



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
OF THE
FIRST TEN YEAR INTERVAL INSERVICE INSPECTION PROGRAM PLAN
SNUBBER REQUEST FOR RELIEF
FOR
TENNESSEE VALLEY AUTHORITY
WATTS BAR NUCLEAR PLANT
DOCKET NUMBER: 50-390

1.0 INTRODUCTION

The Code of Federal Regulations, 10 CFR 50.55a, requires that inservice inspection (ISI) of certain American Society of Mechanical Engineers (ASME) Code Class 1, 2, and 3 components be performed in accordance with Section XI of the ASME Boiler and Pressure Vessel (B&PV) Code applicable Edition and Addenda, except where relief has been requested by the licensee and granted or proposed alternatives have been authorized by the Commission pursuant to 10 CFR 50.55a(g)(6)(i), (a)(3)(i), or (a)(3)(ii). In order to obtain authorization or relief, the licensee must demonstrate that: (1) conformance is impractical for its facility; (2) the proposed alternative provides an acceptable level of quality and safety; or (3) compliance would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety.

10 CFR 50.55a authorizes the Commission to grant relief from ASME Code requirements or to approve proposed alternatives upon making the necessary findings. The NRC staff's findings with respect to granting the requested relief or authorizing the proposed alternative as part of the licensee's ISI program are contained in this Safety Evaluation (SE).

This SE covers proposed alternate requirements for snubber inservice examination, test, and repair/replacement activities, as described in Watts Bar Nuclear Plant Unit 1 (WBN) Snubber Inspection Program Request for Relief submitted by the Tennessee Valley Authority (TVA) letter dated February 7, 1996, as supplemented by letters dated December 5, 1996, May 23, 1997, and July 1, 1997. By TVA letter dated May 23, 1997, the WBN relief request was revised in response to the staff's requests for additional information (RAI) contained in NRC letters dated August 29, 1996, April 7, 1997, and discussed during the NRC/TVA teleconference on May 12, 1997. TVA proposes to use alternate requirements in accordance with Technical Requirement (TR) 3.7.3, "Snubbers," contained in the WBN Technical Requirements Manual (TRM). The licensee's ISI program relief request is based on the 1989 Edition of the ASME B&PV Code, Section XI, Article IWF-5000 requirements, which defers snubber ISI requirements to the first Addenda to ASME/ANSI OM-1987 Edition, Part 4, published in 1988 (OMa-1988 Part 4).

2.0 LICENSEE'S RELIEF REQUEST

TVA letter dated February 7, 1996, requested relief from the ASME B&PV Code, Section XI, Article IWF-5000, Subarticles IWF-5200 and IWF-5300, for WBN Code Class snubbers that require examinations and testing be performed in accordance with the first Addenda to the ASME/ANSI OM-1987, Part 4, published in 1988 (OMa-1988, Part 4).

Further, TVA requested relief from Section XI, Subsubarticle IWA-6230, that requires ISI summary reports for snubbers to be filed with the regulatory authority, and Subarticle IWA-2100, that requires an authorized nuclear inservice inspector (ANII) involvement for snubber examination and testing.

By letter dated May 23, 1997, in response to the staff's RAIs, TVA revised the request of the February 7, 1996, letter, to request relief from the following requirements of ASME B&PV Code, Section XI; 1) Subarticle IWF-5300(a) and (b), and implied ASME/ANSI OMa-1988, Part 4, Sections 2.3, "Inservice Examination," 2.4, "Examination Documentation," 3.2 "Inservice Operability Testing," and 3.3, "Testing Documentation;" 2) Subarticle IWF-5400, ASME/ANSI OMa-1988, Part 4, Sections 1.5.6, "Snubber Maintenance or Repair," and 1.5.7, "Snubber Modification and Replacement;" 3) Subsubarticle IWA-6230, "Summary Report;" and 4) Subsubarticle IWA-2110(a)(5) and (c), "Duties of the Inspector."

2.1 LICENSEE'S BASIS FOR REQUESTED RELIEF

TVA is required to incorporate the 1989 Edition of the ASME B&PV Code, Section XI as the governing document for the first 10-year ISI interval for WBN. Section XI, Article IWF-5000 provides the ISI requirements for Code Class snubbers, including the requirement to examine and test the snubbers in accordance with the first Addenda to ASME/ANSI OM-1987, Part 4 (OMa-1988, Part 4). Requirements for the examination and functional testing of all safety-related snubbers to ensure their operability are contained in the WBN TRM. The OMa-1988, Part 4 scope requires that all ASME Code Class 1, 2, and 3 snubbers be inspected and tested to Part 4 requirements. These components are already within the current TRM scope, but OMa-1988, Part 4 would require the creation of a separate program.

In addition, OMa-1988, Part 4 does not allow for the reduction of the frequency of inspections and testing based on performance results as allowed in the current TRM program and the guidelines included in NRC Generic Letter (GL) 90-09, "Alternative Requirements for Snubber Visual Inspection Intervals and Corrective Actions." The TRM program is more conservative than the OMa-1988, Part 4 requirements relating to corrective action. The alternative examination criteria proposed for WBN is based on GL 90-09.

