Mendiola, Doris

From: Shutt, Mark [Mark.Shutt@duke-energy.com]
Sent: Tuesday, November 01, 2011 2:08 PM
To: Bedi, Gurjendra
Subject: NUREG Comments
Attachments: NUREG-1482 App B comments SNUG.pdf; NUREG-1482 App B comments SNUG.docx

Attached are comments on the NUREG-1482 App. B draft. There may end up being more comments eventually, but I wanted to make sure to get these to you before I lost focus and forgot. The two documents are the same, just one is a pdf and the other is a WORD document. If viewing the WORD doc be sure to set "Track Changes" as on and view the "original with mark-ups". In the PDF version all changes should show in **red**.

Mark

Onward and Upward!

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Add = G. Bedi (gsb2)
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1.1 Regulatory Basis

Title 10, Section 50.55a, of the Code of Federal Regulations (10 CFR 50.55a) defines the requirements for applying industry codes and standards to boiling- or pressurized-water-cooled nuclear power facilities. Each of these facilities is subject to the conditions in paragraphs (a), (f), and (g) of 10 CFR 50.55a, as they relate to inservice inspection (ISI) and inservice testing (IST). By rulemaking effective September 8, 1992 (see Federal Register, Vol. 57, No. 3152, p. 34666, dated August 6, 1992), the U.S. Nuclear Regulatory Commission (NRC) established paragraph (f) of 10 CFR 50.55a to separate the IST requirements from the ISI requirements in paragraph (g).

The NRC regulations in 10 CFR 50.55a(b)(2) incorporate by reference the 1970 Edition through the 2007 Edition with 2008 addenda of the American Society of Mechanical Engineers (ASME) *Boiler and Pressure Vessel* Code (B&PV), Section XI, in which Article IWF-5000 specify the requirements of inservice examination and testing of snubbers. The NRC regulations in 10 CFR 50.55a(b)(3) incorporate by reference the 1998 Edition through the 2004 Edition with 2005 and 2006 addendas of the *Code for Operation and Maintenance of Nuclear Power Plants* (OM Code) promulgated by the ASME, in which Subsection ISTA provides general IST and examination requirements and Subsections ISTB, ISTC, and ISTD specify the IST requirements for pumps, valves, and dynamic restraints, respectively. Based on those requirements, each of the NRC's nuclear power plant licensees must establish IST programs, specify the components included in the program as well as the test methods and frequencies for those components, and implement the program in accordance with the OM Code.

The regulations in 10 CFR 50.55a(g)(6)(i) specify that if an inservice examination and test requirement of the ASME B&PV Code is determined to be impractical for a facility, the NRC's regulations allow the licensee to submit a request for relief from the given requirement, along with information to support the determination. Relief requests generally detail the reasons for deviating from the Code requirements and propose alternative testing methods or frequencies. The Commission is authorized to evaluate licensees' relief requests, and may grant the requested relief or impose alternative requirements, considering the burden that the licensee might incur if the Code requirements were enforced for the given facility. Pursuant to 10 CFR 50.55a(a)(3)(i) and (ii), the Commission may also authorize the licensee to implement an alternative to the Code requirements, provided that the alternative ensures an acceptable level of quality and safety or the Code requirement presents a hardship without a compensating increase in the level of quality and safety.

The regulations in 10 CFR 50.55a(g)(4)(iv) specify that inservice examination and testing of snubbers may meet the requirements in editions and addenda of the ASME B&PV Section XI or OM Code that were published more recently than those that are incorporated by reference in 10 CFR 50.55a(b), subject to Commission approval and the limitations and modifications listed in 10 CFR 50.55a(b). Requests for approval to use later editions and addenda previously incorporated by reference in 10 CFR 50.55a may be made via letter to the NRC. For further clarification see NRC Regulatory Issue Summary (RIS) 2004-12, "Clarification on Use of Later Editions and Addenda to the ASME OM Code and Section XI."

10 CFR 50.55a(g) establishes the ISI requirements, including the effective edition and addenda of the American Society of Mechanical Engineer (ASME) Boiler and Pressure Vessel (B&PV)

Code that licensees must use when performing ISI of components (including supports). 10 CFR 50.55a(g)(4) states, "Throughout the service life of a boiling or pressurized water-cooled nuclear power facility, components (including supports) which are classified as ASME Code Class 1, Class 2, and Class 3 must meet the requirements, except design and access provisions and preservice examination requirements, set forth in Section XI of editions of the ASME B&PV Code and addenda." ASME B&PV Section XI provides the rules for ISI of nuclear power plant components.

10 CFR 50.55a(g)(4)(ii) requires the use of the Code latest edition and addenda that has been incorporated by reference 12 months prior to the beginning of each 120-month interval. This Code is considered to be the "Code of Record" for the inspection interval.

10 CFR 50.55a(g)(4)(iv) requires that ISI of components (including supports) may meet the requirements set forth in subsequent editions to the "Code of Record" and addenda that are incorporated by reference in 10 CFR 50.55a(b), subject to limitations and modifications listed in 10 CFR 50.55a(b) and subject to Commission approval.

The ISI of ASME Code Class 1, 2, and 3 components including snubbers shall be performed in accordance with Section XI, "Rules for Inservice Inspection of Nuclear Power Plant Components," of the ASME B&PV Code and applicable addenda as required by 10 CFR 50.55a(g), except where specific written relief has been granted by the NRC or the Commission, pursuant to 10 CFR 50.55a(g)(6)(i). Section 50.55a(a)(3) states that alternatives to the requirements of paragraph (g) may be used, when authorized by the NRC, if: (i) the proposed alternatives would provide an acceptable level of quality and safety, or (ii) compliance with the specified requirements would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety.

10 CFR 50.55a(b)(3)(v) allows the optional use of Subsection ISTD, "Preservice and Inservice Examination and Testing of Snubbers in Light-Water Reactor Nuclear Power Plants," of the ASME OM Code-1995 Edition through the latest edition and addenda incorporated by reference in 10 CFR 50.55a(b)(3) in lieu of ASME B&PV Section XI, Articles IWF-5200(a) and (b) and IWF-5300(a) and (b) by making appropriate changes to technical specification (TS) or licensee-controlled documents. The regulation at 10 CFR 50.55a(b)(3)(v) also states, "Preservice and inservice examination must be performed using the VT-3 visual examination method described in IWA-2213."

Comment: The restriction regarding the VT-3 method described in IWA-2213 was first invoked with the 2000 rulemaking, and remains through the current rulemaking. However, Section XI revised IWA-2213 in the 2003 addenda to the 2001 edition. It appears that the change was not accounted for in subsequent rulemakings. The paragraph originally invoked by rulemaking identified the scope of examinations that are required. The revised section retains this as paragraph 2213(a) but adds additional examiner qualifications in paragraphs (b) through (g). The rulemaking is unclear as to which revision of IWA-2213 applies, but it is assumed that a licensee would use whichever edition of Section XI is the basis for their program in a given interval. However, in the case of a licensee updating from a pre-2003 code the additional requirements are burdensome and do not seem to be the intent of the original rulemaking reference to IWA-2213. If it is the regulatory intent to require the additional examiner requirements be applicable to these licensees then the NUREG should clearly state that. If only

the scope of exams is required as noted in the original 2000 rulemaking, then that needs to be clarified as well.

1.2 Regulatory History

Since the start of commercial operation of the nuclear power plants, inservice visual inspection and functional testing of snubbers have been regulatory requirements. Originally these requirements were imposed by the plant TS surveillance requirements. There are two inservice surveillance requirements of snubbers (1) Visual inspection or examination; and (2) Functional or operational testing. The visual inspection is the observation of the condition of installed snubbers to identify those that are damaged, degraded, or inoperable as caused by physical means, leakage, corrosion, or environmental exposure. TS surveillance testing utilizes statistical sampling to validate the functionality of the tested population within an assumed quality confidence level. Only a sample of the installed snubbers is actually tested. Functional testing is used to verify that ~~a~~the tested snubber can operate within ~~specific~~ the specified performance limits. The snubber functional test is performed to check its operational-readiness. The functional test typically involves removing the snubber from service and testing it on a specially-designed test stand. The performance of visual examinations is a separate process that complements the functional testing program and provides additional confidence in snubber population reliability. The TS specifies a schedule for snubber visual inspections and functional testing, which is usually based on refueling outage intervals.

Improved TS for various boiling and pressurized water-cooled nuclear power plants (NUREG-1430 thru 1434, Revision 3) allow relocating inservice examination and testing requirements of snubbers from the TS to a plant's Technical Requirements Manual (TRM). Relocating snubber ISI and testing requirements from the TS to TRM however, does not eliminate the need to comply with the 10 CFR 50.55a requirements.

In 1990, the NRC issued Generic Letter 90-09, "Alternate Requirements for Snubber Visual Inspection Intervals and Corrective actions." The alternative visual inspection schedule is based on the number of unacceptable snubbers found during the previous inspection interval in proportion to the sizes of the various snubber populations or categories. This reduces future occupational radiation exposure and is highly cost effective. The alternative inspection interval is based on a fuel cycle of up to 24 months.

At that time most of the licensees revised their snubbers examination and testing documents such as TS, TRM or licensee-controlled documents, based on GL 90-09. GL 90-09, provides an alternative to requirements for snubber visual inspection intervals only. .

Until 1990, the ASME Code requirements addressing inservice examination and testing of snubbers were only contained in ASME Section XI, Article IWF-5000. IWF-5000 referenced ASME/American National Standards Institute Standard for Operation and Maintenance of Nuclear Power Plants, Part 4 (OM-4), 1987 Edition with OMa-1988 Addenda for the preservice and inservice examinations and testing of snubbers. In 1990, the ASME published the initial edition of the ASME OM Code which provides rules for inservice examination and testing of snubbers by incorporating most of the requirements of OM-4. In the 1995 Edition of the ASME OM Code incorporated all the visual inspection requirements provided in GL 90-09. Examination programs in accordance with Section XI, Article IWF-5000 are required to meet the requirements of OM-4 (1987/88 addenda), which does not incorporate the alternative GL 90-09 intervals. Licensees wishing to utilize the GL 90-09 alternative intervals for visual examinations

while under the IWF-5000 (OM-4) requirements must request relief from the OM-4 interval requirements.

The 1990 Edition of the ASME OM Code consisted of one section (Section IST) entitled "Rules for Inservice Testing of Light-Water Reactor Power Plants."' This section is divided into four subsections: ISTA, "General Requirements,"' ISTB, "Inservice Testing of Pumps in Light-Water Reactor Power Plants," ISTC, "Inservice Testing of Valves in Light-Water Reactor Power Plants," and ISTD, "Examination and Performance Testing of Nuclear Power Plant Dynamic Restraints (Snubbers)." At that time, the inservice examination and testing of snubbers was governed (under rule making) by the ISI requirements of Section XI of the ASME B&PV Code-1989 Edition. Therefore, the Subsection ISTD was not incorporated by reference in 10 CFR 50.55a in rule making at that time.

In 2000, for the first time, the proposed rule 10 CFR 50.55a(b)(3)(v)) stated that licensees may use the guidance in Subsection ISTD, ASME OM Code, 1995 Edition with the 1996 Addenda, for examination and testing of snubbers. The current regulation at 10 CFR 50.55a(b)(3)(v) allows the optional use of Subsection ISTD, "Preservice and Inservice Examination and Testing of Dynamic Restraint (Snubbers) in Light-Water Reactor Nuclear Power Plants," of the ASME OM Code-1995 Edition through the latest edition and addenda incorporated by reference in 10 CFR 50.55a(b)(3) in lieu of ASME B&PV Section XI, Articles IWF-5200(a) and (b) and IWF-5300(a) and (b) by making appropriate changes to TS or licensee-controlled documents. The regulation at 10 CFR 50.55a(b)(3)(v) also states, "Preservice and inservice examination must be performed using the VT-3 visual examination method described in IWA-2213." See previous comment regarding changes to IWA-2213. At the time of the initial 2000 rulemaking reference it only addressed scope. What is the current requirement?

Some commenters proposed Subsection ISTD as an acceptable alternative to all preservice and inservice examination requirements in IWF-5000, Section XI. The NRC has not accepted this suggestion because some preservice and inservice examinations for snubbers are not included in the OM Code. For example, Subsection ISTD does not address the scope of IWF-5200(c) and IWF-5300(c), inspection of integral and non-integral attachments, such as lugs, bolting, pins, and clamps. ~~Further, Subsection ISTD does not address snubbers in systems required to maintain the integrity of reactor coolant pressure boundary.~~ ISTA governs scope for ISTD and it does address the integrity of the reactor coolant boundary. This was added in OMa 2002.

The existing "Codes of Record" for this NUREG revision are 2004 Edition with 2005 and 2006 addendas of the ASME Code for Operation and Maintenance of Nuclear Power Plants and 2007 Edition with 2008 addenda of the ASME B&PV Code, Section XI.

Snubber inservice inspection provisions are specified in the editions and addenda of Section XI up through the 2005 Addenda. Snubber inservice inspection provisions were removed from Section XI in the 2006 Addenda. Snubber inservice inspection provisions are also located in Subsection ISTD of the ASME OM Code, and 10 CFR 50.55a(b)(3)(v) allows licensees the option of using the inservice inspection provisions for snubbers in Section XI or the ASME OM Code. However, ASME B&PV Section XI option will no longer exist when using the 2006 addenda and later editions and addenda of Section XI because these editions and addenda of Section XI do not provide inservice inspection provisions for snubbers. When using the 2006

addenda or later editions of ASME Section XI, snubber examination and testing must be in accordance with ASME OM ISTD or relief must be obtained.

