



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

December 17, 2014

Mr. John A. Dent, Jr.
Site Vice President
Entergy Nuclear Operations, Inc.
Pilgrim Nuclear Power Station
600 Rocky Hill Road
Plymouth, MA 02360-5508

SUBJECT: PILGRIM NUCLEAR POWER STATION - REQUEST FOR ADDITIONAL
INFORMATION REGARDING RELIEF REQUEST PRR-24,
NOZZLE-TO-VESSEL WELDS AND NOZZLE INNER RADII EXAMINATIONS
(TAC NO. MF4187)

Dear Mr. Dent:

By letter dated March 12, 2014, Entergy Nuclear Operations, Inc., the licensee, submitted Relief Request PRR-24 for authorization of a proposed alternative to certain examination requirements of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, Section XI, Examination Category B-D for Pilgrim Nuclear Power Station. Specifically, the licensee proposed to use ASME Code Case N-702 which requires examination of a minimum of 25 percent of the nozzle-to-vessel welds and inner radius sections.

The Nuclear Regulatory Commission (NRC) staff is reviewing the submission and has determined that additional information is needed to complete its review. The specific questions are found in the enclosed request for additional information (RAI). The NRC staff is requesting a response to the RAI within 30 days of the date of this letter.

If you have any questions regarding this matter, please contact me at (301) 415-1016.

Sincerely,

A handwritten signature in black ink that reads "Doyle v Pickett for".

Nadiyah S. Morgan, Project Manager
Plant Licensing Branch I-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-293

Enclosure:
As stated

cc/ enclosure: Distribution via Listserv

REQUEST FOR ADDITIONAL INFORMATION

REGARDING RELIEF REQUEST PRR-24

ALTERNATIVE NOZZLE-TO-VESSEL WELDS

AND NOZZLE INNER RADII EXAMINATIONS

ENTERGY NUCLEAR OPERATIONS, INC.

PILGRIM NUCLEAR POWER STATION

DOCKET NUMBER: 50-293

By letter dated March 12, 2014, (Agencywide Documents Access & Management System (ADAMS) ML14077A175), Entergy Nuclear Operations, Inc., the licensee, submitted Relief Request PRR-24 for authorization of a proposed alternative to certain requirements of the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code, Section XI, for Pilgrim Nuclear Power Station (Pilgrim). The proposed alternative applies to the fourth 10-year inservice inspection (ISI) interval, in which the licensee adopted the 1998 Edition through the 2000 Addenda of ASME Code Section XI as the Code of Record.

Title 10 of the *Code of Federal Regulations* (10 CFR), Section 50.55a(a)(3), states that proposed alternatives to the requirements in 10 CFR 50.55a paragraphs (c) through (h) may be used when authorized by the Director of the Office of Nuclear Reactor Regulation. The applicant shall demonstrate that: (i) The proposed alternatives would provide an acceptable level of quality and safety, or (ii) Compliance with the specified requirements of this section would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety. Relief Request PRR-24 was submitted for review under 10 CFR 50.55a(a)(3)(i).

The Nuclear Regulatory Commission (NRC) staff has reviewed the information submitted by the licensee, and based on its review, determined that the following information is required to complete the evaluation:

1. **Proposed Alternative PRR-24, Examination Category B-D, Items B3.90 and B3.100, Full Penetration Welded Nozzles in Vessels**

The licensee proposed, in lieu of performing examinations on 100 percent of the reactor pressure vessel nozzle-to-vessel welds and nozzle inside radius sections, to incorporate ASME Code Case N-702, "Alternative Requirements for Boiling Water Reactor (BWR) Nozzle Inner Radius and Nozzle-to-Shell Welds," which requires a minimum of 25 percent of nozzle inner radii and nozzle-to-shell welds, including at least one nozzle from each system and nominal pipe size. The NRC Regulatory Guide 1.193, Revision 3, "ASME Code Cases Not Approved For Use," states that:

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The applicability of Code Case N-702 must be shown by demonstrating that the criteria in Section 5.0 of NRC Safety Evaluation dated December 19, 2007 (ML073600374) regarding BWRVIP-108: "BWR Vessel and Internals Project, Technical Basis for the Reduction of Inspection Requirements for the Boiling Water Reactor Nozzle-to-Vessel Shell Welds and Nozzle Blend Radii," EPRI Technical Report 1003557, October 2002 (ML023330203) are met. The evaluation demonstrating the applicability of the Code Case shall be reviewed and approved by the NRC prior to the application of the Code Case.

On April 19, 2013, the NRC issued a safety evaluation (SE) (ADAMS Accession No. ML13071A245) regarding the review of Boiling Water Reactor Vessel Inspection Program (BWRVIP)-241, "BWR Vessel and Internals Project, Probabilistic Fracture Mechanics Evaluation for the Boiling Water Reactor Nozzle-to-Vessel Shell Welds and Nozzle Blend Radii." In the SE, the NRC staff states, in part that:

Licensees who plan to request relief from the ASME Code, Section XI requirements for RPV [reactor pressure vessel] nozzle-to-vessel shell welds and nozzle inner radius sections may reference the BWRVIP-241 report as the technical basis for the use of ASME Code Case N-702 as an alternative. However, the licensees should demonstrate the plant-specific applicability of the BWRVIP-241 report to their units in the relief request by addressing the conditions and limitations specified in Section 5.0 of this SE. The licensees may submit their relief requests pursuant to 10 CFR 50.55a(a)(3)(i).

Entergy provided their calculations and results, which meet the criteria (Criterion 1, 2, and 3 for Recirculation Inlet (N2) Nozzles) set forth in Section 5 of the NRC SE mentioned above for BWRVIP-241. However, there is a discrepancy in the specific values provided for the RPV wall thickness (t) at Pilgrim. The value provided in proposed alternative PRR-244 and Table 2-1 of BWRVIP-241 for the RPV wall thickness is [] inches. The value provided in BWRVIP-108, Table 3-1 for the RPV wall thickness is [] inches. The value provided in BWRVIP-241, Section 4.1 for the RPV wall thickness is [] inches.

Please verify and state the specific values for the RPV inner radius and wall thickness provided in proposed alternative PRR-24. Also, explain why there is an inconsistency between the values provided in the BWRVIP-108 and BWRVIP-241 reports, and those provided in your March 12, 2014, letter. If the current submission is based on incorrect geometry information, please revise it.

2. Please provide a list of what inspections have already been performed on the Recirculation Inlet nozzle-to-vessel welds and inner radius sections listed in Attachment 1 of PRR-24, for which this alternative is requested. Also, describe any indications that were found and how these indications were dispositioned.

December 17, 2014

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SUBJECT: PILGRIM NUCLEAR POWER STATION - REQUEST FOR ADDITIONAL INFORMATION REGARDING RELIEF REQUEST PRR-24, NOZZLE-TO-VESSEL WELDS AND NOZZLE INNER RADII EXAMINATIONS (TAC NO. MF4187)

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Sincerely,

/RA/

Nadiyah S. Morgan, Project Manager
Plant Licensing Branch I-1
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