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REGULATORY GUIDE

OFFICE OF NUCLEAR REGULATORY RESEARCH

REGULATORY GUIDE 1.124

SERVICE LIMITS AND LOADING COMBINATIONS FOR CLASS 1 LINEAR-TYPE SUPPORTS

A. INTRODUCTION

Purpose

This regulatory guide delineates levels of service limits and appropriate combinations of loadings associated with normal operation, postulated accidents, and specified seismic events for the design of Class 1 linear-type component and piping supports, as defined in Subsection NF of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code (BPVC), Section III, "Rules for Construction of Nuclear Power Plant Components" (Ref. 1), that the staff of the U.S. Nuclear Regulatory Commission (NRC) considers acceptable. This guide applies to light-water-cooled reactors.

Applicable Rules and Regulations

General Design Criterion 2, "Design Bases for Protection against Natural Phenomena," of Appendix A, "General Design Criteria for Nuclear Power Plants," to Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50, "Domestic Licensing of Production and Utilization Facilities" (Ref. 2), requires that the design bases for structures, systems, and components important to safety reflect appropriate combinations of the effects of normal and accident conditions with the effects of natural phenomena such as earthquakes. The failure of members designed to support safety-related components and piping could jeopardize the ability of the supported component or piping to perform its safety function. This is also applicable under 10 CFR Part 52, "Licenses, Certifications, and Approvals for Nuclear Power Plants" (Reg. 3)

Purpose of Regulatory Guides

The NRC issues regulatory guides to describe methods to the public that the staff considers acceptable for use in implementing specific parts of the agency's regulations, to explain techniques that the staff uses in evaluating specific problems or postulated accidents, and to provide guidance to applicants. Regulatory guides are not substitutes for regulations and compliance with them is not

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Electronic copies of this regulatory guide, previous versions of this guide, and other recently issued guides are available through the NRC's public Web site under the Regulatory Guides document collection of the NRC Library at http://www.nrc.gov/reading-rm/doc-collections/. The regulatory guide is also available through the NRC's Agencywide Documents Access and Management System (ADAMS) at http://www.nrc.gov/reading-rm/adams.html, under ADAMS Accession No. ML13141A666.

required. Methods and solutions that differ from those set forth in regulatory guides will be deemed acceptable if they provide a basis for the findings required for the issuance or continuance of a permit or license by the Commission.

Paperwork Reduction Act

This regulatory guide contains information collections that are covered by the requirements of 10 CFR Part 50 and 10 CFR Part 52 that the Office of Management and Budget (OMB) approved under OMB control number 3150-0011 and 3150-0151, respectively. The NRC may neither conduct nor sponsor, and a person is not required to respond to, an information collection request or requirement unless the requesting document displays a currently valid OMB control number.

B. DISCUSSION

Reason for Revision

Revision 3 of RG 1.124 updates the NRC's approval of the ASME Boiler and Pressure Vessel Code (ASME B&PV Code), Section III, Division 1, 2007 Edition through the 2008 Addenda, as one acceptable means for delineating levels of service limits and appropriate combinations of loadings associated with normal operation, postulated accidents, and specified seismic events for the design of Class 1 linear-type component and piping supports. Revision 2 of RG 1.124 approved the 2001 Edition through the 2003 Addenda of the ASME B&PV Code. None of the changes from the 2001 Edition through the 2003 Addenda, to the 2007 Edition through the 2008 Addenda, were in the areas covered by RG 1.124. In addition, Revision 3 of RG 1.124 includes editorial changes to improve clarity and provide a new standardized format for regulatory guides.

Background

Load-bearing members classified as component and piping supports are essential to the safety of nuclear power plants because they hold components and piping in place during the loadings associated with normal and upset plant conditions under the stress of specified seismic events, thereby permitting system components and piping to function properly. Load-bearing members also prevent excessive movement of components and piping during the loadings associated with emergency and faulted plant conditions combined with the specified seismic event, thus helping to mitigate the consequences of system damage. Component and piping supports are deformation-sensitive because large deformations can significantly change the stress distribution in the support system and its supported components and piping.

