NRC Responses to Public Comments

Final Rule:
American Society of Mechanical Engineers 2015–2017 Code Editions Incorporation by Reference

NRC-2016-0082; RIN 3150-AJ74

U.S. Nuclear Regulatory Commission
Office of Nuclear Reactor Regulation

May 4, 2020

ABBREVIATIONS AND ACRONYMS

ADAMS	Agencywide Documents Access and Management System
AOV	air-operated valve
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials
BPV	Boiler and Pressure Vessel
C	Celsius
CFR	*Code of Federal Regulations*
EPRI	Electric Power Research Institute
EWR	excavate and weld repair
F	Fahrenheit
FR	*Federal Register*
HDPE	high-density polyethylene
HSTIT	high-speed tensile impact test
ISI	inservice inspection
IST	inservice test
MOV	motor-operated valve
MRP	Materials Reliability Project
NDE	nondestructive examination
NPS	nominal pipe size
NRC	U.S. Nuclear Regulatory Commission
O.D.	outside diameter
OM	Operation and Maintenance
PE	Polyethylene
QA	quality assurance
RISC	risk-informed safety class
SSC	structure, system, and component
VT	visual examination

Introduction

This document presents the U.S. Nuclear Regulatory Commission's (NRC's) responses to written public comments received on the proposed rule, "American Society of Mechanical Engineers 2015–2017 Code Editions Incorporation by Reference." The NRC published the proposed rule on November 9, 2018, in the *Federal Register* (83 FR 56156) for public comment with a 75-day public comment period. This document identifies how the NRC dispositioned public comments received on the proposed rule.

In developing the final rule, the NRC considered all the comments received on the proposed rule. If a public comment resulted in a change to the rule language or the supporting statement of considerations, the NRC's comment response indicates the change made and where the change occurred.

Public comment submissions are available online in the NRC Library at https://www.nrc.gov/reading-rm/adams.html. From this page, the public can access the Agencywide Documents Access and Management System (ADAMS). For problems with ADAMS, contact the NRC's Public Document Room reference staff at 1-800-397-4209 or 301-415-4737, or by e-mail to pdr.resource@nrc.gov. In addition, public comments and supporting materials related to this final rule can be found at https://www.regulations.gov by searching for Docket ID NRC-2016-0082.

Overview of Public Comments

The NRC received 14 comment submissions on the proposed rule. Table 1 identifies these comment submissions, listed in order of receipt.

Table 1 Comment Submissions

Comment Submission ID	Commenter	ADAMS Accession Number
1	Jarno Makkonen, Private Citizen	ML18318A356
2	Ron Clow, Private Citizen	ML18344A191
3	J.E. O'Sullivan, Private Citizen	ML18355A760
4	Carl Latiolais, Electric Power Research Institute	ML19022A074
5	Glen Palmer, Private Citizen	ML19022A277
6	Richard Porco, American Society of Mechanical Engineers	ML19022A278
7	Richard Deopere, Private Citizen	ML19024A023
8	Edward Cavey, Private Citizen	ML19024A529
9	Adam Keyser, Private Citizen	ML19024A526
10	Gary Becker, NuScale Power, LLC	ML19024A527
11	Justin Wheat, Southern Nuclear Operating Company	ML19024A528
12	Stephen Vaughn, Nuclear Energy Institute	ML19028A019
13	Mark Gowin, Private Citizen	ML19029B164
14	David Gudger, Exelon Generation Company, LLC	ML19037A437

The NRC received one letter after the close of the comment period (Submission ID 14) but before the NRC had begun to evaluate the other comments. Therefore, the NRC considered it practical to consider these late comments as well.

The NRC reviewed and annotated the comment submissions to identify what the NRC concluded were separate comments within each submission. Accordingly, a single comment submission may have several individual comments associated with it. In this document, the NRC has summarized each comment and placed it into one of several categories shown below. Many of the comments give essentially the same position, argument, rationale, or basis. In such cases, the NRC binned similar comments into a single comment summary and responded to the comment summary. At the end of each comment, the NRC refers to the specific public comment letter containing that comment in the form [XX-YY], where XX represents the Submission ID in Table 1 of this document and YY represents individual, sequential comments as noted in the margin of the annotated copy of the public comments (see ADAMS Accession No. ML19067A049).

Comment Categorization

I. Responses to Specific Requests for Comments

II. American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel (BPV) Code, Section III
   a. Title 10 of the *Code of Federal Regulations* (10 CFR) 50.55a(b)(1)(iii)
   b. 10 CFR 50.55a(b)(1)(v)
   c. 10 CFR 50.55a(b)(1)(x)(A)
   d. 10 CFR 50.55a(b)(1)(x)(B)
   e. 10 CFR 50.55a(b)(1)(xi)
   f. 10 CFR 50.55a(b)(1)(xi)(A)
   g. 10 CFR 50.55a(b)(1)(xi)(B)
   h. 10 CFR 50.55a(b)(1)(xi)(C)
   i. 10 CFR 50.55a(b)(1)(xi)(D)
   j. 10 CFR 50.55a(b)(1)(xi)(E)
   k. 10 CFR 50.55a(b)(1)(xii)

III. ASME BPV Code, Section XI
   a. 10 CFR 50.55a(b)(2)(xv)
   b. 10 CFR 50.55a(b)(2)(xx)(B)
   c. 10 CFR 50.55a(b)(2)(xxv)
   d. 10 CFR 50.55a(b)(2)(xxvi)
   e. 10 CFR 50.55a(b)(2)(xxxii)
   f. 10 CFR 50.55a(b)(2)(xxxvii)
   g. 10 CFR 50.55a(b)(2)(xl)
   h. 10 CFR 50.55a(g)(4)
   i. 10 CFR 50.55a(g)(6)(ii)(D)
   j. 10 CFR 50.55a(g)(6)(ii)(F)

IV. ASME Operation and Maintenance (OM) Code
   a. 10 CFR 50.55a(b)(3)(iii)(C)
   b. 10 CFR 50.55a(b)(3)(x)
   c. 10 CFR 50.55a(b)(3)(xi)
   d. 10 CFR 50.55a(b)(3)(xii)
   e. 10 CFR 50.55a(f)(4)
   f. 10 CFR 50.55a(f)(7)

V. Other Comments
   a. removal of older editions and addenda
   b. typographical errors
   c. incorporation by reference
   d. rule text not provided

Comments and Responses

I. Responses to Specific Requests for Comments

In the proposed rule published in the *Federal Register* on November 9, 2018, the NRC requested input from the public on the term "sister plants," as used under ASME BPV Code Case N-729-6. Specifically, the NRC requested input that addresses whether reasonable changes to the definition of the term "sister plants" would better identify reactor vessel heads with enough material similarities such that examination of one head can provide results representative of all others in the group. The NRC did not receive any public comments on this topic. The NRC made no change to the final rule as a result of this specific request for comment.

II. ASME BPV Code, Section III

a. 10 CFR 50.55a(b)(1)(iii), Seismic design of piping

Comment: The NRC should revise 10 CFR 50.55a(b)(1)(iii) to allow the use of ASME BPV Code editions and addenda after the 2008 Addenda. The requirement in 10 CFR 50.55a(b)(1)(iii) pertains to the allowed use of ASME BPV Code, Section III, Subarticles NB-3600, NC-3600, and ND-3600, which are acceptable for the seismic design of piping. The current rule allows the use of Subarticles NB-3600, NC-3600, and ND-3600 in the 2006 Addenda through the 2008 Addenda for the seismic design of piping, subject to the conditions of 10 CFR 50.55a(b)(1)(iii). The NRC should revise the rule to include ASME BPV editions and addenda after the 2008 Addenda. For example, the revised rule may read, "(iii)...Applicants or licensees may use Subarticles NB-3600, NC-3600, and ND-3600 for the seismic design of piping in the 2006 Addenda through the 2013 Edition, subject to the conditions of this paragraph corresponding to those subarticles." [10-1]

NRC Response: The NRC agrees with the comment. The commenter suggested the NRC revise the condition to allow the use of the 2006 Addenda through the 2013 Edition of the ASME BPV Code, but the condition as proposed by the NRC includes the 2006 Addenda through the 2017 Edition. The condition encompasses the range suggested in the comment and goes further. The NRC made no change to the final rule as a result of this comment.

b. 10 CFR 50.55a(b)(1)(v), Independence of inspection

Comment: Neither the current text nor the proposed revision to 10 CFR 50.55a(b)(1)(v) is consistent with the rationale given in the Discussion section of the *Federal Register* notice. The current rule prohibits the use of ASME BPV Code, NCA-4134.10(a), in its entirety. That paragraph has three separate functions. First, it incorporates by reference all of Supplement 10S-1 of ASME NQA-1, "Quality Assurance Program Requirements for Nuclear Power Plants." Second, it exempts the requirement in paragraph 3.1, "Reporting Independence," of Supplement 10S-1 of NQA-1, and finally, it also exempts the requirements for inservice inspection (ISI). The rationale given in the proposed rule discussion states that only the exemption of the requirements in paragraph 3.1 is problematic. This implies that the

rest of Supplement 10S-1 should apply, except for the ISI requirements. As such, the staff should modify the current rule to be consistent with the stated intent. The following is a suggested revision:

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

In addition, NCA-1140 requires ASME Certificates of Authorization holders to continually update their quality programs within 6 months of issue of new ASME BPV Code editions. This requirement applies to work within the scope of ASME BPV Code, Section III, Division 1, and to comply with NCA-3800 and NCA-4000. As such, no current certificate holder would be able to use the exception to paragraph 3.1 of Supplement 10S-1 of NQA-1 that this condition prohibits because the certificate holder's quality programs would currently comply with the 2017 Edition. As well, no component manufactured in accordance with the old rules in ASME BPV Code, Section III, and, as a result, without an ASME Certification of Authorization and mandatory authorized inspection could be delivered and installed to a nuclear power plant under the jurisdiction of the NRC in accordance with 10 CFR Part 50, "Domestic Licensing of Production and Utilization Facilities." This condition could be eliminated without creating any risk or substantial safety hazard to the operation of the U.S. nuclear fleet. [1-1]

NRC Response: The NRC agrees with the comment to clarify the rule language. The intent of the rule modification is to limit the condition so that it applies only to the 1995 Edition through the 2009b Addenda of the 2007 Edition of the ASME BPV Code. The commenter also recommended NRC eliminate this condition; however, because the NRC did not include this change to 10 CFR 50.55a, "Codes and Standards," in the proposed rule, the NRC will consider this change in a future rulemaking to allow public comment on this proposed deletion.