1.3 NRC Recommendations and Guidance

The recommendations herein supplement the guidance provided in the ASME B&PV Section XI and ASME OM Code for inservice inspection and testing of snubbers. This document is written for the latest edition of the ASME OM Code and ASME B&PV Section XI incorporated into Paragraph (b) of 10 CFR 50.55a. To the extent practical, this document reflects the applicable section, subsection, or paragraph of the applicable documents (subsection of 10 CFR 50.55a, OM Code ASME B&PV Section XI, regulatory guides, etc.).

The guidance presented herein may be applied when requesting to use alternative (relief) in lieu of the Code requirements. However, licenses may also request relief that is not in conformance with the guidance. The NRC may reference a recommendation contained in this document in future safety evaluations and may grant relief or authorized an alternative if the licensee has addressed all the aspects included in the respective section, where applicable.

This document specifically discusses applicable portions of Article IWA-1000 and IWA-2000, IWA-4000, IWF-5000, and IWF-6000 of the ASME B&PV Code, Section XI and Subsections ISTA and ISTD, Nonmandatory ~~Appendix~~ Appendices A (with Supplement 3~~), B, C, D, E, F, G, and~~through H of the ASME OM Code, which licensees may implement pursuant to 10 CFR 50.55a(g)(4)(iv). It also gives the requisite approval for licensees to use 10 CFR 50.55a(g)(4)(iv) in updating their snubber ISI and testing program to the requirements of the ASME B&PV Code, Section XI or OM Code as applicable.

If the licensee chooses to implement the guidance contained herein for issues approved under 10 CFR 50.55a(g)(4)(iv), any deviation from the guidance requires Commission approval.

1.4 Synopsis of Report

This appendix follows the format of a typical ISI and testing snubber program plan, including Development and Implementation, General Guidance, and , Code Noncompliance.

Section 2, "Developing and Implementing an Inservice Examination and Testing Program of Snubbers," describes existing inservice examination and testing requirements, discusses the scope of the snubber program, and describes guidance for presenting information in snubber programs. This also provides specific recommendations on snubber and large bore (SG and RCP) snubber related issues.

~~Rather, t~~These discussions are intended to clarify the existing requirements of the Code or the regulations and, as such, they may provide recommendations to ensure that licensees continue to meet the Code and other regulatory requirements.

2 DEVELOPING AND IMPLEMENTING AN INSERVICE EXAMINATION AND TESTING PROGRAM OF SNUBBERS

Licensees may use the following guidance for developing and implementing snubber inservice examination and testing programs. This guidance supplements existing requirements and previously approved guidance on inservice examination and testing.

2.1 Compliance Considerations

The NRC regulations in Section 50.55a states that ISI of components (including supports) which are classified as ASME Code Class 1, Class 2, and Class 3 must meet the requirements, except design and access provisions and preservice examination requirements, set forth in Section XI of editions of ASME B&PV Code and addenda. ASME B&PV Code, Section XI provides the rules for ISI of nuclear power plant components. 10 CFR 50.55a requires ISI of components (including supports) without specifically mentioning "snubbers." 10 CFR 50.55a also allows the optional use of Subsection ISTD of the OM Code promulgated by the ASME for inservice inspection and testing of snubbers. This ISI along with testing is intended to assess the reliability and operational readiness of the snubbers.

10 CFR 50.55a(g)(4)(ii) requires the use of the latest edition and addenda of the Code that has been incorporated by reference 12 months prior to the beginning of each 120-month interval. This Code is considered to be the "Code of Record" for the inspection interval. 10 CFR 50.55a(g)(4)(iv) allows that ISI of components (including supports) to meet the requirements set forth in subsequent editions to the "Code of Record" and addenda that are incorporated by reference in 10 CFR 50.55a(b), subject to limitations and modifications listed in 10 CFR 50.55a(b) and subject to Commission approval.

Request for approval to use later editions and addenda previously incorporated by reference in 10 CFR 50.55a may be via letter to the NRC. See RIS 2004-12 for further clarification. However, pursuant to 10 CFR 50.55a(g)(4)(iv), licensees' ISI and testing programs may meet the requirements of editions and addenda of the Code (or portions thereof) that are more recent than those incorporated in 10 CFR 50.55(b). When requesting to use editions and addenda of the ASME Code that have not been incorporated by reference, licensees must request authorization to use these later editions and addenda as an alternative to the regulations pursuant to 10 CFR 50.55a(a)(3). When licensees choose to use any or all portions of a revised edition, they must meet all related requirements of the respective editions or addenda, and such exceptions are subject to Commission approval in accordance with 10 CFR 50.55a(g)(4)(iv).

The NRC may authorize alternatives to Code testing requirements submitted as relief requests or in a similar format that includes a discussion of the requirements, a description of the proposed alternative, and the justification for approval of the alternative. 10 CFR 50.55a includes the following provisions for accepting alternatives or granting relief:

• 10 CFR 50.55a(a)(3)(i) allows the NRC to authorize alternatives if the proposed alternatives would provide an acceptable level of quality and safety. The NRC will normally approve an alternative pursuant to this provision only if the licensee proposes a method of testing that is equivalent to, or an improvement of, the method specified by the code, or if the testing will comply or is consistent with later Code editions approved by the NRC in 10 CFR 50.55a(b).

• 10 CFR 50.55a(a)(3)(ii) allows the NRC to authorize an alternative if compliance [with the Code requirement] would result in hardship or unusual difficulty without a compensating

increase in the level of quality and safety. The NRC may approve an alternative pursuant to this provision if, although the proposed alternative testing does not comply with the Code, the increase in overall plant safety and quality attained by complying with the Code requirement is not justified in light of the difficulty associated with compliance.

• 10 CFR 50.55a(f)(6)(i) includes the following provision:
The Commission will evaluate determinations that Code requirements are impractical. The Commission may grant relief and may impose such alternative requirements as it determines is authorized by law, giving due consideration to the burden upon the licensee that could result if the requirements were imposed on the facility.
The NRC may grant relief pursuant to this provision or may impose alternatives if the licensee demonstrates that the design or access limitations make the Code requirement impractical. Thus, the staff's evaluation considers the burden created by imposing the Code requirements on the licensee.

For plants using their TS to govern ISI and testing of snubbers, 10 CFR 50.55a (g)(5)(ii) requires that if a revised ISI program for a facility conflicts with the TS, the licensee shall apply to the Commission for amendment of the TS to conform the TS to the revised program. Therefore, when performing 120-month ISI program updates in accordance with 10 CFR 50.55a (g)(4), licensees must submit any required amendments to ensure their TS remain consistent with the new code of record or NRC-approved alternative used in lieu of the Code requirements. The TS governing the snubber ISI and test program do not eliminate the 10 CFR50.55a requirements to update the program at 120-month intervals or to request and receive NRC authorization for alternatives to the Code requirements when appropriate.

2.1.1 ASME Code Case Applicability

Code Cases are typically formatted in terms of an Inquiry [as from a licensee] and Reply [by the applicable ASME Code Committee]. Oftentimes the Inquiry and Reply are accompanied by an Applicability statement that identifies the specific Editions an Addenda of the ASME Code to which the Reply applies. However, the ASME Code Committees do not always 1) include an Applicability statement or 2) identify all of the editions and addenda to which the Reply applies. As a result, several licensees have questioned whether they could use certain ASME Code Cases without additional interaction with the regulatory authority having jurisdiction at the plant site.

If a licensee would like to use an ASME Code Case with an Edition or Addendum of the ASME Code to which it is not applicable, the licensee has the following options:

a. Have the alternative to use the Code Case, beyond its stated applicability, authorized by the NRC pursuant to 10 CFR 50.55a(a)(3), or

b. If the Code Case is applicable to an Edition or Addendum of the ASME Code later than the version of the Code being used by the licensee, the licensee could update to the later version of the Code pursuant to 10 CFR 50.55a(f)(4)(iv) or (g)(4)(iv) and then use the Code Case, provided the Code Case has been approved for use in the appropriate Regulatory Guide and incorporated by reference into 10 CFR 50.55a. Note that the later version of the ASME Code must also have been incorporated by reference into 10 CFR 50.55a, the licensee must update all related

requirements of the respective Edition or Addenda, and the update must be specifically approved by the Commission.

Licensee ~~should~~shall not use ASME Code Cases with Editions and Addenda of the ASME Code to which they do not apply and that are not specifically approved for use by the NRC. More specifically, licensees ~~should~~shall not reconcile the Applicability of Code Cases without consulting with the applicable ASME Code Committee.

In incorporating the OM Code by reference in 10 CFR 50.55a, the NRC staff recognized the need for a new regulatory guide that would approve OM Code cases. Such a regulatory guide would perform a function similar to that of existing Regulatory Guide (RG) 1.147, "Inservice Inspection Code Case Acceptability, ASME B&PV Code, Section XI, Division 1," which approves ASME Code cases applicable to Section XI of the ASME B&PV Code. Accordingly, the NRC staff developed RG 1.192, "Operation and Maintenance Code Case Acceptability, ASME OM Code," as well as RG 1.193, "ASME Code Cases Not Approved for Use."

If RG 1.193 identifies a Code case as being unacceptable, licensees may not implement the specified Code case without first obtaining NRC approval. Licensees may request the NRC's approval to implement a Code case listed in the guide under the provisions of 10 CFR 50.55a(a)(3), which permits the use of alternatives to the Code requirements referenced in 10 CFR 50.55a, provided that the proposed alternative results in an acceptable level of quality and safety, by addressing the NRC's concern and submitting a plant-specific relief request.

An ISI and testing snubber program, including implementing procedures, is subject to the requirements of 10 CFR Part 50, Appendix B, "Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants," and ASME OM Code, Subsection ISTA or ASME B&PV Code, Section XI, Section IWA. Changes to the scope, test methods, or acceptance criteria ~~should~~shall be reviewed to the requirements of 10 CFR 50.59, 10 CFR 50.55a and 10 CFR 50.65 as appropriate.

2.2 Scope of Inservice Examination and Testing Programs

The intent of General Design Criterion (GDC) 1, "Quality Standards and Records," of Appendix A, "General Design Criteria for Nuclear Plants," to the 10 CFR Part 50, "Licensing of Production and Utilization Facilities," requires that all structures, systems, and components that are necessary for safe operation must be tested to demonstrate that they will perform satisfactorily in service. Among other things, GDC 1 requires that components that are important to safety must be tested to quality standards that are commensurate with the importance of the safety function(s) to be performed. Appendix B to 10 CFR Part 50 describes the requisite quality assurance program, which includes testing, for safety-related components. In addition, 10 CFR 50.55a(g) requires that licensees must use the ASME B&PV Code, Section XI or the optional ASME OM Code for inservice inspection and testing of components that are covered by the Code. Each licensee has the responsibility to demonstrate the continued operability of all components within the scope of their ISI and testing program. The regulatory guides augment those requirements by providing additional NRC guidance regarding scope and classification. In short, the ASME Code defines the scope, 10 CFR 50.55a endorses the Code with clarifications, and regulatory guides provide additional guidance.

2.2.1 Basis for Scope Requirements

The regulations at 10 CFR 50.55a(g) establish the ISI requirements that licensees must satisfy when performing ISI of components (including supports). Specifically, 10 CFR 50.55a(g)(4) states, "Throughout the service life of a boiling or pressurized water-cooled nuclear power facility, components (including supports) which are classified as ASME Code Class 1, Class 2, and Class 3 must meet the requirements, except design and access provisions and preservice examination requirements, set forth in Section XI of editions of the ASME B&PV Code and addenda." ASME B&PV Code, Section XI provides the rules for ISI of nuclear power plant components.

The regulation at 10 CFR 50.55a(g)(4)(ii) requires the use of the latest edition and addenda of the Code that has been incorporated by reference 12 months prior to the beginning of each 120 month inspection interval. This Code is considered the "Code of Record" for the inspection interval.

The regulation at 10 CFR 50.55a(g)(4)(iv) states that ISI of components (including supports) may meet the requirements set forth in subsequent editions to the "Code of Record" and addenda that are incorporated by reference in 10 CFR 50.55a(b), subject to limitations and modifications listed in 10 CFR 50.55a(b) and subject to Commission approval.

ASME Code Class 1, components includes all snubbers within the reactor coolant pressure boundary. Regulatory Guide (RG) 1.26, "Quality Group Classifications and Standards for Water-, Steam-, and Radioactive-Waste-Containing Components of Nuclear Power Plants," Revision 4, dated March 2007, provides guidelines for establishing quality standards for Quality Group B, C, and D (and ASME Code classification) for water-, steam-, and radioactive-waste-containing components important to safety of water-cooled nuclear power plants, other than those in the reactor coolant pressure boundary (i.e., ASME Code Class 2 and 3 components). There are also systems of light-water-cooled reactors important to safety that are not identified in RG 1.26 for which there are established staff positions regarding quality group classification. These systems, and reference establishing their acceptable classification, are identified in Appendix A of Section 3.2.2, "System Quality Group Classification" of NUREG-800, "Standard Review Plan."

The ASME B&PV Code, Section XI and ASME OM Code are incorporated by reference in 10 CFR 50.55a(b)(3). The ASME B&PV Code, Section XI as well as the optional ASME OM Code defines the scope by stating that ISI and testing programs shall include components (including snubbers) in systems that are required to perform a specific function in (1) shutting down the reactor to a safe shutdown condition, (2) maintaining the safe shutdown condition, or (3) mitigating the consequences of an accident.

