ADAMS Accession No. ML

Proposed Rule to Incorporate by Reference the 2021 and 2022 Editions of ASME Codes into 10 CFR 50.55a

September 6, 2023

U.S.NRC
United States Nuclear Regulatory Commission
Protecting People and the Environment

NRC Speakers & Agenda

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Presenter	Topic
Tyler Hammock	Purpose and Overview
Kamal Manoly	ASME BPV Code, Section III
Yamir Diaz-Castillo	ASME BPV Code, Section III (Quality Assurance)
Mike Benson	ASME BPV Code, Section XI
Thomas Scarbrough	ASME OM Code
Tyler Hammock	Specific Requests for Comment
All	Question and Answer

Purpose and Overview

Tyler Hammock
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Office of Nuclear Material Safety and Safeguards

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Purpose of Meeting

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- Status of the ongoing rulemaking
- Discuss the NRC staff's position regarding incorporation by reference of the ASME 2021 and 2022 Code Editions
- NRC will consider information and perspectives discussed today when developing the final rule, but comments must be submitted in writing through the methods described in the *Federal Register* notice to receive formal consideration in the rulemaking

Timeline – ASME Rulemakings

U.S.NRC
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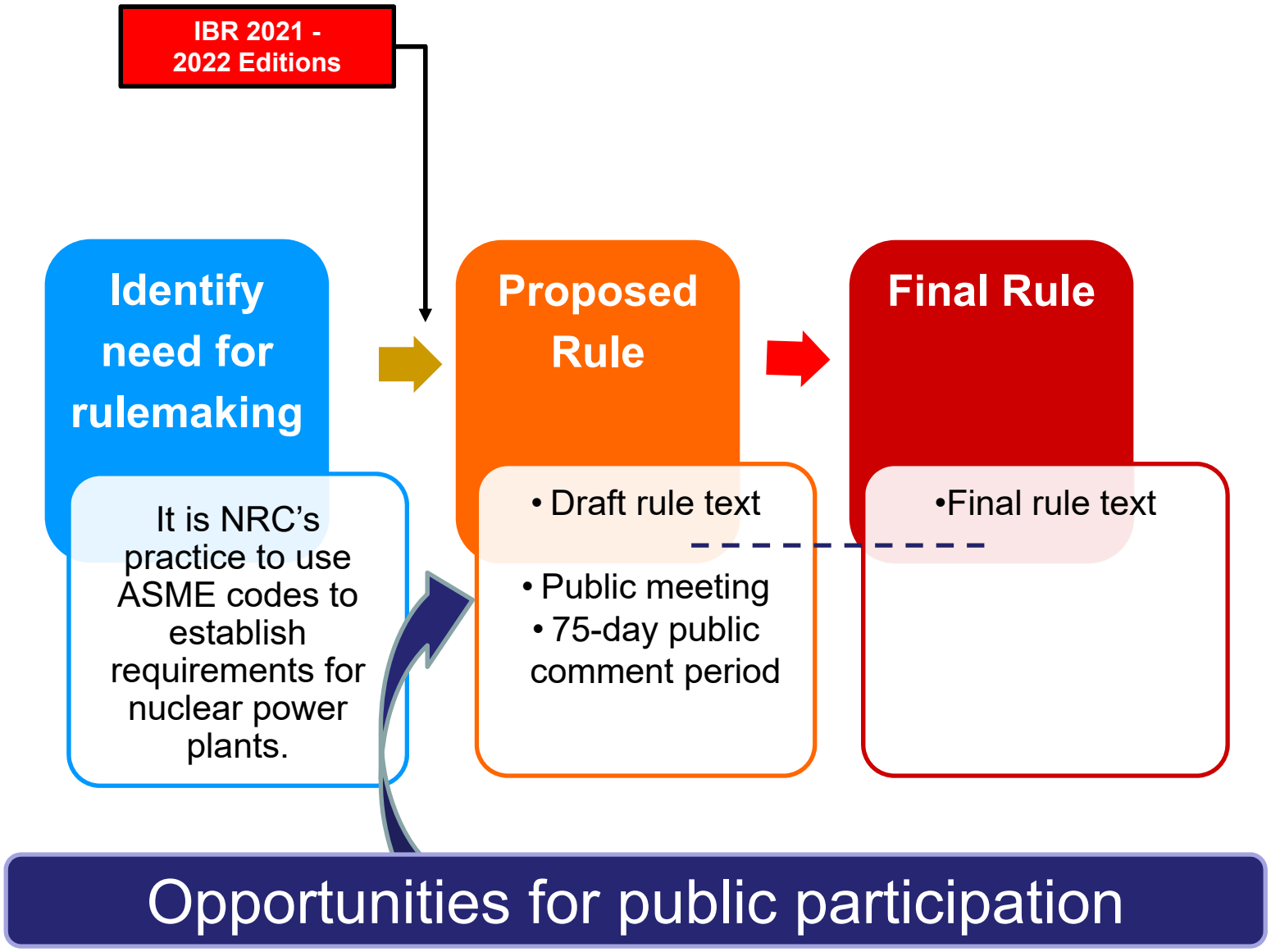
Publication Year	ASME BPV Code	ASME OM	NRC Proposed Rule	NRC Final Rule
2005	2005 Addenda	2006 Addenda		
2006	2006 Addenda			
2007	2007 Edition			
2008	2008 Addenda			
2009	2009 Addenda	2009 Edition		
2010	2010 Edition		75 FR 24324 (5/4/2010)	
2011	2011 Addenda	2011 Addenda		76 FR 36232 (6/21/2011)
2012		2012 Edition		
2013	2013 Edition			
2014				
2015	2015 Edition	2015 Edition	80 FR 56820 (9/18/2015)	
2016				
2017	2017 Edition	2017 Edition		82 FR 32934 (7/18/2017)
2018			83 FR 56156 (11/9/2018)	
2019	2019 Edition			
2020		2020 Edition	86 FR 16087 (3/26/2021)**	85 FR 26540 (5/4/2020)*
2021	2021 Edition			
2022		2022 Edition		87 FR 65128 (10/27/22)
2023			88 FR 53384 (8/8/2023)	
2024				Target: January 2025