In response to this comment, the NRC revised 10 CFR 50.55a(b)(1)(v) in the final rule to read as follows:

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

c. 10 CFR 50.55a(b)(1)(x)(A), Visual examination of bolts, studs, and nuts: first provision

Comment: ASME believes that it is unnecessary to require personnel performing these examinations to be qualified in accordance with Section III (SNT-TC-1A, "Personnel Qualification and Certification in Nondestructive Testing"). Similarly, ASME believes it is unnecessary to require visual examination procedures to be qualified to ASME BPV Code, Section V, Article 9. Indications detected by visual examination personnel during these examinations would be directly identified and measured, unlike other nondestructive examination (NDE) methods in which the indication is evaluated to determine acceptability.

ASME believes that the proposed condition is unnecessary and should be removed. [6-1]

NRC Response: The NRC disagrees with the comment that it is unnecessary to require personnel and procedures to be qualified for visual examination of bolting and nuts. The visual examination is one of the processes for acceptance of the final product to ensure its structural

integrity and its ability to perform its intended function. The 2015 Edition of the ASME BPV Code requires these visual examinations be performed in accordance with NX-5100 (ASME BPV Code, Section V) and NX-5500 (SNT-TC-1A), but that section was removed in the 2017 Edition, even though it refers to an NDE for final acceptance. All other final examinations (magnetic particle testing, liquid penetrant testing, ultrasonic testing, and radiographic testing) for acceptance of the final product in the 2017 Edition require the procedures and personnel to be qualified to NX-5100 (ASME BPV Code, Section V) and NX-5500 (SNT-TC-1a). This is particularly important for small bolting, studs, and nuts that only receive a visual examination. In addition, the acceptance criteria used for the visual examination requires an evaluation of the discontinuities found during the examination, consistent with other NDE methods that use qualified personnel and procedures. The NRC made no change to the final rule as a result of this comment.

d. 10 CFR 50.55a(b)(1)(x)(B), Visual examination of bolts, studs, and nuts: second provision

Comment: In the Discussion section of the proposed rule, the rationale given for the inclusion of this condition is that, in referencing American Society for Testing and Materials (ASTM) F788, "Standard Specification for Surface Discontinuities of Bolts, Screws, and Studs, Inch and Metric Series," and ASTM F812, "Standard Specification for Surface Discontinuities of Nuts, Inch and Metric Series," as acceptance criteria, NX-2582 of the 2017 Edition of the ASME BPV Code only considers workmanship, finish, and appearance and does not consider structural integrity. The condition then stipulates the use of the acceptance criteria in NX-2582 of the 2015 Edition instead. This rationale is incorrect.

ASTM F788 and ASTM F812 provide quantitative acceptance criteria for imperfections in bolts and nuts, respectively, for cracks, bursts, seams, folds, voids, and tool marks and were developed based on industry experience. The acceptance criteria given in the 2015 Edition are only qualitative, and thus leave the determination of whether a given imperfection would be detrimental to the intended service entirely to the person performing the examination. Eliminating the need for judgment by the person performing the examination would strengthen, rather than weaken, the detection of noncompliant material that could result in failures after installation.

The revised regulation should not include this condition. [1-2; 6-2]

NRC Response: The NRC agrees in part with the comment that ASTM F788 and ASTM F812 provide quantitative acceptance criteria for imperfections in bolts and nuts. However, in the 2017 Edition, NX-2582 only requires "visual examination for workmanship, finish, and appearance in accordance with ASTM F788 for bolting material, and ASTM F812 for nuts." Inspecting only for workmanship or appearance, with regard to the bolting specification, is not necessarily sufficient to ensure the integrity of the bolts and nuts for their intended function in a reactor. The performance of visual examination for discontinuities, such as for cracks, bursts, seams, folds, thread lap, voids, and tool marks, is required to ensure the structural integrity of bolts and nuts. The 2015 Edition of the ASME BPV Code contains this requirement to visually examine for laps, seams, or cracks, whereas the 2017 Edition does not require performance of these visual examinations. Therefore, the NRC revised the condition in the final rule to require visual examination for discontinuities including cracks, bursts, seams, folds, thread lap, voids, and tool marks.

The NRC revised the provision in the final rule to read as follows:

(B) *Visual examination of bolts, studs, and nuts: Second provision.* When applying the provisions of NB-2582, NC-2582, ND-2582, NE-2582, NF-2582, and NG-2582 in the 2017 Edition of Section III, bolts, studs, and nuts must be visually examined for discontinuities including cracks, bursts, seams, folds, thread lap, voids, and tool marks.

e. 10 CFR 50.55a(b)(1)(xi) Mandatory Appendix XXVI

Comment: If the NRC agrees with the suggested revisions on the proposed provisions for the 2015 and 2017 Editions of ASME BPV Code, Section III, Mandatory Appendix XXVI, "Rules for Construction of Class 3 Buried Polyethylene Pressure Piping" on high-density polyethylene (HDPE), the commenter will initiate and promote changes to incorporate them into future editions of Mandatory Appendix XXVI. [3-11]

NRC Response: The NRC agrees with the comment. The NRC will review the future (2021) Edition of ASME BPV Code, Section III, Mandatory Appendix XXVI, when published to determine whether the proposed changes are incorporated such that the 10 CFR 50.55a provisions can be deleted from that edition onward. The NRC made no change to the final rule as a result of this comment.

f. 10 CFR 50.55a(b)(1)(xi)(A) Mandatory Appendix XXVI: first provision

Comment: Previous discussions with the NRC involving the development and incorporation of tables identifying all procedure variables applicable to testing required by Section IX and Mandatory Appendix XXVI to the ASME BPV Code addressed only fusing procedure qualification and testing—not fusing operator performance qualification testing. The provision relating to fusing procedure variables will be resolved by publication of the 2019 Edition of ASME BPV Code, Section III, Mandatory Appendix XXVI.

Fusing operator performance qualification testing is performed in accordance with XXVI-4341 and XXVI-4342 using fusing procedures tested in accordance with XXVI-2300. Such fusing procedures define the fusing machine make and model(s) to be used in production of each joint, so the fusing operator is required to qualify on the same machines and models. However, fusing operators are qualified to use those machines over ranges of diameters and thicknesses, not on each diameter to be fused. This is the approach that the NRC approved as recently as 2 years ago for the Edwin I. Hatch Nuclear Plant (Hatch) HDPE piping project (see ADAMS Accession No. ML15337A414). To require each fusing operator to perform qualification testing on each diameter, thickness, and lot of material would entail significant added expense and hardship without a commensurate improvement in quality or safety. Therefore, the NRC should remove the proposed wording from that paragraph of 10 CFR 50.55a involving performance qualification testing and reference to XXVI-4340. [3-1, 3-6; 6-3]

NRC Response: The NRC agrees with the comment based on discussions with the ASME BPV Code, Section III, Working Group on HDPE and agrees that the NRC intends to be consistent with its approval for Hatch to use HDPE piping. The NRC agrees that requiring each fusing operator to perform qualification testing on each diameter, thickness, and lot of material would lead to significant added expense and hardship without a commensurate improvement in quality or safety. Therefore, the NRC deleted the proposed requirement to impose added testing for fusing operator performance qualification from the final rule. The NRC also removed the reference to XXVI-4340 with regard to performance qualification testing from the discussion of Mandatory Appendix XXVI, first provision, in the final rule. The NRC understands that the ASME BPV Code, Section III, Working Group on HDPE plans to incorporate this provision into

the 2019 Edition of ASME BPV Code, Section III, Mandatory Appendix XXVI, and therefore this provision applies to the 2015 through 2017 Editions of ASME BPV Code, Section III.