Subsection ISTA-1100 of the OM Code refers to components that are "needed to mitigate the consequences of an accident." This statement is intended to provide confidence that the health and safety of the public will be protected in the event of certain accidents and anticipated transients at a nuclear power plant. The term "accident" is also used throughout the Commission's regulations. For example, Appendix B to 10 CFR Part 50 establishes quality assurance requirements for the design, construction, and operation of "structures, systems, and components that prevent or mitigate the consequences of postulated accidents that could cause undue risk to the health and safety of the public." Similarly, 10 CFR Part 100 describes

structures, systems, and components that must be designed to remain functional during and following a "safe shutdown earthquake" as those necessary to ensure (1) the integrity of the reactor coolant pressure boundary, (2) the capability to shut down the reactor and maintain it in a safe shutdown condition, or (3) the capability to prevent or mitigate the consequences of accidents that could result in potential offsite exposures comparable to the guideline exposures.

In establishing such requirements, the Commission uses the term "accident" to describe a broad range of possible adverse events at a nuclear power plant. Therefore, although most of the accidents of concern to inservice testing are addressed in the accident analyses chapter, licensees should be aware that the plant's final safety analysis report (FSAR) may address other accident analyses that need to be considered within the context of inservice testing.

Thus, an introductory section of the inservice inspection and testing program document submitted to the NRC for each plant must state the plant's safe-shutdown condition (i.e., hot standby, hot shutdown, cold shutdown, etc.). If the scope in Section ISTA appears to be broader than that specified in 10 CFR 50.55a, the more narrow scope applies.

Components within the scope of 10 CFR 50.55a are included in the scope of 10 CFR 50.65, "Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants" (the Maintenance Rule). Licensees may elect to consolidate inspection and testing for snubbers, designating any non-Code components as such in the ISI and testing program.

The plant's FSAR (or equivalent) defines the equipment that is necessary to meet specific functions. If the FSAR indicates that a system or component is Code Class 1, 2, or 3, that system or component is within the scope of 10 CFR 50.55a. By contrast, if the FSAR states that a system or component is designed, fabricated, and maintained as Code class at the option of the Owner as permitted by Subsection ISTA-1320, the application of the related OM Code requirements is also optional.

Tables 2.1 and 2.2 (which appear at the end of this chapter) provide examples of systems with snubbers that licensees typically include in their ISI and testing snubber programs. These tables are not intended to be all-inclusive, but they may form the basis for the initial review of a licensee's snubber program scope.

Figure 2.1, Flow Chart (which appears at the end of this chapter) provides a quick reference to regulatory requirements for development of the inservice examination and testing program for snubbers. For complete details, see 10 CFR 50.55a.

2.2.2 Snubber Attached to Steam Generator and Reactor Coolant Pumps

There are special requirements for PWR plants with regard to the testing of snubbers attached to the Steam Generators (SG) and Reactor Coolant pumps (RCP). These are generally large bore hydraulic snubbers (LBHS). Large bore hydraulic snubbers are defined as those units with rated capacities of 50 kips or greater. Unlike smaller hydraulic snubbers, LBHSs were exempt from inservice functional testing prior to 1980, primarily due to a lack of available test equipment of sufficient size. In 1980 and 1984, the NRC issued Generic Letters to all licensees requesting modification of plant TS to include LBHSs testing provisions. The results of initial tests revealed numerous cases where LBHSs were either out of specified tolerance or completely inoperable. Subsequently, the NRC developed Generic Issue (GI-113), "Dynamic Qualification and Testing

of Large Bore Hydraulic Snubbers (LBHSs)," with the objective of evaluating the reliability of LBHSs in operating commercial nuclear power plants.

NUREG/CR-5416, "Technical Evaluation of Generic Issue 113: Dynamic Qualification and Testing of Large Bore Hydraulic Snubbers," dated August 1992 provided major recommendations for LBHSs. This effort was in coordination with the industry, vendors, and snubber manufacturers. As a result, the NRC established specific inservice testing recommendations for LBHSs installed on PWR Steam Generators or Reactor Coolant Pumps. This recommendation was that these snubbers be tested as a separate test population, and it was eventually incorporated into the ASME OM Code. Although the generic Issue focused on hydraulic snubbers, the resultant requirement does not specify a snubber size or type to which it applies. Therefore, all the licensees are reminded that 10-year inservice examination and test snubber programs ~~should~~shall include their steam generator snubbers and reactor coolant pumps snubbers, regardless of size or type. The Code requirement is that snubbers attached to steam generators and those attached to reactor coolant pumps be designated as at least one, separate Defined Test Plan Group (DTPG) for testing purposes as specified in ISTD-5353. Large bore snubbers (greater than 50 kips) located on piping or other may be included in the general snubber population for testing and examination purposes.

2.2.3 Testing of Non-Code Snubbers

An ISI and testing program is also a reasonable vehicle to periodically demonstrate the operability of non-safety related snubbers that are not covered by the Code. Thus, if a licensee chooses to include non-Code components in its ISI and testing snubber (or some other licensee-developed inspection and testing program) and, as a result, is unable to meet certain Code provisions for the non-Code components, the regulations (10 CFR 50.55a) do not require the licensee to submit a relief request to the NRC. Nonetheless, the licensee should maintain documentation that provides assurance of the continued operability of the non-Code components through the performed tests, and such documentation should be available for staff inspection at the plant site.

Therefore, while 10 CFR 50.55a delineates the inspection and testing requirements for ASME Code Class 1, 2, and 3 snubbers, licensees should not limit their inservice inspection and testing to only those snubbers that are covered by 10 CFR 50.55a. However, care should be taken so that the inclusion of non-Code components does not adversely affect the integrity of the program by reducing the required homogenous nature of a population scope.

Licensees may implement deviations from the Code for non-Code components without NRC review and approval, and need not document such deviations as "relief requests." Nonetheless, a notation in the licensee's ISI and testing program document would help to identify the deviations and clarify that they relate to non-Code components. If it is not clear that the deviations relate to non-Code components, the staff might assume that the licensee is not meeting the requirements of 10 CFR 50.55a. Some licensees use the relief request format to document such deviations, while other licensees place notes, footnotes, or brief descriptions in their program documents.

2.3 Code Class Systems Containing Safety-Related Snubbers

The plant safety analysis report (SAR), technical specifications (TSs), and other documents list the systems and components (i.e. snubbers) that must function to support the safe operation and shutdown of the plant. Tables 2.1 and 2.2 (which appear at the end of this chapter) list systems and components that are typically included in the ISI and testing of snubber programs for pressurized-water reactors (PWRs) and boiling-water reactors (BWRs). These tables are not intended to apply to all plants; the listed systems and components are not considered safety-related at every plant, and are not necessarily classified as Code Class 1, 2, or 3. (For information on quality group and Code classifications, see RG 1.26 and Section 3.9.6 of.NUREG-0800.) The licensee's safety analysis generally contains a section describing the Code classification of components. The snubber inservice examination and testing program scope must be consistent with the SAR.

2.4 Snubber Inservice Examination and Testing Programs and their Documentation

10 CFR 50.55a(g)(4) states, in part, that throughout the service life of a boiling or pressurized water-cooled nuclear power facility, ASME Code Class 1, 2, and 3 components (including supports) meet the ISI and testing requirements of the ASME B&PV Code, Section XI or ASME OM Code as incorporated by reference in 10 CFR 50.55a(b).

2.4.1 Snubber Program while using ASME B&PV Code, Section XI Code

Licensees using ASME B&PV Code, Section XI for its snubber inservice examination and testing program shall consider the following rules for inservice inspection and testing of snubbers:

• Subsection IWA addresses the general requirements for inservice examination and testing of snubbers.

• Article IWF-5000 addresses ~~the~~ inservice inspection and testing requirements for snubbers in addition to those required per Article IWF-1000.

• Subarticle IWA-1400(c) requires that owner shall submit ~~these~~ certain plans and reports to the enforcement and regulatory authorities.

• Table IWA-1600-1 specifies the Edition 1987 with OMa-1988 for ASME/ANSI OM, Part 4 (OM-4) to be use while using Article IWF-5000 for snubber inservice inspection and testing.

• Article IWA-4000 provides the requirements of Repair/Replacement activities including snubbers.

• Article IWA-6000 addresses the records and reports that are required for these inspection and testing programs of snubbers.

• Subarticle IWA-6210 states that the owner shall prepare plans for preservice and inservice examinations and test~~i~~s to meet the requirements of the ASME B&PV Code, Section XI

requirements. Article IWF-1000 addresses the scope and responsibility for inservice examination and testing of snubbers as a subset of components support examination.

• ASME OM Code Subsections ISTA and ISTD may be used in lieu of the ASME Section XI, Article IWF-5000 as allowed by the regulation 10 CFR 50.55a(b)(v).

2.4.2 Snubber Program while using ASME OM Code

Licensees using ASME OM Code for its snubber inservice examination and testing program shall consider the following rules for inservice inspection and testing of snubbers:

• Subsection ISTA includes general requirements (including scope) for inservice examination and testing of snubbers.

• Subsection ISTD addresses the "Preservice and Inservice Examination and Testing of Dynamic Restraints (Snubbers) in Light-Water Reactor Nuclear Power Plants.

• Subsection ISTA-3200 states that ISI and testing plans shall be filed with the regulatory authorities.

• Subsection ISTA-9000 addresses the records and reports that are required for these inspection and testing programs.

• Subsection ISTA-9210 states that the owner shall prepare plans for preservice and inservice examinations and tests to meet the requirements of the OM Code.

• Subsection ISTA-9220 states that licensees shall prepare examination, test, replacement, and repair records in accordance with the requirements of the respective articles of the OM Code.

• Appendix A and its supplements to the OM Code describe voluntary guidance for licensees to use in preparing their inspection and test plans.

2.4.3 Snubber Program while using NRC Authorized Alternative Relief Request.

Licensees not using the ASME Section XI or ASME OM requirements for their snubber program~~,~~ must submit relief request to NRC for approval to use alternative methods in lieu of the ASME Section XI and ASME OM requirements. NRC authorized relief to use TRMs or other-licensee-controlled documents, in lieu of the ASME B&PV Code, Section XI or ASME OM Code requirements for inservice examination and testing of snubbers, do not provide relief from submitting snubber ~~programs~~ examination and test plans to the regulatory authorities.

2.4.4 Snubber Programs and their Bases

Some l~~L~~icensees are using TRMs or other licensee-controlled documents for snubber inservice examination and testing in lieu of the ASME B&PV Code, Section XI requirements. TRMs or other licensee-controlled documents serve as bases for most snubber programs and most of the snubber programs have similarities across the industry. Many licensees are in the process of

updating their snubber programs ~~as required by~~to comply with and incorporate the ASME OM Code. Some licensees have already updated their programs to use ASME OM Code. As a minimum, t~~T~~he updated snubber program~~s~~ documentation ~~should~~shall contain ~~at least the details and bases as documented in the TRM, or other licensee controlled documents in~~sufficient information to verify alignment with the ASME OM Code requirements. Bases documents have typically included a description of the methodology used in preparing the snubber program plans. The bases document ~~should~~shall clearly state where and how a list of ~~each~~ program snubbers is kept and ~~how it is being~~ maintained. Although not required by the regulation, the bases documents will help licensees ensure the ~~continuity~~ consistent implementation of their snubber programs ~~when the responsibilities of personnel or groups change~~throughout the course of typical organizational changes. A good bases document will also enable the plant staff to clearly understand the ~~reasons that the snubbers are either in the program or not~~snubber categorization process, as well as the basis for examination and testing requirements. The bases document can also serve as a useful reference for reviews performed under 10 CFR 50.59 when changes are made to a facility.

As a minimum the following ~~details (~~three elements~~) with appropriate section numbers of the ASME Code should~~ are recommended to be ~~included~~ addressed in a ~~base~~ typical snubber program bases document:

1. Visual Examination Requirements
2. Functional Testing Requirements
3. Service Life Monitoring

Individual aspects of each element shall be detailed as outlined in the following sections in order to provide clear definitions and descriptions of the program elements. Information clarifying the basis for inclusion in the program shall be provided, including references to applicable Code sections or licensing commitments where appropriate.

To help ensure consistency throughout the industry, ~~L~~licensees ~~should use the above~~are encouraged to use these guidelines ~~as a minimum~~ and to consult with the Snubber User Group (SNUG)~~,~~ for guidance when developing ~~guidance for~~ snubber programs and their bases, ~~to help ensure consistency throughout the industry~~.

2.4.4.1 Inservice Visual Examination (description, definitions, and basis of each item)

1. Addressing i~~I~~ntegral and nonintegral attachments to snubbers (see Section 2.8)

2. Population groupings

3. Initial Examination Intervals

~~3~~4. Subsequent Examination Intervals

~~4~~5. Method of Visual Examination

~~5~~6. Inservice Examination Failure Evaluation

~~6~~7. Code Case used for visual examination, if applicable

8. Corrective action plans

2.4.4.2 Inservice Operability or Functional Test (description, definitions, and basis of each item)

1. Functional Test Frequency (every Refueling Outage)

2. Test Plan Groups [Defined Test Plan Group (DTPG)]

3. Sample Plans (10% Testing sample, 37 Testing sample, or 55 testing sample) used and Initial Snubber Sample size(s) anticipated for each DTPG (It is recognized that 10% Plan samples may vary slightly over the course of an interval due to ongoing station modifications or replacement. The bases document may be periodically updated for significant changes but is not expected to be a day-to-day "living" document.)