*Correction Notice was published in 85 FR 34087 (6/3/2020)

**Correction Notice was published in 86 FR 25977 (5/12/21)

Rulemaking Process



ASME 2021-2022 Editions Rulemaking—Schedule

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- **Proposed rule** published in the *Federal Register* on August 8, 2023 (88 FR 53384)
  - 75-day public comment period ends on [October 23, 2023]
- NRC will consider public comments submitted on the docket
  - Docket ID: NRC-2018-0289
- Target date to publish **final rule** in the *Federal Register*: January 10, 2025

Submitting Comments

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- *Federal Rulemaking Website:* Go to https://www.regulations.gov and search for Docket ID NRC-2018-0289.
- *Email comments to:* Rulemaking.Comments@nrc.gov. If you do not receive an automatic email reply confirming receipt, then contact us at 301-415-1677.

Scope of ASME 2021-2022 Editions Rulemaking

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- Incorporate by reference the 2021 Edition of Section III, Division 1, of ASME BPV Code
  - Two* new conditions being considered
  - Three revised existing conditions being considered
- Incorporate by reference the 2021 Edition of Section XI, Division 1, of ASME BPV Code
  - Seven new conditions being considered
  - Three revised existing conditions being considered
  - One condition is being considered for removal
  - Updated Augmented ISI requirements in §50.55a(g)(6)(ii)

*Includes revisions to Quality Assurance conditions

Scope of ASME 2021-2022 Editions Rulemaking

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- Incorporate by reference the 2022 Edition of ASME OM Code
  - Two new conditions being considered
  - Five conditions being are being considered for removal

ASME BPV Code, Section III, Conditions under Consideration

Kamal Manoly
Division of Engineering
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Office of Nuclear Reactor Regulation

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Section III New Condition

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- *Section 50.55a(b)(1)(xiv) Section III Condition: Repairs to Stamped Components.*
  - If using Nonmandatory Appendix NN for elimination of surface defects and repairs of stamped components, all requirements of Nonmandatory Appendix NN must be met

Section III Revised Conditions

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- *Section 50.55a(b)(1)(vi): Section III Condition: Subsection NH*
  - Revision to change word "sleeves" to "sheaths"
  - Not applicable to 2015 Edition and later Editions
- *Section 50.55a(b)(1)(xi): Section III, Condition: Mandatory Appendix XXVI*
  - When applying the 2015 and 2017 Editions, applicants/licensees must meet the first provision
  - When applying the 2015 through 2021 Editions, applicants/licensees must meet the second provision
  - When applying the 2017 Edition, applicants/licensees must meet the third provision

