

NUCLEAR REGULATORY COMMISSION

10 CFR Part 50

RIN 3150-AI53

[NRC-2008-0663]

Industry Codes and Standards; Amended Requirements

**AGENCY:** Nuclear Regulatory Commission (NRC).

**ACTION:** Direct final rule.

**SUMMARY:** The NRC is amending its regulations governing vessel head inspection requirements. This amendment revises the upper range of the percentage of axial flaws permitted in a specimen set used for the qualification of nondestructive examination systems (procedures, personnel and equipment), which are used in the performance of inservice inspection (ISI) of pressurized water reactor (PWR) upper vessel head penetrations. This amendment is being made as a result of the withdrawal of a stakeholder's recommendation necessitated by a typographical error in the original recommendation with respect to the maximum percentage of flaws that should be oriented axially.

**EFFECTIVE DATE:** The final rule will become effective [INSERT DATE 75 DAYS AFTER PUBLICATION IN THE FEDERAL REGISTER], unless significant adverse comments are received by [INSERT DATE 30 DAYS AFTER PUBLICATION IN THE FEDERAL REGISTER].

A significant adverse comment is a comment where the commenter explains why the rule would be inappropriate, including challenges to the rule's underlying premise or approach, or would be ineffective or unacceptable without a change (refer to "Direct Final Rulemaking Process" in the Section III of this document for further details). If the rule is withdrawn, timely notice will be published in the *Federal Register*. Submit comments by [INSERT DATE 30 DAYS AFTER

PUBLICATION IN THE FEDERAL REGISTER]. Comments received after this date will be considered if it is practical to do so, but the NRC is able to ensure only that comments received on or before this date will be considered.

**ADDRESSES:** You can access publicly available documents related to this document by using the following methods.

**Federal e Rulemaking Website:** Go to <http://www.regulations.gov> and search for documents filed under Docket ID NRC-2008-0663. Address questions about NRC dockets to Carol Gallagher 301 492-3668; e-mail [Carol.Gallagher@nrc.gov](mailto:Carol.Gallagher@nrc.gov).

**NRC's Public Document (PDR):** The public may examine and have copied for a fee publicly available documents at the NRC's PDR, Public File Area O1 F21, One White Flint North, 11555 Rockville Pike, Rockville, Maryland 20852.

**NRC's Agency wide Documents Access and Management System (ADAMS):** Publicly available documents created or received at the NRC are available electronically at the NRC's Electronic Reading Room at <http://www.nrc.gov/reading-rm/adams.html>. From this site, the public can gain entry into ADAMS, which provides text and image files of NRC's public documents. If you do not have access to ADAMS or if there are problems in accessing the documents in ADAMS, contact the PDR Reference staff at 1-800-397-4209, 301-415-4737 or by e-mail to [pdr.resource@nrc.gov](mailto:pdr.resource@nrc.gov).

**FOR FURTHER INFORMATION CONTACT:** Manash K. Bagchi, Project Manager, Office of Nuclear Reactor Regulation, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, telephone 301 415-2905, e-mail [manash.bagchi@nrc.gov](mailto:manash.bagchi@nrc.gov).

**SUPPLEMENTARY INFORMATION:**

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### **I. Background**

The NRC published a proposed rule on April 5, 2007 (72 FR 16731), to incorporate by reference the 2004 Edition of Section III, Division 1, of the American Society of Mechanical Engineers (ASME) Boiler Pressure Vessel (BPV) Code, and the 2004 Edition of the ASME Operation and Maintenance (OM) Code to provide updated rules for constructing and inspecting components and testing of pumps, valves, and dynamic snubbers in light water nuclear power plants. The proposed rule, among other things, also incorporated by reference augmented examination requirements of PWR reactor vessel head penetration nozzles of ASME Code Case N-729-1, "Alternative Examinations Requirements for PWR Vessel Upper Heads with Nozzles Having Pressure Retaining Partial Penetration Welds, Section XI, Division I" as conditioned by the NRC. As part of these conditions, the NRC imposed a qualification program for volumetric inspections to ensure examinations were effective in identifying axial and circumferential stress corrosion cracking in the penetration nozzles. The NRC qualification program included a requirement for the distribution of cracks within a qualification specimen set. Essentially a qualification specimen set is a group of nozzle mockup flaws which are used as

part of a test to qualify inspectors, procedures and equipment. The NRC qualification program, as stated in the proposed rule, required, “at least 30 percent, but no more than 60 percent of the flaws must be oriented axially,” with the remaining flaws oriented circumferentially by default.