The NRC revised the provision in the final rule to read as follows:

> *Mandatory Appendix XXVI, First Provision:* When performing fusing procedure qualification testing in accordance with XXVI-2300 and XXVI-4330 the following essential variables must be used for the testing of butt fusion joints:
> (*1*) Joint Type: A change in the type of joint from that qualified, except that a square butt joint qualifies as a mitered joint.
> (*2*) Pipe Surface Alignment: A change in the pipe outside diameter (O.D.) surface misalignment of more than 10 percent of the wall thickness of the thinner member to be fused.
> (*3*) PE [Polyethylene] Material: Each lot of polyethylene source material to be used in production (XXVI-2310(c)).
> (*4*) Wall Thickness: Each thickness to be fused in production (XXVI-2310(c)).
> (*5*) Diameter: Each diameter to be fused in production (XXVI-2310(c)).
> (*6*) Cross-sectional Area: Each combination of thickness and diameter (XXVI-2310(c)).
> (*7*) Position: Maximum machine carriage slope when greater than 20 degrees from horizontal (XXVI-4321(c)).
> (*8*) Heater Surface Temperature: A change in the heater surface temperature to a value beyond the range tested (XXVI-2321).
> (*9*) Ambient Temperature: A change in ambient temperature to less than 50°F (10°C) or greater than 125°F (52°C) (XXVI-4412(b)).
> (*10*) Interfacial Pressure: A change in interfacial pressure to a value beyond the range tested (XXVI-2321).
> (*11*) Decrease in Melt Bead Width: A decrease in melt bead size from that qualified.
> (*12*) Increase in Heater Removal Time: An increase in heater plate removal time from that qualified.
> (*13*) Decrease in Cool-down Time: A decrease in the cooling time at pressure from that qualified.
> (*14*) Fusing Machine Carriage Model: A change in the fusing machine carriage model from that tested (XXVI-2310(d)).

g. 10 CFR 50.55a(b)(1)(xi)(B) Mandatory Appendix XXVI: second provision

Comment: Requiring both the bend test and the high-speed tensile impact test (HSTIT) to qualify fusing procedures and fusing operators for HDPE butt fusion joints imposes additional hardship and increased cost without commensurate improvement in quality or safety. The following information supports this position:

- Electric Power Research Institute (EPRI) Report 3002005434, (September 30, 2016), “Advanced Nuclear Technology: Literature Review of Mechanical Testing Methods to Evaluate the Integrity of HDPE Butt-Fusion Joints,” on a limited comparison of HSTIT to the guided side bend test and waisted tensile test

- testing performed by The Welding Institute of the United Kingdom

- the Hatch safety evaluation for HDPE piping (ADAMS Accession No. ML15337A414)

- specific requirements in XXVI-4412(a)(1) and XXVI-4412(a)(2) of Mandatory Appendix XXVI [3-2, 3-7; 6-4]

NRC Response: The NRC agrees with the comment based on a review of the detailed rationale provided in the comment.

Relative to joint testing for procedure qualification or the requirements in XXVI-2300 on fusing verification testing, the testing performed by The Welding Institute of the United Kingdom indicates that the HSTIT may not detect joints fused with fine sand or talcum powder-sized particles placed within the joint. As a result of that testing, Mandatory Appendix XXVI, XXVI-4412(a)(1) and XXVI-4412(a)(2), specifically require that joint surfaces coming in contact with heaters must be protected and kept free of fine particulates and other deleterious material. Also, EPRI Report 3002005434 was developed to assist the NRC with the evaluation of mechanical testing methods. This report provides the results of limited studies on the comparison of the HSTIT to the guided side bend and "waisted" tensile test methods. This report identifies that situations can occur with the HSTIT in which the specimen ruptures outside of the fusion zone while using the HSTIT method. If this occurs, the report recommends for nuclear applications that the cause be evaluated by assessing the amount of increased fusion interface resulting from the fusion beads, the presence of out-of-roundness of the joined parts, or both. If minimal or no increased fusion interface is indicated, or if mismatch exists between the parts being joined, the test should be reperformed with beads and mismatch removed. These additional measures ensure the integrity of the butt fusion joint. Therefore, the NRC revised the provision in the final rule to require retests for any high-speed tensile impact ruptures occurring away from the fusion zone.

End testing has been used extensively and successfully for decades for the qualification of fusing operators in the United States for joining polyethylene water and gas piping. The U.S. Department of Transportation endorses it for performance qualification for the fusing of interstate gas transmission pipelines as well as for local gas distribution pipelines. The Department accepted the use of visual inspection of the test joint plus bend testing for performance qualification on volatile gas pipelines. For nuclear applications, in addition to the visual inspection and bend testing, the joint parameters are also required to be recorded and verified during preparation of the qualification test coupons as well as for each installed fusion joint. The NRC approved this approach 2 years ago for the Hatch HDPE project. In addition, all installed nuclear fusion joints receive ultrasonic volumetric examination plus a hydrostatic test at 1.5 times maximum design pressure, validating the integrity of each joint fused by each operator. The further requirement to perform an HSTIT in addition to bend testing during performance qualification imposes additional hardship and increased cost without commensurate improvement in quality or safety. With the advent of the guided side bend test, most fusing organizations are now using guided side bend tests in lieu of reverse bend tests for qualifying fusing operators on thick sections over 1.25 inches for personnel safety reasons. Based on this information, the industry recommends mandating the use of side bend tests (and prohibiting the use of reverse bend tests) for performance qualification for all piping thicknesses over 1.25 inches.

Based on its review of the above rationale, the NRC revised the provision in the final rule to read as follows:

> *Mandatory Appendix XXVI, Second Provision:* When performing procedure qualification for high speed tensile impact testing of butt fusion joints in accordance with XXVI-2300 or XXVI-4330, breaks in the specimen that are away from the fusion zone must be retested. When performing fusing operator

qualification bend tests of butt fusion joints in accordance with XXVI-4342, guided side bend testing must be used for all thicknesses greater than 1.25 inches.

h. 10 CFR 50.55a(b)(1)(xi)(C) Mandatory Appendix XXVI: third provision

Comment: Previous discussions with the NRC involving the development and incorporation of tables identifying all electrofusion procedure variables applicable to testing required by ASME BPV Code, Section IX and Mandatory Appendix XXVI, addressed only fusing procedure qualification and testing, not fusing operator performance qualification testing. Fusing operator performance qualification testing is performed in accordance with XXVI-4341 and XXVI-4342 using fusing procedures tested in accordance with XXVI-2300. Such fusing procedures define the electrofusion fitting material, pipe wall thickness, power supply, and processor to be used in production of each joint, so the fusing operator is already required to qualify using the same material and equipment. Therefore, the NRC should remove the proposed wording from that paragraph of 10 CFR 50.55a involving performance qualification testing and reference to XXVI-4340. [3-3, 3-8; 6-5]

NRC Response: The NRC agrees with the comment. In response to the comment, the NRC revised the condition in the final rule to delete requirements involving fusing operator performance qualification testing and the reference to XXVI-4340. The NRC understands that the condition may be incorporated into the 2019 Edition of the ASME BPV Code.

The NRC revised the condition in the final rule to read as follows:

> *Mandatory Appendix XXVI, Third Provision:* When performing fusing procedure qualification tests in accordance with 2017 Edition of BPV Code Section III XXVI-2300 and XXVI-4330, the following essential variables must be used for the testing of electrofusion joints:
> (*1*) Joint Design: A change in the design of an electrofusion joint.
> (*2*) Fit-up Gap: An increase in the maximum radial fit-up gap qualified.
> (*3*) Pipe PE Material: A change in the PE designation or cell classification of the pipe from that tested (XXVI-2322(a)).
> (*4*) Fitting PE Material: A change in the manufacturing facility or production lot from that tested (XXVI-2322(b)).
> (*5*) Pipe Wall Thickness: Each thickness to be fused in production (XXVI-2310(c)).
> (*6*) Fitting Manufacturer: A change in fitting manufacturer.
> (*7*) Pipe Diameter: Each diameter to be fused in production (XXVI-2310(c)).
> (*8*) Cool-down Time: A decrease in the cool time at pressure from that qualified.
> (*9*) Fusion Voltage: A change in fusion voltage.
> (*10*) Nominal Fusion Time: A change in the nominal fusion time.
> (*11*) Material Temperature Range: A change in material fusing temperature beyond the range qualified.
> (*12*) Power Supply: A change in the make or model of electrofusion control box (XXVI-2310(f)).
> (*13*) Power Cord: A change in power cord material, length, or diameter that reduces current at the coil to below the minimum qualified.
> (*14*) Processor: A change in the manufacturer or model number of the processor. (XXVI-2310(f)).
> (*15*) Saddle Clamp: A change in the type of saddle clamp.

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

i. 10 CFR 50.55a(b)(1)(xi)(D) Mandatory Appendix XXVI: fourth provision

Comment: Requiring both the crush test and the electrofusion bend test, instead of one or the other, imposes significant cost, hardship, and personal safety issues without any improvement in quality, and therefore the NRC should delete this provision. Crush testing is designed for smaller fittings that are 8-inch nominal pipe size (NPS) and less. Such tests are impractical and unsafe for sizes larger than 8-inch NPS because of the large hydraulic equipment that would be required. For this reason, ASTM F1055, "Standard Specification for Electrofusion Type Polyethylene Fittings for Outside Diameter Controlled Polyethylene and Crosslinked Polyethylene (PEX) Pipe and Tubing", provides the electrofusion bend test as a means of verifying fusion integrity for sizes over 8-inch NPS. There is no evidence that either of these tests are inadequate for their intended purpose.

For every electrofusion socket joint installed in a nuclear system, an identical coupon must be produced and tested using the same lot, size, and thickness of material and fitting; the same equipment; the same power supply; and the same fusing procedure under XXVI-2300. In addition, every electrofusion joint installed in a nuclear system must have data recording to verify that the operator used the correct procedure. Each joint receives full visual inspection and full volumetric examination of the fused joint, plus hydrostatic testing at 1.5 times the design pressure. This proposed condition imposes significant cost, hardship, and personnel safety issues without any improvement in quality. [3-4, 3-9; 6-6]

NRC Response: The NRC agrees with the comment based on the detailed rationale provided in the comment and in consideration of the personal safety issues associated with crush tests for pipe sizes larger than 8-inch NPS. The NRC agrees that the measures stated in the comment ensure the structural integrity of the electrofusion socket joints. The NRC agrees that requiring both the crush test and the electrofusion bend test is not necessary and agrees that crush tests for joints larger than 8-inch NPS are impractical and unsafe.

