

November 22, 2004

Mr. G. R. Peterson, Vice President
McGuire Nuclear Station
Duke Energy Corporation
12700 Hagers Ferry Road
Huntersville, NC 28078-8985

SUBJECT: MCGUIRE NUCLEAR STATION, UNIT 2 - REQUEST FOR RELIEF RE:
SNUBBER VISUAL EXAMINATION AND FUNCTIONAL TESTING RR-03-002
(TAC NO. MC2384)

Dear Mr. Peterson:

By letter to the U.S. Nuclear Regulatory Commission (NRC) dated March 8, 2004, as supplemented by letter September 22, 2004, Duke Energy Corporation, the licensee for McGuire Nuclear Station (McGuire), Unit 2, requested an alternative to the American Society of Mechanical Engineers (ASME) *Boiler and Pressure Vessel Code* (Code), 1998 Edition through the 2000 Addenda, Article IWF-5000, with regard to visual examination and functional testing of snubbers. Specifically, the licensee requested to use an inspection program that is a McGuire, Unit 2, Selected Licensee Commitment (SLC) 16.9.15.

The NRC staff has completed its review of the subject request for relief. As documented in the enclosed Safety Evaluation, the NRC staff concludes that the proposed alternative provides an acceptable level of quality and safety. Therefore, the licensee's proposed alternative to the ASME Code requirements is authorized pursuant to 10 CFR 50.55a(a)(3)(i), for the third 10-year inservice inspection (ISI) interval at McGuire, Unit 2 with limitations as described in the Safety Evaluation. All other ASME Code, Section XI requirements for which relief has not been specifically requested remain applicable, including third party review by the Authorized Nuclear Inservice Inspector.

Sincerely,

/RA/

Mary Jane Ross-Lee, Acting Chief, Section 1
Project Directorate II
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket No. 50-370

Enclosure: As stated

cc w/encl: See next page

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SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

SNUBBER VISUAL EXAMINATION AND FUNCTIONAL TESTING (RR-03-002)

DUKE ENERGY CORPORATION

MCGUIRE NUCLEAR STATION, UNIT 2

DOCKET NUMBER 50-370

1.0 INTRODUCTION

By letter to the U.S. Nuclear Regulatory Commission (NRC) dated March 8, 2004, as supplemented by letter September 22, 2004, Duke Energy Corporation, the licensee for McGuire Nuclear Station (McGuire), Unit 2, requested to use an alternative to the requirements of the American Society of Mechanical Engineers (ASME) *Boiler and Pressure Vessel Code* (Code), Section XI, 1998 Edition through the 2000 Addenda, Article IWF-5000, Subarticle 5300, Subarticle IWF-5300(a), (b), and (c) with regard to snubber inservice inspection (ISI) activities.

ASME Code, Subarticle IWF-5300(a), and Subarticle IWF-5300(b) references the 1988 Addenda to the ASME/American National Standards Institute (ANSI) Operation and Maintenance (OM) Standard, Part 4 (OM-4), for snubber visual examination and functional testing requirements. In addition, Subarticle IWF-5300(c) requires that integral and non-integral attachments for snubbers, including lugs, bolting, pins, and clamps be examined in accordance with the requirements of the ASME Code, Section XI, Subsection IWF. The licensee proposed to perform the above snubber surveillance activities using the McGuire, Unit 2, Updated Final Safety Analysis (UFSAR), Chapter 16, Selected Licensee Commitment (SLC) 16.9.15.

2.0 REGULATORY EVALUATION

2.1 Applicable Requirements

The ISI of ASME Code, Class 1, 2, and 3 components shall be performed in accordance with Section XI, "Rules for Inservice Inspection of Nuclear Power Plant Components," of the ASME Code and applicable addenda as required by Title 10 of the *Code of Federal Regulations* (10 CFR) 50.55a(g), except where specific written relief has been granted by 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 the licensee demonstrates that (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.

ENCLOSURE

3.0 TECHNICAL EVALUATION

3.1 Systems/Components For Which Relief Is Requested

McGuire, Unit 2 safety-related ASME Code, Section XI Code Class 1, 2, and 3 snubbers, integral and non-integral attachments for snubbers, including lugs, bolting, pins, and clamps.