Section III Revised Conditions

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- *Section 50.55a(b)(1)(xiii): Section III, Condition: Preservice Inspection of Steam Generator Tubes*
  - Proposal to revise the first and second provisions to extend applicability of the condition through the latest ASME BPV Code Section III that is incorporated into 50.55a(a)(1)(i)

ASME BPV Code, Section III Conditions under Consideration (Quality Assurance)

Yamir Diaz-Castillo
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Section III New Condition

- *Revise §50.55a(b)(1)(iv) Section III Condition: Quality Assurance*
  - The NRC is proposing to add a condition to prohibit the use of Subpart 2.19 in NQA-1-2017, NQA-1-2019, and NQA-1-2022.
  - The NRC has endorsed NEI 14-05A Rev. 1 in lieu of Subpart 2.19 in NQA-1-2017, NQA-1-2019 and NQA-1-2022.
  - The NRC published a correction notice in the *Federal Register* (88 FR 56780, August 21, 2023) to include NQA-1-2019 and NQA-1-2022 as these provisions were missing in a sentence in the preamble.

ASME BPV Code, Section XI, Conditions under Consideration

Michael Benson
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Section XI Revised Conditions

- *Section 50.55a(b)(2)(viii) Section XI condition: Concrete containment examinations:*
  - Proposes that the existing conditions in eight and ninth provisions for concrete examinations do not apply to the 2021 Edition
- *Section 50.55a(b)(2)(ix) Section XI condition: Metal containment examinations:*
  - Proposes that the first provision for metal containment examinations not apply to the 2021 Edition

Section XI Revised Conditions

- *Section 50.55a(b)(2)(xxxiv) Section XI Condition: Nonmandatory Appendix U*
  - Proposes to prohibit the use of Nonmandatory Appendix U, Supplement U-S1 in the 2021 Edition
  - Code Case N-513 provides the same rules and is more frequently updated
- *Section 50.55a(b)(2)(xliv) Section XI Condition: Nonmandatory Appendix Y*
  - Proposes to prohibit the use of Y-2200, Y-2420 and Y-3200 in the 2021 Edition
  - Code Cases N-809, N-889 and N-643 provide the same crack growth laws and are more frequently updated

Section XI New Condition

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- *Section 50.55a(b)(2)(xlv) Section XI condition: Pressure testing of containment penetration piping after repair/replacement activities.*
  - Requires a VT-2 examination of the affected area be performed when applying provisions of IWA-4540(a) and (e)
  - Incorporation of Code Case N-751 into the 2021 Edition did not fully address the NRC condition
- *Section 50.55a(b)(2)(xlvi) Section XI Condition: Contracted repair/replacement organization fabricating items offsite of the Owner's facilities:*
  - Proposes to prohibit a contracted Repair/Replacement Organization from fabricating an item off-site of the Owner's facility without an ASME Certificate of Authorization and without applying an ASME Certification Mark when applying IWA-4143

Section XI New Condition

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- *Section 50.55a(b)(2)(xlvii) Section XI condition: Weld Overlay Design Crack Growth Analysis:*
  - Proposes to require stress corrosion crack growth analysis of the weld overlay material in Nonmandatory Appendix Q
- *Section 50.55a(b)(2)(xlviii) Section XI Condition: Analytical Evaluations of Degradation*
  - Proposes to require analytical evaluations performed in accordance with IWB-3132.3 and IWC-3132.3 be submitted to the NRC for review
  - Consistent with the 2019 Edition requirements in IWB-3134 and IWC-3125

Section XI New Condition

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- *Section 50.55a(b)(2)(xlix) Section XI condition: Analytical evaluations of flaws in cladding*
  - Proposes to prohibit the use of IWB-3600(b)(1) for the inlay and onlay subjected to (g)(6)(ii)(F) augmented inspection requirements
- *Section 50.55a(b)(2)(xv) Section XI condition: Appendix VIII specimen set and qualification requirements:*
  - This condition is no longer applicable to any licensee.