To provide uniform requirements for construction, component and piping supports should, as a minimum, have the same ASME Code classification as that of the supported components and piping. This guide delineates levels of service limits and loading combinations, in addition to supplementary criteria, for ASME Class 1 linear-type component and piping supports, as defined by NF-1213 of Section III. This guide does not address snubbers.

Subsection NF of Section III permits the use of four methods for the design of Class 1 linear-type component and piping supports: (1) linear elastic analysis, (2) load rating, (3) experimental stress analysis, and (4) limit analysis. For each method, the ASME Code delineates allowable stress or loading limits for various code levels of service limits as defined by NF-3113 of Section III, so that these limits can be used in conjunction with the resultant loadings or stresses from the appropriate plant conditions. Because the ASME Code does not specify loading combinations, guidance is required to provide a consistent basis for the design of supports.

Component and piping supports considered in this guide are located within seismic Category I structures and, therefore, are assumed to be protected against loadings from natural phenomena or manmade hazards other than the specified seismic events. Thus, only the specified seismic events need to be considered in combination with the loadings associated with plant conditions to develop appropriate loading combinations. Loadings caused by any natural phenomena other than seismic events should be should be considered on a case-by-case basis.

1. Design by Linear Elastic Analysis

a. *S_y and S_u at Temperature*

Tables U and Y-1 in Subpart 1 of Part D of Section II and Tables 3, 4, and 5 in the latest accepted versions[1] of ASME Code Cases N-71, "Additional Materials for Subsection NF, Class 1,2,3, and MC Component supports Fabricated by Welding, Section III, Division 1," and N-249, "Additional Materials for Subsection NF, Class 1,2,3, and MC Component Supports Fabricated without Welding, Section III, Division 1," give the relevant material properties when the linear elastic analysis method is used to design Class 1 linear-type component and piping supports. These tables list values for the minimum yield strength S_y and the ultimate tensile strength S_u. At room temperature, S_y varies from 62 percent to 93 percent of S_u for support materials.

Levels of service limits that are derived from either material property alone might be insufficient to provide a consistent safety margin. Section III recognizes this issue in NF-3322.1(a), which defines the allowable stress in tension on a net section as the lesser of two values, $0.6S_y$ or $0.5S_u$.

Although NF-3322.1(a) specifies allowable tensile stress in terms of both S_y and S_u, the rest of NF-3320 notes other allowable service limits in terms of S_y only. This does not maintain a consistent design margin for those service limits related only to material properties. Modifications similar to NF-3322.1(a) should be employed for all those service limits.

b. *Allowable Increase of Service Limits*

Although NF-3321.1(a) and F-1334 of Section III of the ASME Code permit the increase of allowable stresses under various loading conditions, NF-3321.1(b) limits the increase to less than or equal to two-thirds of the critical buckling stress for compression and compression flange members. NF-3322.1(c) of Section III derives critical buckling stresses with normal design margins. Because buckling prevents "shakedown" in the load-bearing member, NF-3322.1(c) must be controlling. Also, buckling is the result of the interaction of the geometry of the load-bearing member and its material properties (i.e., elastic modulus E and minimum yield strength S_y). Because both of these material properties change with temperature, the critical buckling stresses should use the values of E and S_y of the support material at temperature.

Tensile and shear stress limits and their nonlinear interaction are used to derive allowable service limits for bolted connections, which also change with the size of the bolt. For this reason, the increases permitted by NF-3321.1(a) and F-1334 of Section III do not directly apply to allowable tensile stresses and allowable shear stresses for bolts and bolted connections. As specified in F-1335 of Section III, the allowable increase in tensile stress for bolts should not exceed the lesser value of 0.70 S_u or S_y, at

1 Regulatory Guide 1.84, "Design, Fabrication, and Materials Code Case Acceptability, ASME Section III," provides guidance for the acceptability of ASME Section III Code Cases and their revisions, including Code Cases N-71 and N-249. Code Cases identified as "Conditionally Acceptable Section III Code Cases" are acceptable, provided that they are used with the identified limitations or modifications.

temperature, and the allowable increase in shear stress for bolts should not exceed the lesser value of 0.42 S_u or 0.6 S_y, at temperature.

