

**From:** Sreenivas, V  
**Sent:** Monday, August 15, 2016 12:14 PM  
**To:** steven.Capps@duke-energy.com  
**Cc:** Robertson, Jeffrey N; Richards, Brian H; Vu, Phong T; Murphy, George M; Miller, Ed; Tsao, John; Davis, Robert; Alley, David  
**Subject:** McGuire Unit No. 1: Request for Additional Informati- Relief Request 16-MN-003 Alternative to Defect Removal Prior to Performing Temporary Repair Activities on Three-Inch-Diameter Nuclear Service Water System Piping. (CAC Nos. MF8269)

By letter dated August 10, 2016 2016 (Agencywide Documents and Access Management System (ADAMS) Accession No. ML 16224A806), Duke Energy (the licensee) requested relief from the requirements of the American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code), Section XI, IWA-4420, at McGuire Nuclear Station Unit 1. Specifically, pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR) 50.55a(z)(2), the licensee requested to use the alternative in Relief Request 16-MN-003 on the basis that compliance with the specified ASME requirements would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety. Relief Request 16-MN-003 provides an alternative for the temporary repair of three-inch diameter nuclear service water system piping associated with the 1B Diesel Generator Cooling Water Heat Exchanger. To complete its review, the Nuclear Regulatory Commission (NRC) staff requests the following additional information.

REQUEST FOR ADDITIONAL INFORMATION RELIEF REQUEST 16-MN-003  
ALTERNATIVE REPAIR FOR NUCLEAR SERVICE WATER SYSTEM PIPING:

Questions:

1. Paragraph 4.1 of the relief request mentioned a corrosion rate of 0.001 inches per day in the vicinity of valve 1RN-884. Discuss the corrosion rate that was used in the design of the sleeve. Discuss the sleeve thickness. Demonstrate that the sleeve, considering the designed corrosion rate, will provide structural integrity and leak tightness to the affected piping until the next refueling outage.
2. Paragraph 4.2 of the relief request discusses the extent of condition inspection of the nuclear service water piping. It appears that the licensee only examined the vicinity of valve 1RN-883 in addition to valve 1RN-884. Discuss whether all locations of the nuclear service water piping that are potentially susceptible to corrosion have been examined.
3. Paragraph 5.1 of the relief request states that in lieu of the requirement of IWA-4400 to remove the defective portion of the component prior to performing repair/replacement activities by welding, Code Case N-786-2 will be utilized as an alternative, utilizing the "Type B" sleeve design. The NRC has not approved Code Case N-786-2 which does not appear in the NRC regulation.

(a) The licensee needs to include the code case in its entirety as an attachment to the relief request. Alternatively, the licensee could attach the code case in its entirety in the response to this question.

(b) The NRC staff notes that the relief request proposes exceptions and modifications to Section 3, but not other sections of the code case. For example, the NRC staff notes that the relief request did not take exception to paragraph 1(f) of the code case which prohibits the use of the code case on valves even though the proposed sleeve repair will involve welding on the valve body. For each paragraph of the code case, provide disposition in a table format to show that (1) the proposed alternative will follow the requirements of the paragraph in the code case, (2) the proposed alternative will take exceptions and propose modification to the paragraph in the code case, or (3) the paragraph of the code case is not applicable to the proposed alternative.

4. Paragraph 5.1.12 of the relief request states that a coupling will be shop welded to one side of the sleeve to allow for purging of any weld gasses and leak testing in accordance with IWA-4540. Attachment 3 of the relief request does not show the coupling. Provide a drawing or sketch of the coupling with respect to the sleeve.

5. Paragraph 5.1.13 of the relief request states that sealant will be injected between the sleeve and the pipe. Discuss whether the sealant could fall into the pipe if a hole or crack occurs from corrosion. If the sealant does fall into the pipe, would the debris affect the operation of the nuclear service water system?

6. Paragraph 5.1.15 of the relief request states that the sleeve will be visually monitored at least monthly and will be ultrasonically inspected at monthly intervals until the next refueling outage. (a) Discuss whether the visually monitoring and ultrasonic testing will be performed in a staggered fashion so that the sleeve can be monitored either visually or ultrasonically at least every two weeks. (b) Considering the aggressive corrosion rate of 0.001 inches per day, even with the proposed sleeve repair, discuss whether the daily walkdown at the plant should include the monitoring of the sleeve. (c) Discuss the elevation of the repaired piping with respect to the elevation of the plant personnel who performs visual monitoring.

Your immediate response to these RAIs, is imminent to complete the review of your requested application to support your planned repair in September 2016.

If you have any questions, please do not hesitate to contact me.

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