4. Additional Snubber Sampling Method for each plan

5. Failure Evaluation requirements and methods

6. Test Failure Mode Groupings methodology

7. Corrective Actions for each sample plan and FMG identified

2.4.4.3 Service Life Monitoring Program

The licensees must develop the service-life monitoring (SLM) program as defined in the ASME OM Code, Subsection ISTD-6000 or TS or TRM or in accordance with an approved Relief Request. Nonmandatory Appendix F of ISTD provides additional guidance in developing a Service Life Monitoring Program. The SLM program is the primary instrument for assuring continued reliability of a snubber population at a plant. The statistical method sample testing is ~~one measure of program effectivenessa~~ point-in-time assessment of population functionality but in general does not serve as an ~~efficient~~ effective tool to ~~actuallyeither~~ maintain or improve reliability. This is due to the fact that such testing is based on small samples (10% or 37 snubbers) every refueling outage, and ~~in~~ is not predictive in nature. Based on snubber aging study ~~process~~information, in the NUREG/CR-5870, "Results of LWR Snubber Aging Research," dated May 1992, the NRC recommended the inclusion of Service Life Monitoring (SLM) requirements for~~of~~ snubbers in addition to the statistical testing process. Most ~~of the plants~~licensees have included some reference to SLM in their ~~TS, TRM etc. in the past~~existing programs. The ASME OM Code, Subsection ISTD also included SLM along with snubber~~s~~ examination and inservice testing requirements.

Some of the licensees have updated their snubber programs ~~by using~~to incorporate ASME OM Code requirements. The updated snubber programs often simply reference applicable plant procedures for snubber examinations and testing without providing any ~~details about~~references to applicable sections~~, subsection(s) and/or paragraphs, SLM requirements of the applicable~~ ASME OM Code. Program documentation shall provide information regarding specific SLM requirements and how the requirements are satisfied. ~~Licensees should use the above guidelines~~

~~as a minimum and consult with the Snubber User Group (SNUG), when developing guidance for snubber programs and their bases, to help ensure consistency throughout the industry.~~

2.4.5 Snubber List or Snubber Controlled Data Bases

In preparing and maintaining a snubber list or data base, licensees ~~should~~shall consider the ability to produce reports providing adequate information to both implement and assess the program. ~~following information:~~ Reports generated to provide a snubber listing should include the following suggested headings, which are shown along with ~~and~~ a description of the ~~text~~ information that licensees ~~could include~~might produce under each heading.

Title: Report name, including~~List~~ the applicable plant and unit.

Reference information: Include references to the maintaining~~method~~ and location of controlled snubber data. This may be a controlled station data base from which reports and lists are generated as needed.

Program/Report revision or revision date: List the revision number and date/or date (on each page).

System, Code class, and group: List applicable information such as ~~the~~ plant system, Code, and type of snubber (hydraulic or mechanical).

Snubber identification: List a unique identifier for each snubber; this identifier ~~should~~shall be used consistently in all ISI and testing program documentation and design information such as system piping and instrument diagrams (P&IDs), isometric, test procedures, and relief requests.

Drawings number: List the applicable isometrics, support drawings or figures that depict~~s~~ the snubber.

The following items may not normally be included in a list of individual snubbers, as they typically apply to entire populations. This information shall be included as annotations for any individual snubbers for which a specific frequency or relief request applies on a unique basis.

Test frequency: List the actual frequency for each inspection and test to be performed.

Relief request(s): List any applicable relief requests in the snubber list.

2.4.6 Snubber Programs Documentation and their Submittal to NRC

10 CFR 50.55a(g)(4) requires that, throughout the service life of a boiling or pressurized water-cooled nuclear power facility, ASME Code Class 1, 2, and 3 components (including supports) meet the ISI and testing requirements of the ASME B&PV Code, Section XI or ASME OM Code as incorporated by reference in 10 CFR 50.55a(b). The applicable ASME B&PV Code, Section XI, Article IWA-1000, "General Requirements," and ASME OM Code, Subsection ISTA, "General Requirements," provide the documentation and submittal requirements for inservice testing and examination of certain components in light-water nuclear power plants. Therefore, based on these requirements, licensees are required to submit their snubber examination and testing ~~programs~~ plans and their updates every 120 months.

(a) Documentation requirements for snubber programs when using the ASME B&PV Code, Section XI

IWA-1400(c) notes that owners, have the responsibility to prepare plans, schedules, and inservice inspection summary reports, and submit of these plans and reports to the enforcement and regulatory authorizes having jurisdiction at the plant site.

Article IWA-6000, Record and Reports, provides the requirements for preparation, submittal, and retention of records and reports.

(b) Documentation requirements for snubber programs when using the ASME OM Code

ISTA-3200(a) requires that plans for inservice examination and testing of snubbers shall be filed with the regulatory authorities having jurisdiction at the plant site.

ISTA-9000, Records and Reports, provides the requirements for preparation, submittal, and retention of records and reports.

Nonmandatory Appendix-A, and the Supplement to Nonmandatory Appendix-A describes voluntary guidance for licensees to develop snubber inservice examination and testing plans.

(c) Documentation requirements for snubber programs when using NRC authorized alternative TS, TRM or other-licensee-controlled documents in lieu of the ASME B&PV Code, Section XI, or ASME OM Code

NRC authorized relief to use TRMs or other-licensee-controlled documents, in lieu of the ASME B&PV Code, Section XI or ASME OM Code requirements for inservice examination and testing of snubbers, do not provide relief from submitting snubber ~~programs~~ examination or test plans and reports to the regulatory authorities. Submittal is required by the applicable ASME B&PV Code, Section XI or ASME OM Code as noted in (a) and (b) above.

Licensees not meeting the requirements of IWA-1400(c) or ISTA-3200(a) must submit appropriate documents containing snubber inservice examination and testing plans and submit a request for relief to the NRC pursuant to 10 CFR 50.55a(a)(3). NRC staff will not perform a review of submitted snubber inservice examination and testing ~~programs~~ plans and reports unless requesting alternatives or reliefs to Code requirements.

2.5 Relief Requests and Proposed Alternatives

Licensees are required to perform the ISI and testing of snubbers in accordance with ASME BPV Code, Section XI or the OM Code and the applicable addenda as required by 10 CFR 50.55a(g) or 10 CFR 50.55a(b)(3)(v), except where the NRC has granted specific written relief, pursuant to 10 CFR 50.55a(g)(6)(i), or authorized alternatives pursuant to 10 CFR 50.55a(3). 10 CFR 50.55a(a)(3) states that licensees may use alternatives to the requirements of 10 CFR 50.55a(g) when authorized by the NRC if (1) the proposed alternatives would provide an acceptable level of quality and safety, or (2) compliance with the specified requirements would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety A licensee may submit a request for the NRC to review and approve relief from requirements of the

Code, or to authorize the use of proposed alternatives. The staff recommends that the basis for relief ~~should~~shall address the following considerations:

(1) Does the proposed alternative provide an acceptable level of quality and safety? (10 CFR 55a(a)(3)(i))

(2) Would compliance with the specified requirement (for which relief is sought) result in a hardship or unusual difficulty without a compensating increase in the level of quality and safety? (10 CFR 55a(a)(3)(ii))

(3) Would it be impractical to comply with the Code requirements? (10 CFR 55a(f)(6)(i))

The justification must include adequate information for the staff to determine if the relief can be granted or the alternative can be authorized. NRC approval is required before a licensee may implement proposed alternatives that must be authorized pursuant to 10 CFR 50.55a(3). By contrast, a licensee may implement proposed alternative testing while the NRC is reviewing requests for relief from Code requirements made pursuant to 10 CFR 50.55a(f)(6)(i), if the licensee has determined that the requirements are impractical.

The staff performs a detailed review of each relief request, grants relief from the requirements or authorizes an alternative to those requirements, and may impose alternative requirements. When granting relief, the NRC considers the burden that would be imposed upon the licensee if the agency enforced the specified requirements.

For more details contents and format etc. see NEI issued document, "Standard Format for Requests from Commercial Reactor Licensees Pursuant to 10 CFR 50.55a, Revision 1, dated 2004.

Currently, few licensees are using the ASME OM Code to meet the requirements of 10 CFR 50.55a for snubber inservice examination and testing, whereas most of the licensees are using a variety of licensee-controlled documents or procedures in lieu of the applicable ASME Code requirements. These licensee-controlled documents or procedures include the following:

1. Technical Specification (TS)
2. Technical Requirement Manual (TRM)
3. Final Safety Analysis Report (FSAR)
4. Updated Final Analysis Report (UFSAR)
5. Selected Licensee Commitment (SLC)
6. Licensee-Controlled Specification (LCS)
7. Equipment Control Guidelines (ECG)
8. Other Licensee-Controlled Procedures

Recently, the NRC staff has identified several instances in which nuclear power plants licensees have used a TRM, or other licensee-controlled documents and procedures, which do not meet requirements of their "Code of Record" for the ISI and testing of snubbers. These licensees have not requested approval to use these alternatives from the Commission. The NRC issued Regulatory Issue Summary (RIS) 2010-06, "Inservice Inspection and Testing Requirements of Dynamic Restraints (Snubbers)" on June 1, 2010 to remind all the licensees of the NRC's rules

and regulations regarding snubber ISI and testing, in accordance with 10 CFR 50.55a(g), at nuclear power plants.

In addition, it is noted that once Relief has been granted all documents included in or referenced by the relief request become equivalent to licensing commitments and cannot be changed in a substantive manner without resubmitting the request for approval. It may be inappropriate to make substantive changes to licensing documents under the 10CFR50.59 process. Any changes to TRMs or other referenced documents must be evaluated in view of the original relief request and assessed as to the appropriate change process.

The NRC expects licensees to ensure that their snubber ISI and testing programs are in compliance with 10 CFR 55.55a(g) or authorized alternatives. If licensees discover that their programs are not meeting 10 CFR 50.55a(g) requirements or authorized alternatives, they ~~should~~shall take appropriate actions to bring their programs back into compliance and ensure that non-compliant systems, structures and components are operable. In certain circumstances involving snubber programs at nuclear power plants that are not in compliance with NRC requirements, enforcement discretion has been provided by the NRC. The NRC's Office of Enforcement issued Enforcement Guidance Memorandum (EGM)-10-001, "Dispositioning Violation of Inservice Examination and Testing Requirements for Dynamic Restraints (Snubbers)," on June 1, 2010 to provide NRC staff guidance for the disposition of certain 10 CFR 50.55a violations and the potential of granting enforcement discretion for the affected requirements. NRC expects that licensees of nuclear power plants, who were not meeting the 10 CFR 50.55a requirements for snubber inservice examination and testing as described in RIS 2010-06, ~~should~~shall have entered any noncompliance into their corrective action program and corrected the noncompliance by meeting the applicable ASME Code requirements or by submitting for relief to NRC.

2.6 Snubber Program Documents

Snubber ISI and testing program documents submitted to the NRC are used to prepare for ISI inspections and to address other licensing actions that may arise. To facilitate these regulatory activities ~~Between a licensee's 10-year interval program submittals,~~ the NRC would like to receive up-to-date program documents when the licensee makes significant changes to the snubber ISI and testing program in the interim period between the required 10-year interval plan submittals. ~~to facilitate these regulatory activities.~~

These interim informational submittals are generally considered "good faith" efforts and not necessarily a regulatory requirement. As long as the snubber ISI and testing program ~~is~~ remains consistent with the regulations, ASME Code relief is not required for these interim updates. That is, deletions from or additions to the snubber program do not necessarily require NRC approval, unless commitments to ~~do~~ obtain such approval exist as a result of prior approved relief requests or similar commitments. The burden is on each licensee to verify that its snubber program is complete and includes all snubbers that require inservice examination and testing. If a licensee deletes a particular snubber from its snubber program, the staff recommends that the licensee should document the basis in an appropriate manner. Such changes do not require approval, unless cumulative changes affect the examination or testing plans in a significant manner. Changes in sample plans and DTPG groupings require notification of the regulator, but do not require approval.

The staff expects each licensee to maintain its snubber examination and testing program up-to-date and ensure that it remains consistent with changes in plant configuration. Conversely, if a system modification results in the addition of a snubber to the snubber program, the licensee ~~should~~shall ensure that it is incorporated into the program to satisfy the Code and licensing requirements or that a relief request is submitted for NRC review and approval, as appropriate.

2.7 Repair and Replacement of Snubbers:

The repair and replacement of snubbers is to be performed using applicable edition and addenda of the ASME B&PV Code, Section XI, Article IWA-4000. The NRC approved Inservice Inspection Code Cases in RG 1.147, such as N-508-3, "Rotation of Serviced Snubbers and Pressure Relief Valves for the purpose of Testing, Section XI, Division 1," may be used.

2.8 ISI of the Integral and Non-Integral Attachments of Supports Containing Snubbers

Inservice inspection of integral and non-integral attachments, such as lugs, bolts, pins, and clamps must be performed by use of ASME B&PV Code, Section XI, Subsection IWF. ASME OM Code, Subsection ISTD covers inservice examination and testing of snubbers (pin to-pin) inclusive and does not address the inspection of integral and non-integral attachments, such as lugs, bolting, pins, and clamps.

2.9 Developing Snubber Program for New Nuclear Power Plants

Under 10 CFR Part 52, the development of a plant-specific IST program is the responsibility of the applicant for a combined license (COL) to construct and operate a nuclear power plant. The Commission's Staff Requirements Memorandum (SRM), dated September 11, 2002, for Commission Paper SECY-02-0067, "Inspections, Tests, Analyses, and Acceptance Criteria (ITAAC) for Operational Programs (Programmatic ITAAC)," stated that ITAAC for an operational program are unnecessary if the program and its implementation are fully described in the COL application and found to be acceptable by the NRC. The Commission also stated that the burden is on the COL applicant to provide the necessary and sufficient programmatic information for approval of the COL without ITAAC.

