

March 4, 2002

Mr. M. S. Tuckman  
Executive Vice President, Nuclear Generation  
Duke Energy Corporation  
526 South Church Street  
P. O. Box 1006 (EC07H)  
Charlotte, North Carolina 28201-1006

SUBJECT: 10-YEAR INTERVAL INSERVICE INSPECTION PROGRAM PLAN REQUEST FOR RELIEF NO. 01-GO-0002 FOR OCONEE NUCLEAR STATION, UNITS 1, 2, AND 3, MCGUIRE NUCLEAR STATION, UNITS 1 AND 2, CATAWBA NUCLEAR STATION, UNITS 1 AND 2, (TAC NOS. MB2343, MB2344, MB2345, MB2360, MB2361, MB2349 AND MB2350)

Dear Mr. Tuckman:

By letter dated June 28, 2001, as supplemented by letter dated October 31, 2001, Duke Energy Corporation (the licensee), proposed 10-Year Interval Inservice Inspection (ISI) Program Plan Request for Relief No. 01-GO-0002 for Oconee Nuclear Station, Units 1, 2, and 3, McGuire Nuclear Station, Units 1 and 2, and Catawba Nuclear Station, Units 1 and 2. The relief request seeks NRC approval to use ASME Code Case N-416-2, "Alternative Pressure Test Requirement for Welded Repairs, Fabrication Welds for Replacement Parts and Piping Subassemblies, or Installation of Replacement Items by Welding, Class 1, 2, and 3 Section XI, Division 1".

The staff has reviewed the information provided for this relief request. The staff's evaluation and conclusions are provided in the Enclosure. Based on the information provided by the licensee, the staff concludes that compliance with the ASME Code, Section XI hydrostatic testing requirements for welded repairs, replacements, piping subassemblies, or installation of replacement of Code Class 1, 2, and 3 components would result in a hardship without a compensating increase in the level of quality and safety.

The licensee's proposed alternative provides reasonable assurance of structural integrity of the subject components. Therefore, the proposed alternative is authorized pursuant to 10 CFR 50.55a(a)(3)(ii) for the second 10-year ISI interval for Catawba Nuclear Station, Units 1 and 2, and McGuire Nuclear Station, Unit 2. The proposed alternative is also authorized for the third

ISI interval for Oconee Nuclear Station, Units 1, 2, 3, and McGuire Nuclear Station, Unit 1. The proposed alternative is authorized for the aforementioned 10-year ISI intervals for the respective plants or until such time Code Case N-416-2 is referenced in Regulatory Guide 1.147. At that time, if the licensee intends to continue to implement this code case, the licensee should follow all provisions referenced in Code Case N-416-2, if any.

Sincerely,

***/RA by Richard P. Correia for/***

Richard J. Laufer, Acting Chief, Section 1  
Project Directorate II  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

Docket Nos. 50-413 , 50-414, 50-269, 50-270,  
50-287, 50-369 and 50-370

cc: See next page

March 4, 2002

ISI interval for Oconee Nuclear Station, Units 1, 2, 3, and McGuire Nuclear Station, Unit 1. The proposed alternative is authorized for the aforementioned 10-year ISI intervals for the respective plants or until such time Code Case N-416-2 is referenced in Regulatory Guide 1.147. At that time, if the licensee intends to continue to implement this code case, the licensee should follow all provisions reference in Code Case N-416-2, if any.

Sincerely,

**/RA by Richard P. Correia for/**

Richard J. Laufer, Acting Chief, Section 1  
Project Directorate II  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

Docket Nos. 50-413 , 50-414, 50-269, 50-270,  
50-287, 50-369 and 50-370

cc: See next page

DISTRIBUTION:

- Public
- PDII-1 R/F
- CPatel
- BMartin
- LOlshan
- HBerkow
- RLaufer
- CHawes
- OGC
- GHill(14)
- ACRS
- TBergman,EDO
- LPlisco, RII