3.2 Code Requirements

Pursuant to 10 CFR 50.55a(g)(4), ASME Code Class 1, 2 and 3 components (including supports) shall meet the requirements, except the design and access provisions and the preservice examination requirements, set forth in the ASME Code, Section XI, "Rules for ISI of Nuclear Power Plant Components," to the extent practical within the limitations of design, geometry, and materials of construction of the components. The regulations require that inservice examination of components and system pressure tests conducted during the first 10-year interval and subsequent intervals comply with the requirements in the latest edition and addenda of Section XI of the ASME Code incorporated by reference in 10 CFR 50.55a(b) 12 months prior to the start of the 120-month interval, subject to the limitations and modifications listed therein. The applicable edition of Section XI of the ASME Code for the McGuire, Unit 2 third 10-year ISI interval is the 1998 Edition through the 2000 Addenda.

The licensee requested relief from the ASME Code, Section XI, Article IWF-5000, Subarticles IWF-5300, IWF-5300(a), IWF-5300(b), and IWF-5300(c) requirements. ASME Code, Section XI, Subarticle IWF-5300(a) requires that snubber visual examinations be performed in accordance with OM-4, using the VT-3 visual examination method described in Section XI, Subsection IWA-2213. Subarticle IWF-300(b) requires that snubber inservice tests be performed in accordance with OM-4. Subarticle IWF-5300(c) requires that integral and non-integral attachments for snubbers, including lugs, bolting, pins, and clamps, be examined in accordance with Subsection IWF. Relief was requested for all McGuire, Unit 2 safety-related ASME Code, Section XI Code Class 1, 2, and 3 snubbers.

3.3 Licensee's Proposed Alternative

ISI testing of snubbers will be performed in accordance with SLC 16.9.15 in lieu of ASME Code, Section XI, Subarticle IWF-5300(a), (b), and (c).

3.4 Basis for Use of Proposed Alternative

ASME Code, Section XI, 1998 Edition through the 2000 Addenda, Subarticle IWF-5300(a) and (b) specifies that snubber examinations and tests be performed in accordance with the first addenda to OM-4. Subarticle IWF-5300(c) requires examinations of integral and non-integral attachments.

Snubber examinations and tests are currently performed under the McGuire, Unit 2, UFSAR, Chapter 16, SLC 16.9.15. The current inspection program as defined by this SLC provides for an acceptable level of quality and safety equal or greater than that of OM-4.

The McGuire, Unit 2, SLC 16.9.15, lists visual examination requirements for snubbers that are compatible with ASME Code, Section XI VT-3 requirements. This SLC also incorporates the

reduced visual examination frequency table as provided in NRC Generic Letter (GL) 90-09 "Alternative Requirements for Snubber Visual Inspection Intervals and Corrective Actions," dated December 11, 1990. The SLC results in a significant reduction in unnecessary radiological exposure to plant personnel, a savings in company resources, and compliance with visual examination requirements while maintaining the same confidence level in snubber operability as that provided by following the ASME Code, Section XI requirements.

OM-4 provides for failure mode grouping of snubbers which fail visual examination, meaning only those snubbers identified as being in that group would require shortened inspection intervals. Under the SLC program, all snubbers in the population would be placed in a shortened inspection interval. On this basis the existing program is more conservative in corrective action than the OM-4 requirements.

The functional test plan required by OM-4 also includes Failure Mode Groups. The use of failure mode grouping is required even for a single failure, and in some cases allows for the failed snubber to be reclassified as acceptable with no further testing. This is nonconservative for the large snubber population which exists at McGuire (over 300 per unit) as compared to the existing SLC program. The current program requires supplemental testing for all failures until the desired confidence level is assured, with no allowance to reclassify failed snubbers.

3.5 NRC Staff Evaluation

The licensee requested relief from the requirements of the ASME Code, Section XI, Article IWF-5000, Subarticle-5300, IWF-5300(a), (b), and (c). The licensee proposed that, in lieu of using Article IWF-5000 of the ASME Code, Section XI, the ongoing visual examination and functional testing of ASME Code Class 1, 2, and 3 snubbers be performed in accordance with SLC 16.9.15.