During the public comment period of the proposed rule, Mr. Jack Spanner of the Electric Power Research Institute (EPRI), program manager of the industry generic qualification program for volumetric inspection of vessel head penetration nozzles, submitted a comment dated June 19, 2007 (ML071710637). Mr. Spanner requested that the proposed rule’s flaw distribution percentages be changed to be at least 20 percent, but no more than 40 percent of the flaws to be oriented axially. Mr. Spanner’s basis for this change, as well as other recommendations, was that the requirements of the proposed rule would require the construction of additional mockups.

The NRC reviewed the requested change to ensure that if implemented, the qualification process would remain effective. The NRC concluded that the specific required number of axial flaws in a specimen set may have some variation so long as a range was defined to ensure both axial and circumferential flaws in a specimen set, and a specific set value was not assigned that would limit the effectiveness of a blind qualification program. The NRC found that Mr. Spanner’s request met these criteria. Therefore, given the reduced burden by allowing the use of current or planned mockups, the NRC included the proposed change in the final rule (72 FR 52370; September 10, 2008.)

## **II. Discussion**

After the final rule was published, an email was submitted to the NRC on behalf of Mr. Spanner dated September 12, 2008 (ML091410089). Mr. Spanner informed the NRC that, after he submitted his original recommendation with respect to the maximum percentile range of axial flaws, he identified a typographical error. Mr. Spanner had only intended to recommend a change to the minimum axial flaw distribution percentage from 30 to 20 percent, and did not

intend to recommend a change in the maximum value of flaws from 60 to 40 percent.

Mr. Spanner also stated that use of the maximum value of 40 percent would require additional mockups to be created in order to meet the NRC volumetric inspection qualification program at EPRI. As a result, he requested the maximum percentage be returned to the proposed rule limit of 60 percent.

In reviewing Mr. Spanner's latest proposal, the NRC continues to believe that the specific value for the number of axial flaws within a specimen set is open to variation, so long as a reasonable distribution is maintained. The newly proposed distribution range of 20 percent to 60 percent of axial flaws allowed 80 percent to 40 percent of the total specimen set flaws to be circumferentially orientated. The NRC finds that the newly proposed range maintains a reasonable distribution of circumferential and axial flaws, and does not limit the effectiveness of a blind qualification test by being too prescriptive. Therefore, the NRC concludes that the distribution range, modified as recommended by Mr. Spanner, continues to meet the NRC defined criteria for an effective qualification specimen set. Given this conclusion and the representation by Mr. Spanner that using the current rule's maximum axial flaw distribution range of 40 percent would require the creation of additional mockups, the NRC determined that the maximum distribution of allowable axial flaws in the specimen set should be changed from 40 percent to 60 percent. The NRC believes, in light of the September 1, 2009, deadline for implementation of the qualification requirement for volumetric inspection of vessel head penetration nozzles, that the time and resources necessary to design and prepare additional mockups compliant with the current rule, and to complete qualification of personnel, procedures, and equipment represents a significant burden on the licensee with no significant safety benefit. The NRC concludes that the maximum qualification specimen set axial flaw distribution should be changed from 40 to 60 percent.

