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

ATTENTION: Document Control Desk

SUBJECT: Duke Energy Corporation

Catawba Nuclear Station - Unit 2 Docket No. 50-414

Inservice Inspection Summary Report for Class MC Component Examinations Conducted During Refueling Outage EOC10

Pursuant to 10 CFR 50.55a(b)(2)(ix), Duke Energy Corporation submits the attached ISI Summary Report for ASME Class MC Inservice Inspections conducted during refueling outage EOC10.

Please note that IWA-6000 of the ASME Code, Section XI, 1992 Edition with the 1992 Addenda requires an ISI Summary Report to be completed only for Class 1 and 2 components. As such, an ISI Summary Report is not required by the ASME Boiler and Pressure Vessel Code, Section XI, for Class MC components. However, because 10 CFR 50.55a(b)(2)(ix)(D) requires specific information regarding Class MC examinations to be included in the Summary Report, a Class MC ISI Summary Report has been prepared, but includes only that information required by 10 CFR 50.55a.

Questions regarding the attached report may be directed to M. J. Ferlisi at (704) 382-3923.

Very traly yours Peterson

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LJR/s

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Attachment: Duke Energy Corporation Catawba Nuclear Station Unit 2 Class MC ISI Summary Report for Refueling Outage EOC10 Pages 1 through 8

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Catawba Nuclear Station, Unit 2 Class MC ISI Summary Report for Refueling Outage EOC10

By: Mark V. Ferlisi, P.E.) Reviewed By: Lindsand J. Harin Date: 4/12/2000 Approved By: D.E. DeMart Date: 4/12/2000

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I. ASME Code and Regulatory Requirements for Class MC ISI Summary Reports

Inservice inspections of Class MC components are performed in accordance with the ASME Boiler and Pressure Vessel Code, Section XI, Subsection IWE, 1992 Edition with the 1992 Addenda. Article IWA-6000, Records And Reports, paragraph IWA-6210, requires the Owner to prepare inservice inspection summary reports inservice inspections performed on Class 1 and 2 pressure retaining components and their supports.

IWA-6000 does not address inservice inspection summary reports for Class MC pressure retaining components and their supports, and the Code does not require preparation and submittal of summary reports for Class MC components. As such, this Class MC ISI Summary Report does not contain information specified in IWA-6220 or IWA-6230. Please note that this report is being submitted within 90 calendar days following the completion of the refueling outage at Catawba Unit 2, in accordance with IWA-6240(b).

Duke Energy Corporation is maintaining a separate Inservice Inspection Program for Class MC pressure retaining components and their integral attachments. Therefore, this Class MC ISI Summary Report contains only that inservice inspection information applicable to Code Class MC components. ISI Summary Reports for other Code Class components are to be submitted separately.

This Class MC ISI Summary Report includes all applicable information required by 10 CFR 50.55a (b) (2) (ix) (D), which states:

- (D) The following may be used as an alternative to the requirements of IWE-2430.
 - (1) If the examinations reveal flaws or areas of degradation exceeding the acceptance standards of Table IWE-3410-1, an evaluation shall be performed to determine whether additional component examinations are required. For each flaw or area of degradation identified which exceeds acceptance standards, the licensee shall

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provide the following in the ISI Summary Report required by IWA-6000:

- A description of each flaw or area, including the extent of degradation, and the conditions that led to the degradation.
- (ii) The acceptability of each flaw or area, and the need for additional examinations to verify that similar degradation does not exist in similar components, and;
- (iii) A description of necessary corrective actions.
- (2) The number and type of additional examinations to ensure detection of similar degradation in similar components.

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II. Discussion of Examinations and Conditions Requiring Reporting in Accordance with 10CFR50.55a(b)(2)(ix)(D)

In accordance with 10CFR50.55a(b)(2)(ix)(D), an evaluation was performed to determine the number and extent of additional examinations required following examinations of moisture barriers in accordance with Table IWE-2500-1, Category E-D, Item E5.30 during refueling outage 2EOC10. This evaluation is documented in Problem Investigation Process Report #C-00-01239.

The condition of examined moisture barriers did not meet the acceptance standard of Table IWE-3410-1. The following information is provided to satisfy reporting requirements of 10CFR50.55a(b)(2)(ix)(D).

A. <u>A Description Of Each Flaw Or Area, Including The</u> <u>Extent Of Degradation, And The Conditions That Led To</u> The Degradation

During scheduled examinations conducted in accordance with the "First Interval Containment Inservice Inspection Plan" (File #CN-1042-CISI-0001), moisture barriers #2-MBRI-007 (Item #E05.30.0007) and 2-MBRI-008 (Item #E05.30.0008) were discovered to be degraded and rejectable per inspection procedure QAL-14. These moisture barriers (sealant) are installed along the vertical interface between the Steel Containment Vessel and interior structure concrete walls in the Accumulator "A" Room.

VT-3 visual examinations indicated that these moisture barriers exhibited conditions such as wear, cracking, and separation at various locations. These conditions could allow the intrusion of moisture against inaccessible surfaces of the Steel Containment Vessel and do not meet the acceptance standards of IWE-3000. Please note that these moisture barriers are installed along vertical joints and their failure or degradation is less likely to result in moisture intrusion against inaccessible surfaces of the Containment Vessel because water cannot pond against or drain through these joints.