The differences in the ASME Code and TRM programs could create confusion in areas involving test sample selection, acceptance criteria application, corrective actions implementation, or examination schedules for failed snubbers. This situation could increase the possibility of applying the wrong action, thus creating a nonconformance, an inoperability condition, or even a

violation of a TRM requirement. To eliminate any misinterpretation or confusion in administering similar requirements for snubbers and to remove the possibility of applying contradicting requirements to the same snubbers, TVA proposes to examine and test snubbers in accordance with WBN's TRM TR 3.7.3. TRM requirements for testing and examination of snubbers provide an acceptable level of quality and safety. The implementation of OMa-1988, Part 4 would require WBN to initiate a snubber examination and testing program that is more complicated and expensive to perform, without a compensating increase in the level of quality and safety.

Subarticle IWF-5400 provides the requirements for snubber repair and replacement to be in accordance with OMa-1988, Part 4. OMa-1988, Part 4, Section 1.5.6, "Snubber Maintenance or Repair," and 1.5.7, "Snubber Modification and Replacement," require repaired and replaced snubbers to meet the visual examination requirements of paragraph 2.3.1.2 and the operability test requirements of paragraph 3.2.1.1. Section 1.5.6 also requires an evaluation of the maintenance and repair activities. Section 1.5.7 requires a suitability evaluation of the replacement/modified snubbers. TR 3.7.3, note 2, requires replacement snubbers and snubbers which have repairs that might affect the functional test results to be tested to meet the functional test criteria before installation. WBN's Maintenance Instruction (MI)-0.44, provides visual examination criteria for the reinstallation of a snubber after repair or replacement. Further, an evaluation for the suitability for the repair will be performed in accordance with code requirements IWA-4130(a)(4) and for the replacement in accordance with IWA-7220 as implemented by WBN's Repair and Replacement Program.

The ASME B&PV Code, Section XI require VT-3 certification of personnel performing snubber VT-3 visual examinations. The certification is required to be implemented in accordance with the American Society of Nondestructive Testing's (ASNT) requirement SNT-TC-1A "Personnel Qualification and Certification in Nondestructive Testing." This is an additional certification not imposed in the TRM program training qualifications requirements. Personnel performing the TRM visual examinations are trained specifically on the TRM implementing instructions prior to performing the examinations. The training is conducted on the snubber visual examination acceptance criteria included within the implementing technical requirement instruction 1-TRI-0-5. This training is performed and documented during a pretest briefing in accordance with the Site Standard Practice (SSP)-8.01, "Conduct of Testing." Training and documentation of personnel to the visual acceptance criteria, specifically in the TRM implementing instructions, provides an acceptable level of quality and safety.

The WBN TRM Snubber Program does not require the use of an authorized nuclear inservice inspector (ANII) for the examination and testing of snubbers. The ANII will not be involved in the TRM visual examinations performed in lieu of the code VT-3 visual examinations as required by IWA-2110(a)(5), or functional testing performed in lieu of the code inservice testing of snubbers as required by IWA-2110(c). The TRM snubber program is directed by a designated Snubber Program Manager (SPM), which performs an oversight function of the TRM

program during its implementation. The SPM's duties include responsibilities for serving as the TRM Test Director, which require oversight of the implementation of TVA's procedure for conducting a test and for reviewing the TRM examination and test data. The SPM's review and evaluation of the TRM examination and test data, provides an acceptable level of quality without the third party inspector's participation. It should be noted that the ANII involvement in other inservice repair and replacement snubber activities, as required by IWA-2110(g) and (h) and implemented by WBN's Repair and Replacement Program, will be maintained.

The ASME B&PV Code, Section XI, Subarticle IWA-6230 and OMa-1988, Part 4, Section 2.3 and 3.3 provide requirements for inservice examination and test documentation for snubbers, that include a summary report to be submitted within 90 days following the completion of the inservice inspection. Under the TVA proposed TR 3.7.3 alternate, functional test data and results will be documented by the implementation of technical instructions 1-TRI-0-5, 1-TRI-0-7, and 1-TRI-0-8 rather than the ASME, Section XI, summary reporting requirements. Maintenance instruction, MI-0.44, provides visual examination criteria for repaired and replaced snubbers. These instructions are written and approved in accordance with the TVA Nuclear Quality Assurance (QA) Program. Included in the instructions are data sheets for documenting the visual and functional test data and results, including documentation of nonconformance results, nonconformance evaluation and corrective action taken. These completed data sheets are considered QA records and, as such, are controlled and maintained in accordance with the WBN QA Records Program. These records are available onsite for review and inspection.

2.2 LICENSEE'S PROPOSED ALTERNATIVE

The licensee proposes for WBN, during the first ISI interval of commercial plant operation, that snubber examination and testing will be performed in accordance with the following requirements:

- (1) Inservice examination and testing of snubbers will be performed in accordance with the requirements in TRM TR 3.7.3, "Snubbers," Technical Surveillance Requirement (TSR) 3.7.3.1 as implemented by Technical Requirement Instruction (TRI), 1-TRI-0-5, "Snubber Visual Inspection," and TSR 3.7.3.3 as implemented by 1-TRI-0-7, "Snubber Functional Testing (Mechanical Snubbers)," and 1-TRI-0-8, "Snubber Functional Testing (Paul Monroe Snubbers)."
- (2) Testing of repaired and replaced snubbers will be performed in accordance with TR 3.7/3, Note 2.
- (3) Visual examination of repaired and replaced snubbers will be performed in accordance with Maintenance Instruction (MI) 0.44, "Removal and Reinstallation of Mechanical Snubbers."

