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ONS-2015-038

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ATTN: Document Control Desk  
U.S. Nuclear Regulatory Commission  
Washington, DC 20555

10 CFR 50.55a

Duke Energy Carolinas, LLC (Duke Energy)  
Oconee Nuclear Station, Units 1, 2 and 3  
Docket Numbers 50-269, 50-270, 50-287  
Renewed License Numbers DPR-38, DPR-47, and DPR-55

**Subject:** Fifth Ten Year Inservice Inspection Interval, Relief Request No. 14-ON-003;  
Alternative Requirements for Class 1 Category B-J Piping welds

**References:**


1. Duke Energy Letter, Oconee, Units 1, 2 and 3 - *Fifth Interval Inservice Inspection Plan*, dated July 15, 2014, (ADAMS Accession No. ML14202A008)

Pursuant to 10 CFR 50.55a(z)(1), Duke Energy requests the NRC to grant relief regarding Class 1 Category B-J Piping welds over the duration of the fifth (ten-year) inservice inspection (ISI) interval. Relief Request 14-ON-003 prescribes an examination with an acceptable level of quality and safety as an alternative to the edition of Section XI of the American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code) applicable to the fifth ISI Interval.

This relief is needed prior to the Oconee Unit 1, 2016 Fall refueling outage (1EOC29) projected to start November 5, 2016. Duke Energy requests approval by May 1, 2016 in support of planning for 1EOC29. The relief request details are provided as an enclosure to this letter.

If there are any questions or further information is needed you may contact David Haile at (864) 873-4742,

Sincerely,

  
Scott L. Batson  
Vice President  
Oconee Nuclear Station

Enclosure

Relief Request Serial #14-ON-003:  
Request for Alternative in Accordance with 10 CFR 50.55a(z)(1) for ISI Class 1 Category B-J Piping Welds, Fifth Inservice Inspection Interval

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ONS-2015-038

May 4, 2015

Page 2 of 3

cc (with enclosure):

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# **Enclosure to ONS-2015-038**

**Duke Energy Carolinas, LLC  
Oconee Nuclear Station, Units 1, 2, and 3**

## **Relief Request Serial #14-ON-003**

**Request for Alternative in Accordance with 10 CFR 50.55a(a)(z)(1)  
for ISI Class 1 Category B-J Piping Welds**

**Fifth Inservice Inspection Interval**

**1. ASME Code Component(s) Affected**

ISI Class 1 Category B-J Piping Welds

**2. Applicable Code Edition and Addenda**

ASME Boiler and Pressure Vessel Code, Section XI, 2007 Edition with the 2008 Addenda.

**3. Applicable Code Requirement**

IWB-2500, Table IWB-2500-1, Examination Category B-J requires Class 1 piping welds to be selected for examination in accordance with Note (2)(b) which states (in part)

“All terminal ends and joints in each pipe or branch run connected to other components where the stress levels exceed either of the following limits under loads associated with specific seismic events and operational conditions:

- (1) primary plus secondary stress intensity range of  $2.4S_m$  for ferritic steel and austenitic steel
- (2) cumulative usage factor  $U$  of 0.4 examination of the nozzle-to-shell welds when the inside of the vessel is accessible....”

**4. Reason for Request**

The ISI Class 1 piping at Oconee Nuclear Station was designed in accordance with ANSI B31.7 requirements. This design code did not require an analysis to determine primary plus secondary stress intensity range or cumulative usage factors. These parameters are typically included in piping designed in accordance with ASME Section III. As a result, Duke Energy is requesting to use an alternative approach to selecting ISI Class 1 piping welds for examination that does not include these design criteria.

During the previous inservice inspection interval at Oconee Units 1, 2, and 3, Duke Energy implemented the requirements in ASME Code Case N-609, which allows licensees to implement an alternative examination approach which does not include stress and usage factor parameters. This Code Case was approved for use most recently in Regulatory Guide 1.147 Revision 16, and applies to Section XI Codes of Record up to and including the 2004 Edition with the 2005 Addenda.

The current Oconee Inservice Inspection Interval 5 Section XI Code of Record is ASME Section XI, 2007 Edition with the 2008 Addenda. Because the Footnotes have been renumbered in Table IWB-2500-1, Category B-J, ASME has revised Code Case N-609 to address the editorial change in these Footnotes (Footnote (2)(b) now includes the stress and cumulative usage factor parameters). This revised Code Case, N-609-1 was published by ASME in September 2010 and has not been reviewed by the NRC for incorporation into Regulatory Guide 1.147 and is specifically applicable to the Oconee Interval 5 Section XI Code of Record.

Because application of Code Case N-609 for Interval 5 at Oconee would conflict with IWA-2441(b) which states, “Code Cases shall be applicable to the Edition and Addenda specified in the Inspection Plan.”, Duke Energy must pursue the alternate requirements in Code Case N-609-1 (or other alternate requirements for the examination of ISI Class 1 welds) even though the technical requirements in Code Cases N-609 and N-609-1 are identical.

## 5. Proposed Alternative and Basis for Use

Pursuant to 10 CFR 50.55a(z)(1), the following alternative is proposed in lieu of the IWB-2500, Table IWB-2500-1, Examination Category B-J, Note 2 weld examination selection requirements:

The welds selected for examination shall include the following:

- (a) All terminal ends in each pipe or branch run connected to vessels.
- (b) All terminal ends in each pipe or branch run connected to other components.
- (c) All dissimilar metal welds not covered under Category B-F between one of the following combinations:
  - (1) carbon or low alloy steels and high alloy steels;
  - (2) carbon or low alloy steels and high nickel alloys;
  - (3) high alloy steels and high nickel alloys.
- (d) Additional piping welds, such that the total number of circumferential butt welds (or branch connection or socket welds) selected for examination equals 25% of the total number of nonexempt circumferential butt welds (or branch connection or socket welds) in the reactor coolant piping system. These additional piping welds shall be distributed as follows:
  - (1) The examinations shall be distributed among the Class I systems, prorated to the degree practicable on the number of nonexempt welds in each system (e.g., if a system contains 30% of the nonexempt welds, 30% of the nondestructive examinations required by Category B-J should be performed on that system).
  - (2) Within each system, examinations shall be distributed between line sizes, prorated to the degree practicable

## 6. Duration of Proposed Alternative

The proposed alternative is requested for use during the 5<sup>th</sup> inservice inspection intervals for Oconee Units 1, 2 and 3, beginning July 15, 2014, currently scheduled to end July 15, 2024.

## 7. Precedents

None identified.