Augmented ISI Requirements

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- *Section 50.55a(g)(6)(ii)(D)(9) Augmented ISI requirements: Reactor vessel head inspections*
  - Proposes to allow licensees the option to utilize Supplement 15 of Mandatory Appendix VIII for volumetric qualifications required by Table 1 of ASME Code Case N-729-6.

Augmented ISI Requirements

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- *Section 50.55a(g)(6)(ii)(F) Augmented ISI requirements: Examination requirements for Class 1 piping and nozzle dissimilar-metal butt welds*
  - Proposes to update the requirements for augmented inspections of dissimilar-metal butt welds from Code Case N-770-5 to N-770-7 with an implementation date of one year after the effective date of the final rule.
  - Updating the condition on N-770-5 in 50.55a(g)(6)(ii)(F)(8) to require examination of 100% of welds with an optimized weld overlay once each interval.

Note: The OFR mistakenly published that this requirement was in effect on September 7, 2023. A correction notice was published (88 FR 59471, August 29, 2023) by the OFR to correct the dates to say "[DATE 30 DAYS AFTER DATE OF PUBLICATION OF THE FINAL RULE IN THE **FEDERAL REGISTER**]."

ASME OM Code
Conditions under Consideration

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OM Code New Conditions

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- *Section 50.55a(b)(3)(vii) OM Condition: Snubber visual examination interval extension*
  - Proposes to clarify that when implementing ASME OM Code, Subsection ISTD, paragraph ISTD-4253, and Note 7 of Table ISTD-4252-1 in the 2022 Edition of the OM Code, licensees are prohibited from applying Code Case OMN-15, Revision 2 or Revision 3, to extend snubber test interval because Section 3.4 of Code Case OMN-15 specifies that OMN-15 shall not be used in conjunction with Code Case OMN-13, which has been incorporated into the 2022 Edition of the ASME OM Code, Subsection ISTD.

OM Code New Conditions

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- *Section 50.55a(b)(3)(x) OM Condition: Class 1 pressure relief valve sample expansion*
  - Proposes to clarify that for each Class 1 Pressure Relief Valve tested per ASME OM Code, Mandatory Appendix I, paragraph I-1320*(c)(1)*, for which the as-found set-pressure exceeds the plus/minus tolerance limit of the Owner-established design set-pressure acceptance criteria of paragraph I-1310*(e)* or +/- 3% of the nameplate set-pressure if the Owner has not established design set-pressure acceptance criteria, two additional valves shall be tested from the same valve group.

OM Code Conditions Proposed to be Removed

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- *Section 50.55a(b)(3)(ii) OM Condition: Motor-Operated Valve (MOV) testing*
  - Proposes to remove conditions (A), (B) and (C) when implementing the 2022 Edition of the ASME OM Code because these conditions have been incorporated into the 2022 Edition
  - Condition (D) was not incorporated into the 2022 Edition and continues to apply to all editions

OM Code Conditions Proposed to be Removed

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- *Section 50.55a(b)(3)(iii)(B) New Reactors OM Condition: Check valves*
  - Proposes to remove condition (B) that requires bi-directional testing of check valves within the IST program for new reactors
  - New reactors are applying recent editions of the ASME OM Code that require bi-directional testing without the need for condition (B) in 10 CFR 50.55a

OM Code Conditions Proposed to be Removed

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- *Section 50.55a(b)(3)(iii)(C) New Reactors OM Condition: Flow-induced vibration*
  - Proposes to remove condition (C) for new reactors that requires licensees to monitor flow-induced vibration from hydrodynamic loads and acoustic resonance during preservice and inservice testing to identify potential adverse flow effects on components within the scope of the IST program
  - NRC considers flow-induced vibration from hydrodynamic loads and acoustic resonance to be adequately addressed by other regulatory requirements during licensing and the initial testing program at each new reactor power plant without the need for condition (C) in 10 CFR 50.55a

Specific Requests for Comment

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Office of Nuclear Material Safety and Safeguards

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Specific Requests for Comment

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- The NRC is proposing to add 50.55a(b)(2)(xlviii) to require analytical evaluations performed in accordance with IWB-3132.3 and IWC-3132.3 be submitted to the NRC. The NRC is seeking advice/recommendations from the public on the proposed condition and other related reporting requirements to determine their perceived value.
  - (1) What alternative means are there for the NRC to accomplish the goal of monitoring degradation trends such that the NRC could remove the condition?
  - (2) How can the NRC effectively leverage the information provided in flaw evaluations and associated component degradation in a way that is transparent to stakeholders and ensures structural integrity of nuclear components without incurring excessive administrative burden for plant owners?