- (4) Examination and testing data resulting from TR 3.7.3 will be maintained in accordance with the TR implementing procedure 1-TRI -0-5, 1-TRI-0-8, 1-0-8 and MI-0.44.

3.0 EVALUATION

The licensee proposes as an alternative to the ASME B&PV Code, Section XI, Subarticle IWF-5300 (a) and (b) requirements, as defined in ASME/ANSI OMa-1988, Part 4, to perform the snubber inservice examination and testing in accordance with the WBN TRM TR 3.7.3. IWF-5300(a) covers snubber visual inspection requirements and IWF-5300(b) covers snubber functional test requirements.

The snubber visual inspection requirements of TR 3.7.3 are based on the provisions of GL 90-09. The staff developed GL 90-09, in part, to reduce unnecessary radiological exposure to plant personnel during the snubber visual inspections. To verify that a snubber can operate within specific performance limits, the licensees usually perform functional testing that typically involves removing the snubber and testing it on a specially designed test stand. Functional testing provides a 95 percent confidence level that 90 percent to 100 percent of the snubbers operate within the specified accepted limits. The performance of visual examinations is a separate process that complements the functional program and provides additional confidence in snubber operability. GL 90-09 provides an alternate schedule for snubber visual inspections that maintains the same confidence level as the existing inspection intervals and allows for inspections and corrective actions during plant outages. The staff determined that the visual inspection schedule of GL 90-09 is an acceptable alternative to the ASME Code requirements and encouraged licensees to change their Technical Specifications to be consistent with this guidance. The snubber visual inspection and functional test requirements of TR 3.7.3 are consistent with the Section XI, Subarticles IWF-5300 (a) and (b) requirements as defined in ASME/ANSI OMa-1988, Part 4 and the alternative allowed by GL 90-09.

The licensee proposes, as an alternative to the ASME B&PV Code, Section XI, Subarticle IWF-5300(a) that require VT-3 certification for personnel performing snubber visual examinations, to use the TRM program training qualifications. Personnel performing the TRM visual examinations are trained specifically on the TRM implementing instructions prior to performing the examinations. Training on the snubber visual examination criteria is included within the implementing technical instruction 1-TRI-0-5. The training is performed and documented during a pretest briefing as part of the SSP-8.01, "Conduct of Testing." Further, the staff has raised questions, with regard to the visual acuity requirements for personnel performing the snubber TRM visual examinations that were discussed during a teleconference between NRC and TVA on June 26, 1997. In its response of July 6, 1997 to the staff's questions, the licensee stated that the TRI 1-TRI-0-5 "Snubber Visual Inspection (Hydraulic and Mechanical)," will be revised to include visual requirements

that meet ASME B&PV Code, Section XI, Paragraph IWA-2321, "Visual Acuity." This proposed alternative to the Code-required certification including the Visual Acuity requirements, provides an acceptable level of quality and safety.

The licensee proposes as an alternative to the ASME B&PV Code, Section XI, Subarticle IWF-5400 requirements defined in ASME/ANSI OMa-1988, Part 4, Sections 1.5.6 "Snubber maintenance and Repair," and 1.5.7, "Snubber Modification and Replacement," to perform the required repair and replacements in accordance with TR 3.7.3, note 2, and perform the visual examination of repaired and replaced snubbers in accordance with MI-0.44, "Removal and Reinstallation of Mechanical Snubbers."

OMa-1988, Part 4, Sections 1.5.6 and 1.5.7 require repaired and replaced snubbers to meet visual examination and operability requirements, including an evaluation of the maintenance and repair activities, and the suitability of replacement or modified snubbers. TR 3.7.3, note 2, and MI-0.44 requirements are consistent with these sections of Part 4. Further, the licensee will meet the requirement for evaluating the suitability of repaired snubbers in accordance with Section XI, Subsubarticle IWA-4130(a)(4), and the suitability of replacement snubbers in accordance with Subsubarticle IWA-7220 as implemented by WBN's Repair and Replacement Program. The proposed licensee's alternative to Subarticle IWF-5400 requirements, which include meeting the requirements of Subsubarticles IWA-4130(a)(4) and WA-7220 provide an acceptable level of quality and safety.

As an alternative to the ASME B&PV Code, Section XI, Subarticle IWA-6230, requirements for filing snubber examination and test summary reports with the enforcement and regulatory authorities having jurisdiction at the plant site, and also as an alternative to OMa-1988, Sections 2.4 and 3.4, requirements for examination and test documentation respectively, the licensee proposes to use TR 3.7.3 as implemented by 1-TRI-0-5, 1-TRI-0-7, 1-TRI-0-8 and MI-0.44. These instructions are written and approved in accordance with the TVA Nuclear QA Program. Contained in the instructions are data sheets for documenting the visual and functional test data and results, including documentation of nonconformance results, nonconformance evaluations, and corrective actions taken. The documentation data sheets contained in the TR 3.7.3 implementing instructions are consistent with the OMa-1988, Part 4 documentation requirements. The licensee's proposed alternative to maintain and control these completed data sheets as QA records available onsite for review and inspection provides an acceptable level of quality and safety.