Accordingly, the NRC deleted the provision from the final rule.

j. 10 CFR 50.55a(b)(1)(xi)(E) Mandatory Appendix XXVI: fifth provision

Comment: Prohibiting the use of electrofusion saddle joints and electrofusion saddle fittings leads to significant hardship. Without the ability to use electrofusion saddle connections, necessary modifications to or repairs of existing HDPE installations could be cost prohibitive, imposing significant hardship without any improvement in quality or safety. [3-5, 3-10; 6-7]

NRC Response: The NRC agrees with the comment to delete this provision. To address the failures identified by the U.S. Department of Energy, the comment pointed out measures in XXVI-2300. For every electrofusion socket joint installed in a nuclear system, an identical coupon is required to be produced and tested using the same lot, size, and thickness of material and fitting; the same equipment; the same power supply; and the same fusing procedure under XXVI-2300. In addition, each installed saddle joint receives visual verification of fit-up gaps, alignment, and out-of-roundness, plus recording and verification of the actual fusing variables. Further, each installed electrofusion saddle joint receives full volumetric examination and a hydrostatic pressure test at 1.5 times the design pressure. The NRC agrees that this ensures the structural integrity of electrofusion saddle joints and saddle fittings.

Therefore, the NRC deleted the provision from the final rule.

k. 10 CFR 50.55a(b)(1)(xi) Mandatory Appendix XXVI

Comment: If the NRC agrees with the suggested revisions on the proposed provisions for the 2015 and 2017 Editions of ASME BPV Code, Section III, Mandatory Appendix XXVI, on HDPE, the commenter will initiate and promote changes to incorporate them into future editions of Mandatory Appendix XXVI. [3-11]

NRC Response: The NRC agrees with the comment and will review the future (2021) Edition of ASME BPV Code, Section III, Mandatory Appendix XXVI, when published to determine whether the proposed changes are incorporated such that the provisions in 10 CFR 50.55a can be deleted for that edition onwards.

l. 10 CFR 50.55a(b)(1)(xii) Certifying Engineer

Comment: The proposed condition in 10 CFR 50.55a(b)(1)(xii) is not written correctly. The commenter's interpretation of the intent is that the engineer who is certifying the documents required for the construction of components in accordance with the rules of ASME BPV Code, Section III, Division 1, must be a Registered Professional Engineer in at least one State in the United States or at least one province in Canada. This is a reasonable requirement. However, as written, the condition conflicts with the design document certification requirements in the 2017 Edition, resulting in the inability to use the 2017 Edition. In order to comply with the 2017 Edition of the ASME BPV Code and construct components within its rules, the person certifying the documents must be qualified as a Certifying Engineer in accordance with the rules of Mandatory Appendix XXIII, "Qualifications and Duties of Specialized Professional Engineers." The condition should stipulate that the Certifying Engineer can be a Registered Professional Engineer qualified in accordance with XXIII-1222, which implies that the alternate engineer qualifications listed in XXIII-1223 cannot be used. [1-3]

NRC Response: The NRC agrees with the comment to clarify the rule language. The intent of the proposed condition is to permit licensees and applicants to use a Certifying Engineer who is a qualified Registered Professional Engineer within one State of the United States. The revised rule language clarifies the NRC's intent of permitting licensees and applicants to use a Certifying Engineer who is also a qualified Registered Professional Engineer. Therefore, the NRC has revised 10 CFR 50.55a(b)(1)(xii) in the final rule to state as follows:

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

III. ASME BPV Code, Section XI

a. 10 CFR 50.55a(b)(2)(xv) Appendix VIII specimen set and qualification requirements

i. 10 CFR 50.55a(b)(2)(xv)(A)(2) Specimen set and qualification: first provision

Comment: Some dissimilar metal weld configurations have no austenitic side or access available only from the ferritic side. The NRC should revise the last sentence in the condition. [4-4]

NRC Response: The NRC agrees with this comment. However, because the proposed rule did not include this suggested change to 10 CFR 50.55a, the comment is out of scope for this rulemaking. This condition is intended to prevent inspection procedures, equipment, and personnel qualified from the ferritic side of a dissimilar metal weld from conducting an examination from the austenitic side of the weld. The NRC will address this comment in the rulemaking to incorporate the 2019 Edition of ASME BPV Code, Section XI. The NRC made no change to the final rule as a result of this comment.

ii. 10 CFR 50.55a(b)(2)(xv)(L) Specimen set and qualification: twelfth provision

Comment: The NRC should eliminate the condition or revise it to require the use of the latest NRC-approved revision of ASME BPV Code Case N-845 until the licensee updates to an edition that includes revised requirements in ASME BPV Code, Section XI, Appendix VIII, Supplement 8. Notch locations should be within one diameter of the start or end of the exam volume, not within one diameter of the end of the bolt or stud. [4-3]

NRC Response: The NRC partially agrees and partially disagrees with this comment. However, because the proposed rule did not include this suggested change to 10 CFR 50.55a, the comment is out of scope for this rulemaking. The NRC agrees that ASME BPV Code Case N-845 should be allowed as an alternative in this condition. The NRC review of ASME BPV Code Case N-845 finds the Code Case to be of higher rigor than the 2015 Edition and previous editions of ASME BPV Code, Section XI, Appendix VIII, Supplement 8, as the Code Case defines how to determine whether a flaw is detected, requires that procedure qualification sets contain at least three personnel qualification sets, and takes false calls into account.

However, the NRC disagrees that there is a sufficient safety case for replacing the condition with the requirement to use ASME BPV Code Case N-845. Although ASME BPV Code Case N-845 is technically superior to Supplement 8, there is no safety concern with examinations conducted using procedures, equipment, and personnel qualified under ASME BPV Code, Section XI, Appendix VIII, Supplement 8. For this reason, the NRC partially agrees and partially disagrees with this comment.

The NRC will consider this comment in the rulemaking to incorporate the 2019 Edition of ASME BPV Code, Section XI. The NRC made no change to the final rule as a result of this comment.

b. 10 CFR 50.55a(b)(2)(xx)(B) System leakage tests: second provision

Comment: The NRC should remove this condition. Mandating the NDE acceptance criteria in ASME BPV Code, Section III, to systems and components not originally designed or constructed to meet ASME BPV Code, Section III, is inappropriate. NDE alone does not ensure structural integrity. If the NRC retains the condition, insert “Edition” after “1992 or later” and insert “program” after “ISI” in the last sentence. [6-17; 14-1]

NRC Response: The NRC partially agrees and partially disagrees with this comment. The NRC disagrees that the condition is unnecessary or inappropriate; however, the NRC agrees with the recommended editorial changes. As stated previously in the NRC’s analysis of public comments for the 2017 final rule for ASME Codes and Code Cases (ADAMS Accession No. ML16130A531), the NRC disagrees that the additional NDE requirements imposed by 10 CFR 50.55a(b)(2)(xx)(B) are unnecessary. The NRC did not change the final rule to remove the condition. The NRC does agree that hydrostatic pressure testing or NDE alone does not

ensure structural integrity. The original construction codes ensured structural integrity through a combination of many factors, including material testing, design formulas, design factors, qualification of procedures, qualification of personnel, NDE, and hydrostatic testing. Since the incorporation of ASME BPV Code Case N-416-4, ASME BPV Code, Section XI, would allow a system leakage test to be performed in lieu of (1) a hydrostatic pressure test before return to service of Class 1, 2, and 3 welded or brazed repairs, (2) fabrication welds or brazed joints for replacement parts and piping subassemblies, or (3) installation of replacement items by welding or brazing.

The NRC has determined that the rigorous NDE requirements of ASME BPV Code, Section III, should be performed when the hydrostatic pressure test is not performed. The reason for this condition is that some earlier construction codes have less stringent NDE requirements than ASME BPV Code, Section III; however, they require a greater pressure than the pressure test required by ASME BPV Code, Section XI. The requirements in ASME BPV Code, Section III, for NDE for Class 1, 2, and 3 components generally call for either surface or volumetric examinations, or possibly both. The volumetric examination is generally required for full-penetration welds, and the surface examination is required for partial-penetration welds. The NRC has determined that these NDE requirements, along with a system leakage test, give the same level of quality and safety as the higher pressure hydrostatic test and reduced NDE requirements of earlier construction codes.

The NRC agrees with the suggested editorial comments. The NRC revised 10 CFR 50.55a(b)(2)(xx)(B) in the final rule to read as follows:

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

c. 10 CFR 50.55a(b)(2)(xxv) Mitigation of defects by modification

Comment: The NRC should revise 10 CFR (b)(2)(xxv)(B)(*3*). It is onerous to perform followup examinations every refueling outage for modifications installed in inaccessible locations. Instead, validate corrosion rates at accessible degraded locations in the same piping system. The periodicity should be one-half the expected life or every 10 years, whichever is more frequent. [6-18]

NRC Response: The NRC partially agrees and partially disagrees with this comment. The NRC recognizes that excavating a buried pipe repair location every refueling outage could be a burden that could be avoided by conducting wall thickness measurements at a comparable accessible piping location. The NRC added two exceptions to allow conducting wall thickness examinations at a different location as (*3*)(*i*) and (*3*)(*ii*) to 10 CFR 50.55a(b)(2)(xxv)(B).