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The conditions that led to the degradation are similar to those identified during past inspections and are primarily the result of using material that is not well suited for this application. The material in question (Valspar Corporation 46-J-10KR-00 Elastomeric Caulking Compound) has aged, become embrittled, and has separated from attachment surfaces. Also, the joint geometry (2" wide joint) makes sealing this type of joint very difficult. Please note that during Integrated Leak Rate Tests, some of these joints experience displacements of as much as 25% due to expansion of the vessel under internal pressurization.

B. Acceptability Of Each Flaw Or Area, And The Need For Additional Examinations To Verify That Similar Degradation Does Not Exist In Similar Components

Containment surfaces adjacent to the identified moisture barriers showed no evidence of degradation and are considered acceptable. Because these moisture barriers are installed in a vertical orientation, they are not as critical in preventing moisture intrusion as those moisture barriers installed horizontally where geometries may permit standing water to accumulate against the moisture barrier and containment surfaces.

Additional examinations were deemed necessary, but were specified only for moisture barriers that use similar material and are installed in a vertical orientation. Moisture barriers installed in horizontal configurations were not examined for the following reasons:

- a. Some moisture barrier materials have been removed to facilitate the removal of cork expansion joint material between the Steel Containment Vessel and the interior concrete structure. Removal of this expansion joint material will prevent moisture from becoming trapped against inaccessible surfaces of the containment vessel. Cork removal will also facilitate visual examination of these previously inaccessible surfaces.
- b. The condition of containment surfaces behind horizontal moisture barriers and cork expansion joint materials are being monitored by

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examinations conducted in accordance with IWE-2500, Table IWE-2500-1, Category E-C, Item E4.12.

- c. Remaining moisture barriers installed in horizontal configurations have been replaced with newer materials which are better suited for this application.
- d. Some of these moisture barriers have already been examined during the current ISI Period.

The condition of the moisture barrier materials is considered unacceptable, requiring repair or replacement. However, the condition of the containment vessel surfaces in the vicinity of moisture barriers 2-MBRI-007 and 2-MBRI-008 is considered acceptable.

C. Description Of Necessary Corrective Actions

Defective moisture barriers 2-MBRI-007 and 2-MBRI-008 shall be repaired or replaced no later than the end of refueling outage 2EOC11. Alternatively, these moisture barriers shall be reinspected during refueling outage 2EOC11 and evaluated by Engineering to determine whether corrective actions may be deferred beyond 2EOC11. Immediate repair or replacement of these moisture barriers was not deemed necessary, based on the observed condition of the containment vessel surfaces.

D. <u>The Number And Type Of Additional Examinations To</u> <u>Ensure Detection Of Similar Degradation In Similar</u> Components

VT-3 examinations were performed on the following additional moisture barriers identified in the "First Interval Containment Inservice Inspection Plan", document #CN-1042-CISI-0001:

<u>Item #</u>	Component ID #
E05.30.0006	2-MBRI-0006
E05.30.0011	2-MBRI-0011
E05.30.0014	2-MBRI-0014
E05.30.0017	2-MBRI-0017
E05.30.0018	2-MBRI-0018

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Item #	Component ID #
E05.30.0019	2-MBRI-0019
E05.30.0020	2-MBRI-0020
E05.30.0021	2-MBRI-0021
E05.30.0022	2-MBRI-0022
E05.30.0023	2-MBRI-0023
E05.30.0025	2-MBRI-0025
E05.30.0027	2-MBRI-0027
E05.30.0029	2-MBRI-0029
E05.30.0030	2-MBRI-0030
E05.30.0031	2-MBRI-0031
E05.30.0032	2-MBRI-0032
E05.30.0033	2-MBRI-0033
E05.30.0034	2-MBRI-0034

Additional examinations performed on the above moisture barriers revealed similar indications to those observed on moisture barriers 2-MBRI-007 (Item E05.30.0007) and 2-MBRI-008 (Item E05.30.0008). The degree of degradation varies, but all moisture barriers showed indications of cracking and/or separation from attached surfaces. These conditions are considered unacceptable, requiring repair or replacement. Containment surfaces adjacent to these moisture barriers showed no evidence of degradation and are considered acceptable. Moisture was observed in the vicinity of moisture barrier, 2-MBRI-0030 (Item E05.30.0030), but no evidence of containment degradation was observed. Although the condition of these moisture barriers is not acceptable, the condition of the containment shell plate is considered acceptable by inspection, and no further evaluation of the condition of the shell plate is deemed warranted at this time.

The following moisture barriers shall be replaced no later than the end of refueling outage 2EOC11:

E05.30.0025 (2-MBRI-0025) E05.30.0027 (2-MBRI-0027) E05.30.0033 (2-MBRI-0033) E05.30.0034 (2-MBRI-0034)

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These moisture barriers are considered more critical than others identified in this PIP because they prevent moisture intrusion against surfaces of the Steel Containment Vessel that are inaccessible for visual examination on both sides of the vessel shell in the vicinity of the Fuel Transfer Tube.

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The remaining moisture barriers identified above shall also be replaced no later than the end of refueling outage 2EOC11. Alternatively, these remaining moisture barriers shall be reinspected during refueling outage 2EOC11 and evaluated by Engineering to determine whether corrective actions may be deferred beyond 2EOC11. Immediate repair or replacement of these moisture barriers was not deemed necessary, based on the observed condition of the containment vessel surfaces.