For the linear elastic analysis method, F-1334 permits an increase of tension limits for the level D service limits by a variable factor that is:

- the lesser of 2 or $1.167S_u/S_y$ if S_u is greater than $1.2S_y$, or
- 1.4 if S_u if less than $1.2S_y$.

Depending on whether the section considered is a net section at pinholes in eyebars, pin-connected plates, or built-up structural members, F_t may assume the lesser value of $0.45S_y$ or $0.375S_u$ (as recommended by this guide for a net section of pinholes, for example) or the lesser value of $0.6S_y$ or $0.5S_u$ (for a net section without pinholes, for example).

2. Design by Load Rating

NF-3380 of Section III specifies the qualification of linear-type component and piping supports to service level A, B, and C limits, using load-rating criteria. F-1334.8 specifies the qualification of linear-type supports to service level D limits using load rating criteria. This guide provides additional guidance for the determination of the service level D load rating.

3. Design by Experimental Stress Analysis

Although II-1430 in Appendix II to Section III defines the test collapse load for the experimental stress analysis method, the various levels of service limits for experimental stress analysis are not delineated. The method described in this guide remedies this deficiency.

4. Large Deformation

The design of component and piping supports is an integral part of the design of the system and its components and piping. A complete and consistent design is possible only when the interaction between the system, components and piping, and support is properly considered. When all three are evaluated on an elastic basis, the interaction is usually valid because individual deformations are small. However, if the design process uses plastic analysis methods, large deformations may occur that would result in substantially different stress distributions.

When component and piping supports are designed for loadings associated with the faulted plant conditions, Appendix F to Section III of the ASME Code permits the use of plastic analysis methods in certain acceptable combinations for all three elements. The selection of these acceptable combinations assumes that supports are more deformation-sensitive (i.e., their deformation, in general, will have a large effect on the stress distribution in the system and its components and piping). Because large deformations always affect the stress distribution, care should be exercised even when using the plastic analysis method in the methodology combination approved in Appendix F. This is especially important for identifying buckling or instability problems when the change of geometry should be considered to avoid erroneous results.

5. Function of Supported System

In selecting the level of service limits for different loading combinations, the decision must take into account the function of the supported system. To ensure that systems will operate properly regardless of plant condition if their normal function is to prevent or mitigate the consequences of events associated with an emergency or faulted plant condition (e.g., the function of the emergency core cooling system (ECCS) during faulted plant conditions, it is appropriate to use the level A or B service limits specified in Subsection NF of the ASME Code Section III (or other justifiable limits provided by the code).

Because NF-3320 derived all equations from American Institute of Steel Construction (AISC) rules and many AISC compression equations have built-in constants based on mechanical properties of steel at room temperature, it would be imprudent to use these equations indiscriminately for all NF sections and the latest accepted version of ASME Code Cases N-71 and N-249 involving materials at all temperatures. For materials other than steel and working temperatures substantially different from room temperature, these equations should be rederived with the appropriate material properties.

6. Deformation Limits

Because component and piping supports are deformation-sensitive load-bearing elements, satisfying the service limits of Section III will not automatically ensure their proper function. If specified by the code design specification, deformation limits might be the controlling criterion. However, if a particular plant condition does not require the function of a support, the stresses or loads resulting from the loading combinations under that plant condition do not need to satisfy the design limits for the plant condition.

7. Definitions

Critical buckling strength. The strength at which lateral displacements start to develop simultaneously with in-plane or axial deformation.

Design condition. The loading condition defined by NF-3112 of Section III of the ASME Boiler and Pressure Vessel Code.

Emergency plant conditions. Those operating conditions that have a low probability of occurrence.

Faulted plant conditions. Those operating conditions associated with postulated events of extremely low probability.

Levels of service limits. Four levels of service limits—A, B, C, and D—defined by Section III of the ASME Boiler and Pressure Vessel Code for the design of loadings associated with different plant conditions for components and piping and component and piping supports in nuclear power plants.