For internal corrosion, the NRC identified four provisions, in addition to the requirement that the different location be in the same system, that would be necessary to provide a potentially comparable location: (1) wall thickness measurements were conducted at the different location

at the same time as the modification was installed, (2) the flow profile and flow characteristics are similar at the different location, (3) the piping configuration is the same (e.g., straight run of pipe, elbow, tee), and (4) if pitting occurred at the modification location, but not the different location, wall loss values shall be multiplied by four. The staff based these changes on the following considerations. Wall thickness measurements at the different location need to be conducted at the same time as the modification; if they were conducted later, loss of material rates would not be as accurate. The provisions for flow profile, flow characterization, and piping configuration are required because these directly affect loss of material rates. The provision related to the occurrence of pitting corrosion at the modification location and not at the different location is necessary because loss of material rates with pitting are higher than those for general corrosion. The factor of four multiplier is consistent with the condition cited in 10 CFR 50.55a(b)(2)(xxv)(B)(*2*). The NRC recognizes that conducting wall thickness measurements at a comparable different location could provide reasonable projections of wall loss; however, unless the extent of degradation (e.g., through wall, percent wall loss) and corrosion mechanism (e.g., general, pitting) are comparable at the different location to those at the modification location, over time, the loss of material rates between the modification location and the different location could diverge. The NRC established a 25-percent range for general corrosion because it is reasonable to conclude that loss of material rates would be comparable within this range. The NRC accordingly added a requirement to conduct an examination at the modification location at half the modification's expected life or 10 years, whichever is smaller.

For external corrosion, there is no comparable accessible location. The NRC expects that during the installation of a modification to address external corrosion on a buried pipe location, the licensee would recoat the location. Recoating the location isolates the repair site from the localized corrosive environment. As a result, the NRC concluded that refueling outage interval inspections would not be necessary to provide reasonable assurance of structural integrity. The NRC accordingly incorporated new condition 10 CFR 50.55a(b)(2)(xxv)(B)(*5*) to allow inspections at half the modification's expected life or 10 years, whichever is smaller.

During the NRC's evaluation of this comment, the staff recognized that the requirement in IWA-4340 (i) to conduct an examination at the modification location every interval could be interpreted to not be required based on the "practicality" statement in the cross-referenced IWA-4340 (g). The NRC has concluded that even if the flaw growth has been confirmed, and, as a result, refueling outage interval inspections are not being conducted, flaw growth rates could possibly accelerate over time. As a result, it would be appropriate to periodically verify the flaw growth rate. Although there is significant margin in the analyses (i.e., flaw growth rate multiplier in 10 CFR 50.55a(b)(2)(xxv)(B)(*2*), construction code design factor of 3.5 or 4), the staff added a requirement to 10 CFR 50.55a(b)(2)(xxv)(B)(*3*) to examine the modification at half its expected life or once per interval, whichever is smaller, to ensure that the potential effect of varying flaw growth rates is managed.

The NRC revised 10 CFR 50.55a(b)(2)(xxv) in the final rule to read as follows:

> (xxv) *Section XI condition: Mitigation of defects by modification.* Use of the provisions of IWA-4340 shall be subject to the following conditions:
>
> (A) *Mitigation of defects by modification: First provision.* The use of the provisions for mitigation of defects by modification in IWA-4340 of Section XI 2001 Edition through the 2010 Addenda, is prohibited.

(B) *Mitigation of defects by modification: Second provision.* The provisions for mitigation of defects by modification in IWA-4340 of Section XI 2011 Edition through the 2017 Edition may be used subject to the following conditions:

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

(*2*) The design of a modification that mitigates a defect shall incorporate a loss of material rate either 2 times the actual measured corrosion rate in that pipe location (established based on wall thickness measurements conducted at least twice in two prior consecutive or nonconsecutive refueling outage cycles in the 10 year period prior to installation of the modification), or 4 times the estimated maximum corrosion rate for the piping system.

(*3*) The licensee shall perform a wall thickness examination in the vicinity of the modification and relevant pipe base metal. Except as provided in paragraphs (b)(2)(xxv)(B)(*3*)(*i*) and (b)(2)(xxv)(B)(*3*)(*ii*), the examination must be performed during each refueling outage cycle to detect propagation of the defect into the material credited for structural integrity of the item unless the examinations in the two refueling outage cycles subsequent to the installation of the modification are capable of validating the projected flaw growth. Where the projected flaw growth has been validated, the modification must be examined at half its expected life or once per interval, whichever is smaller.

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

(*ii*) For buried pipe locations where loss of material has occurred due to external corrosion, the modification must be examined at half its expected life or 10 years, whichever is smaller.

d. 10 CFR 50.55a(b)(2)(xxvi) Pressure testing Class 1, 2, and 3 mechanical joints

Comment: This condition is not necessary because the current practice of leakage testing and quality assurance (QA) program activities is adequate. Also, plants implementing 10 CFR 50.69, “Risk-Informed Categorization and Treatment of Structures, Systems and Components for Nuclear Power Reactors,” would not require a visual examination (VT)-2 pressure test following repair or replacement activity. Delete the condition or revise it to

specifically list repair or replacement activities for which the NRC requires a pressure test following assembly or reassembly of a mechanical joint. This requirement increases the potential for injury, documentation burden, dose to personnel, and cost. This condition should not apply to installed items rotated from stock. [2-1; 6-19; 7-1; 11-1; 14-2]

NRC Response: The NRC partially agrees and partially disagrees with these comments. The NRC disagrees with the comments that the condition is not necessary. The NRC's continued position is that it should be a requirement that Class 1, 2, and 3 mechanical joints affected by repair or replacement activities be pressure tested in accordance with IWA-4540(c), as described in the 1998 Edition of ASME BPV Code, Section XI. The NRC agrees with the comments that licensee maintenance activities should have post maintenance testing or return-to-service activities under the licensee's QA program to ensure a component's readiness for service. However, the NRC determined that these activities may lack the rigor of a code system leakage test (e.g., ensuring the proper system pressure and the lighting and distance requirements of a VT-2 examination).

With regard to the comment that those plants implementing 10 CFR 50.69 would not require pressure testing after repair or replacement activities, the NRC agrees that this may be true for some Class 2 or 3 components that the licensee determines are classified as Risk-Informed Safety Class (RISC)-3, but components classified as RISC-1 will still meet the requirements of 10 CFR 50.55a. However, the NRC notes that 10 CFR 50.69(d)(2) states the following:

> The licensee or applicant shall ensure, with reasonable confidence, that RISC-3 SSCs remain capable of performing their safety-related functions under design basis conditions, including seismic conditions and environmental conditions and effects throughout their service life. The treatment of RISC-3 SSCs must be consistent with the categorization process. Inspection and testing, and corrective action shall be provided for RISC-3 SSCs.

Licensees may determine that to ensure, with reasonable confidence, that RISC-3 structures, systems, and components (SSCs) remain capable of performing their safety-related functions, post maintenance testing or return-to-service activities under the licensee's QA program following repair or replacement activities are required.

The NRC agrees with the comment that the condition should not apply to items rotated from stock. Because these items have previously been in service and removed for testing or overhaul, these activities are essentially the same as maintenance during which no pressure-retaining components have been replaced. The NRC previously stated that maintenance activities were not subject to this condition. To address this comment and the comment on the specificity of what requires system leakage testing, the NRC revised the condition to state that it applies to those repair or replacement activities that require documentation on an ASME Form NIS-2, "Owner's Report for Repair/Replacement Activity."

The NRC revised the condition in the final rule to read as follows:

> (xxvi) Section XI condition: Pressure testing Class 1, 2, and 3 mechanical joints. When using the 2001 Edition through the latest edition and addenda incorporated by reference in paragraph (a)(1)(ii) of this section, licensees shall pressure test in accordance with IWA-5211(a) mechanical joints in Class 1, 2, and 3 piping and components greater than NPS-1 which are disassembled and reassembled during the performance of a Section XI repair/replacement activity requiring

documentation on a Form NIS-2. The system pressure test and NDE examiners shall meet the requirements of the licensee's/applicant's current ISI program code of record.

e. 10 CFR 50.55a(b)(2)(xxxii) Summary report submittal

Comment: The NRC should extend the timeframe for summary report submittal to 120 days for consistency with the reporting time periods used for other industry inspections. [14-3]

NRC Response: The NRC understands that ASME has code actions in progress that propose to extend the reporting time to 120 days. However, until these actions are approved and published in ASME BPV Code, Section XI, the NRC does not consider it to be appropriate to change the reporting time as it may cause confusion if two different requirements are in place. The NRC made no change to the final rule as a result of this comment.

f. 10 CFR 50.55a(b)(2)(xxxvii) ASME BPV Code Case N-824

Comment: As written, this paragraph appears to simply provide NRC endorsement of an ASME BPV Code Case. If this is the intent, the NRC should list the Code Case and conditions in Regulatory Guide (RG) 1.147, "Inservice Inspection Code Case Acceptability, ASME Section XI, Division 1," instead of in the rule for consistency. If the intent is different, the staff should clarify. [9-1]

NRC Response: The NRC agrees with this comment. The NRC normally handles the approval of ASME BPV Code Cases through updates to RG 1.147. Accepting the same Code Case in both 10 CFR 50.55a(b)(2)(xxxvii) and RG 1.147 would be redundant. In a separate rulemaking, the NRC proposed to incorporate Code Case N-824 into RG 1.147, Revision 19 and simultaneously remove 10 CFR 50.55a(b)(2)(xxxvii). (83 FR 40685). The NRC made no change to the final rule as a result of this comment.

g. 10 CFR 50.55a(b)(2)(xl) Prohibitions on the use of IWB-3510.4(b)

Comment: The proposed rule does not specify to which edition and addenda of ASME BPV Code, Section XI, this condition applies. These paragraphs of the ASME BPV Code do not exist in some previous versions of the code. [9-5]

NRC Response*:* The NRC agrees with this comment. To clarify, the NRC revised the condition to specify the applicable edition of ASME BPV Code, Section XI. The NRC modified the condition to state the 2017 Edition as the applicable edition.

