



**Edward R. Pigott**  
Site Vice President  
McGuire Nuclear Station

**Duke Energy**  
MG01VP | 12700 Hagers Ferry Road  
Huntersville, NC 28078

o: 980.875.4805  
Edward.Pigott@duke-energy.com

Serial: RA-23-0024  
February 28, 2023

10 CFR 50.55a

United States Nuclear Regulatory Commission  
ATTN: Document Control Desk  
Washington, DC 20555-0001

MCGUIRE NUCLEAR STATION, UNIT NO.1  
DOCKET NO. 50-369 / RENEWED LICENSE NUMBER NPF-9

**SUBJECT: Response to Request for Additional Information (RAI) for Relief Request for RPV Reactor Coolant System Welds**

**REFERENCE:**

1. Duke Energy Letter RA-22-0024, "Relief Requested in Accordance with 10 CFR 50.55a(g)(5)(iii) for Volumetric Examination of Class 1 Components," dated September 21, 2022 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML22264A110).
2. U.S. Nuclear Regulatory Commission (NRC) Email, "Formal Release of RAIs for McGuire Unit 1, Relief Request Impractical RPV Rx Coolant System Welds, due March 1, 2023 (Email)," dated January 30, 2023 (ADAMS Accession No. ML23030B903).

Ladies and Gentlemen:

In Reference 1, Duke Energy Carolinas, LLC (Duke Energy) submitted a relief request in accordance with 10 CFR 50.55a(g)(5)(iii) seeking relief from paragraphs IWA-2200 and IWB-2500 of the American Society of Mechanical Engineers (ASME) Section XI Code for volumetric examinations of certain class 1 components. In Reference 2, the NRC requested additional information to complete its review. The responses to the RAI can be found in the Enclosure to this letter.

This submittal contains no regulatory commitments.

Should you have any questions concerning this letter, or require additional information, please contact Ryan Treadway – Director, Fleet Licensing, at (980) 373-5873.

Sincerely,

A handwritten signature in black ink, reading "Edward R. Pigott". The signature is written in a cursive style with a large, sweeping initial "E".

Edward R. Pigott  
Site Vice President  
McGuire Nuclear Station

Enclosure:

Response to Request for Additional Information (RAI)

cc: (with enclosure)

J. Klos, NRC Project Manager, NRR  
L. Dudes, NRC Regional Administrator, Region II  
C. Safouri, NRC Senior Resident Inspector

U.S. Nuclear Regulatory Commission  
Serial: RA-23-0024  
Enclosure

**RA-23-0024**

**Enclosure**  
**Response to Request for Additional Information (RAI)**

## **Request for Additional Information (RAI)-1**

### **Issue**

Table 1 of Enclosure 1 of the relief request shows that the examination coverage achieved for the Lower Shell to Bottom Head circumferential weld 1RPV10-442 and the Upper Shell at 180° longitudinal weld 1RPV1-442B were 59.6% and 51.5%, respectively of the required volume. The NRC staff understands that this low examination coverage was caused by the interference of the in-core instrumentation nozzles. The NRC staff recognizes that the licensee has performed required volumetric examinations in accordance with the ASME Code, Section XI. However, the NRC staff is seeking understanding whether the licensee performed additional best effort examinations beyond the ASME Code requirements such as non-qualified visual examination to support its relief request.

### **Request**

Discuss whether as part of the ultrasonic testing (UT) examination of welds 1RPV10-442 and 1RPV1-442B, a non-qualified visual inspection was performed as part of best effort to verify that the surface of the welds that was not examined is not degraded, if a visual inspection was achievable.

### **Duke Energy Response to RAI-1:**

A non-qualified visual inspection as part of the UT examination of welds 1RPV10-442 and 1RPV1-442B was not performed. However, a visual VT-3 examination was performed of the reactor vessel interior per the requirements of ASME Section XI Code, Category B-N-1, Item Number B13.10, and no rejectable indications were identified (Reference 1).

### **RAI-1 References:**

1. ASME Boiler and Pressure Vessel Code, Section XI, 2007 Edition through 2008 Addenda, American Society of Mechanical Engineers, New York.

## **RAI-2**

### Issue

Enclosure 2 of the relief request states that flaws/indications have been detected in four welds, 1RPV1-442B, 1RPV3-442A, 1RPV3-442B, and 1RPV3-442C. The NRC staff notes that the indications detected in the subject welds are acceptable in accordance with the acceptance standards of IWB-3000 of the ASME Code, Section XI. As such, the ASME Code, Section XI does not require successive examinations of the subject welds. However, because the licensee did not achieve essentially 100% of the examination coverage, the NRC staff is seeking understanding whether these welds will be inspected in the future, providing further opportunities to monitor the potential growth of the indications in the subject welds.

### Request

Clarify whether these welds will be inspected in the future ISI intervals.

### **Duke Energy Response to RAI-2:**

The welds are scheduled in the current 5<sup>th</sup> Interval for ISI examination per the requirements of Examination Category B-A, Item Number B1.12 of ASME Section XI Code (Reference 1). Duke Energy complies with the scheduling requirements of the Code unless approval is granted for an alternative in accordance with 10 CFR 50.55a.

### RAI-2 References:

1. ASME Boiler and Pressure Vessel Code, Section XI, 2007 Edition through 2008 Addenda, American Society of Mechanical Engineers, New York.

### **RAI-3**

#### Issue

Section 6.0 of Enclosure 1 states that "...Based on the volumetric coverage obtained, along with the completed ASME Code required surface examination and System Pressure Tests, it is reasonable to conclude that if significant service induced degradation were occurring, it would have been evident by the examinations and testing that were performed...". The statement mentions a surface examination being performed. However, the NRC staff notes that Table IWB 2500-1 of the 2007 Edition through 2008 Addenda of the ASME Code Section XI requires only ultrasonic examination, not surface examination, to be performed for the subject welds of the relief request (i.e., welds under Examination Category B-A with Item numbers B1.11 and B1.12, and Examination Category B-D with Item number B3.110).

#### Request

Clarify whether a surface examination was performed on the subject welds of the relief request. If surface examination(s) was (were) performed, provide the results thereof.

#### **Duke Energy Response to RAI-3:**

No surface ISI examinations were performed on the subject welds of the relief request.