Operating-basis earthquake. Seismic event defined in Appendix A to 10 CFR Part 100, “Reactor Site Criteria.”

Normal plant conditions. Those operating conditions that occur in the course of system startup, operation, hot standby, refueling, and shutdown, with the exception of upset, emergency, or faulted plant conditions.

Plant conditions. Operating conditions of the plant categorized as normal, upset, emergency, and faulted plant conditions.

Safe-shutdown earthquake. Seismic event defined in Appendix A to 10 CFR Part 100.

Service limits. Stress limits for the design of component and piping supports, defined by Subsection NF of Section III of the ASME Boiler and Pressure Vessel Code.

Specified seismic events. Operating-basis earthquake and safe-shutdown earthquake, defined above.

System mechanical loadings. The static and dynamic loadings developed by the system operating parameters—including deadweight, pressure, and other external loadings—and effects resulting from constraints of free-end movements, but excluding effects resulting from thermal and peak stresses generated within the component or piping support.

Ultimate tensile strength. Material property based on the engineering stress-strain relationship.

Upset Plant Conditions. Those deviations from the normal plant condition that have a high probability of occurrence.

Harmonization with International Standards

ASME is the leading international developer of codes and standards associated with the art, science, and practice of mechanical engineering. Since the first issuance in 1914 of the Boiler & Pressure Vessel Code, ASME has maintained a commitment to enhance public safety and technological advancement. Pertinent to this regulatory guide, Subsection NF of the ASME Boiler and Pressure Vessel Code, Section III, "Rules for Construction of Nuclear Power Plant Components," contains requirements for the material, design, fabrication, and examination of supports which are intended to conform to the requirements for Classes 1,2,3 and MC construction. This regulatory guide incorporates similar design and preoperational testing guidelines and it is consistent with the basics safety principles provided in Subsection NF of Section III of the BPVC.

Documents Discussed in Staff Regulatory Guidance

This regulatory guide endorses the use of one or more codes or standards developed by external organizations, and other third party guidance documents. These codes, standards and third party guidance documents may contain references to other codes, standards or third party guidance documents ("secondary references"). If a secondary reference has itself been incorporated by reference into NRC regulations as a requirement, then licensees and applicants must comply with that standard as set forth in the regulation. If the secondary reference has been endorsed in a regulatory guide as an acceptable approach for meeting an NRC requirement, then the standard constitutes a method acceptable to the NRC staff for meeting that regulatory requirement as described in the specific regulatory guide. If the secondary reference has neither been incorporated by reference into NRC regulations nor endorsed in a regulatory guide, then the secondary reference is neither a legally binding requirement nor a "generic" NRC approval as an acceptable approach for meeting an NRC requirement. However, licensees and applicants may consider and use the information in the secondary reference, if appropriately justified and consistent with current regulatory practice, consistent with applicable NRC requirements such as 10 CFR 50.59, "Changes, Tests, and Experiments."

C. STAFF REGULATORY GUIDANCE

The construction of ASME Code[2] Class 1 linear-type component and piping supports excluding snubbers, which this guide does not address, should follow the rules of Subsection NF of Section III, as supplemented by the stipulations below.[3]

1. The classification of component and piping supports should, as a minimum, be the same as that of the supported components and piping.

2. The ASME Code level A and B service limits for component and piping supports designed by linear elastic analysis, which are related to S_y, should meet the appropriate stress limits of Subsection NF of Section III but should not exceed the limit specified when the value of 5/6 S_u is substituted for S_y. Examples are shown below in Regulatory Positions 2a, 2b, and 2c:

    a. The tensile stress limit F_t for a net section, as specified in NF-3322.1(a)(1) of Section III, should be the lesser of two values, $0.6S_y$ or $0.5S_u$, at temperature. For net sections at pinholes in eyebars, pin-connected plates, or built-up structural members, F_t as specified in NF-3322.1(a)(2) should be the lesser of two values, $0.45S_y$ or $0.375S_u$, at temperature.

    b. The shear stress limit F_v for a gross section as specified in NF-3322.1(b)(1) of Section III, should be the lesser of two values, $0.4S_y$ or $0.33S_u$, at temperature.

    c. The bending stress limit F_b resulting from tension and bending in structural members as specified in NF-3320, should be (1) the lesser value of 0.66 S_y or 0.55 S_u, at temperature, for compact sections, (2) the lesser value of $0.75S_y$ or 0.63 S_u, at temperature, for doubly symmetrical members with bending about the minor axis, and (3) the lesser value of 0.6 S_y or 0.5 S_u, at temperature, for box-type flexural members and miscellaneous members.

