

CATEGORY 1

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 50-413 Catawba Nuclear Station, Unit 1, Duke Power Co. 05000413
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SUBJECT: Forwards response to 980529 RAI re util request for relief from bolt torque or tension requirements of ASME Boiler & Pressure Code, Section XI, IAW 10CFR50.55a(a)(3)(ii) Rev 46 to procedure PT/1/A/4200/001E, encl.

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June 10, 1998

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, and 50-287

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

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

TAC Nos. MA1504, MA1505, MA1509, MA1510, MA1513,
MA1514, and MA1515

Request for Relief from Requirements of The ASME
Boiler and Pressure Vessel Code, Section XI in
Accordance with 10 CFR 50.55a(a)(3)(ii)
Duke Energy Corporation Serial Number 98-GO-002

In a letter dated April 6, 1998, Duke Energy Corporation submitted a request for relief from the bolt torque or tension requirements of the ASME Boiler and Pressure Vessel Code, Section XI, Subsection IWE, 1992 Edition with the 1992 Addenda. This request for relief was designated as Duke Serial Number 98-GO-002. In a letter dated May 29, 1998, the NRC requested additional information concerning 98-GO-002. A subsequent telephone conversation between NRC officials and Duke representatives held on June 3, 1998 clarified the scope of the additional information needed for evaluating the Duke request. Attachment 1 contains the Duke answers to the questions contained in the NRC request for additional information. Attachment 2 provides an information copy of an example air lock leak rate test procedure.

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U. S. Nuclear Regulatory Commission
June 10, 1998
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Please contact J. S. Warren at (704) 382-4986 if there are any questions or if additional information is needed on this request for relief.

Very truly yours,



M. S. Tuckman

MST/JSW

Attachments

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Attachment 1

DUKE ENERGY CORPORATION

Oconee Nuclear Station Units 1, 2, and 3
McGuire Nuclear Station Units 1 and 2
Catawba Nuclear Station Units 1 and 2

The following additional information was requested in a NRC letter dated May 29, 1998. The requested information is restated below as Question 1 and Question 2, followed by the Duke response for each question.

Question 1:

Explain how the tension and torque pre-loads and the physical conditions (e.g., indications of rusting, corrosion, or flaking of bolt heads) of the bolts used for pressure unseating containment penetrations are monitored and maintained.

Duke Response to Question 1:

Duke Energy Corporation understands that the NRC is concerned about containment pressure unseating bolted connections (where accident pressure would induce bolt tension). Duke Energy Corporation considers containment pressure unseating bolted connections to consist of those which have a single blind flange or other closure device installed on the outside of containment only. Penetrations which have a single blind flange or other closure device on the inside of containment, or which have bolted flanges or closure devices on both sides of the containment are not considered to be containment pressure unseating bolted connections. Penetrations which are pressurized, such as electrical penetrations, are also not considered to be containment pressure unseating bolted connections.

The tension and torque pre-loads for pressure unseating bolted connections are not specifically monitored by existing station procedures. As indicated below, the only pressure unseating connections which have been identified are located on the Personnel Air Lock outer bulkheads at Catawba and McGuire. Although the bolt preload in these connections is not specifically monitored and maintained by existing station procedures, the leak-tight integrity of these connections and

the adequacy of their bolting is verified by conducting overall airlock leakage tests in accordance with Technical Specifications 4.6.1.3. Because the entire airlock is pressurized during these tests, the bolting on these connections is challenged and adequate bolt preload is assured. A list of applicable leakage test procedures for these tests is provided below.

The physical condition (e.g., indications of rusting, corrosion, or flaking of bolt heads, etc.) of containment pressure unseating bolted connections is not specifically monitored by existing station procedures. However, the physical condition of these bolted connections shall be monitored by the performance of examinations required by the ASME Boiler and Pressure Vessel Code, Section XI, Subsection IWE, 1992 Edition with the 1992 Addenda, with modifications as specified in 10 CFR 50.55a. Specifically, all pressure retaining bolted connections (including pressure unseating connections) are to receive a Visual, VT-1 examination at least once every inservice inspection interval in accordance with IWE-2500(a) and Table IWE-2500-1, Examination Category E-G, PRESSURE RETAINING BOLTING, Item E8.10. VT-1 Visual Examination procedures, which shall be used to perform these examinations, are currently under development and shall include requirements to examine bolting for evidence of conditions which may be detrimental to the intended service. Evidence of degradation shall include conditions such as thread damage; corrosion; bolting deformation or bending; missing or loose bolts, studs, nuts, or washers; fractured bolts, studs, or nuts; degradation of protective coatings; and evidence of coolant leakage near bolting. Indications detected by visual examination shall be considered unacceptable for continued service without supplemental NDE or engineering evaluation showing the indication or condition to be acceptable. Bolting which does not meet the acceptance standards of IWE-3515 shall be replaced.

