April 16, 2004

Mr. William R. McCollum, Jr.
Senior Vice President
Duke Energy Company
Post Office Box 1006
Charlotte, North Carolina 28201-1006

SUBJECT: CATAWBA NUCLEAR STATION, UNITS 1 AND 2, MCGUIRE NUCLEAR STATION, UNITS 1 AND 2 — ALTERNATIVE PRESSURE TESTING FOR CLASS 2 PIPING, INSERVICE INSPECTION PROGRAM RELIEF REQUEST NO. 03-GO-008 (TAC NO. MB8998, MB8999, MB9000, AND MB9001)

Dear Mr. McCollum:

By letter to the Nuclear Regulatory Commission (NRC, Commission) dated April 13, 2003, Duke Power Company (the licensee) requested the use of an alternative to the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code (Code), Section XI, 1995 Edition through the 1996 Addenda for McGuire Nuclear Station (McGuire), Unit 1, (third inspection interval), and the 1989 Edition with no Addenda for Catawba Nuclear Station (Catawba), Units 1 and 2, and McGuire, Unit 2, (second inspection interval). The Relief Request No. 03-GO-008, requests the approval of use, as an alternative, the NRC staff-endorsed 1998 Edition through the 2000 Addenda for piping that penetrates the containment vessel when the piping and isolation valves perform a containment function and the balance of the piping system is outside the scope of Section XI.

The inservice inspection (ISI) of the ASME Code Class 1, 2, and 3 components is to be performed in accordance with Section XI of the ASME Code and applicable edition and addenda as required by Title 10 of the *Code of Federal Regulations* (10 CFR), Section 50.55a(g), except where specific relief has been granted by the Commission pursuant to 10 CFR 50.55a(g)(6)(i). As stated, in part, in 10 CFR 50.55a(a)(3), alternatives to the requirements of paragraph (g) may be used, when authorized by the Commission, 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. The NRC staff concludes that the alternative to pressure test ASME Class 2 safety related components and piping per the boundary established by the 1998 Edition of ASME Section XI through the 2000 Addenda, in accordance with the requirements of 10 CFR Part 50, Appendix J, provides an acceptable level of quality and safety.

The enclosed Safety Evaluation contains the NRC staff's evaluation and conclusions. The NRC staff authorizes the proposed alternative under Relief Request No. 03-GO-008, for use at Catawba, Units 1 and 2, and McGuire, Unit 2, second 10-year ISI interval, and McGuire, Unit 1, third 10-year ISI interval, pursuant to 10 CFR 50.55a(a)(3)(i).

Sincerely,

/RA/

John A. Nakoski, Chief, Section 1
Project Directorate II
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket Nos. 50-413, 50-414, 50-369, and 50-370

Enclosure: As stated

cc w/encl: See next page

The enclosed Safety Evaluation contains the NRC staff's evaluation and conclusions. The NRC staff authorizes the proposed alternative under Relief Request No. 03-GO-008, for use at Catawba, Units 1 and 2, and McGuire, Unit 2, second 10-year ISI interval, and McGuire, Unit 1, third 10-year ISI interval, pursuant to 10 CFR 50.55a(a)(3)(i).

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John A. Nakoski, Chief, Section 1
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SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

INSERVICE INSPECTION PROGRAM

RELIEF REQUEST NO. 03-GO-008

CATAWBA NUCLEAR STATION, UNITS 1 AND 2

MCGUIRE NUCLEAR STATION, UNITS 1 AND 2

DUKE POWER COMPANY

DOCKET NOS. 50-413, 50-414, 50-369, AND 50-370

1.0 INTRODUCTION

By letter to the Nuclear Regulatory Commission (NRC, Commission) dated April 13, 2003, Duke Power Company (the licensee) requested the use of an alternative to the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code (Code), Section XI, 1995 Edition through the 1996 Addenda for McGuire Nuclear Station (McGuire), Unit 1, (third inspection interval), and the 1989 Edition with no Addenda for Catawba Nuclear Station (Catawba), Units 1 and 2, and McGuire, Unit 2, (second inspection interval). The Relief Request No. 03-GO-008, requests the approval of use, as an alternative, the NRC staff-endorsed 1998 Edition through the 2000 Addenda for piping that penetrates the containment vessel when the piping and isolation valves perform a containment function and the balance of the piping system is outside the scope of Section XI.

2.0 REGULATORY EVALUATION

The inservice inspection (ISI) of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code (Code) Class 1, Class 2, and Class 3 components is to be performed in accordance with Section XI of the ASME Code and applicable edition and addenda as required by Title 10 of the *Code of Federal Regulations* (10 CFR) Section 50.55a(g), except where specific relief has been granted by the Nuclear Regulatory Commission (NRC) pursuant to 10 CFR 50.55a(g)(6)(i). The regulation at 10 CFR 50.55a(a)(3) states in part 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.

Pursuant to 10 CFR 50.55a(g)(4), ASME Code Class 1, 2, and 3 components (including supports) will meet the requirements, except the design and access provisions and the preservice examination requirements, set forth in the ASME Code, Section XI, "Rules for Inservice Inspection 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 ISI code of record for Catawba Nuclear Station (Catawba), Units 1 and 2, and McGuire Nuclear Station (McGuire), Unit 2, second 10-year ISI interval is the 1989 Edition of the ASME Code. The ISI code of record for McGuire, Unit 1, third 10-year ISI interval is the 1995 Edition of the ASME Code through the 1996 Addenda.