    Many of the limits and equations for compression strength specified in NF-3320 have built-in constants based on Young's Modulus of 29,000 Ksi. For materials with Young's Modulus at working temperatures substantially different from 29,000 Ksi, these constants should be re-derived with the appropriate Young's Modulus unless the conservatism of using these constants as specified is demonstrated.

3. Component and piping supports designed by linear elastic analysis may increase their level A or B service limits according to the provisions of NF-3321.1(a) of Section III of the ASME Code. F-1334 permits an increase of level A or B service limits for level D service limits by the lesser factor of 2 or $1.167S_u/S_y$ if $S_u > 1.2S_y$, or 1.4 if $S_u \leq 1.2S_y$, where S_y and S_u are support material properties at temperature.

    However, all increases (i.e., those allowed by NF-3321.1(a) and F-1334) should always be subject to the limits in NF-3321.1(b). Material properties at temperature should be used to calculate the critical buckling strengths defined by NF-3321.1(b). As specified in F-1335, the allowable increase in tensile stress for bolts should not exceed the lesser value of 0.70 S u or S_y, at temperature, and the allowable increase in shear stress for bolts should not exceed the lesser value of 0.42 S u or 0.6 S_y, at temperature.

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[2] ASME Boiler and Pressure Vessel Code, Section III, Division I, 2007 Edition through the 2008 Addenda.

[3] If the function of a component or piping support is not required during a plant condition, satisfaction of the design limits of the support for that plant condition is not needed, provided excessive deflection or failure of the support will not result in the loss of function of any other safety-related system.

If the increased service limit for stress range by NF-3321.1(a) is more than $2S_y$ or S_u, its limit should be the lesser of two values, $2S_y$ or S_u, unless a shakedown analysis justifies it.

4. The limits in Regulatory Positions 4a through 4d should apply to the design of component and piping supports subjected to the combined loadings of system mechanical loadings[4] associated with (1) either the ASME Code design condition or the normal or upset plant conditions and (2) the vibratory motion of the operating-basis earthquake.[5,6]

    a. Supports designed by the linear elastic analysis method should not exceed the stress limits of NF-3320 of Section III and Regulatory Position 2 of this guide.

    b. Supports designed by using the load-rating method should not exceed the service level A or service level B load rating of NF-3382 of Section III.

    c. The lower bound test collapse load determined by NF-3340 and adjusted according to the provision of NF-3341.1(a) of Section III should not be less than that required to support a factored load equal to 1.7 times those of the service level A and B limits for supports designed by the limit analysis method.

    d. Supports designed by using the experimental stress analysis method should not exceed the test collapse load determined by II-1400 of Section III divided by 1.7.

5. The limits in Regulatory Positions 5a through 5d should apply to the design of component and piping supports subjected to the system mechanical loadings associated with the emergency plant condition, except when the normal function of the supported system is to prevent or mitigate the consequences of events associated with the emergency plant condition (Regulatory Position 7 then applies).[5,6]

    a. Supports designed by using the linear elastic analysis method should not exceed the stress limits of NF-3320 and Regulatory Positions 2 and 3, increased according to the provisions of NF-3321.1(a) of Section III and Regulatory Position 3.

    b. Supports designed by the load-rating method should not exceed the service level C load rating of NF-3382.2 of Section III.

    c. The lower bound test collapse load determined by NF-3340 adjusted according to the provision of NF-3341.1(a) of Section III should not be less than that required to support a factored load equal to 1.3 times that of the service level C limit for supports designed by the limit analysis method.