ML020630243

\*\*See previous concurrence

DOCUMENT NAME: C:\Program Files\Adobe\Acrobat 4.0\PDF Output\RELMB2349.wpd

\*No major changes to SE.

|        |           |           |           |           |         |           |                         |
|--------|-----------|-----------|-----------|-----------|---------|-----------|-------------------------|
| OFFICE | PDII-1/PM | PDII-1/PM | PDII-1/PM | PDII-1/LA | *EMCB   | OGC**     | PDII-1/(A)SC            |
| NAME   | CPatel    | BMartin   | LOlshan   | CHawes    | TChan   | RHoefling | RCorreia for<br>RLaufer |
| DATE   | 3/4/02    | 3/4/02    | 3/4/02    | 3/1/02    | 2/12/02 | 02/28/02  | 3/4/02                  |

OFFICIAL RECORD COPY

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

10-YEAR INTERVAL INSERVICE INSPECTION

REQUEST FOR RELIEF NO. 01-GO-0002

OCONEE NUCLEAR STATION, UNITS 1, 2, AND 3,

MCGUIRE NUCLEAR STATION, UNITS 1 AND 2 AND

CATAWBA NUCLEAR STATION, UNITS 1 AND 2

DUKE ENERGY CORPORATION

DOCKET NOS. 50-269, 50-270, 50-287, 50-369, 50-370, 50-413 AND 50-414

1.0 INTRODUCTION

Inservice inspection (ISI) of the American Society of Mechanical Engineers (ASME) Code Class 1, 2, and 3 components is to be performed in accordance with Section XI of the ASME Boiler and Pressure Vessel (B&PV) Code and applicable addenda as required by 10 CFR 50.55a(g), except where specific relief has been granted by the Commission pursuant to 10 CFR 50.55a(g)(6)(i). 10 CFR 50.55a(a)(3) states that alternatives to the requirements of paragraph (g) may be used, when authorized by the NRC, if the applicant 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) shall meet the requirements, except the design and access provisions and the pre-service 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 ten-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) twelve months prior to the start of the 120-month interval, subject to the limitations and modifications listed therein. The Code of record for the Oconee Nuclear Station, Units 1, 2, and 3, third 10-year ISI interval is the 1989 Edition. The Code of record for the McGuire Nuclear Station, Unit 2 and Catawba Nuclear Station, Units 1 and 2 second 10-year ISI interval is the 1989 Edition. The Code of record for the McGuire Nuclear Station, Unit 1 third 10-year ISI interval is the 1995 Edition through the 1996 Addenda of the ASME B&PV Code. The third 10-year interval for McGuire Nuclear Power Station, Unit 1 began on December 1, 2001.

Enclosure

## 2.0 EVALUATION

The Nuclear Regulatory Commission staff has reviewed the information concerning the second and third 10-year ISI program Request for Relief No. 01-GO-0002 for Oconee Nuclear Station, Units 1, 2, and 3 (third 10-year ISI interval), McGuire Nuclear Station, Unit 2 (second 10-year interval) and McGuire Nuclear Station, Unit 1 (third 10-year ISI interval), and Catawba Nuclear Station, Units 1 and 2 (second 10-year ISI interval), provided by Duke Energy Corporation (the licensee) in its letter dated June 28, 2001. Additional information was provided by the licensee in its letter dated October 31, 2001.

The information provided by the licensee in support of the request for relief from Code requirements has been evaluated and the basis for disposition is discussed below.

### 2.1 Request for Relief No. 01-002:

#### Code Requirements

ASME Code, Section XI, IWA-4000(a) requires that a system hydrostatic test be performed in accordance with IWA-5000 after repairs by welding in a pressure-retaining boundary.

#### System/Component(s) for Which Relief is Requested (as stated)

Components covered under the requirements of ASME Section XI, Division 1, Class 1, 2, and 3.

Code Requirement: Section XI Article IWA-4000 requires pressure testing for welded repairs or installation of replacement items by welding.

