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PNP 2014-024

March 5, 2014

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

SUBJECT: Response to Request for Additional Information dated February 28, 2014, for Relief Request Number RR 4-19 – Proposed Alternative to the Requirements of ASME Code Case N-638-4

Palisades Nuclear Plant
Docket 50-255
License No. DPR-20

References:
1. Entergy Nuclear Operations, Inc. letter PNP 2014-019, *Relief Request Number RR 4-19 – Proposed Alternative to the Requirements of ASME Code Case N-638-4*, dated February 26, 2014 (ADAMS Accession No. ML14057A766)

2. NRC Electronic Mail, *Request for Additional Information - Palisades - RR 4-19 - Proposed Alternative to the Requirements of ASME Code Case N-638-4 - MF3517*, dated February 28, 2014

Dear Sir or Madam:

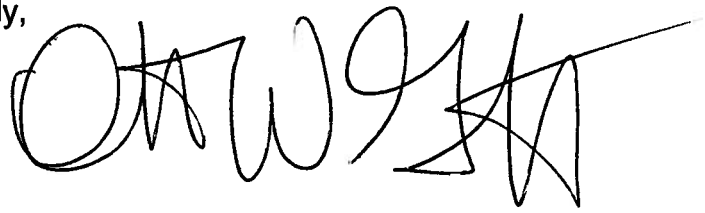
In Reference 1, Entergy Nuclear Operations, Inc. (ENO) requested Nuclear Regulatory Commission (NRC) approval of the Request for Relief for a Proposed Alternative for the Palisades Nuclear Plant (PNP). NRC approval was requested by March 8, 2014.

Reference 1 is associated with the use of an alternative to the requirements of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, Code Case N-638-4, "Similar and Dissimilar Metal Welding Using Ambient Temperature Machine GTAW Temper Bead Technique," dated October 5, 2006.

In Reference 2, the NRC issued a request for additional information. The ENO response to the request for additional information is provided in Attachment 1.

This submittal makes no new commitments or revisions to previous commitments.

Sincerely,



owg/jse

Attachment: Response to Request for Additional Information dated February 28, 2014, for Relief Request Number RR 4-19 – Proposed Alternative to the Requirements of ASME Code Case N-638-4

cc: Administrator, Region III, USNRC
Project Manager, Palisades, USNRC
Resident Inspector, Palisades, USNRC

Response to Request for Additional Information dated February 28, 2014, for Relief Request Number RR 4-19 – Proposed Alternative to the Requirements of ASME Code Case N-638-4

By letter dated February 26, 2014, Entergy Nuclear Operations (ENO) requested Nuclear Regulatory Commission (NRC) approval of the Request for Relief for a Proposed Alternative for the Palisades Nuclear Plant (PNP). By electronic mail, dated February 28, 2014, the Nuclear Regulatory Commission (NRC) requested additional information. The requested information is provided below.

1. **NRC Information Request – Response to Question RAI-1**

Relief Request RR-4-19 discussed the use of American Society of Mechanical Engineers (ASME) Code Case N-638-4 with deviations. However, it is not clear to the NRC staff from which articles in the ASME Code, Section XI, the relief is requested. Section 3 of the relief request alluded to the hardship that would be encountered if the proposed repair were to follow IWA-4600 and IWA-4630 of the ASME Code, Section XI. The Inquiry section of ASME Code Case N-638-4 referenced IWA-4400. Provide the articles and/or subarticles of the ASME Code, Section XI, from which the relief is requested.

ENO Response

ASME Section XI, IWA-4411 requires that welding and installation activities be performed in accordance with the original Construction Code of the component or item. IWA-4411 also includes the following alternatives:

- As an alternative to the original Construction Code, IWA-4411(a) allows use of later Editions/Addenda of the Construction Code. However, if welding is performed in accordance with the Construction Code regardless of which Edition or Addenda is used, conventional PWHT would be required.

- IWA-4411(e) also allows use of the temper bead welding requirements of IWA-4600 as an alternative to the PWHT requirements of the Construction Code. However, in this case, the IWA-4600 temper bead rules require application of an elevated preheat temperature and a post weld soak.

As an alternative to the welding provisions of IWA-4411, ENO plans to use Code Case N-638-4 to install the Alloy 52M butter across the face and full circumference of the weld end preparation of the A-508, Class 2 nozzle. Code Case N-638-4 provides an ambient temperature temper bead process that may be used in lieu of the preheat and PWHT requirements of the Construction Code. However, Code Case N-638-4, paragraph 1(b) restricts the depth of the weld or repair weld to "one-half of the ferritic base metal thickness." As an

alternative to this depth restriction, ENO is proposing to use the new provision in paragraph 1(b)(1) of Code Case N 638-5 which permits through-wall circumferential welds provided certain conditions are met (see Section 4, "Proposed Alternative and Basis for Use," of the relief request).