The NRC revised 10 CFR 50.55a(b)(2)(xl) in the final rule to read as follows:

> (xl) *Section XI condition: Prohibitions on use of IWB-3510.4(b).* The use of ASME BPV Code, Section XI, 2017 Edition, Subparagraphs IWB–3510.4(b)(4) and IWB-3510.4(b)(5) is prohibited.

h. 10 CFR 50.55a(g)(4) Inservice inspection standards requirement for operating plants

Comment: In 10 CFR 50.55a(g)(4)(i) and 10 CFR 50.55a(g)(4)(ii), the NRC requires the use of Appendix I from the same edition and addenda as ASME BPV Code, Appendix VIII. This is an issue because ASME BPV Code, Appendix I, references other parts of the ASME BPV Code.

The NRC should revise these conditions to state that licensees are only required to implement the parts of Appendix I that are applicable to Appendix VIII. [4-1]

NRC Response: The NRC agrees with this comment. The NRC originally intended the condition to require use of the same edition and addenda of ASME BPV Code, Appendix VIII and Appendix I, Subarticle I-3200, related to examination coverage for piping. A revision of the condition to only require the use of the same edition and addenda of Appendix VIII and Appendix I, Subarticle I-3200, will meet the intent of the original condition.

The NRC revised the last sentence of 10 CFR 50.55a(g)(4)(i) and 10 CFR 50.55a(g)(4)(ii) in the final rule to read as follows:

> Licensees using this option must also use the same edition and addenda of Appendix I, Subarticle I-3200, as Appendix VIII, including any applicable conditions listed in paragraph (b) of this section.

i. 10 CFR 50.55a(g)(6)(ii)(D) Augmented inservice inspection requirements: reactor vessel head inspections

Comment: The NRC should revise the condition to specify that the extent and frequency of examination for Items B4.50 and B4.60 shall comply with the requirements of ASME BPV Code Case N-729-6, Table 1. This will help a user trying to understand the exception to NRC condition 5.4 to the EPRI, Materials Reliability Project (MRP) Topical Report, "Materials Reliability Program: Topical Report for Primary Water Stress Corrosion Cracking Mitigation by Surface Stress Improvement" MRP-335, Revision 3-A, (November 2016), in the context of the ASME BPV Code Case. The NRC should also change the word "inspection" in the first sentence to "examination." [6-20; 14-4]

NRC Response: The NRC partially agrees and partially disagrees with the comment. The NRC determined that the use of MRP-335, Revision 3-A, as approved by the NRC, is the clearest requirement for both implementation and examination. MRP-335, Revision 3-A, has several differences from the requirements in ASME BPV Code Case N-729-6. The NRC determined that confusion could arise if the requirements went back and forth between the documents, such as what requirements of the Code Case versus MRP-335, Revision 3-A, fulfill the regulatory requirement. Therefore, the NRC determined that the restriction of all peening requirements to MRP-335, Revision 3-A, which the NRC approved for use after extensive review, would provide the clearest path forward for both stakeholders and NRC inspectors to understand the regulations on peened nozzle performance criteria and examinations. The NRC agrees with the comment that the term "examination" is more appropriate than the term "inspection" because it is in accordance with the definitions in ASME BPV Code, Section XI, IWA-9000. Therefore, the NRC revised the first sentence of the condition to change the word "inspection" to "examination."

The NRC revised 10 CFR 50.55a(g)(vi)(ii)(D)(*5*) in the final rule to read as follows:

> (*5*) *Peening.* In lieu of examination requirements of Table 1, Items B4.50 and B4.60, and all other requirements in ASME BPV Code Case N-729-6 pertaining to peening, in order for a RPV upper head with nozzles and associated J-groove welds mitigated by peening to obtain examination relief from the requirements of Table 1 for unmitigated heads, peening must meet the performance criteria, qualification, and examination requirements stated in MRP-335, Revision 3-A,

with the exception that a plant-specific alternative request is not required and NRC condition 5.4 of MRP-335, Revision 3-A does not apply.

j. 10 CFR 50.55a(g)(6)(ii)(F) Augmented inservice inspection requirements: examination requirements for Class 1 piping and nozzle dissimilar-metal butt welds

i. 50.55a(g)(6)(ii)(F)(11) Cast stainless steel

Comment: The NRC should delete 10 CFR 50.55a(g)(6)(ii)(F)(*11*). This paragraph would require a second examination technique for all 92 welds even though two-thirds achieve 100-percent coverage. Additional examination coverage would be minimal. The condition requires significant time and dose but would not result in a significant increase in safety. [4-2]

NRC Response: The NRC agrees with this comment. The NRC recognized that the current condition in 10 CFR 50.55a was challenging to address within the current timeline. In the proposed rule, the NRC included an option for licensees to implement ASME BPV Code Case N-824, a Code Case approved by ASME and incorporated into the 2013 Edition of the ASME BPV Code, to perform the inspections through the cast stainless steel material. However, as explained in the comment, and from information presented at NRC public meetings in January 2019, the NRC now recognizes that there is a limited number of welds that could achieve significant additional coverage from the proposed rule change. The NRC agrees that there would be limited improvement in safety, and roughly the same number of proposed alternatives would be required. Therefore, regulatory efficiency would not improve. The NRC can continue to address the issue through a limited number of proposed alternatives until a new generic inspection qualification program can be effectively implemented.

Accordingly, the NRC deleted the provision from the final rule.

ii. 50.55a(g)(6)(ii)(F)(15) Cracked excavate and weld repair

Comment: The condition is not necessary and should be removed. The N-1 repair is a full 360-degree repair with stress reversal, which should preclude flaw growth. Stress reversal does not occur for the M-2 weld excavate and weld repair (EWR). This should allow the use of a sampling strategy for N-1 EWR. This is the key technical difference. The N-1 EWR should be allowed a sampling strategy as provided in ASME BPV Code Case. [6-21; 14-5]

NRC Response: The NRC disagrees with the comment. The NRC notes that because the N-1 EWR has an existing crack, the stress improvement requirement applies to the inside surface condition only. The stress improvement requirement does not prevent flaw growth of the existing crack. Therefore, the NRC finds that the N-1 EWR is like the M-2 condition, in that either new flaws or growth of the existing flaw could challenge structural integrity over the remaining life of the repair. As such, the NRC continues to find that N-1 EWR mitigated welds should not be placed within a 25-percent sample condition, such that some welds would not be inspected. The NRC made no change to the final rule as a result of this comment.

IV. ASME Operation and Maintenance Code

a. 10 CFR 50.55a(b)(3)(iii)(C) Flow-induced vibration

Comment: Monitoring of flow-induced vibration during preservice testing or inservice testing (IST) required in 10 CFR 50.55a(b)(3)(iii)(C) would not provide a good measure of the effects on components in the IST program. Licensees should use the existing vibration monitoring requirements in the new reactor design control documents, or the NRC should revise the condition by replacing "preservice testing and inservice testing" with "initial plant operation" to clarify the performance of flow-induced vibration monitoring. [11-4]

NRC Response: The NRC agrees with the comment that the condition in 10 CFR 50.55a(b)(3)(iii)(C) for monitoring flow-induced vibration in new reactors would benefit from clarification. However, the proposed rule did not address the monitoring of flow-induced vibration in new reactors. Therefore, the NRC will include the clarification to 10 CFR 50.55a(b)(3)(iii) proposed in this comment in the next 10 CFR 50.55a rulemaking. The NRC made no change to the final rule as a result of this comment.

b. 10 CFR 50.55a(b)(3)(x) ASME OM Code Case OMN-20

Comment: The NRC should delete the condition in 10 CFR 50.55a(b)(3)(x) because the agency has included OM Code Case OMN-20, "Inservice Test Frequency," in RG 1.192, Revision 2, "Operation and Maintenance Code Case Acceptability, ASME OM Code," issued January 2018. [13-2]

NRC Response: The NRC agrees with the comment that the condition in 10 CFR 50.55a(b)(3)(x) accepting the use of ASME OM Code Case OMN-20 may be deleted. The NRC accepted the use of OM Code Case OMN-20 in RG 1.192, Revision 2, that has been incorporated by reference in 10 CFR 50.55a. Further, the recent proposed rule to update 10 CFR 50.55a to incorporate by reference RG 1.192, Revision 3 (83 FR 40685) included the deletion of 10 CFR 50.55a(b)(3)(x) and did not receive any public comments on the proposed deletion of 10 CFR 50.55a(b)(3)(x). As a result, the NRC will delete 10 CFR 50.55a(b)(3)(x) as part of the final rule to incorporate by reference RG 1.192, Revision 3, and specified that 10 CFR 50.55a(b)(3)(x) is reserved for future use. In addition, the provisions of OM Code Case OMN-20 have been incorporated into ISTA-3170, "Inservice Examination and Test Frequency Grace," in the 2017 Edition of the ASME OM Code. The NRC made no change to the condition in the final rule as a result of this public comment.

c. 10 CFR 50.55a(b)(3)(xi) Valve position indication

Comment: The NRC should clarify 10 CFR 50.55a(b)(3)(xi), which requires that the valve position indication provisions in ISTC-3700, "Position Verification Testing," be supplemented for all valves with remote position indicators within the scope of Subsection ISTC, "Inservice Testing of Valves in Water-Cooled Reactor Nuclear Power Plants." Comments 8-1 and 8-2 indicate that the industry has not reached consensus on what the condition requires in terms of allowed motor-operated valve (MOV) supplemental position verification test interval. Some individuals believe MOV supplemental position verification must be performed every 2 years in accordance with the ISTC-3700 requirements, while others believe verification can be performed at intervals up to 10 years. Therefore, Comments 8-1 and 8-2 recommend that the NRC revise the wording of the proposed rulemaking to state that, whatever method or activity is being performed or credited, MOV supplemental position verification must be performed at least once every 10 years. Comment 12-2 suggests that the NRC modify the condition to allow other

NRC-approved test methods, such as a leakage testing program under Appendix J to 10 CFR Part 50, “Primary Reactor Containment Leakage Testing for Water-Cooled Power Reactors,” to verify obturator position while still maintaining reasonable assurance of the valve condition. Comment 13-3 recommends clarifying the condition as to whether the ISTC-3700 methods and frequency or the Mandatory Appendix methods and frequency are applicable. [8-1, 8-2; 12-2; 13-3]

NRC Response: The NRC agrees with the comments that clarification of 10 CFR 50.55a(b)(3)(xi) would be beneficial.