#### Licensee's Code Relief Request (as stated)

Pursuant to 10 CFR50.55a(a)(3)(i), Duke Energy Corporation requests to use ASME Code Case N-416-2, Alternative Pressure Test Requirement for Welded Repairs, Fabrication Welds for Replacement Parts and Piping Subassemblies, or Installation of Replacement Items by Welding, Class 1, 2, and 3 Section XI, Division 1.

#### Licensee's Basis for Requesting Relief (as stated)

Code Case N-416-2 provides an alternative to the current ASME Section XI repair/replacement rules for hydrostatic testing. The NRC recognizes use of Code Case N-416-1 in Regulatory Guide 1.147, "Inservice Inspection Code Case Acceptability - ASME Section XI Division 1", Revision 12 dated May 1999. Code Case N-416-2 provides additional guidance for fabrication welds for replacement parts and piping subassemblies that was not part of Code Case N-416-1.

The alternative afforded by this Code Case has been determined by the ASME to provide an acceptable alternative to the existing code requirements. This

Code Case does not create any technical changes that would impact the existing ISI program or the Technical Specifications at Catawba, McGuire or Oconee stations nor does it compromise the current levels of safety or quality.

Licensee's Proposed Alternative Examination (as stated)

Duke Energy Corporation proposes to use the requirements of Code Case N-416-2.

Staff's Evaluation

ASME Section XI, 1989, IWA-4000(a) requires that a system hydrostatic test be performed in accordance with IWA-5000 after repairs by welding in a pressure-retaining boundary. The licensee proposes to implement the alternative to hydrostatic pressure tests contained in Code Case N-416-2 for Code Class 1, 2, and 3 repairs/replacements parts and piping subassemblies, or installation of replacement items. In addition, for Class 3 repair/replacement welds or welded areas the licensee will supplement the pressure test with an additional surface examination on the root pass layer. Hardships are generally encountered with the performance of hydrostatic testing in accordance with the Code. Hydrostatic pressure testing frequently requires a significant effort to set up and perform due to the need to use special equipment, such as temporary attachment of test pumps and gages, and the need for unique valve lineups.

Code Case N-416-2 specifies that nondestructive examination (NDE) of the welds be performed in accordance with the applicable subsection of the 1992 Edition of Section III. This Code Case also allows a VT-2 visual examination to be performed at nominal operating pressure and temperature in conjunction with a system leakage test, in accordance with paragraph IWA-5000 of the 1992 Edition of Section XI. Comparison of the system pressure test requirements of the 1992 Edition of Section XI to those of the 1995 Edition through the 1996 Addenda of Section XI, the latest Code edition referenced in 10 CFR 50.55a, shows that:

- 1) The test frequencies and pressure conditions are unchanged;
- 2) The hold times remained the same. The 1992 Edition of Section XI, Paragraph IWA-5213(a) states that for system leakage tests no holding time is required after attaining test pressure and temperature conditions when the system has been in operation for at least 4 hours, otherwise, a 10-minute holding time for non-insulated systems and components, or 4 hours for insulated systems and components, is required after attaining system operating pressure;
- 3) The terminology associated with the system pressure test requirements for all three code classes has been clarified and streamlined; and
- 4) The NDE requirements for welded repairs remain the same.

Hydrostatic testing only subjects the piping components to a small increase in pressure over the design pressure and, therefore, does not present a significant challenge to pressure boundary integrity. Accordingly, hydrostatic pressure testing is primarily regarded as a means to enhance leak detection during the examination of components under pressure, rather than as a measure of the structural integrity of the components.

Following welding, the Code requires volumetric examination (depending on wall thickness) of repairs or replacements in Code Class 1 and 2 piping components, but only requires a surface examination of the final weld pass in Code Class 3 piping. There are no other NDE requirements for Code Class 3 components except for VT-2 visual examination for leaks in conjunction with the 10-year hydrostatic tests and the periodic pressure tests.