SLC 16.9.15 incorporates GL 90-09, which has been approved for use by the NRC. GL 90-09 acknowledges that the 18-month visual inspection schedule (as contained in OM-4) is excessively restrictive and that licensees with large snubber populations have spent a significant amount of resources and have subjected plant personnel to unnecessary radiological exposure to comply with the visual examination requirements. GL 90-09 specifically states that its alternate schedule for visual inspection provides the same confidence level as provided by OM-4.

ASME Code, Section XI, paragraph IWF-5300(a) requires that visual inspections be performed using the VT-3 visual examination method described in Subsection IWA-2213. SLC inspections are similar to the VT-3 method, but performed by task qualified personnel who are specifically trained for the SLC examinations and familiar with snubber support operation and maintenance. The SLC visual inspections are performed using station procedure PT/0/A/4200/006 and include requirements that the following items be checked: loose or missing locking devices, missing spacers, paint or corrosion issues, connecting devices, visible damage, welds, loose jam nuts on extensions, leakage, orientation, and fluid level. The NRC staff finds the SLC and implementing procedure provides satisfactory assurance that quality visual inspections are performed by competent individuals and is, therefore, acceptable.

ASME Code, Section XI, IWF-5300(b) requires that inservice tests be performed in accordance with OM-4. The licensee stated that the existing testing program defined by the SLC is more

conservative than OM-4. The SLC requires a 10 percent additional sample for each failure under the 10 percent plan, whereas OM- 4 requires an additional 5 percent sample be tested for each snubber that fails the test. The functional test plan required by OM-4 includes failure mode groups. The use of failure mode grouping is required even for a single failure, and in some cases allows for the failed snubber to be reclassified as acceptable with no further testing. The current program requires supplemental testing for all failures until the desired confidence level is assured, with no allowance to reclassify failed snubbers. The NRC staff finds the existing testing program defined by the SLC provides satisfactory assurance of snubber operability and is, therefore, acceptable.

ASME Code, Section XI, IWF-5300(c) requires that integral and non-integral attachments be examined. The SLC makes no distinction between integral and non-integral attachments. Both integral and non-integral attachments are included in the examination to verify overall structural integrity. The licensee stated that SLC visual inspections require an equivalent examination. These visual inspections verify that: (1) there are no visible indications of damage or impaired operability, and (2) attachments to the foundation or supporting structure are secure. The NRC staff considers that the above SLC visual inspections provide an equivalent examination for the integral and non-integral attachments as required by ASME Code, Section XI, IWF-5300(c), and is, therefore, acceptable.

Based on the above, the NRC staff determined that snubber visual examinations and functional testing, conducted in accordance with the SLC, provide reasonable assurance of snubber operability and component integrity and meet the intent of the ASME Code, Section XI, requirements. Therefore, the NRC staff finds the alternative proposed in the relief request provides an acceptable level of quality and safety with respect to snubber inspection and testing. It should be noted that in authorizing Relief Request 03-002, SLC 16.9.15 becomes a regulatory requirement that may be used in lieu of ASME Code, Section XI requirements for performing inservice testing and ISI of snubbers. Changes to these alternative requirements must be submitted to the NRC staff for authorization pursuant to 10 CFR 50.55a(a)(3) or as an exemption pursuant to 10 CFR 50.12.

4.0 CONCLUSION

Based on the NRC staff's review of the information provided in the request, the NRC staff concludes that the licensee's proposed alternative to use SLC 16.9.15 for snubber inspection and testing activities provides an acceptable level of quality and safety. Therefore, pursuant to 10 CFR 50.55a(a)(3)(i), the proposed alternative is authorized for the McGuire, Unit 2 third 10-year ISI interval. All other ASME Code, Section XI requirements for which relief was not specifically requested and approved in this relief request remain applicable, including third party review by the Authorized Nuclear Inservice Inspector.

Principal Contributor: W. K. Poertner

Date: November 22, 2004