In the November 2018 *Federal Register* notice, the condition in 10 CFR 50.55a(b)(3)(xi), as modified in the proposed rulemaking, stated the following:

> When implementing paragraph ISTC-3700, “Position Verification Testing,” in the ASME OM Code, 2012 Edition through the latest edition and addenda of the ASME OM Code incorporated by reference in paragraph (a)(1)(iv) of this section, licensees shall verify that valve operation is accurately indicated by supplementing valve position indicating lights with other indications, such as flow meters or other suitable instrumentation, to provide assurance of proper obturator position for valves with remote position indication within the scope of Subsection ISTC and all mandatory appendices.

The NRC agrees with Comment 12-2 that the condition could be clarified to allow NRC-approved testing programs where justified to verify obturator position. The NRC also agrees with Comment 13-3 that this condition could be clarified with regard to the applicability to the ISTC-3700 methods and frequency or to the methods and frequency specified in the mandatory appendices in the ASME OM Code.

With respect to MOVs, Mandatory Appendix III, “Preservice and Inservice Testing of Active Electric Motor-Operated Valve Assemblies in Water-Cooled Reactor Nuclear Power Plants,” provides for the verification of valve position indication as part of MOV diagnostic testing performed at the intervals established by that appendix. Comments 8-1 and 8-2 recommend that the NRC revise the wording of the proposed rule to state that, whatever method or activity is being performed or credited, MOV supplemental position verification must be performed at least once every 10 years. The NRC notes that Mandatory Appendix III allows diagnostic test intervals between 3 and 10 years based on the evaluation of MOV design-basis capability. Therefore, the specification of a 10-year interval to verify valve position indication as suggested in Comments 8-1 and 8-2 would not be appropriate. Further, Mandatory Appendix IV, “Preservice and Inservice Testing of Active Pneumatically Operated Valve Assemblies in Nuclear Power Plants,” to the ASME OM Code specifies a combination of stroke time testing and diagnostic testing for different levels of safety-significant air-operated valves (AOVs). The NRC determined that attempting to specify each combination of the Appendix IV testing methods and frequencies for valve position indication in 10 CFR 50.55a(b)(3)(xi) would cause confusion. Therefore, the NRC does not consider the suggested modification to specify a 10-year interval for valve position indication for MOVs in 10 CFR 50.55a(b)(xi) to be appropriate. However, the NRC included a reference to the verification methods and frequencies of the mandatory appendices in the clarified rule language. In addition, the NRC made the intent of the condition clear in the *Federal Register* notice for the final rule that with respect to MOVs addressed in Mandatory Appendix III, the interval for valve position verification applies to the diagnostic test interval (rather than the exercise interval). The NRC will address this issue in the planned revision to NUREG-1482, Revision 2, “Guidelines for Inservice Testing at Nuclear

Power Plants: Inservice Testing of Pumps and Valves and Inservice Examination and Testing of Dynamic Restraints (Snubbers) at Nuclear Power Plants," issued October 2013.

In response to Comment 12-2, the NRC notes that licensees may request an NRC-authorized alternative to this condition under 10 CFR 50.55a(z). In response to Comment 13-3, the NRC clarified the condition by specifying the phrase "within the scope of Subsection ISTC including its mandatory appendices and their verification methods and frequencies" at the end of the last sentence of the condition.

The NRC revised 10 CFR 50.55a(b)(3)(xi) in the final rule to reads as follows:

> (xi) *OM condition: Valve Position Indication*. When implementing paragraph ISTC-3700, ''Position Verification Testing,'' in the ASME OM Code, 2012 Edition through the latest edition and addenda of the ASME OM Code incorporated by reference in paragraph (a)(1)(iv) of this section, licensees shall verify that valve operation is accurately indicated by supplementing valve position indicating lights with other indications, such as flow meters or other suitable instrumentation to provide assurance of proper obturator position for valves with remote position indication within the scope of Subsection ISTC including its mandatory appendices and their verification methods and frequencies.

d. 10 CFR 50.55a(b)(3)(xii) Air-operated valves (Appendix IV)

Comment: The condition in 10 CFR 50.55a(b)(3)(xii), requiring the application of Mandatory Appendix IV (for AOV IST activities) to the 2017 Edition of the ASME OM Code when implementing the 2015 Edition of the ASME OM Code, is unnecessary and might cause confusion. For example, Comment 11-2 notes that licensees establishing an initial or subsequent 120-month IST program are required to use the most recent edition of the ASME OM Code incorporated by reference (which will be the 2017 Edition rather than the 2015 Edition). Comment 13-4 indicates that the 2015 Edition of the ASME OM Code does not have the necessary pointers and references to Mandatory Appendix IV. Comment 13-4 also notes that Mandatory Appendix IV has combined some of the testing requirements specified in Subsection ISTC. Because the NRC is incorporating by reference both the 2015 and 2017 Editions of the ASME OM Code in 10 CFR 50.55a in the same rulemaking, licensees will be required to use the most recent edition of the ASME OM Code, 2017 Edition, as incorporated by reference in 10 CFR 50.55a when establishing their initial or subsequent 120-month IST program. Alternatively, the comments suggest that the NRC not approve the 2015 Edition of the ASME OM Code. [11-2; 13-1, 13-4]

NRC Response: The NRC agrees with the comments that 10 CFR 50.55a(b)(3)(xii), requiring the application of Mandatory Appendix IV to the 2017 Edition of the ASME OM Code when implementing the 2015 Edition of the ASME OM Code, is unnecessary and might cause confusion. The NRC agrees that incorporating by reference both the 2015 and 2017 Editions of the ASME OM Code in 10 CFR 50.55a in the same rulemaking will result in licensees applying the ASME OM Code, 2017 Edition, as incorporated by reference in 10 CFR 50.55a, when establishing their initial or subsequent 120-month IST program. In response to this comment, the NRC deleted the proposed condition in the final rule.

e. 10 CFR 50.55a(f)(4) Inservice testing standards requirement for operating plants

Comment: The NRC should revise 10 CFR 50.55a(f)(4) and 10 CFR 50.55a(g)(4) to clarify the applicability of the ISI and IST requirements for dynamic restraints (snubbers) in nuclear power plants. [5-1]

NRC Response: The NRC agrees with the comment that 10 CFR 50.55a would benefit from clarification of the applicability of the ISI and IST requirements for dynamic restraints (snubbers) in nuclear power plants. However, the proposed rule did not include this suggested change, and the NRC does not see an immediate need to clarify the applicability of the ASME OM Code in this regard. The NRC understands that the ASME OM Code committee is preparing a clarification to the ASME OM Code to specify its application to piping systems. Therefore, the NRC plans to evaluate the proposed modification in the next 10 CFR 50.55a Code Editions (BPV/OM) rulemaking.

Comment: The NRC should add a statement that pressure relief devices requiring testing under 10 CFR 50.55a(f)(4) shall be limited to valves and rupture discs installed in piping systems designed to the ASME BPV Code or ASME B31 standards. The comment indicates that the ASME OM Code committee is evaluating this issue, but the NRC should address the issue in 10 CFR 50.55a until the ASME OM Code committee resolves the issue. [11-5]

NRC Response: The NRC agrees with the comment that the ASME OM Code applies to pumps, valves, and dynamic restraints (snubbers) in piping systems. For example, the ASME OM Code does not apply to blowout panels in structures. The NRC discussed its interpretation of the ASME OM Code in the *Federal Register* notice for the final rule. The NRC understands that the ASME OM Code committee is preparing a clarification to the ASME OM Code to specify its application to piping systems. Because the NRC did not include this change to 10 CFR 50.55a, "Codes and Standards" in the proposed rule, the NRC intends to evaluate the need for a specific reference to piping systems. The NRC will consider including this change in a future rulemaking, thus allowing opportunity for public comment on this proposed change.

f. 10 CFR 50.55a(f)(7) Inservice testing reporting requirements

Comment: The NRC should revise 10 CFR 50.55a(f)(7) to avoid excessive submittals of IST Program Test and Examination Plans (IST Plans). The submittals should be provided to only one NRC location. Comment 11-3 suggests providing the IST Plan to the NRC Headquarters office. Comments 12-1 and 12-3 suggest providing the IST Plan to the NRC resident inspector office at the applicable nuclear power plant. Comment 11-3 proposes limiting the IST Plan submittals to those that involve a relief request, proposed alternative, or adoption of a new ASME OM Code of record or Code Case. Comment 12-3 asserts that the submittal of interim IST Plan updates is unnecessary and overly burdensome, and submittal of the IST Plan at the beginning of the 120-month IST program interval is sufficient. Comments 13-5 and 13-6 suggest that the NRC clarify the submittal of augmented IST programs described in 10 CFR 50.55a(f)(4). Comment 14-6 asks the NRC to clarify whether this regulatory requirement also includes ISI programs for snubbers. [11-3; 12-1, 12-3; 13-5, 13-6; 14-6]

NRC Response: The NRC agrees with the comments that clarifications to 10 CFR 50.55a(f)(7) to avoid excessive submittals of IST Plans and their interim updates would be appropriate. However, to avoid a requirement that conflicts with the current ASME OM Code requirement, the NRC has removed the proposed 50.55a(f)(7) from the final rule. The NRC will reconsider this condition if the reporting requirement is removed from a future Edition of the ASME OM Code.