2. NRC Information Request – Response to Question RAI-2

Section 3 of the relief request stated that the new dissimilar metal weld will be installed and examined in accordance with the 1992 Edition of the ASME Code, Section III, Subsection NB. (a) Discuss why the 1992 edition of the ASME Code, Section III was selected for the installation and examination of the new weld. (b) Section 2 of ASME Code Case N-638-4 requires that the welding qualification follows ASME Code, Section IX. Discuss which edition of the ASME Code, Section IX, will be used for the welding qualification.

ENO Response

(a) The original Construction Code for this weld was the 1965 Edition/Winter 1966 Addenda of ASME Section III. However, as allowed by IWA-4411(a), Owners can use later Editions/Addenda of the Construction Code for welding, installation, and repair activities. ASME Section XI allows the use of later Construction Code Editions/Addenda because these later Editions/Addenda are based on the latest developments in industry experience, research, and technology. This being the case, the 1992 Edition of ASME Section III, Subsection NB was selected for this repair/replacement activity. It should also be noted that all ENO sites, including PNP, use the standardized ENO nuclear welding program, which is based on the 1992 Edition of ASME Section III. Selection of the 1992 Edition of ASME Section III, Subsection NB for this repair/replacement activity is also consistent with the NRC condition specified in 10 CFR 50.55a(b)(2)(xx)(B).

(b) The Welding Procedure Specification (WPS) to be used for this repair/replacement activity is already qualified. The Procedure Qualification Record (PQR) supporting the ambient temperature temper bead welding lists the 2004 Edition with 2006 Addenda of ASME Section IX as the Edition/Addenda used for qualification. The WPS that is supported by this PQR was last revised on February 27, 2014, and was reviewed to the 2013 edition of ASME Section IX, with no Addenda. Note that the information provided in this response only applies to the ambient temperature temper bead qualification. The WPS is also supported by other non-ambient temperature temper bead PQRs that were qualified to other editions of Section IX.

3. NRC Information Request – Response to Question RAI-3

Figure 2, Note 9 stated that the final butt weld shall be radiographic and liquid penetrant examined per NB-5222 of the ASME Code, Section III. Note 9 further stated that if required, a PSI [pre-service inspection] ultrasonic examination shall be performed in accordance with NB-5111(b) of the ASME Code, Section III. (a) Discuss whether a liquid penetrant examination will be conducted after butter is installed. If not, discuss whether a visual examination will be performed on the butter to ensure no fabrication defect. (b) The proposed relief request did not specify an ultrasonic examination for the pre-service examination. The future inservice inspections of the subject weld will most likely be performed using ultrasonic testing. The result of a pre-service ultrasonic examination would provide the baseline information for the future ultrasonic examinations. Discuss whether an ultrasonic examination will be performed on the subject weld prior to placing the repaired weld in service. (c) Section 4 of ASME Code Case N-638-4 discusses a surface examination prior to welding and visual examinations. However, the relief request did not mention the surface examination prior to welding and any visual examinations. Discuss whether the relief request will follow all the examination requirements as specified Section 4 of Code Case N-638-4.

ENO Response

(a) Both a visual examination and a liquid penetrant examination will be conducted after the temper bead butter is installed and prior to welding the flange to this temper bead buttering.

(b) In addition to the radiography required by the Construction Code, a pre-service ultrasonic examination will be performed as required by IWA-4530. The pre-service ultrasonic examination will be performed in accordance with Appendix VIII of ASME Section XI.

(c) The relief request only proposes an alternative to the restriction in Code Case N-638-4, paragraph 1(b) regarding the depth of the weld. Therefore, all other requirements of Code Case N-638-4 will be followed, including the requirements of Section 4(a)(1) which requires a surface examination of the area to be welded prior to welding.

4. NRC Information Request – Response to Question RAI-4

Provide the inside and outside diameter of the nozzle, nozzle wall thickness (the thickness that is close to the pressurizer shell), and weld wall thickness of the repaired weld as shown in Figure 2.

ENO Response

The requested dimensions are provided in Figure 1 of this response.

5. NRC Information Request – Response to Question RAI-5

Confirm that the two indications detected in the existing subject weld will be removed as result of the proposed repair.

ENO Response

The indications detected in the original weld will be removed as a result of the proposed repair. This will be accomplished by removing all of the original weld metal and at least an additional 1/8 inch of the ferritic nozzle, followed by visual and surface examinations of the nozzle area to be welded. In addition, the original flange will not be reused.

Figure 1
Nozzle Dimensions