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A Duke Energy Company

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February 14, 2002

U.S. Nuclear Regulatory Commission
Washington, D.C. 20555-0001

ATTENTION: Document Control Desk

SUBJECT: Duke Energy Corporation

Oconee Nuclear Station, Units 1, 2, & 3
Docket Nos. 50-269, 50-270, 50-287

McGuire Nuclear Station, Units 1 & 2
Docket Nos. 50-369, 50-370

Catawba Nuclear Station, Units 1 & 2
Docket Nos. 50-413, 50-414

Request for Authorization to Utilize Wire-Type Image Penetrameters in Accordance with 10 CFR 50.55a(a)(3)(i).
Duke Energy Corporation Serial Number 02-GO-001

Pursuant to 10 CFR 50.55a(a)(3)(i), Duke Energy Corporation (DEC) is requesting relief from specified inspection requirements to authorize the use of wire-type Image Quality Indicators (IQI's). This relief is requested for Oconee, McGuire and Catawba Nuclear Stations. The applicable ASME Boiler and Pressure Vessel Code, Section XI Editions/Intervals are:

1. Oconee Nuclear Station, Units 1, 2, and 3: 1989 Edition, Third Interval

2. McGuire Nuclear Station, Unit 1: 1995 Edition with 1996 Addenda, Third Interval

A047

3. McGuire Nuclear Station, Unit 2: 1989 Edition, Second Interval

4. Catawba Nuclear Station, Units 1 and 2: 1989 Edition, Second Interval

The first application of the requested relief, DEC serial Number 02-GO-001, would be during the Oconee Unit 1 Steam Generator replacement outage in September 2003.

DEC is requesting NRC approval to use wire-type IQI's in addition to plaque-type IQI's for performing radiographic inspections. The current codes of record do not list wire-type IQI's for use. DEC has determined that the proposed alternative would provide an acceptable level of quality and safety.

ASME Section III NB and NC (1989 and 1992 Editions) stipulates the use of the IQI's listed in Table NB -5-1111-1 and NC-5111-1, respectively. ASME Section III NB and NC do not indicate that the use of wire-type IQI's is unacceptable. The code sections do not include a listing of the wire diameters that will provide equivalent sensitivity for the specified plaque-type IQI and essential hole.

ASME Code Case N-416-1* will be invoked during the Steam Generator replacement outages for all three Oconee units. The Code Case is approved by Regulatory Guide 1.147, Rev. 12.

ASME Code Case N-416-1 invokes the 1992 Edition, no Addenda, of the ASME Section III Code in the performance of nondestructive examination of piping weldments. The 1993 Addenda to the 1992 Edition incorporated equivalent wire type IQI's into Tables NB-5111-1 and NC 5-111-1.
The use of wire-type IQI's was previously approved by the NRC for Browns Ferry, Units 2 and 3 (TAC Nos. MA5308 and MA5309) and for Indian Point, Unit 2 (TAC No. MB0032).

A detailed description of the proposed alternative and justification is included as an attachment to this letter.

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*"Alternate Pressure Test Requirements for Welded Repairs or Installation of Replacement Items by Welding, Class 1, 2, and 3, Section XI, Division 1"

DEC is requesting NRC approval of this request by September 2002. This date will support timely planning and preparation of the Oconee Unit 1 Steam Generator replacement outage in September 2003.

Questions regarding this request may be directed to L. A. Hentz at 704-382-8081.

Very truly yours,

M. S. Tuckman

M.S. Tuckman

Attachment

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NRIA File/ELL
ONS MasterFile - ON03DM
MNS Master File - MG01DM
CNS Master File - CN04DM

DUKE ENERGY CORPORATION

Oconee Nuclear Stations, Unit 1, 2 & 3
McGuire Nuclear Station, Units 1 & 2
Catawba Nuclear Station, Units 1 & 2

Request For Relief No. 02-GO-001

Request for Alternative use of wire-type Image Quality Indicators (IQI's) in performing radiographic examinations

Applicable Code Edition and Addenda

- ASME Boiler and Pressure Vessel Code, Section III, 1989 and 1992 Editions, No Addenda
- ASME Boiler and Pressure Vessel Code, Section XI, 1989 Edition, No Addenda and 1995 Edition with 1996 Addenda.

Description of Code Requirement (s) for Which an Alternative is Requested

ASME Section III NB and NC (1989 and 1992 Editions) stipulates the use of the IQI's listed in Table NB -5-1111-1 and NC-5111-1, respectively. ASME Section III NB and NC do not state that the use of wire-type IQI's is unacceptable, it just does not include a listing of the wire diameters that will provide equivalent sensitivity for the specified plaque-type IQI and essential hole.

The Oconee steam generator replacement outages for Units 1, 2, and 3 will invoke Code Case N-416-1, "Alternate Pressure Test Requirements for Welded Repairs or Installation of Replacement Items by Welding, Class 1, 2, and 3, Section XI, Division 1." ASME Code Case N-416-1 invokes the 1992 Edition, no Addenda, of the ASME Section III Code in the performance of nondestructive examination of piping weldments. The 1993 Addenda to the 1992 Edition incorporated equivalent wire type IQI's into Tables NB-5111-1 and NC 5-111-1.

Description of Proposed Alternative

DEC is requesting NRC approval to use wire-type penetrameters in addition to plaque-type IQI's for performing radiographic examinations. The current code of record does not list wire-type IQI's for use. DEC has determined that the proposed alternative would provide an acceptable level of quality and safety.

Justification for Using the Proposed Alternative

DEC considers that plaque-type IQI's are in some cases impractical for use due to physical placement and radiographic characteristics. Placement of flat plaque-type IQI's on curved surfaces of pipe components normally require shimming. When using Plaque-type IQI's, the recorded radiographic characteristics of the essential T-hole is often obscured or distorted due to specimen anomalies or part geometry. These difficulties create re-shoot conditions. Re-shoots have a negative ALARA impact due to the additional personnel radiation exposure.

Wire-type IQIs have been shown to provide quality and sensitivity equivalent to plaque-type IQI's as documented in Table 4 of ASTM E747-87. Equivalent sensitivity has also been demonstrated in ASME Section V, Article 22,SE-747 and in ASME Section III, 1995 Edition, tables NB and NC 5111-1. Because of the equivalent sensitivity, the proposed alternative provides equivalent or superior results to current exam method utilizing only plaque-type IQI's. Therefore, the quality of the examination and resulting safety of the plant, based on the exam results are not impacted by this proposed alternative.

The intent of this request for relief is to apply the sensitivity level specified in Tables NB-5111-1 and NC 5111-1 to the selection of the appropriate wire diameter or plaque-type IQI size as provided for in ASME Section III, 1995 Edition, No Addenda.

The Quality and Safety Provided by the Proposed Alternative

Information provided above supports the proposed use of wire-type IQIs and provides an acceptable level of quality

and safety. The use of only plaque-type IQI's may result in unusual difficulty and additional personnel radiation exposure with no benefit of quality and safety.

Originated By: T L Tucker — RT Level III — 2/4/02 — Date

Reviewed By: J D Barbour — Manager, QATS — 2/4/02 — Date