VT-1 visual examinations of containment pressure retaining bolting shall meet the schedule requirements of Table IWE-2412-1 and Table IWE-2500-1, Examination Category E-G, Item E8.10, and shall be completed no later than September 9, 2001, as required by 10 CFR 50.55a(g)(6)(ii)(B).

Question 2:

Provide the procedures used to monitor and maintain the functionality of these bolts for the pressure unseating containment penetrations and a list of all penetrations for each of the containments requesting the relief.

Duke Response to Question 2:

NOTE: Discussions held on June 3, 1998 with NRC officials clarified that the list of penetrations requested in Question 2 need only include those pressure unseating bolted connections for which relief is requested.

Existing procedures do not contain provisions to monitor and maintain the functionality of bolts for the containment pressure unseating bolted connections. However, applicable Containment Personnel Air Lock leak rate test procedures are listed below, and an uncontrolled copy of Catawba Unit 1 procedure #PT/1/A/4200/001 E is included as Attachment 2. The other listed Air Lock leak rate test procedures are essentially the same as this procedure and are therefore not included with this response. As stated in the Duke response to Question 1 above, Visual VT-1 examination procedures are being developed to perform the visual examinations required by Subsection IWE for Category E-G, Item E8.10, but are not yet completed. However, a description of examination criteria for these procedures is also provided in the Duke response to Question 1.

Duke Energy Corporation is actively developing the Containment Inservice Inspection Programs for each of its nuclear plants, but has not yet developed a final, detailed list of all containment pressure unseating bolted connections for each unit. Although this review has not been completed, Duke has identified the known containment pressure unseating bolted connections at Catawba and McGuire. Therefore, Duke is requesting that the NRC limit the scope of Request for Relief 98-GO-002 to those pressure unseating bolted connections listed below and all pressure seating bolted connections (not listed). Any additional containment pressure unseating bolted connections identified by Duke Energy Corporation subsequent to this submittal shall be examined in accordance with IWE-2500, Table IWE-2500-1, Examination Category E-G, PRESSURE RETAINING BOLTING, Item E8.20 in accordance with Duke's Containment Inservice Inspection Program, unless

additional, further relief is requested and granted for
specific bolted connections.

List of Identified Containment Pressure Unseating Bolted
Connections for Which Relief is Requested

<u>Plant</u>	<u>Unit</u>	<u>Location</u>	<u>Description/Comments</u>
Catawba	1	Upper Airlock Outer Bulkhead	3" Emergency Air Supply Penetration
Catawba	1	Lower Airlock Outer Bulkhead	3" Emergency Air Supply Penetration
Catawba	2	Upper Airlock Outer Bulkhead	3" Emergency Air Supply Penetration
Catawba	2	Lower Airlock Outer Bulkhead	3" Emergency Air Supply Penetration
McGuire	1	Upper Airlock Outer Bulkhead	3" Emergency Air Supply Penetration
McGuire	1	Lower Airlock Outer Bulkhead	3" Emergency Air Supply Penetration
McGuire	2	Upper Airlock Outer Bulkhead	3" Emergency Air Supply Penetration
McGuire	2	Lower Airlock Outer Bulkhead	3" Emergency Air Supply Penetration
Oconee	1	N/A	No pressure unseating connections identified
Oconee	2	N/A	No pressure unseating connections identified
Oconee	3	N/A	No pressure unseating connections identified

List of Applicable Catawba and McGuire Procedures for Air
Lock Leak Rate Testing

<u>Plant</u>	<u>Unit</u>	<u>Air Lock</u>	<u>Procedure Number</u>	<u>Description</u>
Catawba	1	Upper	PT/1/A/4200/001 E	Upper Containment Personnel Air Lock Leak Rate Test
Catawba	1	Lower	PT/1/A/4200/001 F	Lower Containment Personnel Air Lock Leak Rate Test
Catawba	2	Upper	PT/2/A/4200/001 E	Upper Containment Personnel Air Lock Leak Rate Test
Catawba	2	Lower	PT/2/A/4200/001 F	Lower Containment Personnel Air Lock Leak Rate Test
McGuire	1	Upper	PT/1/A/4200/001 E	Upper Containment Personnel Air Lock Leak Rate Test
McGuire	1	Lower	PT/1/A/4200/001 F	Lower Containment Personnel Air Lock Leak Rate Test
McGuire	2	Upper	PT/2/A/4200/001 E	Upper Containment Personnel Air Lock Leak Rate Test
McGuire	2	Lower	PT/2/A/4200/001 F	Lower Containment Personnel Air Lock Leak Rate Test