2.1 Code Requirements for which Relief is Requested

The licensee stated that the 1989 Edition through the 1996 Addenda of ASME Section XI, Table IWC-2500-1, requires a system pressure test each inspection period for Class 2 piping that penetrates the containment vessel when the piping and isolation valves perform a containment function and the balance of the piping system is outside the scope of ASME Section XI.

2.2 Licensee's Proposed Alternative

Pursuant to 10 CFR 50.55a(a)(3)(i), the licensee stated the alternative is to use the 1998 Edition of ASME Section XI through the 2000 Addenda to define the boundaries for pressure testing Class 2 piping that penetrates the containment vessel when the piping and isolation valves perform a containment function and the balance of the piping system is outside the scope of ASME Section XI. The affected piping will be examined in accordance with 10 CFR Part 50, Appendix J.

2.3 Licensee's Basis for Relief

The licensee stated that the current edition of the Code endorsed by the NRC staff is the 1998 Edition through the 2000 Addenda. This edition allows piping that penetrates the containment vessel to be exempt from the period pressure test requirements previously stated when the piping and isolation valves perform a containment function and the balance of the piping system is outside the scope of ASME Section XI.

The licensee indicated that Regulatory Guide 1.147, Revision 13, will endorse the use of Code Case N-522 without the limitations that were issued in Revision 12. With the limitations removed, the licensee stated the alternative in Code Case N-522 is the same as the boundary exemption in the 1998 Code Edition.

3.0 TECHNICAL EVALUATION

The ISI code of record for Catawba, Units 1 and 2, and McGuire, Unit 2, second 10-year ISI interval is the 1989 Edition of the ASME Code. The inservice inspection code of record for

McGuire, Unit 1, third 10-year ISI interval is the 1995 Edition of the ASME Code through the 1996 Addenda.

The 1989 Edition of ASME Section XI, Table IWC-2500-1, Examination Category C-H, note 7, IWC-5222(a) of the 1995 Edition of ASME Section XI, and the 1998 Edition of ASME Section XI state: "The pressure retaining boundary includes only those portions of the system required to operate or support the safety function up to and including the first normally closed valve (including a safety or relief valve) or valve capable of automatic closure when the safety function is required." IWC-5222(b) of the 1998 Edition of ASME Section XI states: "Items outside the boundaries of IWC-5222(a), and open ended discharge piping, are excluded from the examination requirements."

The regulation at 10 CFR 50.55a(b)(2) endorses the use of the 1977 Edition of ASME Section XI through the 2000 Addenda. No exemptions were listed that pertained to the licensee's request for relief. The regulation at 10 CFR 50.55a(g)(4)(iv) authorizes the use of later editions of ASME Section XI and portions of editions or addenda may be used provided that all related requirements of the respective editions or addenda are met.

Regulatory Guide 1.147, Revision 12, dated May 1999, endorsed the use of ASME Code Case N-522, "Pressure Testing of Containment Penetration Piping, Section XI, Division 1," subject to the following condition in addition to those conditions specified in the Code Case: "The test should be conducted at the peak calculated containment pressure and the test procedure should permit the detection and location of through-wall leakage in containment isolation valves (CIVs) and pipe segment between the CIVs." This Code Case will be endorsed in Revision 13 of the Regulatory Guide without the stated condition imposed.

The referenced Code Case states that 10 CFR Part 50, Appendix J, may be used as an alternative to the rules in Table IWC-2500-1, Code Category C-H, for pressure testing piping that penetrates a containment vessel, when the piping and isolation valves that are part of the containment system are Class 2 but the balance of the piping system is outside the scope of ASME Section XI.

The regulations at 10 CFR Part 50, Appendix J, require that type C tests shall be conducted at the calculated peak containment internal pressure related to the design basis accident and specified either in the technical specification or associated bases. This pressure test shall be performed during each reactor shutdown for refueling but in no case at intervals greater than two years. The licensee stated that testing of the subject piping would be in accordance with 10 CFR Part 50, Appendix J which the NRC staff concludes, will provide an acceptable level of quality and safety, and is, therefore, acceptable.

4.0 CONCLUSION

The NRC staff concludes that the alternative to pressure test ASME Class 2 safety related components and piping per the boundary established by the 1998 Edition of ASME Section XI through the 2000 Addenda, in accordance with the requirements of 10 CFR Part 50, Appendix J, provides an acceptable level of quality and safety. Therefore, pursuant to 10 CFR 50.55a(a)(3)(i), the NRC staff authorizes the proposed alternative under Relief Request No. 03-GO-008, for use at Catawba, Units 1 and 2, and McGuire, Unit 2, second 10-year ISI interval, and McGuire Nuclear, Unit 1, third 10-year ISI interval. All other ASME Code, Section

XI requirements for which relief was not specifically requested and approved in this Safety Evaluation remain applicable, including third party review by the Authorized Nuclear Inservice Inspector.

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Dated: April 16, 2004

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McGuire Nuclear Station

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