### III. Direct Final Rulemaking Process

The NRC is using the “direct final rule procedure” to issue this action because this action is minor, and is not expected to be controversial. The NRC does not expect any adverse comments for two reasons. First, as discussed in the discussion of the reasons for this rulemaking, the change in the maximum axial flaws which must be included in the qualification sample has no adverse impact on safety. The NRC has no reason to believe that any external stakeholder disagrees with the NRC’s determination in this regard, and consequently does not expect any stakeholder to submit adverse comments on this change. In addition, the NRC’s action to change the current requirement on axial flaw distribution was initiated in response to a comment from a representative of the industry group responsible for the development of the welding qualification program for the industry. This increases the NRC’s confidence that the proposed change is not controversial and will not result in significant adverse comments. Second, the rule change represents a burden reduction for licensees. Thus, the NRC does not expect any adverse comment from these stakeholders with respect to the rule change enabling the burden reduction. Accordingly, the NRC finds that there is good cause under the Administrative Procedure Act, 5 U.S.C. 553(b)(3)(B) for avoiding notice and opportunity for public comment on the direct final rule. The amendment to the rule will become effective on [INSERT DATE 75 DAYS AFTER PUBLICATION IN THE FEDERAL REGISTER]. However, if the NRC receives significant adverse comments by [INSERT DATE 30 DAYS AFTER PUBLICATION IN THE *FEDERAL REGISTER*], then the NRC will publish a document that withdraws this action. In that event, the comments received in response to this amendment would then be considered as comments on the companion proposed rule published elsewhere in this *Federal Register*, and the comments will be addressed in a later final rule based on that proposed rule. Unless the modifications to the proposed rule are significant enough to require that it be republished as a proposed rule, the NRC will not initiate a second comment period on

this action. A significant adverse comment is a comment where the commenter explains why the rule would be inappropriate, including challenges to the rule's underlying premise or approach, or would be ineffective or unacceptable without a change. A comment is adverse and significant if:

(1) The comment opposes the rule and provides a reason sufficient to require a substantive response in a notice-and-comment process. For example, a substantive response is required when:

(a) The comment causes the NRC to reevaluate (or reconsider) its position or conduct additional analysis;

(b) The comment raises an issue serious enough to warrant a substantive response to clarify or complete the record; or

(c) The comment raises a relevant issue that was not previously addressed or considered by the NRC.

(2) The comment proposes a change or an addition to the rule, and it is apparent that the rule would be ineffective or unacceptable without incorporation of the change or addition.

(3) The comment causes the NRC to make a change (other than editorial) to the rule.

#### **IV. Voluntary Consensus Standards**

The National Technology Transfer and Advancement Act of 1995 (Pub. L. 104-113) requires that Federal agencies use technical standards that are developed or adopted by voluntary consensus standards bodies unless the use of such a standard is inconsistent with applicable law or otherwise impractical. Public Law 104-113 requires Federal agencies to use industry consensus standards to the extent practical; it does not require Federal agencies to incorporate by reference a standard into the regulations in its entirety. The law does not prohibit an agency from generally adopting a consensus standard while taking exception to specific

portions of the standard if those provisions are deemed to be “inconsistent with applicable law or other wise impractical.” Furthermore, taking specific exceptions furthers the Congressional intent of Federal reliance on voluntary consensus standards because it allows the adoption of substantial portions of consensus standards without the need to reject the standards in their entirety because of limited provisions which are not acceptable to the agency.

The NRC is amending its regulations to revise the reactor vessel head inspections specimen set specifications necessitated by the withdrawal of a stakeholder’s recommendation, incorporated in the 2008 final rule (73 FR 52730), which contained a typographical error. This latest amendment is consistent with specimen set distribution under Appendix VIII of Section XI of the ASME Code, a national consensus standard. The 2008 final rule incorporated by reference the latest edition of Section III and XI of the ASME BPV Code and ASME OM Code, for construction, ISI, and in-service testing of nuclear power plant components. ASME BPV and OM Codes are national consensus standards developed by participants with broad and varied interests, in which all interested parties (including the NRC and licensees of nuclear power plants) participate. If the NRC did not conditionally accept ASME Code Editions and Addenda, it would disapprove these items entirely. The effect would be that licensees would need to submit large number of requests for the NRC’s approval of alternatives under 10 CFR 50.55a(a)(3). This would constitute an unnecessary additional burden for both the licensees and the NRC. Similarly, not adopting the modification in this final rule may result in a large number of relief requests without any compensating safety benefits. For these reasons, the NRC concludes that the treatment of ASME Code Editions and Addenda, and conditions placed in this final rule does not conflict with any policy on agency use of consensus standards specified in Office of Management and Budget Circular A–119.

## **V. Plain Language**

The Presidential Memorandum dated June 1, 1998, entitled “Plain Language in Government Writing,” directed that the Government’s writing be in plain language. The NRC requests comments on this direct final rule specifically with respect to the clarity and effectiveness of the language used. Comments should be sent to the address listed under the heading “ADDRESSES” of this document.

