow use of an ultrasonic examination method is prohibited.

(xxiii) Evaluation of Thermally Cut Surfaces. The use of the provisions for eliminating mechanical processing of thermally cut surfaces in IWA-4461.4.2 of Section XI, 2001 Edition through the latest edition and addenda incorporated by reference in paragraph (b)(2) of this section are prohibited.

(xxiv) Incorporation of the Performance Demonstration Initiative and Addition of Ultrasonic Examination Criteria. The use of Appendix VIII and the supplements to Appendix VIII and Article I-3000 of Section XI of the ASME BPV Code, 2002 Addenda through the latest edition and addenda incorporated by reference in paragraph (b)(2) of this section, is prohibited.

(xxv) Mitigation of Defects by Modification. The use of the provisions in IWA-4340, "Mitigation of Defects by Modification," Section XI, 2001 Edition through the latest edition and addenda incorporated by reference in paragraph (b)(2) of this section are prohibited.

(xxvi) Pressure Testing Class 1, 2, and 3 Mechanical Joints. The repair and replacement activity provisions in IWA-4540(c) of the 1998 Edition of Section XI for pressure testing Class 1, 2, and 3 mechanical joints must be applied when using the 2001 Edition

through the latest edition and addenda incorporated by reference in paragraph (b)(2) of this section.

(xxvii) Removal of Insulation. When performing visual examinations in accordance with IWA-5242 of Section XI, 2003 Addenda through the latest edition and addenda incorporated by reference in paragraph (b)(2) of the section, insulation must be removed from 17-4 PH or 410 stainless steel studs or bolts aged at a temperature below 1100°F or having a Rockwell Method C hardness value above 30, and from A-286 stainless steel studs or bolts preloaded to 100,000 pounds per square inch or higher.

(3) As used in this section, references to the OM Code refer to the ASME *Code for Operation and Maintenance of Nuclear Power Plants*, and include the 1995 Edition through the 2003 Addenda subject to the following limitations and modifications:

(i) Quality Assurance. When applying editions and addenda of the OM Code, the requirements of NQA-1, "Quality Assurance Requirements for Nuclear Facilities," 1979 Addenda, are acceptable as permitted by ISTA 1.4 of the 1995 Edition through 1997 Addenda or ISTA-1500 of the 1998 Edition through the latest edition and addenda incorporated by reference in paragraph (b)(3) of this section, provided the licensee uses its 10 CFR Part 50, Appendix B, quality assurance program in conjunction with the OM Code requirements. Commitments contained in the licensee's quality assurance program description that are more stringent than those contained in NQA-1 govern OM Code activities. If NQA-1 and the OM Code do not address the commitments contained in the licensee's Appendix B

quality assurance program description, the commitments must be applied to OM Code activities.

* * * * *

(iii) [Reserved]

(iv) Appendix II. Licensees applying Appendix II, “Check Valve Condition Monitoring Program,” of the OM Code, 1995 Edition with the 1996 and 1997 Addenda, shall satisfy the requirements of (b)(3)(iv)(A), (b)(3)(iv)(B), and (b)(3)(iv)(C) of this section. Licensees applying Appendix II, 1998 Edition through the 2002 Addenda, shall satisfy the requirements of (b)(3)(iv)(A), (b)(3)(iv)(B), and (b)(3)(iv)(D) of this section.

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Footnotes to § 50.55a:

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¹⁰ Supplemental inservice inspection requirements for reactor vessel pressure heads have been imposed by Order EA-03-09 issued to licensees of pressurized water reactors. The NRC expects to develop revised supplemental inspection requirements, based in part upon a review of the initial implementation of the order, and will determine the need for incorporating the revised inspection requirements into 10 CFR 50.55a by rulemaking.

Dated at Rockville, Maryland this 14 day of September 2004.

For the U.S. Nuclear Regulatory Commission.

/RA/

Luis A. Reyes
Executive Director For Operations