In addition, as an alternative to certain ASME B&PV Code, Section XI, Subsubarticle IWA-2110(a)(5) and (c) requirements involving the ANII duties to verify that required visual examinations and tests have been performed and the results recorded, the licensee proposes to use the WBN TRM Snubber Program. In the WBN TRM Snubber Program, the ANII will not be involved in the TRM visual examinations performed in the alternate VT-3 visual examinations as required by IWA-2110(a)(5); nor the TRM functional testing performed as

required by IWA-2110(c). The TRM snubber program is directed by a designated SPM. The SPM, as the TRM TEST Director, provides oversight of the snubber program during its implementation. The oversight includes responsibilities for the performance of tests and reviewing the examination and test data. ANII involvement in other inservice repair and replacement snubber activities, as required by IWA-2110(g) and (h) and implemented by WBN's Repair and Replacement Program, will be maintained.

The ANII will be involved in the repair and replacements of snubbers but not the examination and testing. The WBN Repair and Replacement Program is implemented by SSP-6.09, "Repair/Replacement of ASME Section Components." The Repair and Replacement Program is applicable to the planned scope of work involving the ASME B&PV Code, Section XI, Class 1, 2, or 3 components or systems. The WBN snubbers are required to be repaired and replaced in accordance with the Repair and Replacement Program at WBN. The Repair and Replacement Program requires the ANII to review all repair and replacement work implementing documents (WID) prior to the start of work. The ANII also reviews all the required WID after the work completion. The ANII will be involved in snubber repairs and replacements as required by Section XI, Subsubarticles IWA-2110 (g) and (h). All the snubber examination and test data results will be controlled and maintained as QA records onsite and will be available for inspection. The licensee's proposed alternative to use the TRM for snubber visual and functional testing without involving the ANII in these activities provides an acceptable level of quality and safety.

4.0 CONCLUSIONS

The staff concludes that the licensee's proposed alternative to certain of the ASME B&PV Code Section XI requirements for inservice inspection of snubbers, as contained in the revised relief request submitted by TVA letters dated May 23, 1997, and July 1, 1997, and evaluated in this SE provided an acceptable level of quality and safety. Therefore, the licensee's request is authorized pursuant to 10 CFR 50.55a (3)(a)(i).

Principal Contributor: F. Grubelich

Date: August 11, 1997



50-390

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

August 11, 1997

Mr. Oliver D. Kingsley, Jr.
President, TVA Nuclear and
Chief Nuclear Officer
Tennessee Valley Authority
6A Lookout Place
1101 Market Street
Chattanooga, Tennessee 37402-2801

SUBJECT: EVALUATION OF INSERVICE INSPECTION PROGRAM SNUBBBER RELIEF REQUEST
FOR THE WATTS BAR NUCLEAR PLANT (TAC NO. M94672)

Dear Mr. Kingsley:

By letter dated February 7, 1996 as supplemented December 5, 1996, May 23, 1997 and July 1, 1997, the Tennessee Valley Authority (TVA) submitted a request for relief from the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel (B&PV) Code, Section XI requirements for inservice inspection (ISI) of snubbers for the Watts Bar Nuclear plant, Unit 1 (WBN) First 10 year Interval ISI Program.

Currently, TVA is required to incorporate the 1989 Edition of the ASME B&PV Code, Section XI as the governing document for the first 10-year ISI interval for WBN Unit 1. Section XI, Article IWF-5000 provides the ISI requirements for Code Class snubbers, including the requirement to examine and test the snubbers in accordance with the first Addenda to ASME/ANSI OM-1987, Part 4 (OMa-1988, Part 4). The OMa-1988, Part 4 scope requires that all ASME Code Class 1, 2, and 3 snubbers be inspected and tested to Part 4 requirements. However, requirements for the examination and functional testing of all safety-related snubbers to ensure their operability are also contained in the WBN Unit 1 Technical Requirements Manual (TRM) section 3.7.3 which is incorporated into the Final Safety Analysis Report. The snubbers are already within the current TRM scope, but OMa-1988, Part 4 would require the creation of a separate program. TVA has requested relief that would allow the examination and testing of snubbers in accordance with TRM section 3.7.3

The staff has reviewed the information provided in TVA's February 7, 1996, December 5, 1996, May 23, 1997 and July 1, 1997 letters. The staff's evaluation and conclusions are contained in the Enclosure. The staff finds

DF01
1/1

180032
9708140335 YPP



NRC FILE CENTER COPY

KeISS

Oliver D. Kingsley

- 2 -

that the use of the TRM program provides an acceptable level of safety and quality. Accordingly the staff authorizes the use of such alternative pursuant to 10 CFR 50.55a(a)(3)(i).

Sincerely,

Original signed by
Frederick J. Hebdon, Director
Project Directorate II-3
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Docket No. 50-390

Enclosure: Safety Evaluation

cc w/enclosure: See next page

DISTRIBUTION:

Docket File
PUBLIC
PDII-3 Rdg.
B. Boger
F. Hebdon
B. Clayton
R. Martin
F. Grubelich
T. Harris (e-mail to TLH3)
OGC
G. Hill (2)
ACRS
N. Dudley
J. Johnson, RII

DOCUMENT NAME: G:\WBN\WB94672.RR

To receive a copy of this document, indicate in the box: "C" = Copy without attachment/enclosure "E" = Copy with attachment/enclosure "N" = No copy

OFFICE	PDII-3/PM <i>DM</i>	E	PDII-3/LA <i>BC</i>	E	OGC		PDII-3/D	<input checked="" type="checkbox"/>
NAME	RMartin		BClayton		<i>C. Marcus</i>		FHebdon	<input checked="" type="checkbox"/>
DATE	08/1/97		08/1/97		08/8/97		08/11/97	

OFFICIAL RECORD COPY

Oliver D. Kingsley

- 2 -

that the use of the TRM program provides an acceptable level of safety and quality. Accordingly the staff authorizes the use of such alternative pursuant to 10 CFR 50.55a(a)(3)(i).