## **VI. Finding of No Significant Environmental Impact: Environmental Assessment**

The Commission has determined that this direct final rule is the type of action described as a categorical exclusion in § 51.22(c)(2), which states, “amendments to the regulations which are corrective or of a minor or nonpolicy nature and do not substantially modify existing regulations, and actions on petition for rulemaking relating.” This amendment revises the upper range of the percentage of axially orientated flaws permitted in a specimen set used in the qualification of nondestructive examination systems for performance of reactor vessel head penetration inspections, and is corrective in nature and does not modify the intent of the existing regulation. Therefore, neither an environmental impact statement nor an environmental assessment has been prepared for this direct final rule.

## **VII. Paperwork Reduction Act Statement**

This direct final rule does not contain a new or amended information collection requirement subject to the Paperwork Reduction Act of 1995 (44 U.S.C. 3501 et seq.). Existing requirements were approved by the Office of Management and Budget, Approval Number 3150-0011.

## **Public Protection Notification**

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

### **VIII. Regulatory Analysis**

A regulatory analysis has not been prepared for this direct final rule. This rule amends the NRC regulations to correct the upper range of the percentage of axially oriented flaws permitted in a specimen set used in the qualification of nondestructive examination systems, which are used in the performance of reactor vessel head inspections. This amendment does not impose any new burden or reporting requirements on the licensee or NRC for compliance. Also, this rule does not involve an exercise of Commission discretion and, therefore does not necessitate preparation of a regulatory analysis.

### **IX. Regulatory Flexibility Certification**

Under the Regulatory Flexibility Act of 1980 (5 U.S.C. 605(b)), the NRC certifies that this Amendment will not, if promulgated, have a significant economic impact on a substantial number of small entities. This direct final rule affects only the licensing and operation of nuclear power plants. The companies that own these plants do not fall within the scope of the definition of “small entities” set forth in the Regulatory Flexibility Act or the Small Business Size Standards set forth in regulations issued by the Small Business Administration at 13 CFR Part 121.

### **X. Backfit Analysis**

As described previously, the final rule imposed augmented examination requirements for PWR reactor vessel head penetrations by incorporation by reference of ASME Code Case N-729-1. In the final rule, the NRC concluded that the requirements of Code Case N-729-1, with the limitations and conditions denoted by the rule, represents an acceptable approach developed by a voluntary consensus standards organization for performing future RPV head and head penetration inspections. Accordingly, the NRC concluded that approval of Code Case N-729-1, with the limitation and conditions denoted by that rule, by incorporation by reference of that Code Case into § 50.55a, constitutes a redefinition of the requirements necessary to

provide reasonable assurance of adequate protection of public health and safety. As such, no backfit analysis was prepared for that portion of the final rule, under § 50.109(a)(4)(iii).

The NRC is using the direct final rule procedure to amend NRC regulations to revise the upper range of the percentage of axially oriented flaws permitted in a specimen set for the qualification of nondestructive examination systems used in the performance of reactor vessel head inspections as a result of withdrawal of a stakeholder's recommendations due to a typographical error. This amendment revises the upper range of the percentage of axial flaws permitted in a specimen set § 50.55a(g)(6)(D)(4)(ii) from 40 percent to 60 percent, the same as in the proposed rule on this subject (72 FR 16731). This requirement, i.e. an upper range of 60 percent, is similar to specimen set distribution under Appendix VIII of Section XI of the ASME Code. The NRC continues to find that the requirements of Code Case N-729-1, with the limitations and conditions denoted by this rule, represents an acceptable approach developed by a voluntary consensus standard organization. Therefore, a backfit analysis has not been prepared for this direct final rule, under § 50.109(a)(4)(iii).

#### **XI. Congressional Review Act**

Under the Congressional Review Act of 1996, the NRC has determined that this action is not a major rule and has verified this determination with the Office of Information and Regulatory Affairs, Office of Management and Budget.

#### **List of Subjects in 10 CFR Part 50**

Antitrust, Classified information, Criminal penalties, Fire protection, Intergovernmental relations, Nuclear power plants and reactors, Radiation protection, Reactor siting criteria, Reporting and recordkeeping requirements. For the reasons set forth in the preamble and under the authority of the Atomic Energy Act of 1954, as amended; the Energy Reorganization Act of 1974, as amended; and 5 U.S.C. 552 and 553; the NRC is adopting the following amendments to 10 CFR Part 50.