In its May 14, 2004, SRM for SECY-04-0032, "Programmatic Information Needed for Approval of a Combined License Without Inspections, Tests, Analyses and Acceptance Criteria," the Commission defined "fully described" as meaning that the program is clearly and sufficiently described in terms of the scope and level of detail to allow a reasonable assurance finding of acceptability. The Commission also noted that required programs should always be described at a functional level and at an increasing level of detail where implementation choices could materially and negatively affect the program effectiveness and acceptability. SECY-05-0197, "Review of Operational Programs in a Combined License Application and Generic Emergency Planning Inspections, Tests, Analyses, and Acceptance Criteria," summarizes the NRC position regarding the full description of operational programs to be provided by COL applicants. RG 1.206, "Combined License Applications for Nuclear Power Plants (LWR Edition)," provides guidance for COL applicants with respect to fully describing plant operational programs.

COL applicants provide a description of the snubber examination and testing program for NRC review as part of their COL applications. In some cases, the COL applicant incorporates by reference in its Final Safety Analysis Report (FSAR) the description of the snubber examination

and testing program provided in the Design Certification documentation, such as the Design Control Document (DCD) or Design Certification FSAR. RG 1.206 provides guidance regarding information to be provided in the COL application as part of the description of the IST program for snubbers. To date, COL applicants have described their snubber examination and testing program based on the requirements in ASME OM Code, Subsection ISTD. The guidance in this NUREG may be used in developing and implementing the IST program for new nuclear power plants.

The NRC staff is reviewing the descriptions of IST programs, including snubber examination and testing programs, provided by COL applicants as part of their COL applications. The staff will reach a conclusion regarding the acceptability of the description of the IST program in its safety evaluation on the COL application. The NRC staff will conduct inspections of the development and implementation of IST programs during the construction of new nuclear power plants following COL issuance.

1.1 Regulatory Basis

Title 10, Section 50.55a, of the Code of Federal Regulations (10 CFR 50.55a) defines the requirements for applying industry codes and standards to boiling- or pressurized-water-cooled nuclear power facilities. Each of these facilities is subject to the conditions in paragraphs (a), (f), and (g) of 10 CFR 50.55a, as they relate to inservice inspection (ISI) and inservice testing (IST). By rulemaking effective September 8, 1992 (see Federal Register, Vol. 57, No. 3152, p. 34666, dated August 6, 1992), the U.S. Nuclear Regulatory Commission (NRC) established paragraph (f) of 10 CFR 50.55a to separate the IST requirements from the ISI requirements in paragraph (g).

The NRC regulations in 10 CFR 50.55a(b)(2) incorporate by reference the 1970 Edition through the 2007 Edition with 2008 addenda of the American Society of Mechanical Engineers (ASME) *Boiler and Pressure Vessel* Code (B&PV), Section XI, in which Article IWF-5000 specify the requirements of inservice examination and testing of snubbers. The NRC regulations in 10 CFR 50.55a(b)(3) incorporate by reference the 1998 Edition through the 2004 Edition with 2005 and 2006 addendas of the *Code for Operation and Maintenance of Nuclear Power Plants* (OM Code) promulgated by the ASME, in which Subsection ISTA provides general IST and examination requirements and Subsections ISTB, ISTC, and ISTD specify the IST requirements for pumps, valves, and dynamic restraints, respectively. Based on those requirements, each of the NRC's nuclear power plant licensees must establish IST programs, specify the components included in the program as well as the test methods and frequencies for those components, and implement the program in accordance with the OM Code.

The regulations in 10 CFR 50.55a(g)(6)(i) specify that if an inservice examination and test requirement of the ASME B&PV Code is determined to be impractical for a facility, the NRC's regulations allow the licensee to submit a request for relief from the given requirement, along with information to support the determination. Relief requests generally detail the reasons for deviating from the Code requirements and propose alternative testing methods or frequencies. The Commission is authorized to evaluate licensees' relief requests, and may grant the requested relief or impose alternative requirements, considering the burden that the licensee might incur if the Code requirements were enforced for the given facility. Pursuant to 10 CFR 50.55a(a)(3)(i) and (ii), the Commission may also authorize the licensee to implement an alternative to the Code requirements, provided that the alternative ensures an acceptable level of quality and safety or the Code requirement presents a hardship without a compensating increase in the level of quality and safety.

The regulations in 10 CFR 50.55a(g)(4)(iv) specify that inservice examination and testing of snubbers may meet the requirements in editions and addenda of the ASME B&PV Section XI or OM Code that were published more recently than those that are incorporated by reference in 10 CFR 50.55a(b), subject to Commission approval and the limitations and modifications listed in 10 CFR 50.55a(b). Requests for approval to use later editions and addenda previously incorporated by reference in 10 CFR 50.55a may be made via letter to the NRC. For further clarification see NRC Regulatory Issue Summary (RIS) 2004-12, "Clarification on Use of Later Editions and Addenda to the ASME OM Code and Section XI."

10 CFR 50.55a(g) establishes the ISI requirements, including the effective edition and addenda of the American Society of Mechanical Engineer (ASME) Boiler and Pressure Vessel (B&PV)

Code that licensees must use when performing ISI of components (including supports). 10 CFR 50.55a(g)(4) states, "Throughout the service life of a boiling or pressurized water-cooled nuclear power facility, components (including supports) which are classified as ASME Code Class 1, Class 2, and Class 3 must meet the requirements, except design and access provisions and preservice examination requirements, set forth in Section XI of editions of the ASME B&PV Code and addenda." ASME B&PV Section XI provides the rules for ISI of nuclear power plant components.

10 CFR 50.55a(g)(4)(ii) requires the use of the Code latest edition and addenda that has been incorporated by reference 12 months prior to the beginning of each 120-month interval. This Code is considered to be the "Code of Record" for the inspection interval.

10 CFR 50.55a(g)(4)(iv) requires that ISI of components (including supports) may meet the requirements set forth in subsequent editions to the "Code of Record" and addenda that are incorporated by reference in 10 CFR 50.55a(b), subject to limitations and modifications listed in 10 CFR 50.55a(b) and subject to Commission approval.

The ISI of ASME Code Class 1, 2, and 3 components including snubbers shall be performed in accordance with Section XI, "Rules for Inservice Inspection of Nuclear Power Plant Components," of the ASME B&PV Code and applicable addenda as required by 10 CFR 50.55a(g), except where specific written relief has been granted by the NRC or the Commission, pursuant to 10 CFR 50.55a(g)(6)(i). Section 50.55a(a)(3) states that alternatives to the requirements of paragraph (g) may be used, when authorized by the NRC, if: (i) the proposed alternatives would provide an acceptable level of quality and safety, or (ii) compliance with the specified requirements would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety.

10 CFR 50.55a(b)(3)(v) allows the optional use of Subsection ISTD, "Preservice and Inservice Examination and Testing of Snubbers in Light-Water Reactor Nuclear Power Plants," of the ASME OM Code-1995 Edition through the latest edition and addenda incorporated by reference in 10 CFR 50.55a(b)(3) in lieu of ASME B&PV Section XI, Articles IWF-5200(a) and (b) and IWF-5300(a) and (b) by making appropriate changes to technical specification (TS) or licensee-controlled documents. The regulation at 10 CFR 50.55a(b)(3)(v) also states, "Preservice and inservice examination must be performed using the VT-3 visual examination method described in IWA-2213."

Comment: The restriction regarding the VT-3 method described in IWA-2213 was first invoked with the 2000 rulemaking, and remains through the current rulemaking. However, Section XI revised IWA-2213 in the 2003 addenda to the 2001 edition. It appears that the change was not accounted for in subsequent rulemakings. The paragraph originally invoked by rulemaking identified the scope of examinations that are required. The revised section retains this as paragraph 2213(a) but adds additional examiner qualifications in paragraphs (b) through (g). The rulemaking is unclear as to which revision of IWA-2213 applies, but it is assumed that a licensee would use whichever edition of Section XI is the basis for their program in a given interval. However, in the case of a licensee updating from a pre-2003 code the additional requirements are burdensome and do not seem to be the intent of the original rulemaking reference to IWA-2213. If it is the regulatory intent to require the additional examiner requirements be applicable to these licensees then the NUREG should clearly state that. If only

the scope of exams is required as noted in the original 2000 rulemaking, then that needs to be clarified as well.

1.2 Regulatory History

Since the start of commercial operation of the nuclear power plants, inservice visual inspection and functional testing of snubbers have been regulatory requirements. Originally these requirements were imposed by the plant TS surveillance requirements. There are two inservice surveillance requirements of snubbers (1) Visual inspection or examination; and (2) Functional or operational testing. The visual inspection is the observation of the condition of installed snubbers to identify those that are damaged, degraded, or inoperable as caused by physical means, leakage, corrosion, or environmental exposure. TS surveillance testing utilizes statistical sampling to validate the functionality of the tested population within an assumed quality confidence level. Only a sample of the installed snubbers is actually tested. Functional testing is used to verify that the tested snubber can operate within the specified performance limits. The snubber functional test is performed to check its operational-readiness. The functional test typically involves removing the snubber from service and testing it on a specially-designed test stand. The performance of visual examinations is a separate process that complements the functional testing program and provides additional confidence in snubber population reliability. The TS specifies a schedule for snubber visual inspections and functional testing, which is usually based on refueling outage intervals.

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Improved TS for various boiling and pressurized water-cooled nuclear power plants (NUREG-1430 thru 1434, Revision 3) allow relocating inservice examination and testing requirements of snubbers from the TS to a plant's Technical Requirements Manual (TRM). Relocating snubber ISI and testing requirements from the TS to TRM however, does not eliminate the need to comply with the 10 CFR 50.55a requirements.

In 1990, the NRC issued Generic Letter 90-09, "Alternate Requirements for Snubber Visual Inspection Intervals and Corrective actions." The alternative visual inspection schedule is based on the number of unacceptable snubbers found during the previous inspection interval in proportion to the sizes of the various snubber populations or categories. This reduces future occupational radiation exposure and is highly cost effective. The alternative inspection interval is based on a fuel cycle of up to 24 months.

At that time most of the licensees revised their snubbers examination and testing documents such as TS, TRM or licensee-controlled documents, based on GL 90-09. GL 90-09, provides an alternative to requirements for snubber visual inspection intervals only. .

Until 1990, the ASME Code requirements addressing inservice examination and testing of snubbers were only contained in ASME Section XI, Article IWF-5000. IWF-5000 referenced ASME/American National Standards Institute Standard for Operation and Maintenance of Nuclear Power Plants, Part 4 (OM-4), 1987 Edition with OMa-1988 Addenda for the preservice and inservice examinations and testing of snubbers. In 1990, the ASME published the initial edition of the ASME OM Code which provides rules for inservice examination and testing of snubbers by incorporating most of the requirements of OM-4. In the 1995 Edition of the ASME OM Code incorporated all the visual inspection requirements provided in GL 90-09. Examination programs in accordance with Section XI, Article IWF-5000 are required to meet the requirements of OM-4 (1987/88 addenda), which does not incorporate the alternative GL 90-09 intervals. Licensees wishing to utilize the GL 90-09 alternative intervals for visual examinations

while under the IWF-5000 (OM-4) requirements must request relief from the OM-4 interval requirements.

The 1990 Edition of the ASME OM Code consisted of one section (Section IST) entitled "Rules for Inservice Testing of Light-Water Reactor Power Plants."' This section is divided into four subsections: ISTA, "General Requirements,"' ISTB, "Inservice Testing of Pumps in Light-Water Reactor Power Plants," ISTC, "Inservice Testing of Valves in Light-Water Reactor Power Plants," and ISTD, "Examination and Performance Testing of Nuclear Power Plant Dynamic Restraints (Snubbers)." At that time, the inservice examination and testing of snubbers was governed (under rule making) by the ISI requirements of Section XI of the ASME B&PV Code-1989 Edition. Therefore, the Subsection ISTD was not incorporated by reference in 10 CFR 50.55a in rule making at that time.

In 2000, for the first time, the proposed rule 10 CFR 50.55a(b)(3)(v)) stated that licensees may use the guidance in Subsection ISTD, ASME OM Code, 1995 Edition with the 1996 Addenda, for examination and testing of snubbers. The current regulation at 10 CFR 50.55a(b)(3)(v) allows the optional use of Subsection ISTD, "Preservice and Inservice Examination and Testing of Dynamic Restraint (Snubbers) in Light-Water Reactor Nuclear Power Plants," of the ASME OM Code-1995 Edition through the latest edition and addenda incorporated by reference in 10 CFR 50.55a(b)(3) in lieu of ASME B&PV Section XI, Articles IWF-5200(a) and (b) and IWF-5300(a) and (b) by making appropriate changes to TS or licensee-controlled documents. The regulation at 10 CFR 50.55a(b)(3)(v) also states, "Preservice and inservice examination must be performed using the VT-3 visual examination method described in IWA-2213." See previous comment regarding changes to IWA-2213. At the time of the initial 2000 rulemaking reference it only addressed scope. What is the current requirement?

Some commenters proposed Subsection ISTD as an acceptable alternative to all preservice and inservice examination requirements in IWF-5000, Section XI. The NRC has not accepted this suggestion because some preservice and inservice examinations for snubbers are not included in the OM Code. For example, Subsection ISTD does not address the scope of IWF-5200(c) and IWF-5300(c), inspection of integral and non-integral attachments, such as lugs, bolting, pins, and clamps. ISTA governs scope for ISTD and it does address the integrity of the reactor coolant boundary. This was added in OMa 2002.

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The existing "Codes of Record" for this NUREG revision are 2004 Edition with 2005 and 2006 addendas of the ASME Code for Operation and Maintenance of Nuclear Power Plants and 2007 Edition with 2008 addenda of the ASME B&PV Code, Section XI.