Sincerely,



Frederick J. Hebdon, Director
Project Directorate II-3
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Docket No. 50-390

Enclosure: Safety Evaluation

cc w/enclosure: See next page

Mr. Oliver D. Kingsley, Jr.
Tennessee Valley Authority

cc:

Mr. O. J. Zeringue, Sr. Vice President
Nuclear Operations
Tennessee Valley Authority
6A Lookout Place
1101 Market Street
Chattanooga, TN 37402-2801

Mr. Jack A. Bailey, Vice President
Engineering & Technical Services
Tennessee Valley Authority
6A Lookout Place
1101 Market Street
Chattanooga, TN 37402-2801

Mr. J. A. Scalice, Site Vice President
Watts Bar Nuclear Plant
Tennessee Valley Authority
P.O. Box 2000
Spring City, TN 37381

General Counsel
Tennessee Valley Authority
ET 10H
400 West Summit Hill Drive
Knoxville, TN 37902

Mr. Raul R. Baron, General Manager
Nuclear Assurance and Licensing
Tennessee Valley Authority
4J Blue Ridge
1101 Market Street
Chattanooga, TN 37402-2801

Mr. Pedro Salas, Manager
Licensing and Industry Affairs
Tennessee Valley Authority
4J Blue Ridge
1101 Market Street
Chattanooga, TN 37402-2801

Mr. Paul L. Pace, Manager
Licensing and Industry Affairs
Watts Bar Nuclear Plant
Tennessee Valley Authority
P.O. Box 2000
Spring City, TN 37381

WATTS BAR NUCLEAR PLANT

Mr. Richard T. Purcell, Plant Manager
Watts Bar Nuclear Plant
Tennessee Valley Authority
P.O. Box 2000
Spring City, TN 37381

Regional Administrator
U.S. Nuclear Regulatory Commission
Region II
61 Forsyth Street, SW., Suite 23T85
Atlanta, GA 30303-3415

Senior Resident Inspector
Watts Bar Nuclear Plant
U.S. Nuclear Regulatory Commission
1260 Nuclear Plant Road
Spring City, TN 37381

County Executive
Rhea County Courthouse
Dayton, TN 37321

County Executive
Meigs County Courthouse
Decatur, TN 37322

Mr. Michael H. Mobley, Director
Division of Radiological Health
3rd Floor, L and C Annex
401 Church Street
Nashville, TN 37243-1532



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
OF THE
FIRST TEN YEAR INTERVAL INSERVICE INSPECTION PROGRAM PLAN
SNUBBER REQUEST FOR RELIEF
FOR
TENNESSEE VALLEY AUTHORITY
WATTS BAR NUCLEAR PLANT
DOCKET NUMBER: 50-390

1.0 INTRODUCTION

The Code of Federal Regulations, 10 CFR 50.55a, requires that inservice inspection (ISI) of certain American Society of Mechanical Engineers (ASME) Code Class 1, 2, and 3 components be performed in accordance with Section XI of the ASME Boiler and Pressure Vessel (B&PV) Code applicable Edition and Addenda, except where relief has been requested by the licensee and granted or proposed alternatives have been authorized by the Commission pursuant to 10 CFR 50.55a(g)(6)(i), (a)(3)(i), or (a)(3)(ii). In order to obtain authorization or relief, the licensee must demonstrate that: (1) conformance is impractical for its facility; (2) the proposed alternative provides an acceptable level of quality and safety; or (3) compliance would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety.

10 CFR 50.55a authorizes the Commission to grant relief from ASME Code requirements or to approve proposed alternatives upon making the necessary findings. The NRC staff's findings with respect to granting the requested relief or authorizing the proposed alternative as part of the licensee's ISI program are contained in this Safety Evaluation (SE).

This SE covers proposed alternate requirements for snubber inservice examination, test, and repair/replacement activities, as described in Watts Bar Nuclear Plant Unit 1 (WBN) Snubber Inspection Program Request for Relief submitted by the Tennessee Valley Authority (TVA) letter dated February 7, 1996, as supplemented by letters dated December 5, 1996, May 23, 1997, and July 1, 1997. By TVA letter dated May 23, 1997, the WBN relief request was revised in response to the staff's requests for additional information (RAI) contained in NRC letters dated August 29, 1996, April 7, 1997, and discussed during the NRC/TVA teleconference on May 12, 1997. TVA proposes to use alternate requirements in accordance with Technical Requirement (TR) 3.7.3, "Snubbers," contained in the WBN Technical Requirements Manual (TRM). The licensee's ISI program relief request is based on the 1989 Edition of the ASME B&PV Code, Section XI, Article IWF-5000 requirements, which defers snubber ISI requirements to the first Addenda to ASME/ANSI OM-1987 Edition, Part 4, published in 1988 (OMa-1988 Part 4).