**PART 50 -- DOMESTIC LICENSING OF PRODUCTION AND UTILIZATION FACILITIES**

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

**AUTHORITY:** Secs. 102, 103, 104, 161, 182, 183, 186, 189, 68 Stat. 936, 937, 938, 948, 953, 954, 955, 956, as amended, sec. 234, 83 Stat. 444, as amended (42 U.S.C. 2132, 2133, 2134, 2135, 2201, 2232, 2233, 2236, 2239, 2282); secs. 201, as amended, 202, 206, 88 Stat. 1242, as amended, 1244, 1246 (42 U.S.C. 5841, 5842, 5846); sec. 1704, 112 Stat. 2750 (44 U.S.C. 3504 note); Sec.651(e), Pub. L. 109-58, 119 Stat. 806-810 (42 U.S.C. 2014, 2021, 2021b, 2111).

Section 50.7 also issued under Pub. L. 95-601, sec. 10, 92 Stat. 2951 as amended by Pub. L. 102-846, Sec.2902, 106 Stat.3123 (42 U.S.C. 5841). Section 50.10 also issued under secs. 101, 185, 68 Stat. 955, as amended (42 U.S.C. 2131, 2235); sec. 102, Pub. L. 91-190, 83 Stat. 853 (42 U.S.C. 4332). Sections 50.13, 50.54(d), and 50.103 also issued under sec. 108, 68 Stat. 939, as amended (42 U.S.C. 2138). Sections 50.23, 50.35, 50.55, and 50.56 also issued under sec. 185, 68 Stat. 955 (42 U.S.C. 2235). Sections 50.33a, 50.55a and Appendix Q also issued under sec. 102, Pub. L. 91-190, 83 Stat. 853 (42 U.S.C. 4332). Sections 50.34 and 50.54 also issued under sec. 204, 88 Stat. 1245 (42 U.S.C. 5844). Sections 50.58, 50.91, and 50.92 also issued under Pub. L. 97-415, 96 Stat. 2073 (42 U.S.C. 2239). Section 50.78 also issued under sec. 122, 68 Stat. 939 (42 U.S.C. 2152). Sections 50.80 - 50.81 also issued under sec. 184, 68 Stat. 954, as amended (42 U.S.C. 2234). Appendix F also issued under sec. 187, 68 Stat. 955 (42 U.S.C. 2237).

2. In § 50.55a, paragraph (g)(6)(ii)(D)(4)(ii) is revised to read as follows:

**§ 50.55a Codes and Standards**

\* \* \* \* \*

(g) \* \* \*

(6) \* \* \*

(ii) \* \* \*

(D) \* \* \*

(4) \* \* \*

(ii) The specimen set must have a minimum of ten (10) flaws which provide an acoustic response similar to PWSCC indications. All flaws must be greater than 10 percent of the nominal pipe wall thickness. A minimum of 20 percent of the total flaws must initiate from the inside surface and 20 percent from the outside surface. At least 20 percent of the flaws must be in the depth ranges of 10-30 percent through wall thickness and at least 20 percent within a depth range of 31-50 percent through wall thickness. At least 20 percent and no more than 60 percent of the flaws must be oriented axially.

\* \* \* \* \*

Dated at Rockville, Maryland, this 24<sup>th</sup> day of July 2009.

For the Nuclear Regulatory Commission,

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Bruce S. Mallett,  
Acting Executive Director for Operations.

(ii) \* \* \*

(D) \* \* \*

(4) \* \* \*

(ii) The specimen set must have a minimum of ten (10) flaws which provide an acoustic response similar to PWSCC indications. All flaws must be greater than 10 percent of the nominal pipe wall thickness. A minimum of 20 percent of the total flaws must initiate from the inside surface and 20 percent from the outside surface. At least 20 percent of the flaws must be in the depth ranges of 10-30 percent through wall thickness and at least 20 percent within a depth range of 31-50 percent through wall thickness. At least 20 percent and no more than 60 percent of the flaws must be oriented axially.

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Dated at Rockville, Maryland, this 24<sup>th</sup> day of July 2009.

For the Nuclear Regulatory Commission,

*/RA/*

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Bruce S. Mallett,  
Acting Executive Director for Operations

EDATS: NRR-2009-0015  
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