Snubber inservice inspection provisions are specified in the editions and addenda of Section XI up through the 2005 Addenda. Snubber inservice inspection provisions were removed from Section XI in the 2006 Addenda. Snubber inservice inspection provisions are also located in Subsection ISTD of the ASME OM Code, and 10 CFR 50.55a(b)(3)(v) allows licensees the option of using the inservice inspection provisions for snubbers in Section XI or the ASME OM Code. However, ASME B&PV Section XI option will no longer exist when using the 2006 addenda and later editions and addenda of Section XI because these editions and addenda of Section XI do not provide inservice inspection provisions for snubbers. When using the 2006 addenda or later editions of ASME Section XI, snubber examination and testing must be in accordance with ASME OM ISTD or relief must be obtained.

1.3 NRC Recommendations and Guidance

The recommendations herein supplement the guidance provided in the ASME B&PV Section XI and ASME OM Code for inservice inspection and testing of snubbers. This document is written for the latest edition of the ASME OM Code and ASME B&PV Section XI incorporated into Paragraph (b) of 10 CFR 50.55a. To the extent practical, this document reflects the applicable section, subsection, or paragraph of the applicable documents (subsection of 10 CFR 50.55a, OM Code ASME B&PV Section XI, regulatory guides, etc.).

The guidance presented herein may be applied when requesting to use alternative (relief) in lieu of the Code requirements. However, licenses may also request relief that is not in conformance with the guidance. The NRC may reference a recommendation contained in this document in future safety evaluations and may grant relief or authorized an alternative if the licensee has addressed all the aspects included in the respective section, where applicable.

This document specifically discusses applicable portions of Article IWA-1000 and IWA-2000, IWA-4000, IWF-5000, and IWF-6000 of the ASME B&PV Code, Section XI and Subsections ISTA and ISTD, Nonmandatory Appendices A (with Supplement 3)through H of the ASME OM Code, which licensees may implement pursuant to 10 CFR 50.55a(g)(4)(iv). It also gives the requisite approval for licensees to use 10 CFR 50.55a(g)(4)(iv) in updating their snubber ISI and testing program to the requirements of the ASME B&PV Code, Section XI or OM Code as applicable.

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If the licensee chooses to implement the guidance contained herein for issues approved under 10 CFR 50.55a(g)(4)(iv), any deviation from the guidance requires Commission approval.

1.4 Synopsis of Report

This appendix follows the format of a typical ISI and testing snubber program plan, including Development and Implementation, General Guidance, and , Code Noncompliance.

Section 2, "Developing and Implementing an Inservice Examination and Testing Program of Snubbers," describes existing inservice examination and testing requirements, discusses the scope of the snubber program, and describes guidance for presenting information in snubber programs. This also provides specific recommendations on snubber and large bore (SG and RCP) snubber related issues.

These discussions are intended to clarify the existing requirements of the Code or the regulations and, as such, they may provide recommendations to ensure that licensees continue to meet the Code and other regulatory requirements.

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2 DEVELOPING AND IMPLEMENTING AN INSERVICE EXAMINATION AND TESTING PROGRAM OF SNUBBERS

Licensees may use the following guidance for developing and implementing snubber inservice examination and testing programs. This guidance supplements existing requirements and previously approved guidance on inservice examination and testing.

2.1 Compliance Considerations

The NRC regulations in Section 50.55a states that ISI of components (including supports) which are classified as ASME Code Class 1, Class 2, and Class 3 must meet the requirements, except design and access provisions and preservice examination requirements, set forth in Section XI of editions of ASME B&PV Code and addenda. ASME B&PV Code, Section XI provides the rules for ISI of nuclear power plant components. 10 CFR 50.55a requires ISI of components (including supports) without specifically mentioning "snubbers." 10 CFR 50.55a also allows the optional use of Subsection ISTD of the OM Code promulgated by the ASME for inservice inspection and testing of snubbers. This ISI along with testing is intended to assess the reliability and operational readiness of the snubbers.

10 CFR 50.55a(g)(4)(ii) requires the use of the latest edition and addenda of the Code that has been incorporated by reference 12 months prior to the beginning of each 120-month interval. This Code is considered to be the "Code of Record" for the inspection interval. 10 CFR 50.55a(g)(4)(iv) allows that ISI of components (including supports) to meet the requirements set forth in subsequent editions to the "Code of Record" and addenda that are incorporated by reference in 10 CFR 50.55a(b), subject to limitations and modifications listed in 10 CFR 50.55a(b) and subject to Commission approval.

Request for approval to use later editions and addenda previously incorporated by reference in 10 CFR 50.55a may be via letter to the NRC. See RIS 2004-12 for further clarification. However, pursuant to 10 CFR 50.55a(g)(4)(iv), licensees' ISI and testing programs may meet the requirements of editions and addenda of the Code (or portions thereof) that are more recent than those incorporated in 10 CFR 50.55(b). When requesting to use editions and addenda of the ASME Code that have not been incorporated by reference, licensees must request authorization to use these later editions and addenda as an alternative to the regulations pursuant to 10 CFR 50.55a(a)(3). When licensees choose to use any or all portions of a revised edition, they must meet all related requirements of the respective editions or addenda, and such exceptions are subject to Commission approval in accordance with 10 CFR 50.55a(g)(4)(iv).

The NRC may authorize alternatives to Code testing requirements submitted as relief requests or in a similar format that includes a discussion of the requirements, a description of the proposed alternative, and the justification for approval of the alternative. 10 CFR 50.55a includes the following provisions for accepting alternatives or granting relief:

• 10 CFR 50.55a(a)(3)(i) allows the NRC to authorize alternatives if the proposed alternatives would provide an acceptable level of quality and safety. The NRC will normally approve an alternative pursuant to this provision only if the licensee proposes a method of testing that is equivalent to, or an improvement of, the method specified by the code, or if the testing will comply or is consistent with later Code editions approved by the NRC in 10 CFR 50.55a(b).

• 10 CFR 50.55a(a)(3)(ii) allows the NRC to authorize an alternative if compliance [with the Code requirement] would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety. The NRC may approve an alternative pursuant to this provision if, although the proposed alternative testing does not comply with the Code, the increase in overall plant safety and quality attained by complying with the Code requirement is not justified in light of the difficulty associated with compliance.

• 10 CFR 50.55a(f)(6)(i) includes the following provision:
The Commission will evaluate determinations that Code requirements are impractical. The Commission may grant relief and may impose such alternative requirements as it determines is authorized by law, giving due consideration to the burden upon the licensee that could result if the requirements were imposed on the facility.
The NRC may grant relief pursuant to this provision or may impose alternatives if the licensee demonstrates that the design or access limitations make the Code requirement impractical. Thus, the staff's evaluation considers the burden created by imposing the Code requirements on the licensee.

For plants using their TS to govern ISI and testing of snubbers, 10 CFR 50.55a (g)(5)(ii) requires that if a revised ISI program for a facility conflicts with the TS, the licensee shall apply to the Commission for amendment of the TS to conform the TS to the revised program. Therefore, when performing 120-month ISI program updates in accordance with 10 CFR 50.55a (g)(4), licensees must submit any required amendments to ensure their TS remain consistent with the new code of record or NRC-approved alternative used in lieu of the Code requirements. The TS governing the snubber ISI and test program do not eliminate the 10 CFR50.55a requirements to update the program at 120-month intervals or to request and receive NRC authorization for alternatives to the Code requirements when appropriate.

2.1.1 ASME Code Case Applicability

Code Cases are typically formatted in terms of an Inquiry [as from a licensee] and Reply [by the applicable ASME Code Committee]. Oftentimes the Inquiry and Reply are accompanied by an Applicability statement that identifies the specific Editions an Addenda of the ASME Code to which the Reply applies. However, the ASME Code Committees do not always 1) include an Applicability statement or 2) identify all of the editions and addenda to which the Reply applies. As a result, several licensees have questioned whether they could use certain ASME Code Cases without additional interaction with the regulatory authority having jurisdiction at the plant site.

If a licensee would like to use an ASME Code Case with an Edition or Addendum of the ASME Code to which it is not applicable, the licensee has the following options:

a. Have the alternative to use the Code Case, beyond its stated applicability, authorized by the NRC pursuant to 10 CFR 50.55a(a)(3), or

b. If the Code Case is applicable to an Edition or Addendum of the ASME Code later than the version of the Code being used by the licensee, the licensee could update to the later version of the Code pursuant to 10 CFR 50.55a(f)(4)(iv) or (g)(4)(iv) and then use the Code Case, provided the Code Case has been approved for use in the appropriate Regulatory Guide and incorporated by reference into 10 CFR 50.55a. Note that the later version of the ASME Code must also have been incorporated by reference into 10 CFR 50.55a, the licensee must update all related requirements of the respective Edition or Addenda, and the update must be specifically approved by the Commission.

Licensee shall not use ASME Code Cases with Editions and Addenda of the ASME Code to which they do not apply and that are not specifically approved for use by the NRC. More

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specifically, licensees shall not reconcile the Applicability of Code Cases without consulting with the applicable ASME Code Committee.

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In incorporating the OM Code by reference in 10 CFR 50.55a, the NRC staff recognized the need for a new regulatory guide that would approve OM Code cases. Such a regulatory guide would perform a function similar to that of existing Regulatory Guide (RG) 1.147, "Inservice Inspection Code Case Acceptability, ASME B&PV Code, Section XI, Division 1," which approves ASME Code cases applicable to Section XI of the ASME B&PV Code. Accordingly, the NRC staff developed RG 1.192, "Operation and Maintenance Code Case Acceptability, ASME OM Code," as well as RG 1.193, "ASME Code Cases Not Approved for Use."

If RG 1.193 identifies a Code case as being unacceptable, licensees may not implement the specified Code case without first obtaining NRC approval. Licensees may request the NRC's approval to implement a Code case listed in the guide under the provisions of 10 CFR 50.55a(a)(3), which permits the use of alternatives to the Code requirements referenced in 10 CFR 50.55a, provided that the proposed alternative results in an acceptable level of quality and safety, by addressing the NRC's concern and submitting a plant-specific relief request.

An ISI and testing snubber program, including implementing procedures, is subject to the requirements of 10 CFR Part 50, Appendix B, "Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants," and ASME OM Code, Subsection ISTA or ASME B&PV Code, Section XI, Section IWA. Changes to the scope, test methods, or acceptance criteria shall be reviewed to the requirements of 10 CFR 50.59, 10 CFR 50.55a and 10 CFR 50.65 as appropriate.

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2.2 Scope of Inservice Examination and Testing Programs

The intent of General Design Criterion (GDC) 1, "Quality Standards and Records," of Appendix A, "General Design Criteria for Nuclear Plants," to the 10 CFR Part 50, "Licensing of Production and Utilization Facilities," requires that all structures, systems, and components that are necessary for safe operation must be tested to demonstrate that they will perform satisfactorily in service. Among other things, GDC 1 requires that components that are important to safety must be tested to quality standards that are commensurate with the importance of the safety function(s) to be performed. Appendix B to 10 CFR Part 50 describes the requisite quality assurance program, which includes testing, for safety-related components. In addition, 10 CFR 50.55a(g) requires that licensees must use the ASME B&PV Code, Section XI or the optional ASME OM Code for inservice inspection and testing of components that are covered by the Code. Each licensee has the responsibility to demonstrate the continued operability of all components within the scope of their ISI and testing program. The regulatory guides augment those requirements by providing additional NRC guidance regarding scope and classification. In short, the ASME Code defines the scope, 10 CFR 50.55a endorses the Code with clarifications, and regulatory guides provide additional guidance.

2.2.1 Basis for Scope Requirements

The regulations at 10 CFR 50.55a(g) establish the ISI requirements that licensees must satisfy when performing ISI of components (including supports). Specifically, 10 CFR 50.55a(g)(4) states, "Throughout the service life of a boiling or pressurized water-cooled nuclear power

facility, components (including supports) which are classified as ASME Code Class 1, Class 2, and Class 3 must meet the requirements, except design and access provisions and preservice examination requirements, set forth in Section XI of editions of the ASME B&PV Code and addenda." ASME B&PV Code, Section XI provides the rules for ISI of nuclear power plant components.

The regulation at 10 CFR 50.55a(g)(4)(ii) requires the use of the latest edition and addenda of the Code that has been incorporated by reference 12 months prior to the beginning of each 120 month inspection interval. This Code is considered the "Code of Record" for the inspection interval.

The regulation at 10 CFR 50.55a(g)(4)(iv) states that ISI of components (including supports) may meet the requirements set forth in subsequent editions to the "Code of Record" and addenda that are incorporated by reference in 10 CFR 50.55a(b), subject to limitations and modifications listed in 10 CFR 50.55a(b) and subject to Commission approval.

ASME Code Class 1, components includes all snubbers within the reactor coolant pressure boundary. Regulatory Guide (RG) 1.26, "Quality Group Classifications and Standards for Water-, Steam-, and Radioactive-Waste-Containing Components of Nuclear Power Plants," Revision 4, dated March 2007, provides guidelines for establishing quality standards for Quality Group B, C, and D (and ASME Code classification) for water-, steam-, and radioactive-waste-containing components important to safety of water-cooled nuclear power plants, other than those in the reactor coolant pressure boundary (i.e., ASME Code Class 2 and 3 components). There are also systems of light-water-cooled reactors important to safety that are not identified in RG 1.26 for which there are established staff positions regarding quality group classification. These systems, and reference establishing their acceptable classification, are identified in Appendix A of Section 3.2.2, "System Quality Group Classification" of NUREG-800, "Standard Review Plan."

The ASME B&PV Code, Section XI and ASME OM Code are incorporated by reference in 10 CFR 50.55a(b)(3). The ASME B&PV Code, Section XI as well as the optional ASME OM Code defines the scope by stating that ISI and testing programs shall include components (including snubbers) in systems that are required to perform a specific function in (1) shutting down the reactor to a safe shutdown condition, (2) maintaining the safe shutdown condition, or (3) mitigating the consequences of an accident.