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4 System mechanical loadings include all non-self-limiting loadings and the effects resulting from constraints of free-end displacements, but not the effects resulting from thermal or peak stresses generated within the component or piping support.

5 Because component and piping supports are deformation-sensitive in the performance of their service requirements, satisfying these criteria does not ensure that their functional requirements will be fulfilled. Any deformation limits specified by the design specification may be controlling and should be satisfied.

6 Because the design of component and piping supports is an integral part of the design of the system and the component and piping, the designer should make sure that methods used for the analysis of the system, component and piping, and support are compatible. The designer of supports should consider large deformations in the system or components and piping.

d. Supports designed by using the experimental stress analysis method should not exceed the test collapse load determined by II-1400 of Section III divided by 1.3.

6. The limits in Regulatory Positions 6a through 6d should apply to the design of component and piping supports subjected to the combined loadings of (1) the system mechanical loadings associated with the normal plant condition, (2) the vibratory motion of the safe-shutdown earthquake, and (3) the dynamic system loadings associated with the faulted plant condition, except when the normal function of the supported system is to prevent or mitigate the consequences of events associated with the faulted plant condition (Regulatory Position 7 then applies).

   a. Supports designed by using the linear elastic analysis method should not exceed the stress limits of NF-3320 of Section III and Regulatory Position 2 of this guide, increased according to the provisions of F-1334 of Section III and Regulatory Position 3.

   b. Supports designed by using the load-rating method should not exceed the lesser value of $TL \times 2F_{all}/S_u{}^*$ or $TL \times 0.7\ S_u/S_u{}^*$, where TL, S_u, and $S_u{}^*$ are defined in F-1332.7 of Section III and F_{all} is the allowable stress value defined in NF-3382.1.

   c. Supports designed by the limit analysis method should not exceed the lower bound test collapse load determined by NF-3340, adjusted according to the provision of F-1334.6(a).

   d. Supports designed by using the experimental stress analysis method should not exceed the test collapse load determined by II-1400, adjusted according to the provision of F-1334.6(c).

7. The limits in Regulatory Position 4 or other justifiable limits provided by the ASME Code should apply to the design of component and piping supports in systems whose normal function is to prevent or mitigate the consequences of events associated with an emergency or faulted plant condition. The design specification should define these limits, which are typically stated in the preliminary and final safety analysis reports (PSAR, FSAR), so that the function of the supported system will be maintained when it is subjected to the loading combinations described in Regulatory Positions 5 and 6.

D. IMPLEMENTATION

The purpose of this section is to provide information on how applicants and licensees[7] may use this guide and information regarding the NRC's plans for using this regulatory guide. In addition, it describes how the NRC staff complies with 10 CFR 50.109, "Backfitting" and any applicable finality provisions in 10 CFR Part 52, "Licenses, Certifications, and Approvals for Nuclear Power Plants."

Use by Applicants and Licensees

Applicants and licensees may voluntarily [8]use the guidance in this document to demonstrate compliance with the underlying NRC regulations. Methods or solutions that differ from those described

7 In this section, "licensees" refers to licensees of nuclear power plants under 10 CFR Parts 50 and 52; and the term "applicants," refers to applicants for licenses and permits for (or relating to) nuclear power plants under 10 CFR Parts 50 and 52, and applicants for standard design approvals and standard design certifications under 10 CFR Part 52.

8 In this section, "voluntary" and "voluntarily" mean that the licensee is seeking the action of its own accord, without the force of a legally binding requirement or an NRC representation of further licensing or enforcement action.

in this regulatory guide may be deemed acceptable if they provide sufficient basis and information for the NRC staff to verify that the proposed alternative demonstrates compliance with the appropriate NRC regulations. Current licensees may continue to use guidance the NRC found acceptable for complying with the identified regulations as long as their current licensing basis remains unchanged.

Licensees may use the information in this regulatory guide for actions which do not require NRC review and approval such as changes to a facility design under 10 CFR 50.59, "Changes, Tests, and Experiments." Licensees may use the information in this regulatory guide or applicable parts to resolve regulatory or inspection issues.

