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July 28, 2009

U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555-0001

Subject: Duke Energy Carolinas, LLC
Oconee Nuclear Station, Units 1, 2, and 3
Docket No: 50-269, 50-270, 50-287
Fourth Ten Year Inservice Inspection Interval
Request for Relief No. 09-ON-005

Pursuant to 10 CFR 50.55a(a)(3)(i), attached is a Request for Relief to use an alternative to the examination requirements of American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code), Section XI.

The attached Request for Relief 09-ON-005 supports Duke Energy's examination of the reactor vessel core flood nozzles on Units 1, 2, and 3. This alternative will provide an acceptable level of quality and safety.

This relief is needed to support the Oconee Unit 1 fall 2009 refueling outage (1EOC25) scheduled to start October 10, 2009. Therefore, exigent review to support subsequent scheduled examinations is requested. This relief is also intended to apply to Oconee Units 2 and 3, which are scheduled for outages in 2010.

The late submittal of this Relief Request occurred due to the change in Duke Energy's strategy to inspect the cold leg temperature locations rather than to mitigate. This decision caused significant changes in procurement specifications, contract proposals, and contract negotiations, which further delayed this Relief Request. A similar alternative request was approved for McGuire Nuclear Station, Unit 1 in an NRC letter dated May 13, 2009 (ADAMS Accession No. ML091140066).

Therefore, Duke Energy requests that the NRC grant relief as authorized under 10 CFR 50.55a(g)(6)(i).

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NRK

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If there are any questions or further information is needed you may contact Corey Gray at (864)
873-6325,

Sincerely,

A handwritten signature in black ink, appearing to read 'Dave Baxter', with a large, sweeping flourish extending to the right.

Dave Baxter,
Site Vice President

Attachment 1

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Attachment 1
Oconee Units 1, 2, and 3 Relief Request for Alternate Depth Sizing Criteria



20004-015 (09/30/2008)

AREVA NP Inc.,
an AREVA and Siemens company

Engineering Information Record

Document No: 51 - 9112500 - 000

**Alternate Depth Sizing Criteria for Oconee Nuclear Station Core Flood Nozzle
Dissimilar Metal Welds**

Alternate Depth Sizing Criteria for Oconee Nuclear Station Core Flood Nozzle Dissimilar Metal Welds

Safety Related? YES NO

Does this document contain assumptions requiring verification? YES NO

Signature Block

Name and Title/Discipline	Signature	P/LP, R/LR, A/A-CRF	Date	Pages/Sections Prepared/Reviewed/ Approved or Comments
M. G. Hacker	<i>M. G. Hacker</i>	P	5/26/09	All
M. W. Key	<i>M. W. Key</i>	R	5/26/09	All
A. Richmond	<i>A. Richmond</i>	A	5/26/09	All

Note: P/LP designates Preparer (P), Lead Preparer (LP)
 R/LR designates Reviewer (R), Lead Reviewer (LR)
 A/A-CRF designates Approver (A), Approver of Customer Requested Format (A-CRF)

Alternate Depth Sizing Criteria for Oconee Nuclear Station Core Flood Nozzle Dissimilar Metal Welds

Record of Revision

Revision No.	Date	Pages/Sections/ Paragraphs Changed	Brief Description / Change Authorization
000	5/26/09	All	Initial Release



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Document No.: 51-9112500-000

Alternate Depth Sizing Criteria for Oconee Nuclear Station Core Flood Nozzle Dissimilar Metal Welds

ALTERNATIVE DEPTH SIZING CRITERIA

**Duke Energy
Oconee Units 1, 2, and 3**

ALTERNATIVE DEPTH SIZING CRITERIA

*Proposed Alternative
In Accordance with 10 CFR 50.55a(a)(3)(i)*

-Alternative Provides Acceptable Level of Quality and Safety -

Background

Duke Energy is submitting a request for the use of an alternative to the examination requirements of American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code), Section XI, at Oconee Nuclear Station (ONS) Units 1, 2, and 3. This request supports the examination of reactor vessel core flood nozzle to safe-end (dissimilar metal) welds performed from the inside surface during the next scheduled outage at each unit. Duke Energy has determined the proposed alternative provides an acceptable level of quality and safety, consistent with 10 CFR 50.55a(a)(3)(i).

1.0 Applicable Code Edition and Addenda

ONS Units 1, 2, and 3 are currently in the fourth 10-year ISI interval. Applicable dates for each unit are as follows:

ONS1 interval start date 1/1/2004, end date 7/14/2013
ONS2 interval start date 9/9/2004, end date 9/8/2014
ONS3 interval start date 1/2/2005, end date 12/15/2014

The ASME Code of record for the current period of the fourth 10-year ISI interval is the 1998 Edition of Section XI, 2000 addendum.

In addition, Section XI Code Case N-695 (Qualification Requirements for Dissimilar Metal Piping Welds) is referenced in the ISI plan. This Code Case is listed in Reg. Guide 1.147, Rev. 15, Table 1- "Acceptable Section XI Code Cases".

2.0 Applicable Code Requirement

ASME Section XI, Table IWB-2500-1, Category B-F, Item B5.10, Reactor Vessel Nozzle to Safe-end Butt Welds, specifies volumetric examination for the dissimilar metal welds. The volumetric examinations are to be conducted in accordance with ASME Section XI, Appendix VIII, Supplement 10, 1998 Edition with 2000 Addenda. Code Case N-695 is an acceptable alternative to Appendix VIII, Supplement 10.