9708140339

2.0 LICENSEE'S RELIEF REQUEST

TVA letter dated February 7, 1996, requested relief from the ASME B&PV Code, Section XI, Article IWF-5000, Subarticles IWF-5200 and IWF-5300, for WBN Code Class snubbers that require examinations and testing be performed in accordance with the first Addenda to the ASME/ANSI OM-1987, Part 4, published in 1988 (OMa-1988, Part 4).

Further, TVA requested relief from Section XI, Subsubarticle IWA-6230, that requires ISI summary reports for snubbers to be filed with the regulatory authority, and Subarticle IWA-2100, that requires an authorized nuclear inservice inspector (ANII) involvement for snubber examination and testing.

By letter dated May 23, 1997, in response to the staff's RAIs, TVA revised the request of the February 7, 1996, letter, to request relief from the following requirements of ASME B&PV Code, Section XI: 1) Subarticle IWF-5300(a) and (b), and implied ASME/ANSI OMa-1988, Part 4, Sections 2.3, "Inservice Examination," 2.4, "Examination Documentation," 3.2 "Inservice Operability Testing," and 3.3, "Testing Documentation;" 2) Subarticle IWF-5400, ASME/ANSI OMa-1988, Part 4, Sections 1.5.6, "Snubber Maintenance or Repair," and 1.5.7, "Snubber Modification and Replacement;" 3) Subsubarticle IWA-6230, "Summary Report;" and 4) Subsubarticle IWA-2110(a)(5) and (c), "Duties of the Inspector."

2.1 LICENSEE'S BASIS FOR REQUESTED RELIEF

TVA is required to incorporate the 1989 Edition of the ASME B&PV Code, Section XI as the governing document for the first 10-year ISI interval for WBN. Section XI, Article IWF-5000 provides the ISI requirements for Code Class snubbers, including the requirement to examine and test the snubbers in accordance with the first Addenda to ASME/ANSI OM-1987, Part 4 (OMa-1988, Part 4). Requirements for the examination and functional testing of all safety-related snubbers to ensure their operability are contained in the WBN TRM. The OMa-1988, Part 4 scope requires that all ASME Code Class 1, 2, and 3 snubbers be inspected and tested to Part 4 requirements. These components are already within the current TRM scope, but OMa-1988, Part 4 would require the creation of a separate program.

In addition, OMa-1988, Part 4 does not allow for the reduction of the frequency of inspections and testing based on performance results as allowed in the current TRM program and the guidelines included in NRC Generic Letter (GL) 90-09, "Alternative Requirements for Snubber Visual Inspection Intervals and Corrective Actions." The TRM program is more conservative than the OMa-1988, Part 4 requirements relating to corrective action. The alternative examination criteria proposed for WBN is based on GL 90-09.

The differences in the ASME Code and TRM programs could create confusion in areas involving test sample selection, acceptance criteria application, corrective actions implementation, or examination schedules for failed snubbers. This situation could increase the possibility of applying the wrong action, thus creating a nonconformance, an inoperability condition, or even a

violation of a TRM requirement. To eliminate any misinterpretation or confusion in administering similar requirements for snubbers and to remove the possibility of applying contradicting requirements to the same snubbers, TVA proposes to examine and test snubbers in accordance with WBN's TRM TR 3.7.3. TRM requirements for testing and examination of snubbers provide an acceptable level of quality and safety. The implementation of OMa-1988, Part 4 would require WBN to initiate a snubber examination and testing program that is more complicated and expensive to perform, without a compensating increase in the level of quality and safety.

Subarticle IWF-5400 provides the requirements for snubber repair and replacement to be in accordance with OMa-1988, Part 4. OMa-1988, Part 4, Section 1.5.6, "Snubber Maintenance or Repair," and 1.5.7, "Snubber Modification and Replacement," require repaired and replaced snubbers to meet the visual examination requirements of paragraph 2.3.1.2 and the operability test requirements of paragraph 3.2.1.1. Section 1.5.6 also requires an evaluation of the maintenance and repair activities. Section 1.5.7 requires a suitability evaluation of the replacement/modified snubbers. TR 3.7.3, note 2, requires replacement snubbers and snubbers which have repairs that might affect the functional test results to be tested to meet the functional test criteria before installation. WBN's Maintenance Instruction (MI)-0.44, provides visual examination criteria for the reinstallation of a snubber after repair or replacement. Further, an evaluation for the suitability for the repair will be performed in accordance with code requirements IWA-4130(a)(4) and for the replacement in accordance with IWA-7220 as implemented by WBN's Repair and Replacement Program.

The ASME B&PV Code, Section XI require VT-3 certification of personnel performing snubber VT-3 visual examinations. The certification is required to be implemented in accordance with the American Society of Nondestructive Testing's (ASNT) requirement SNT-TC-1A "Personnel Qualification and Certification in Nondestructive Testing." This is an additional certification not imposed in the TRM program training qualifications requirements. Personnel performing the TRM visual examinations are trained specifically on the TRM implementing instructions prior to performing the examinations. The training is conducted on the snubber visual examination acceptance criteria included within the implementing technical requirement instruction 1-TRI-0-5. This training is performed and documented during a pretest briefing in accordance with the Site Standard Practice (SSP)-8.01, "Conduct of Testing." Training and documentation of personnel to the visual acceptance criteria, specifically in the TRM implementing instructions, provides an acceptable level of quality and safety.