Considering the NDE performed on Code Class 1 and 2 systems, and considering that the hydrostatic pressure tests rarely result in pressure boundary leaks that would not occur during system leakage tests, the staff finds that the increased assurance of the integrity of Class 1 and 2 welds that could be achieved is not commensurate with the burden of performing hydrostatic testing. The staff also finds that the added assurance provided by a hydrostatic test of Class 3 welds is not commensurate with the burden of hydrostatic testing when 1) a surface examination is performed on the root pass layer of butt and socket welds, and 2) a system pressure test is performed.

### 3.0 CONCLUSION

Compliance with Code hydrostatic testing requirements for welded repairs or replacements or piping subassemblies or installation of replacement of Code Class 1, 2, and 3 components would result in a hardship without a compensating increase in the level of quality and safety. The licensee's proposed alternative provides reasonable assurance of structural integrity of the subject components. Therefore, the proposed alternative is authorized pursuant to 10 CFR 50.55a(a)(3)(ii) for the second 10-year ISI interval for Catawba Nuclear Station, Units 1 and 2, and McGuire Nuclear Station, Unit 2. The proposed alternative is also authorized for the third 10-year ISI interval for Oconee Nuclear Station, Units 1, 2, 3, and McGuire Nuclear Station, Unit 1. The proposed alternative is authorized for the aforementioned 10-year ISI intervals for the respective plants or until such time Code Case N-416-2 is referenced in Regulatory Guide 1.147. At that time, if the licensee intends to continue to implement this code case, the licensee should follow all provisions referenced in Code Case N-416-2, if any.

Principal Contributor: T. McLellan

Date: March 4, 2002

Catawba Nuclear Station

cc:

Mr. Gary Gilbert  
Regulatory Compliance Manager  
Duke Energy Corporation  
4800 Concord Road  
York, South Carolina 29745

Ms. Lisa F. Vaughn  
Legal Department (PB05E)  
Duke Energy Corporation  
422 South Church Street  
Charlotte, North Carolina 28201-1006

Anne Cottingham, Esquire  
Winston and Strawn  
1400 L Street, NW  
Washington, DC 20005

North Carolina Municipal Power  
Agency Number 1  
1427 Meadowwood Boulevard  
P. O. Box 29513  
Raleigh, North Carolina 27626

County Manager of York County  
York County Courthouse  
York, South Carolina 29745

Piedmont Municipal Power Agency  
121 Village Drive  
Greer, South Carolina 29651

Ms. Karen E. Long  
Assistant Attorney General  
North Carolina Department of Justice  
P. O. Box 629  
Raleigh, North Carolina 27602

Elaine Wathen, Lead REP Planner  
Division of Emergency Management  
116 West Jones Street  
Raleigh, North Carolina 27603-1335

North Carolina Electric Membership  
Corporation  
P. O. Box 27306  
Raleigh, North Carolina 27611

Senior Resident Inspector  
U.S. Nuclear Regulatory Commission  
4830 Concord Road  
York, South Carolina 29745

Virgil R. Autry, Director  
Division of Radioactive Waste Management  
Bureau of Land and Waste Management  
Department of Health and Environmental  
Control  
2600 Bull Street  
Columbia, South Carolina 29201-1708

Mr. C. Jeffrey Thomas  
Manager - Nuclear Regulatory  
Licensing  
Duke Energy Corporation  
526 South Church Street  
Charlotte, North Carolina 28201-1006

Saluda River Electric  
P. O. Box 929  
Laurens, South Carolina 29360

Mr. Peter R. Harden, IV  
VP-Customer Relations and Sales  
Westinghouse Electric Company  
6000 Fairview Road  
12th Floor  
Charlotte, North Carolina 28210

Catawba Nuclear Station

cc:

Mr. T. Richard Puryear  
Owners Group (NCEMC)  
Duke Energy Corporation  
4800 Concord Road  
York, South Carolina 29745

Richard M. Fry, Director  
Division of Radiation Protection  
North Carolina Department of  
Environment, Health, and  
Natural Resources  
3825 Barrett Drive  
Raleigh, North Carolina 27609-7721

McGuire Nuclear Station

cc:

Ms. Lisa F. Vaughn  
Legal Department (PBO5E)  
Duke Energy Corporation  
422 South Church Street  
Charlotte, North Carolina 28201-1006

County Manager of  
Mecklenburg County  
720 East Fourth Street  
Charlotte, North Carolina 28202

Michael T. Cash  
Regulatory Compliance Manager  
Duke Energy Corporation  
McGuire Nuclear Site  
12700 Hagers Ferry Road  
Huntersville, North Carolina 28078

Anne Cottingham, Esquire  
Winston and Strawn  
1400 L Street, NW.  
Washington, DC 20005

Senior Resident Inspector  
c/o U.S. Nuclear Regulatory Commission  
12700 Hagers Ferry Road  
Huntersville, North Carolina 28078

Dr. John M. Barry  
Mecklenburg County  
Department of Environmental  
Protection  
700 N. Tryon Street  
Charlotte, North Carolina 28202

Mr. Peter R. Harden, IV  
VP-Customer Relations and Sales  
Westinghouse Electric Company  
6000 Fairview Road  
12th Floor  
Charlotte, North Carolina 28210

Ms. Karen E. Long  
Assistant Attorney General  
North Carolina Department of  
Justice  
P. O. Box 629  
Raleigh, North Carolina 27602

Mr. C. Jeffrey Thomas  
Manager - Nuclear Regulatory  
Licensing  
Duke Energy Corporation  
526 South Church Street  
Charlotte, North Carolina 28201-1006

Elaine Wathen, Lead REP Planner  
Division of Emergency Management  
116 West Jones Street  
Raleigh, North Carolina 27603-1335

Mr. Richard M. Fry, Director  
Division of Radiation Protection  
North Carolina Department of  
Environment, Health and Natural  
Resources  
3825 Barrett Drive  
Raleigh, North Carolina 27609-7721

Mr. T. Richard Puryear  
Owners Group (NCEMC)  
Duke Energy Corporation  
4800 Concord Road  
York, South Carolina 29745

Oconee Nuclear Station

cc:

Ms. Lisa F. Vaughn  
Legal Department (PBO5E)  
Duke Energy Corporation  
422 South Church Street  
Charlotte, North Carolina 28201-1006

Anne W. Cottingham, Esquire  
Winston and Strawn  
1400 L Street, NW  
Washington, DC 20005

Manager, LIS  
NUS Corporation  
2650 McCormick Drive, 3rd Floor  
Clearwater, Florida 34619-1035

Senior Resident Inspector  
U. S. Nuclear Regulatory  
Commission  
7812B Rochester Highway  
Seneca, South Carolina 29672

Mr. Henry Porter, Director  
Division of Radioactive Waste Management  
Bureau of Land and Waste Management  
Department of Health and Environmental  
Control  
2600 Bull Street  
Columbia, South Carolina 29201-1708

Mr. Michael A. Schoppman  
Framatome ANP  
1911 North Ft. Myer Drive  
Suite 705  
Rosslyn, VA 22209

Mr. L. E. Nicholson  
Compliance Manager  
Duke Energy Corporation  
Oconee Nuclear Site  
7800 Rochester Highway  
Seneca, South Carolina 29672

Ms. Karen E. Long  
Assistant Attorney General  
North Carolina Department of  
Justice  
P. O. Box 629  
Raleigh, North Carolina 27602

Mr. C. Jeffrey Thomas  
Manager - Nuclear Regulatory  
Licensing  
Duke Energy Corporation  
526 South Church Street  
Charlotte, North Carolina 28201-1006

Mr. Richard M. Fry, Director  
Division of Radiation Protection  
North Carolina Department of  
Environment, Health, and  
Natural Resources  
3825 Barrett Drive  
Raleigh, North Carolina 27609-7721

Mr. Peter R. Harden, IV  
VP-Customer Relations and Sales  
Westinghouse Electric Company  
6000 Fairview Road  
12th Floor  
Charlotte, North Carolina 28210