The specific Code Case requirements for which relief is requested pertains to depth sizing qualification requirements for performance demonstration of ultrasonic examination systems for dissimilar metal piping welds as listed below. These same requirements exist in ASME Section XI, 1995 Edition with 1996 Addenda and later editions.

Alternate Depth Sizing Criteria for Oconee Nuclear Station Core Flood Nozzle Dissimilar Metal Welds

- Code Case N-695
 - 3.3 Depth-Sizing test:
“(c) Examination procedures, equipment, and personnel are qualified for depth-sizing when the RMS error of the flaw depth measurements, as compared to the true flaw depths, do not exceed 0.125 in. (3 mm).”

3.0 Alternative

Duke Energy proposes to use the Supplement 10 demonstrated value of 0.224 in. for dissimilar metal welds instead of the 0.125 in. value specified for depth sizing. In the event an indication is detected that requires depth sizing, the difference between the required root mean square (RMS) error and the demonstrated RMS error (0.099 in.) will be added to the measured through-wall extent for comparison with applicable acceptance criteria. If the examination vendor demonstrates an improved depth sizing RMS error prior to the examination, the excess of that improved RMS error over the 0.125 in. RMS error requirement, if any, will be added to the measured value for comparison with applicable acceptance criteria.

Consequently, Duke Energy proposes to use an alternative through-wall depth sizing criteria for dissimilar metal welds that are examined from the inside surface. Examinations of these components will be performed during the next scheduled refueling outages at ONS. The outages are scheduled as follows:

ONS-1: 10/2009
ONS-2: 4/2010
ONS-3: 10/2010

4.0 Basis for Relief

To date, although qualified for detection and length sizing on these welds, the examination vendors have not met the established RMS error requirement for depth sizing (0.125 in.) when examining from the ID. Duke Energy's examination vendor has demonstrated ability to meet the depth sizing qualification requirement with an RMS error of 0.224 in. instead of the required 0.125 in.. The Electric Power Research Institute (EPRI) has published under their Policy/Procedure Directives the criteria of error in the RMS which has utility approval.

Duke Energy has determined that the alternative in this request will result in an acceptable level of quality and safety, pursuant to the provisions of 10 CFR 50.55a(a)(3)(i). The proposed alternative assures that the subject welds will be fully examined by procedures, personnel and equipment qualified by demonstration in all aspects except depth sizing. For depth sizing, the proposed addition of the difference between the qualified and demonstrated sizing tolerance to any flaw that is required to be sized compensates for the potential variation and assures an acceptable level of quality and safety.

Alternate Depth Sizing Criteria for Oconee Nuclear Station Core Flood Nozzle Dissimilar Metal Welds

5.0 ASME Code Components Affected

Category and System Details:

Code Class: Class 1
 System Welds: Reactor Coolant System
 Examination Categories:
 Category B-F for dissimilar metal welds to reactor vessel nozzle
 Code Item Numbers:
 B 5.10 for dissimilar metal welds to reactor vessel nozzle

ONS Unit	Description	Size	DM Weld Number	Comment
1	12.25" RV Core Flood Nozzle	Nominal 12.25"ID with 1.68" wall	1-RPV-WR53	LAS nozzle/Alloy 82-182 weld/SS safe end
			1-RPV-WR53A	
2	12.25" RV Core Flood Nozzle	Nominal 12.25"ID with 1.68" wall	2-RPV-WR53	LAS nozzle/Alloy 82-182 weld/SS safe end
			2-RPV-WR53A	
3	12.25" RV Core Flood Nozzle	Nominal 12.25"ID with 1.68" wall	3-RPV-WR53	LAS nozzle/Alloy 82-182 weld/SS safe end
			3-RPV-WR53A	

Component Materials:

1. LAS nozzles are SA-508 Class 2 Low Alloy Steel (P-3).
2. SS safe ends are SA-336, F8M (P-8).
3. Welds are Alloy 82/182 (F-43).

6.0 Duration of Proposed Alternative

The proposed alternative to the ASME Code is applicable for the remainder of the fourth 10-year in-service inspection (ISI) interval at ONS Units 1, 2, and 3.

7.0 Precedents

Similar alternative requests have been approved for use at the following plants:

- o V. C. Summer Station in an NRC letter dated February 3, 2004 (ADAMS Accession No. ML040340450)
- o Diablo Canyon, Units 1 and 2 in an NRC letter dated October 26, 2005 (ADAMS Accession No. ML052660331)
- o McGuire Nuclear Station, Unit 1 in an NRC letter dated May 13, 2009 (ADAMS Accession No. ML091140066)



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Document No.: 51-9112500-000

Alternate Depth Sizing Criteria for Oconee Nuclear Station Core Flood Nozzle Dissimilar Metal Welds

8.0 References

- (1) 1998 Edition, ASME Code, Section XI, "Rules for Inservice Inspection of Nuclear Power Plant Components," 2000 Addenda.
- (2) 1995 Edition, ASME Code, Section XI, with the 1996 Addenda, Appendix VIII, Supplement 10.
- (3) Code Case N-695, Qualification Requirements for Dissimilar Metal Piping Welds, Section XI, Division 1.
- (4) EPRI Policy/Procedure Directives
- (5) EPRI Technical Report 1010087 "Materials Reliability Program: Primary Systems Piping Butt Weld Inspection and Evaluation Guidelines (MRP-139, Revision 1).