The WBN TRM Snubber Program does not require the use of an authorized nuclear inservice inspector (ANII) for the examination and testing of snubbers. The ANII will not be involved in the TRM visual examinations performed in lieu of the code VT-3 visual examinations as required by IWA-2110(a)(5), or functional testing performed in lieu of the code inservice testing of snubbers as required by IWA-2110(c). The TRM snubber program is directed by a designated Snubber Program Manager (SPM), which performs an oversight function of the TRM

program during its implementation. The SPM's duties include responsibilities for serving as the TRM Test Director, which require oversight of the implementation of TVA's procedure for conducting a test and for reviewing the TRM examination and test data. The SPM's review and evaluation of the TRM examination and test data, provides an acceptable level of quality without the third party inspector's participation. It should be noted that the ANII involvement in other inservice repair and replacement snubber activities, as required by IWA-2110(g) and (h) and implemented by WBN's Repair and Replacement Program, will be maintained.

The ASME B&PV Code, Section XI, Subarticle IWA-6230 and OMa-1988, Part 4, Section 2.3 and 3.3 provide requirements for inservice examination and test documentation for snubbers, that include a summary report to be submitted within 90 days following the completion of the inservice inspection. Under the TVA proposed TR 3.7.3 alternate, functional test data and results will be documented by the implementation of technical instructions 1-TRI-0-5, 1-TRI-0-7, and 1-TRI-0-8 rather than the ASME, Section XI, summary reporting requirements. Maintenance instruction, MI-0.44, provides visual examination criteria for repaired and replaced snubbers. These instructions are written and approved in accordance with the TVA Nuclear Quality Assurance (QA) Program. Included in the instructions are data sheets for documenting the visual and functional test data and results, including documentation of nonconformance results, nonconformance evaluation and corrective action taken. These completed data sheets are considered QA records and, as such, are controlled and maintained in accordance with the WBN QA Records Program. These records are available onsite for review and inspection.

2.2 LICENSEE'S PROPOSED ALTERNATIVE

The licensee proposes for WBN, during the first ISI interval of commercial plant operation, that snubber examination and testing will be performed in accordance with the following requirements:

- (1) Inservice examination and testing of snubbers will be performed in accordance with the requirements in TRM TR 3.7.3, "Snubbers," Technical Surveillance Requirement (TSR) 3.7.3.1 as implemented by Technical Requirement Instruction (TRI), 1-TRI-0-5, "Snubber Visual Inspection," and TSR 3.7.3.3 as implemented by 1-TRI-0-7, "Snubber Functional Testing (Mechanical Snubbers)," and 1-TRI-0-8, "Snubber Functional Testing (Paul Monroe Snubbers)."
- (2) Testing of repaired and replaced snubbers will be performed in accordance with TR 3.7/3, Note 2.
- (3) Visual examination of repaired and replaced snubbers will be performed in accordance with Maintenance Instruction (MI) 0.44, "Removal and Reinstallation of Mechanical Snubbers."

- (4) Examination and testing data resulting from TR 3.7.3 will be maintained in accordance with the TR implementing procedure 1-TRI -0-5, 1-TRI-0-8, 1-0-8 and MI-0.44.

3.0 EVALUATION

The licensee proposes as an alternative to the ASME B&PV Code, Section XI, Subarticle IWF-5300 (a) and (b) requirements, as defined in ASME/ANSI OMa-1988, Part 4, to perform the snubber inservice examination and testing in accordance with the WBN TRM TR 3.7.3. IWF-5300(a) covers snubber visual inspection requirements and IWF-5300(b) covers snubber functional test requirements.

The snubber visual inspection requirements of TR 3.7.3 are based on the provisions of GL 90-09. The staff developed GL 90-09, in part, to reduce unnecessary radiological exposure to plant personnel during the snubber visual inspections. To verify that a snubber can operate within specific performance limits, the licensees usually perform functional testing that typically involves removing the snubber and testing it on a specially designed test stand. Functional testing provides a 95 percent confidence level that 90 percent to 100 percent of the snubbers operate within the specified accepted limits. The performance of visual examinations is a separate process that complements the functional program and provides additional confidence in snubber operability. GL 90-09 provides an alternate schedule for snubber visual inspections that maintains the same confidence level as the existing inspection intervals and allows for inspections and corrective actions during plant outages. The staff determined that the visual inspection schedule of GL 90-09 is an acceptable alternative to the ASME Code requirements and encouraged licensees to change their Technical Specifications to be consistent with this guidance. The snubber visual inspection and functional test requirements of TR 3.7.3 are consistent with the Section XI, Subarticles IWF-5300 (a) and (b) requirements as defined in ASME/ANSI OMa-1988, Part 4 and the alternative allowed by GL 90-09.