In the November 2018 *Federal Register* notice, the proposed condition in 10 CFR 50.55a(f)(7) stated the following:

> (7) *Inservice Testing Reporting Requirements.* Inservice Testing Program Test and Examination Plans (IST Plans) required by the ASME OM Code must be submitted to the NRC in accordance with § 50.4. All required IST Plan submittals must be made within 90 days of their implementation. Electronic submission is preferred. In addition to the IST Plans for the preservice test period, initial inservice test interval, and successive inservice test intervals specified in the ASME OM Code, interim IST Plan updates that involve changes to the following must be submitted:
> (i) The edition and addenda of ASME OM Code that apply to required tests and examinations;
> (ii) The classification of components and boundaries of system classification;
> (iii) Identification of components subject to tests and examination;
> (iv) Identification of components exempt from testing or examination;
> (v) ASME OM Code requirements for components and the test or examination to be performed;
> (vi) ASME OM Code requirements for components that are not being satisfied by the tests or examinations; and justification for alternative tests or examinations;
> (vii) ASME OM Code Cases planned for use and the extent of their application; or
> (viii) Test or examination frequency or schedule for performance of tests and examinations, as applicable.

The NRC does not agree with the recommendation in Comment 11-3 to limit the submittals to those that involve a relief request, proposed alternative, or adoption of a new ASME OM Code of record or Code Case. The NRC's purpose for the proposed requirement in 10 CFR 50.55a(f)(7) was to allow the NRC to be aware of the current IST Plan for ASME Class 1, 2, and 3 pumps, valves, and dynamic restraints being implemented at each nuclear power plant such that immediate NRC review is possible in response to urgent requests by a licensee for relief from or alternatives to the 10 CFR 50.55a requirements.

The NRC does not agree with the recommendation in Comments 13-5 and 13-6 to consider the submittal of augmented IST programs, or a specific submittal deadline for interim IST Plan updates. The NRC does not currently consider requirements for submittal of the IST Plans for augmented IST programs, or deadlines for interim IST Plan updates, to be necessary in 10 CFR 50.55a. The NRC may revisit the requirements for IST Plan submittal (including the submittal of augmented IST Plans or the schedule of interim IST Plan updates) during a future rulemaking. Rather than discussing the purpose of the submittals in 10 CFR 50.55a(f)(7) as suggested by the comment, the NRC indicated in the *Federal Register* notice for the final rule that the submittal of the IST Plans is needed to support the NRC's review of relief and alternative requests rather than for specific review of those plans. The NRC also noted that submittal of the IST Plans would not need separate tracking.

The NRC does not agree with Comment 12-3 that the submittal of interim IST Plan updates is unnecessary and overly burdensome. The IST Plan prepared at the beginning of a 120-month IST program interval would not be sufficient for all testing issues that might arise over a 10-year period.

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Therefore, the final rule omits 10 CFR 50.55a(f)(7).

V. Other Comments

a. Removal of older editions and addenda

Comment: The conditions on ASME BPV Code, Section XI, Subsection IWL, in 10 CFR 50.55a(b)(2)(viii)(A) through (D) (related to concrete containment examinations) apply to older editions of the ASME BPV Code (1992 Edition with the 1992 Addenda and 1995 Edition with the 1996 Addenda) and should be removed because there should be no U.S. plants still using these editions of the ASME BPV Code. [6-8, 6-9, 6-10, 6-11, 6-12]

NRC Response: The NRC agrees with these comments that U.S. plants should no longer be using the identified ASME BPV Code Editions and that removing the conditions could improve the clarity of 10 CFR 50.55a. However, the proposed rule did not include this change. The NRC determined that the suggested modification is sufficiently significant as to require public notice and comment. Therefore, the NRC plans to evaluate the proposed modification in the next 10 CFR 50.55a Code Editions (BPV/OM) rulemaking.

Comment: The conditions on ASME BPV Code, Section XI, Subsection IWE, in 10 CFR 50.55a(b)(2)(ix)(C) through (E) (related to metal containment examinations) apply to older editions of the ASME BPV Code (1992 Edition with the 1992 Addenda and 1995 Edition with the 1996 Addenda) and should be removed because no U.S. plants should still be using these editions of the code. [6-13, 6-14, 6-15, 6-16]

NRC Response: The NRC agrees with these comments that U.S. plants should no longer be using the identified editions of the ASME BPV Code and that removing the conditions could improve the clarity of 10 CFR 50.55a. However, the proposed rule did not include this change. The NRC determined that the suggested modification is sufficiently significant as to require public notice and comment. Therefore, the NRC plans to evaluate the proposed modification in the next 10 CFR 50.55a Code Editions (BPV/OM) rulemaking.

b. Typographical errors

Comment: Several ASME BPV Code table names or paragraph titles were missing hyphens in the proposed rule text. The impacted paragraphs were 10 CFR 50.55a(b)(2)(ix)(K), 10 CFR 50.55a(b)(2)(xxxix)(A), and 10 CFR 50.55a(b)(2)(xxxix)(B). “Subparagraph IWA 4421(c)(1)” should read “subparagraph IWA-4421(c)(1)” and “Subparagraph IWA 4421(c)(2)” should read “subparagraph IWA-4421(c)(2).” [9-2, 9-3, 9-4]

NRC Response: The NRC agrees with these comments. The proposed changes are editorial corrections. The NRC has made the changes to the final rule.

Comment: In 10 CFR 50.55a(b)(2)(xlii), the NRC should replace words “of the 2011a Addenda” with “of the 2011 Addenda.” [9-6]

NRC Response: The NRC disagrees with this comment. The Office of the Federal Register's requirements for incorporation by reference call for the NRC to use the exact designation from the title page. The 2011 Addenda of the ASME BPV Code is identified as the "2011a Addenda" on the title page. The NRC made no change to the final rule as a result of this comment.

c. Incorporation by reference

Comment: Electronic access to the relevant ASME codes during the comment period did not seem to be working at the time the commenter attempted to use it. [1-4]

NRC Response: The NRC does not agree with the comment. All documents referenced within each rulemaking are made available to the public for inspection and comment during the public comment periods. These documents are made available in several ways to ensure that the public has the information needed to understand and participate in the rulemaking. For referenced agency records, the public can easily search the NRC's official records by using ADAMS. The NRC also ensures that all documents related to rulemakings are available in the NRC's Public Document Room. For documents that are not in ADAMS, the NRC encourages the document owner to make the documents available for inspection on a referenced Web site, owned by the third party. In response to the comment, NRC and ASME staff tested the ASME Web site and were able to successfully access the relevant ASME codes using a variety of computer platforms during the comment period. The NRC appreciates ASME's support to this rulemaking activity in making these documents available on its Web site. The NRC looks forward to the continued support of ASME to make relevant ASME codes available to the public on the ASME Web site during future rulemakings. The NRC made no change to the rule as a result of this comment.

d. Rule text not provided

Comment: The proposed rule discusses changes to 10 CFR 50.55a(b)(2)(xviii)(D), 10 CFR 50.55a(g)(4)(i), and 10 CFR 50.55a(g)(4)(ii), but NRC did not provide the revised rule text. For consistency, the NRC needs to publish the actual rule text. [9-7]

NRC Response*:* The NRC disagrees with this comment. Pages 56192–56196 of the *Federal Register* notice do not show the revised rule text associated with these discussions because the changes are relatively minor and the amendatory instructions on pages 56191 and 56192 of the *Federal Register* notice (instructions w, nn, and oo) include the direction to modify the rule text. The NRC made no changes to the final rule as a result of this comment.

Comment: The *Federal Register* notice did not provide a clear specification of the proposed rule language for 10 CFR 50.55a(b)(3)(xi) for valve position indication and for 10 CFR 50.55a(b(3)(xii) for AOV testing. [11-6, 11-7]

NRC Response: The NRC agrees with Comments 11-6 and 11-7 that the *Federal Register* notice (83 FR 56156) did not specify the exact wording of the proposed modification to 10 CFR 50.55a(b)(3)(xi) on page 56171, and the new condition in 10 CFR 50.55a(b)(3)(xii) on page 56172, respectively. These pages are in the Discussion section of the notice. For a proposed 10 CFR 50.55a rule, the *Federal Register* notice provides a general statement of the intent of the proposed changes early in the notice and then specifies the rule language later in the notice. The notice provided the exact rule language for these sections on page 56195. The NRC will ensure that the *Federal Register* notices for future rulemakings provide the precise wording of proposed modifications and new conditions in 10 CFR 50.55a. The NRC made no change to the final rule as a result of this comment.