Use by NRC Staff

The NRC staff does not intend or approve any imposition or backfitting of the guidance in this regulatory guide. The NRC staff does not expect any existing licensee to use or commit to using the guidance in this regulatory guide, unless the licensee makes a change to its licensing basis. The NRC staff does not expect or plan to request licensees to voluntarily adopt this regulatory guide to resolve a generic regulatory issue. The NRC staff does not expect or plan to initiate NRC regulatory action that would require the use of this regulatory guide. Examples of such unplanned NRC regulatory actions include issuance of an order requiring the use of the regulatory guide, requests for information under 10 CFR 50.54(f) as to whether a licensee intends to commit to use of this regulatory guide, generic communication, or promulgation of a rule requiring the use of this regulatory guide without further backfit consideration.

During regulatory discussions on plant specific operational issues, the staff may discuss with licensees various actions consistent with staff positions in this regulatory guide, as one acceptable means of meeting the underlying NRC regulatory requirement. Such discussions would not ordinarily be considered backfitting even if prior versions of this regulatory guide are part of the licensing basis of the facility. However, unless this regulatory guide is part of the licensing basis for a facility, the staff may not represent to the licensee that the licensee's failure to comply with the positions in this regulatory guide constitutes a violation.

If an existing licensee voluntarily seeks a license amendment or change and (1) the NRC staff's consideration of the request involves a regulatory issue directly relevant to this new or revised regulatory guide and (2) the specific subject matter of this regulatory guide is an essential consideration in the staff's determination of the acceptability of the licensee's request, then the staff may request that the licensee either follow the guidance in this regulatory guide or provide an equivalent alternative process that demonstrates compliance with the underlying NRC regulatory requirements. This is not considered backfitting as defined in 10 CFR 50.109(a)(1) or a violation of any of the issue finality provisions in 10 CFR Part 52.

Additionally, an existing applicant may be required to comply to new rules, orders, or guidance if 10 CFR 50.109(a)(3) applies.

If a licensee believes that the NRC is either using this regulatory guide or requesting or requiring the licensee to implement the methods or processes in this regulatory guide in a manner inconsistent with the discussion in this Implementation section, then the licensee may file a backfit appeal with the NRC in accordance with the guidance in NUREG-1409, "Backfitting Guidelines," (Ref. 4) and the NRC Management Directive 8.4, "Management of Facility-Specific Backfitting and Information Collection" (Ref. 5).

REFERENCES[9]

1. American Society of Mechanical Engineers (ASME), Section III, "Rules for Construction of Nuclear Power Plant Components," ASME Boiler and Pressure Vessel Code, American Society of Mechanical Engineers, New York, NY.[10]

2. U.S. Code of Federal Regulations (CFR), *Title 10, Energy,* Part 50, "Domestic Licensing of Production and Utilization Facilities."

3. U.S. Code of Federal Regulations (CFR), *Title 10, Energy,* Part 52, "Licenses, Certifications, and Approvals for Nuclear Power Plants."

4. U.S. Nuclear Regulatory Commission (NRC), NUREG-1409, "Backfitting Guidelines," NRC, Washington, DC.

5. NRC, Management Directive 8.4, "Management of Facility-specific Backfitting and Information Collection," NRC, Washington, DC.

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[9] Publicly available NRC published documents are available electronically through the NRC Library on the NRC's public Web site at: http://www.nrc.gov/reading-rm/doc-collections/. The documents can also be viewed on-line or printed for a fee in the NRC's Public Document Room (PDR) at 11555 Rockville Pike, Rockville, MD; the mailing address is USNRC PDR, Washington, DC 20555; telephone 301-415-4737 or (800) 397-4209; fax (301) 415-3548; and e-mail pdr.resource@nrc.gov.

[10] Copies of American Society of Mechanical Engineers (ASME) standards may be purchased from ASME, Two Park Avenue, New York, New York 10016-5990; Telephone (800) 843-2763. Purchase information is available through the ASME Web site store at http://www.asme.org/Codes/Publications/.