Questions & Answers

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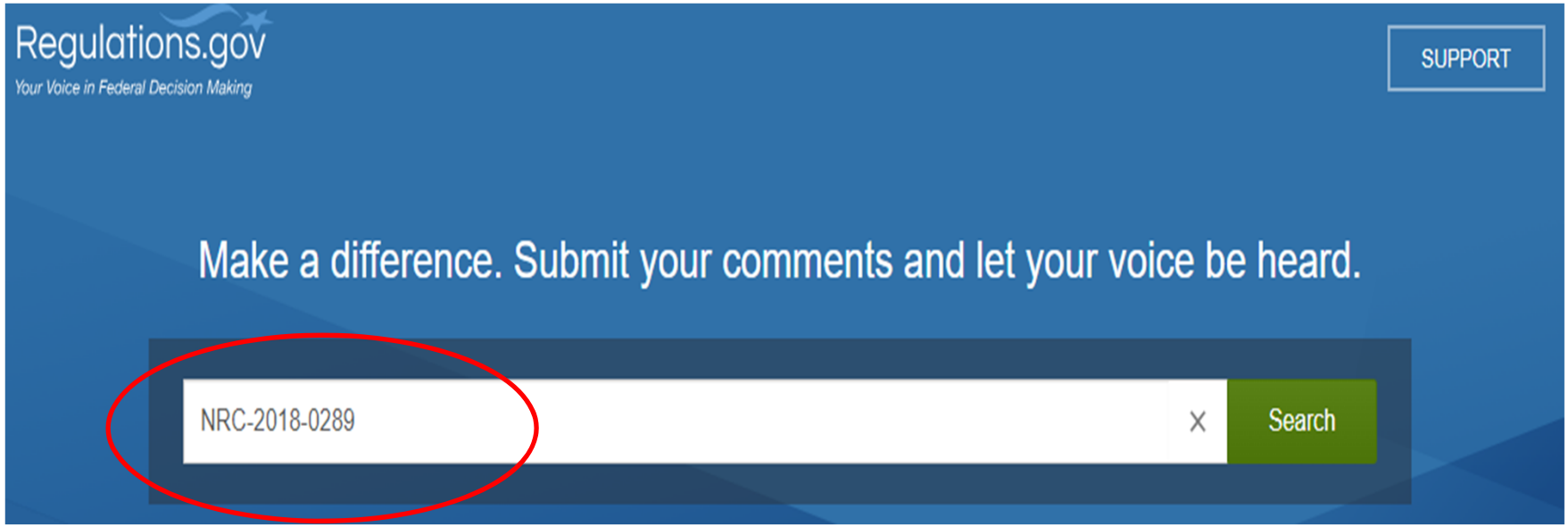
How to get involved?



To find information about…	Search for docket ID…
ASME 2021-2022 rulemaking	NRC-2018-0289

Questions & Comments

U.S.NRC
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ASME 2021-2022 Rulemaking

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Proposed Rule published August 8, 2023 (88 FR 53384)

Public Comment Period Ends October 23, 2023

Docket ID: NRC-2018-0289 (www.regulations.gov)

Acronyms

U.S.NRC
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ADAMS	Agencywide Documents Access and Management System
ASME	American Society of Mechanical Engineers
BPV	Boiler and Pressure Vessel
CFR	*Code of Federal Regulations*
FR	*Federal Register*
IBR	Incorporation by Reference
ISI	Inservice Inspection
IST	Inservice Testing
NDE	Non-destructive Evaluation
NRC	Nuclear Regulatory Commission
OM	Operation and Maintenance
RIN	Regulation Identifier Number

Backup Slides

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Section 50.55a(b)(1)(xi): Section III, Condition: Mandatory Appendix XXVI Provisions

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First Provision. When performing fusing procedure qualification testing in accordance with XXVI-2300 and XXVI-4330 the following essential variables must be used for the performance qualification tests of butt fusion joints:

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

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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.

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.