Subsection ISTA-1100 of the OM Code refers to components that are "needed to mitigate the consequences of an accident." This statement is intended to provide confidence that the health and safety of the public will be protected in the event of certain accidents and anticipated transients at a nuclear power plant. The term "accident" is also used throughout the Commission's regulations. For example, Appendix B to 10 CFR Part 50 establishes quality assurance requirements for the design, construction, and operation of "structures, systems, and components that prevent or mitigate the consequences of postulated accidents that could cause undue risk to the health and safety of the public." Similarly, 10 CFR Part 100 describes structures, systems, and components that must be designed to remain functional during and following a "safe shutdown earthquake" as those necessary to ensure (1) the integrity of the reactor coolant pressure boundary, (2) the capability to shut down the reactor and maintain it in a safe shutdown condition, or (3) the capability to prevent or mitigate the consequences of accidents that could result in potential offsite exposures comparable to the guideline exposures.

In establishing such requirements, the Commission uses the term "accident" to describe a broad range of possible adverse events at a nuclear power plant. Therefore, although most of the accidents of concern to inservice testing are addressed in the accident analyses chapter, licensees should be aware that the plant's final safety analysis report (FSAR) may address other accident analyses that need to be considered within the context of inservice testing.

Thus, an introductory section of the inservice inspection and testing program document submitted to the NRC for each plant must state the plant's safe-shutdown condition (i.e., hot standby, hot shutdown, cold shutdown, etc.). If the scope in Section ISTA appears to be broader than that specified in 10 CFR 50.55a, the more narrow scope applies.

Components within the scope of 10 CFR 50.55a are included in the scope of 10 CFR 50.65, "Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants" (the Maintenance Rule). Licensees may elect to consolidate inspection and testing for snubbers, designating any non-Code components as such in the ISI and testing program.

The plant's FSAR (or equivalent) defines the equipment that is necessary to meet specific functions. If the FSAR indicates that a system or component is Code Class 1, 2, or 3, that system or component is within the scope of 10 CFR 50.55a. By contrast, if the FSAR states that a system or component is designed, fabricated, and maintained as Code class at the option of the Owner as permitted by Subsection ISTA-1320, the application of the related OM Code requirements is also optional.

Tables 2.1 and 2.2 (which appear at the end of this chapter) provide examples of systems with snubbers that licensees typically include in their ISI and testing snubber programs. These tables are not intended to be all-inclusive, but they may form the basis for the initial review of a licensee's snubber program scope.

Figure 2.1, Flow Chart (which appears at the end of this chapter) provides a quick reference to regulatory requirements for development of the inservice examination and testing program for snubbers. For complete details, see 10 CFR 50.55a.

2.2.2 Snubber Attached to Steam Generator and Reactor Coolant Pumps

There are special requirements for PWR plants with regard to the testing of snubbers attached to the Steam Generators (SG) and Reactor Coolant pumps (RCP). These are generally large bore hydraulic snubbers (LBHS). Large bore hydraulic snubbers are defined as those units with rated capacities of 50 kips or greater. Unlike smaller hydraulic snubbers, LBHSs were exempt from inservice functional testing prior to 1980, primarily due to a lack of available test equipment of sufficient size. In 1980 and 1984, the NRC issued Generic Letters to all licensees requesting modification of plant TS to include LBHSs testing provisions. The results of initial tests revealed numerous cases where LBHSs were either out of specified tolerance or completely inoperable. Subsequently, the NRC developed Generic Issue (GI-113), "Dynamic Qualification and Testing of Large Bore Hydraulic Snubbers (LBHSs)," with the objective of evaluating the reliability of LBHSs in operating commercial nuclear power plants.

NUREG/CR-5416, "Technical Evaluation of Generic Issue 113: Dynamic Qualification and Testing of Large Bore Hydraulic Snubbers," dated August 1992 provided major recommendations for LBHSs. This effort was in coordination with the industry, vendors, and

snubber manufacturers. As a result, the NRC established specific inservice testing recommendations for LBHSs installed on PWR Steam Generators or Reactor Coolant Pumps. This recommendation was that these snubbers be tested as a separate test population, and it was eventually incorporated into the ASME OM Code. Although the generic Issue focused on hydraulic snubbers, the resultant requirement does not specify a snubber size or type to which it applies. Therefore, all the licensees are reminded that 10-year inservice examination and test snubber programs shall include their steam generator snubbers and reactor coolant pumps snubbers, regardless of size or type. The Code requirement is that snubbers attached to steam generators and those attached to reactor coolant pumps be designated as at least one, separate Defined Test Plan Group (DTPG) for testing purposes as specified in ISTD-5353. Large bore snubbers (greater than 50 kips) located on piping or other may be included in the general snubber population for testing and examination purposes.

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2.2.3 Testing of Non-Code Snubbers

An ISI and testing program is also a reasonable vehicle to periodically demonstrate the operability of non-safety related snubbers that are not covered by the Code. Thus, if a licensee chooses to include non-Code components in its ISI and testing snubber (or some other licensee-developed inspection and testing program) and, as a result, is unable to meet certain Code provisions for the non-Code components, the regulations (10 CFR 50.55a) do not require the licensee to submit a relief request to the NRC. Nonetheless, the licensee should maintain documentation that provides assurance of the continued operability of the non-Code components through the performed tests, and such documentation should be available for staff inspection at the plant site.

Therefore, while 10 CFR 50.55a delineates the inspection and testing requirements for ASME Code Class 1, 2, and 3 snubbers, licensees should not limit their inservice inspection and testing to only those snubbers that are covered by 10 CFR 50.55a. However, care should be taken so that the inclusion of non-Code components does not adversely affect the integrity of the program by reducing the required homogenous nature of a population scope.

Licensees may implement deviations from the Code for non-Code components without NRC review and approval, and need not document such deviations as "relief requests." Nonetheless, a notation in the licensee's ISI and testing program document would help to identify the deviations and clarify that they relate to non-Code components. If it is not clear that the deviations relate to non-Code components, the staff might assume that the licensee is not meeting the requirements of 10 CFR 50.55a. Some licensees use the relief request format to document such deviations, while other licensees place notes, footnotes, or brief descriptions in their program documents.

2.3 Code Class Systems Containing Safety-Related Snubbers

The plant safety analysis report (SAR), technical specifications (TSs), and other documents list the systems and components (i.e. snubbers) that must function to support the safe operation and shutdown of the plant. Tables 2.1 and 2.2 (which appear at the end of this chapter) list systems and components that are typically included in the ISI and testing of snubber programs for

pressurized-water reactors (PWRs) and boiling-water reactors (BWRs). These tables are not intended to apply to all plants; the listed systems and components are not considered safety-related at every plant, and are not necessarily classified as Code Class 1, 2, or 3. (For information on quality group and Code classifications, see RG 1.26 and Section 3.9.6 of.NUREG-0800.) The licensee's safety analysis generally contains a section describing the Code classification of components. The snubber inservice examination and testing program scope must be consistent with the SAR.

2.4 Snubber Inservice Examination and Testing Programs and their Documentation

10 CFR 50.55a(g)(4) states, in part, that throughout the service life of a boiling or pressurized water-cooled nuclear power facility, ASME Code Class 1, 2, and 3 components (including supports) meet the ISI and testing requirements of the ASME B&PV Code, Section XI or ASME OM Code as incorporated by reference in 10 CFR 50.55a(b).

2.4.1 Snubber Program while using ASME B&PV Code, Section XI Code

Licensees using ASME B&PV Code, Section XI for its snubber inservice examination and testing program shall consider the following rules for inservice inspection and testing of snubbers:

• Subsection IWA addresses the general requirements for inservice examination and testing of snubbers.

• Article IWF-5000 addresses inservice inspection and testing requirements for snubbers in addition to those required per Article IWF-1000.

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• Subarticle IWA-1400(c) requires that owner shall submit certain plans and reports to the enforcement and regulatory authorities.

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• Table IWA-1600-1 specifies the Edition 1987 with OMa-1988 for ASME/ANSI OM, Part 4 (OM-4) to be use while using Article IWF-5000 for snubber inservice inspection and testing.

• Article IWA-4000 provides the requirements of Repair/Replacement activities including snubbers.

• Article IWA-6000 addresses the records and reports that are required for these inspection and testing programs of snubbers.

• Subarticle IWA-6210 states that the owner shall prepare plans for preservice and inservice examinations and tests to meet the requirements of the ASME B&PV Code, Section XI requirements. Article IWF-1000 addresses the scope and responsibility for inservice examination and testing of snubbers as a subset of components support examination.

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• ASME OM Code Subsections ISTA and ISTD may be used in lieu of the ASME Section XI, Article IWF-5000 as allowed by the regulation 10 CFR 50.55a(b)(v).

2.4.2 Snubber Program while using ASME OM Code

Licensees using ASME OM Code for its snubber inservice examination and testing program shall consider the following rules for inservice inspection and testing of snubbers:

- Subsection ISTA includes general requirements (including scope) for inservice examination and testing of snubbers.

- Subsection ISTD addresses the "Preservice and Inservice Examination and Testing of Dynamic Restraints (Snubbers) in Light-Water Reactor Nuclear Power Plants.

- Subsection ISTA-3200 states that ISI and testing plans shall be filed with the regulatory authorities.

- Subsection ISTA-9000 addresses the records and reports that are required for these inspection and testing programs.

- Subsection ISTA-9210 states that the owner shall prepare plans for preservice and inservice examinations and tests to meet the requirements of the OM Code.

- Subsection ISTA-9220 states that licensees shall prepare examination, test, replacement, and repair records in accordance with the requirements of the respective articles of the OM Code.

- Appendix A and its supplements to the OM Code describe voluntary guidance for licensees to use in preparing their inspection and test plans.

2.4.3 Snubber Program while using NRC Authorized Alternative Relief Request.

Licensees not using the ASME Section XI or ASME OM requirements for their snubber program must submit relief request to NRC for approval to use alternative methods in lieu of the ASME Section XI and ASME OM requirements. NRC authorized relief to use TRMs or other-licensee-controlled documents, in lieu of the ASME B&PV Code, Section XI or ASME OM Code requirements for inservice examination and testing of snubbers, do not provide relief from submitting snubber examination and test plans to the regulatory authorities.

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2.4.4 Snubber Programs and their Bases

Some licensees are using TRMs or other licensee-controlled documents for snubber inservice examination and testing in lieu of the ASME B&PV Code, Section XI requirements. TRMs or other licensee-controlled documents serve as bases for most snubber programs and most of the snubber programs have similarities across the industry. Many licensees are in the process of updating their snubber programs to comply with and incorporate the ASME OM Code. Some licensees have already updated their programs to use ASME OM Code. As a minimum, the updated snubber program documentation shall contain sufficient information to verify alignment with the ASME OM Code requirements. Bases documents have typically included a description of the methodology used in preparing the snubber program plans. The bases document shall clearly state where and how a list of program snubbers is kept and maintained. Although not required by the regulation, the bases documents will help licensees ensure the consistent

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implementation of their snubber programs throughout the course of typical organizational changes. A good bases document will also enable the plant staff to clearly understand the snubber categorization process, as well as the basis for examination and testing requirements. The bases document can also serve as a useful reference for reviews performed under 10 CFR 50.59 when changes are made to a facility.

As a minimum the following three elements are recommended to be addressed in a typical snubber program bases document:

1. Visual Examination Requirements
2. Functional Testing Requirements
3. Service Life Monitoring

Individual aspects of each element shall be detailed as outlined in the following sections in order to provide clear definitions and descriptions of the program elements. Information clarifying the basis for inclusion in the program shall be provided, including references to applicable Code sections or licensing commitments where appropriate.

To help ensure consistency throughout the industry, licensees are encouraged to use these guidelines and to consult with the Snubber User Group (SNUG) for guidance when developing snubber programs and their bases.

2.4.4.1 Inservice Visual Examination (description, definitions, and basis of each item)

1. Addressing integral and nonintegral attachments to snubbers (see Section 2.8)
2. Population groupings
3. Initial Examination Intervals
4. Subsequent Examination Intervals
5. Method of Visual Examination
6. Inservice Examination Failure Evaluation
7. Code Case used for visual examination, if applicable
8. Corrective action plans

2.4.4.2 Inservice Operability or Functional Test (description, definitions, and basis of each item)

1. Functional Test Frequency (every Refueling Outage)

2. Test Plan Groups [Defined Test Plan Group (DTPG)]

3. Sample Plans (10% Testing sample, 37 Testing sample, or 55 testing sample) used and Initial Snubber Sample size(s) anticipated for each DTPG (It is recognized that 10% Plan samples may

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vary slightly over the course of an interval due to ongoing station modifications or replacement. The bases document may be periodically updated for significant changes but is not expected to be a day-to-day "living" document.)

4. Additional Snubber Sampling Method for each plan

5. Failure Evaluation requirements and methods

6. Test Failure Mode Groupings methodology

7. Corrective Actions for each sample plan and FMG identified

2.4.4.3 Service Life Monitoring Program

The licensees must develop the service-life monitoring (SLM) program as defined in the ASME OM Code, Subsection ISTD-6000 or TS or TRM or in accordance with an approved Relief Request. Nonmandatory Appendix F of ISTD provides additional guidance in developing a Service Life Monitoring Program. The SLM program is the primary instrument for assuring continued reliability of a snubber population at a plant. The statistical method sample testing is a point-in-time assessment of population functionality but in general does not serve as an effective tool to either maintain or improve reliability. This is due to the fact that such testing is based on small samples (10% or 37 snubbers) every refueling outage, and is not predictive in nature. Based on snubber aging study information, in the NUREG/CR-5870, "Results of LWR Snubber Aging Research," dated May 1992, the NRC recommended the inclusion of Service Life Monitoring (SLM) requirements for snubbers in addition to the statistical testing process. Most licensees have included some reference to SLM in their existing programs. The ASME OM Code, Subsection ISTD also included SLM along with snubber examination and inservice testing requirements.