The licensee proposes, as an alternative to the ASME B&PV Code, Section XI, Subarticle IWF-5300(a) that require VT-3 certification for personnel performing snubber visual examinations, to use the TRM program training qualifications. Personnel performing the TRM visual examinations are trained specifically on the TRM implementing instructions prior to performing the examinations. Training on the snubber visual examination criteria is included within the implementing technical instruction 1-TRI-0-5. The training is performed and documented during a pretest briefing as part of the SSP-8.01, "Conduct of Testing." Further, the staff has raised questions, with regard to the visual acuity requirements for personnel performing the snubber TRM visual examinations that were discussed during a teleconference between NRC and TVA on June 26, 1997. In its response of July 6, 1997 to the staff's questions, the licensee stated that the TRI 1-TRI-0-5 "Snubber Visual Inspection (Hydraulic and Mechanical)," will be revised to include visual requirements

that meet ASME B&PV Code, Section XI, Paragraph IWA-2321, "Visual Acuity." This proposed alternative to the Code-required certification including the Visual Acuity requirements, provides an acceptable level of quality and safety.

The licensee proposes as an alternative to the ASME B&PV Code, Section XI, Subarticle IWF-5400 requirements defined in ASME/ANSI OMa-1988, Part 4, Sections 1.5.6 "Snubber maintenance and Repair," and 1.5.7, "Snubber Modification and Replacement," to perform the required repair and replacements in accordance with TR 3.7.3, note 2, and perform the visual examination of repaired and replaced snubbers in accordance with MI-0.44, "Removal and Reinstallation of Mechanical Snubbers."

OMa-1988, Part 4, Sections 1.5.6 and 1.5.7 require repaired and replaced snubbers to meet visual examination and operability requirements, including an evaluation of the maintenance and repair activities, and the suitability of replacement or modified snubbers. TR 3.7.3, note 2, and MI-0.44 requirements are consistent with these sections of Part 4. Further, the licensee will meet the requirement for evaluating the suitability of repaired snubbers in accordance with Section XI, Subsubarticle IWA-4130(a)(4), and the suitability of replacement snubbers in accordance with Subsubarticle IWA-7220 as implemented by WBN's Repair and Replacement Program. The proposed licensee's alternative to Subarticle IWF-5400 requirements, which include meeting the requirements of Subsubarticles IWA-4130(a)(4) and WA-7220 provide an acceptable level of quality and safety.

As an alternative to the ASME B&PV Code, Section XI, Subarticle IWA-6230, requirements for filing snubber examination and test summary reports with the enforcement and regulatory authorities having jurisdiction at the plant site, and also as an alternative to OMa-1988, Sections 2.4 and 3.4, requirements for examination and test documentation respectively, the licensee proposes to use TR 3.7.3 as implemented by 1-TRI-0-5, 1-TRI-0-7, 1-TRI-0-8 and MI-0.44. These instructions are written and approved in accordance with the TVA Nuclear QA Program. Contained in the instructions are data sheets for documenting the visual and functional test data and results, including documentation of nonconformance results, nonconformance evaluations, and corrective actions taken. The documentation data sheets contained in the TR 3.7.3 implementing instructions are consistent with the OMa-1988, Part 4 documentation requirements. The licensee's proposed alternative to maintain and control these completed data sheets as QA records available onsite for review and inspection provides an acceptable level of quality and safety.

In addition, as an alternative to certain ASME B&PV Code, Section XI, Subsubarticle IWA-2110(a)(5) and (c) requirements involving the ANII duties to verify that required visual examinations and tests have been performed and the results recorded, the licensee proposes to use the WBN TRM Snubber Program. In the WBN TRM Snubber Program, the ANII will not be involved in the TRM visual examinations performed in the alternate VT-3 visual examinations as required by IWA-2110(a)(5); nor the TRM functional testing performed as

required by IWA-2110(c). The TRM snubber program is directed by a designated SPM. The SPM, as the TRM TEST Director, provides oversight of the snubber program during its implementation. The oversight includes responsibilities for the performance of tests and reviewing the examination and test data. ANII involvement in other inservice repair and replacement snubber activities, as required by IWA-2110(g) and (h) and implemented by WBN's Repair and Replacement Program, will be maintained.

The ANII will be involved in the repair and replacements of snubbers but not the examination and testing. The WBN Repair and Replacement Program is implemented by SSP-6.09, "Repair/Replacement of ASME Section Components." The Repair and Replacement Program is applicable to the planned scope of work involving the ASME B&PV Code, Section XI, Class 1, 2, or 3 components or systems. The WBN snubbers are required to be repaired and replaced in accordance with the Repair and Replacement Program at WBN. The Repair and Replacement Program requires the ANII to review all repair and replacement work implementing documents (WID) prior to the start of work. The ANII also reviews all the required WID after the work completion. The ANII will be involved in snubber repairs and replacements as required by Section XI, Subsubarticles IWA-2110 (g) and (h). All the snubber examination and test data results will be controlled and maintained as QA records onsite and will be available for inspection. The licensee's proposed alternative to use the TRM for snubber visual and functional testing without involving the ANII in these activities provides an acceptable level of quality and safety.

4.0 CONCLUSIONS

The staff concludes that the licensee's proposed alternative to certain of the ASME B&PV Code Section XI requirements for inservice inspection of snubbers, as contained in the revised relief request submitted by TVA letters dated May 23, 1997, and July 1, 1997, and evaluated in this SE provided an acceptable level of quality and safety. Therefore, the licensee's request is authorized pursuant to 10 CFR 50.55a (3)(a)(i).

Principal Contributor: F. Grubelich

Date: August 11, 1997