Some of the licensees have updated their snubber programs to incorporate ASME OM Code requirements. The updated snubber programs often simply reference applicable plant procedures for snubber examinations and testing without providing any references to applicable sections ASME OM Code. Program documentation shall provide information regarding specific SLM requirements and how the requirements are satisfied.

2.4.5 Snubber List or Snubber Controlled Data Bases

In preparing and maintaining a snubber list or data base, licensees shall consider the ability to produce reports providing adequate information to both implement and assess the program. Reports generated to provide a snubber listing should include the following suggested headings, which are shown along with a description of the information that licensees might produce under each heading.

Title: Report name, including the applicable plant and unit.

Reference information: Include references to the maintainingand location of controlled snubber data. This may be a controlled station data base from which reports and lists are generated as needed.

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Program/Report revision or revision date: List the revision number and date/or date (on each page).

System, Code class, and group: List applicable information such as plant system, Code, and type of snubber (hydraulic or mechanical).

Snubber identification: List a unique identifier for each snubber; this identifier shall be used consistently in all ISI and testing program documentation and design information such as system piping and instrument diagrams (P&IDs), isometric, test procedures, and relief requests.

Drawings number: List the applicable isometrics, support drawings or figures that depict the snubber.

The following items may not normally be included in a list of individual snubbers, as they typically apply to entire populations. This information shall be included as annotations for any individual snubbers for which a specific frequency or relief request applies on a unique basis.

Test frequency: List the actual frequency for each inspection and test to be performed.

Relief request(s): List any applicable relief requests in the snubber list.

2.4.6 Snubber Programs Documentation and their Submittal to NRC

10 CFR 50.55a(g)(4) requires that, throughout the service life of a boiling or pressurized water-cooled nuclear power facility, ASME Code Class 1, 2, and 3 components (including supports) meet the ISI and testing requirements of the ASME B&PV Code, Section XI or ASME OM Code as incorporated by reference in 10 CFR 50.55a(b). The applicable ASME B&PV Code, Section XI, Article IWA-1000, "General Requirements," and ASME OM Code, Subsection ISTA, "General Requirements," provide the documentation and submittal requirements for inservice testing and examination of certain components in light-water nuclear power plants. Therefore, based on these requirements, licensees are required to submit their snubber examination and testing plans and their updates every 120 months.

(a) Documentation requirements for snubber programs when using the ASME B&PV Code, Section XI

IWA-1400(c) notes that owners, have the responsibility to prepare plans, schedules, and inservice inspection summary reports, and submit of these plans and reports to the enforcement and regulatory authorizes having jurisdiction at the plant site.

Article IWA-6000, Record and Reports, provides the requirements for preparation, submittal, and retention of records and reports.

(b) Documentation requirements for snubber programs when using the ASME OM Code

ISTA-3200(a) requires that plans for inservice examination and testing of snubbers shall be filed with the regulatory authorities having jurisdiction at the plant site.

ISTA-9000, Records and Reports, provides the requirements for preparation, submittal, and retention of records and reports.

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Nonmandatory Appendix-A, and the Supplement to Nonmandatory Appendix-A describes voluntary guidance for licensees to develop snubber inservice examination and testing plans.

(c) Documentation requirements for snubber programs when using NRC authorized alternative TS, TRM or other-licensee-controlled documents in lieu of the ASME B&PV Code, Section XI, or ASME OM Code

NRC authorized relief to use TRMs or other-licensee-controlled documents, in lieu of the ASME B&PV Code, Section XI or ASME OM Code requirements for inservice examination and testing of snubbers, do not provide relief from submitting snubber examination or test plans and reports to the regulatory authorities. Submittal is required by the applicable ASME B&PV Code, Section XI or ASME OM Code as noted in (a) and (b) above.

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Licensees not meeting the requirements of IWA-1400(c) or ISTA-3200(a) must submit appropriate documents containing snubber inservice examination and testing plans and submit a request for relief to the NRC pursuant to 10 CFR 50.55a(a)(3). NRC staff will not perform a review of submitted snubber inservice examination and testing plans and reports unless requesting alternatives or reliefs to Code requirements.

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2.5 Relief Requests and Proposed Alternatives

Licensees are required to perform the ISI and testing of snubbers in accordance with ASME BPV Code, Section XI or the OM Code and the applicable addenda as required by 10 CFR 50.55a(g) or 10 CFR 50.55a(b)(3)(v), except where the NRC has granted specific written relief, pursuant to 10 CFR 50.55a(g)(6)(i), or authorized alternatives pursuant to 10 CFR 50.55a(3). 10 CFR 50.55a(a)(3) states that licensees may use alternatives to the requirements of 10 CFR 50.55a(g) when authorized by the NRC if (1) the proposed alternatives would provide an acceptable level of quality and safety, or (2) compliance with the specified requirements would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety A licensee may submit a request for the NRC to review and approve relief from requirements of the Code, or to authorize the use of proposed alternatives. The staff recommends that the basis for relief shall address the following considerations:

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(1) Does the proposed alternative provide an acceptable level of quality and safety? (10 CFR 55a(a)(3)(i))

(2) Would compliance with the specified requirement (for which relief is sought) result in a hardship or unusual difficulty without a compensating increase in the level of quality and safety? (10 CFR 55a(a)(3)(ii))

(3) Would it be impractical to comply with the Code requirements? (10 CFR 55a(f)(6)(i))

The justification must include adequate information for the staff to determine if the relief can be granted or the alternative can be authorized. NRC approval is required before a licensee may implement proposed alternatives that must be authorized pursuant to 10 CFR 50.55a(3). By contrast, a licensee may implement proposed alternative testing while the NRC is reviewing requests for relief from Code requirements made pursuant to 10 CFR 50.55a(f)(6)(i), if the licensee has determined that the requirements are impractical.

The staff performs a detailed review of each relief request, grants relief from the requirements or authorizes an alternative to those requirements, and may impose alternative requirements. When granting relief, the NRC considers the burden that would be imposed upon the licensee if the agency enforced the specified requirements.

For more details contents and format etc. see NEI issued document, "Standard Format for Requests from Commercial Reactor Licensees Pursuant to 10 CFR 50.55a, Revision 1, dated 2004.

Currently, few licensees are using the ASME OM Code to meet the requirements of 10 CFR 50.55a for snubber inservice examination and testing, whereas most of the licensees are using a variety of licensee-controlled documents or procedures in lieu of the applicable ASME Code requirements. These licensee-controlled documents or procedures include the following:

1. Technical Specification (TS)
2. Technical Requirement Manual (TRM)
3. Final Safety Analysis Report (FSAR)
4. Updated Final Analysis Report (UFSAR)
5. Selected Licensee Commitment (SLC)
6. Licensee-Controlled Specification (LCS)
7. Equipment Control Guidelines (ECG)
8. Other Licensee-Controlled Procedures

Recently, the NRC staff has identified several instances in which nuclear power plants licensees have used a TRM, or other licensee-controlled documents and procedures, which do not meet requirements of their "Code of Record" for the ISI and testing of snubbers. These licensees have not requested approval to use these alternatives from the Commission. The NRC issued Regulatory Issue Summary (RIS) 2010-06, "Inservice Inspection and Testing Requirements of Dynamic Restraints (Snubbers)" on June 1, 2010 to remind all the licensees of the NRC's rules and regulations regarding snubber ISI and testing, in accordance with 10 CFR 50.55a(g), at nuclear power plants.

In addition, it is noted that once Relief has been granted all documents included in or referenced by the relief request become equivalent to licensing commitments and cannot be changed in a substantive manner without resubmitting the request for approval. It may be inappropriate to make substantive changes to licensing documents under the 10CFR50.59 process. Any changes to TRMs or other referenced documents must be evaluated in view of the original relief request and assessed as to the appropriate change process.

The NRC expects licensees to ensure that their snubber ISI and testing programs are in compliance with 10 CFR 55.55a(g) or authorized alternatives. If licensees discover that their programs are not meeting 10 CFR 50.55a(g) requirements or authorized alternatives, they shall take appropriate actions to bring their programs back into compliance and ensure that non-compliant systems, structures and components are operable. In certain circumstances involving snubber programs at nuclear power plants that are not in compliance with NRC requirements, enforcement discretion has been provided by the NRC. The NRC's Office of Enforcement issued Enforcement Guidance Memorandum (EGM)-10-001, "Dispositioning Violation of Inservice

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Examination and Testing Requirements for Dynamic Restraints (Snubbers)," on June 1, 2010 to provide NRC staff guidance for the disposition of certain 10 CFR 50.55a violations and the potential of granting enforcement discretion for the affected requirements. NRC expects that licensees of nuclear power plants, who were not meeting the 10 CFR 50.55a requirements for snubber inservice examination and testing as described in RIS 2010-06, shall have entered any noncompliance into their corrective action program and corrected the noncompliance by meeting the applicable ASME Code requirements or by submitting for relief to NRC.

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2.6 Snubber Program Documents

Snubber ISI and testing program documents submitted to the NRC are used to prepare for ISI inspections and to address other licensing actions that may arise. To facilitate these regulatory activities, the NRC would like to receive up-to-date program documents when the licensee makes significant changes to the snubber ISI and testing program in the interim period between the required 10-year interval plan submittals.

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These interim informational submittals are generally considered "good faith" efforts and not necessarily a regulatory requirement. As long as the snubber ISI and testing program remains consistent with the regulations, ASME Code relief is not required for these interim updates. That is, deletions from or additions to the snubber program do not necessarily require NRC approval, unless commitments to obtain such approval exist as a result of prior approved relief requests or similar commitments. The burden is on each licensee to verify that its snubber program is complete and includes all snubbers that require inservice examination and testing. If a licensee deletes a particular snubber from its snubber program, the staff recommends that the licensee should document the basis in an appropriate manner. Such changes do not require approval, unless cumulative changes affect the examination or testing plans in a significant manner. Changes in sample plans and DTPG groupings require notification of the regulator, but do not require approval.

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The staff expects each licensee to maintain its snubber examination and testing program up-to-date and ensure that it remains consistent with changes in plant configuration. Conversely, if a system modification results in the addition of a snubber to the snubber program, the licensee shall ensure that it is incorporated into the program to satisfy the Code and licensing requirements or that a relief request is submitted for NRC review and approval, as appropriate.

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2.7 Repair and Replacement of Snubbers:

The repair and replacement of snubbers is to be performed using applicable edition and addenda of the ASME B&PV Code, Section XI, Article IWA-4000. The NRC approved Inservice Inspection Code Cases in RG 1.147, such as N-508-3, "Rotation of Serviced Snubbers and Pressure Relief Valves for the purpose of Testing, Section XI, Division 1," may be used.

2.8 ISI of the Integral and Non-Integral Attachments of Supports Containing Snubbers

Inservice inspection of integral and non-integral attachments, such as lugs, bolts, pins, and clamps must be performed by use of ASME B&PV Code, Section XI, Subsection IWF. ASME OM Code, Subsection ISTD covers inservice examination and testing of snubbers (pin to-pin) inclusive and does not address the inspection of integral and non-integral attachments, such as lugs, bolting, pins, and clamps.

2.9 Developing Snubber Program for New Nuclear Power Plants

Under 10 CFR Part 52, the development of a plant-specific IST program is the responsibility of the applicant for a combined license (COL) to construct and operate a nuclear power plant. The Commission's Staff Requirements Memorandum (SRM), dated September 11, 2002, for Commission Paper SECY-02-0067, "Inspections, Tests, Analyses, and Acceptance Criteria (ITAAC) for Operational Programs (Programmatic ITAAC)," stated that ITAAC for an operational program are unnecessary if the program and its implementation are fully described in the COL application and found to be acceptable by the NRC. The Commission also stated that the burden is on the COL applicant to provide the necessary and sufficient programmatic information for approval of the COL without ITAAC.

In its May 14, 2004, SRM for SECY-04-0032, "Programmatic Information Needed for Approval of a Combined License Without Inspections, Tests, Analyses and Acceptance Criteria," the Commission defined "fully described" as meaning that the program is clearly and sufficiently described in terms of the scope and level of detail to allow a reasonable assurance finding of acceptability. The Commission also noted that required programs should always be described at a functional level and at an increasing level of detail where implementation choices could materially and negatively affect the program effectiveness and acceptability. SECY-05-0197, "Review of Operational Programs in a Combined License Application and Generic Emergency Planning Inspections, Tests, Analyses, and Acceptance Criteria," summarizes the NRC position regarding the full description of operational programs to be provided by COL applicants. RG 1.206, "Combined License Applications for Nuclear Power Plants (LWR Edition)," provides guidance for COL applicants with respect to fully describing plant operational programs.

COL applicants provide a description of the snubber examination and testing program for NRC review as part of their COL applications. In some cases, the COL applicant incorporates by reference in its Final Safety Analysis Report (FSAR) the description of the snubber examination and testing program provided in the Design Certification documentation, such as the Design Control Document (DCD) or Design Certification FSAR. RG 1.206 provides guidance regarding information to be provided in the COL application as part of the description of the IST program for snubbers. To date, COL applicants have described their snubber examination and testing program based on the requirements in ASME OM Code, Subsection ISTD. The guidance in this NUREG may be used in developing and implementing the IST program for new nuclear power plants.

The NRC staff is reviewing the descriptions of IST programs, including snubber examination and testing programs, provided by COL applicants as part of their COL applications. The staff will reach a conclusion regarding the acceptability of the description of the IST program in its safety evaluation on the COL application. The NRC staff will conduct inspections of the development and implementation of IST programs during the construction of new nuclear power plants following COL issuance.