

## NRR-DMPSPeM Resource

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**From:** Wengert, Thomas  
**Sent:** Wednesday, February 14, 2018 9:25 AM  
**To:** Shaw, Jim D.  
**Cc:** Van Der Kamp, David W.; Pascarelli, Robert  
**Subject:** Cooper Nuclear Station - Final RAI RE: Alternative Request RI5-03 (EPID L-2017-LLR-064)  
**Attachments:** Cooper RI5-03 Final RAI.pdf

On February 6, 2018, the U.S. Nuclear Regulatory Commission (NRC) staff sent Nebraska Public Power District (NPPD or licensee) the draft Request for Additional Information (RAI) identified below. This RAI relates to Alternative Request No. RI5-03, which requests approval to implement ASME Code Case N-702 in lieu of the ASME Code Section XI requirement to volumetrically examine all Category B-D, Item B3.90 nozzle-to-vessel welds and all Category B-D, Item B3.100 nozzle inside radius sections at Cooper Nuclear Station.

NPPD subsequently informed the NRC staff that the information requested by the staff was understood and that no additional clarification of the RAI was necessary. A publicly available version of this final RAI (attached with "Draft" removed) will be placed in the NRC's Agencywide Documents Access and Management System (ADAMS). The NRC and NPPD agreed that the licensee would provide a response to this RAI within 30 days of the date of this communication (i.e., March 16, 2018).

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**From:** Wengert, Thomas  
**Sent:** Tuesday, February 06, 2018 2:39 PM  
**To:** 'Shaw, Jim D.'  
**Cc:** 'Van Der Kamp, David W.' ; Pascarelli, Robert  
**Subject:** Cooper Nuclear Station - Draft RAI RE: Alternative Request RI5-03 (EPID L-2017-LLR-064)

By letter dated August 17, 2017 (Agencywide Documents and Access Management System (ADAMS) Accession No. ML17241A048), Nebraska Public Power District (the licensee) submitted Alternative Request No. RI5-03, which addresses alternative examinations to the requirements of the American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code), Section XI, "Rules for Inservice Inspection of Nuclear Power Plant Components" for the Cooper Nuclear Station (CNS). Specifically, pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR) paragraph 50.55a(z)(1), the licensee requested approval to implement ASME Code Case N-702 in lieu of the ASME Code Section XI requirement to volumetrically examine all Category B-D, Item B3.90 nozzle-to-vessel welds and all Category B-D, Item B3.100 nozzle inside radius sections.

The U.S. Nuclear Regulatory Commission (NRC) staff has determined that additional information, as described in the attached request for additional information (RAI), is required for the staff to complete its review of this alternative request. This RAI is identified as draft at this time to confirm your understanding of the information that the NRC staff needs to complete the evaluation. If the request for information is understood, please respond to this RAI within 30 days of the date of this request. Please contact me if you would like to set up a conference call to clarify this request for information.

Note that the NRC staff is still reviewing Requests RI5-01, RI5-02, RR5-02, and RR5-03, which were also included in the August 17, 2017 letter. We will notify you by separate correspondence if additional information is needed for those reviews.

Tom Wengert

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**Hearing Identifier:** NRR\_DMPS  
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"Pascarelli, Robert" <Robert.Pascarelli@nrc.gov>  
Tracking Status: None  
"Shaw, Jim D." <jdshaw@nppd.com>  
Tracking Status: None

**Post Office:**

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REQUEST FOR ADDITIONAL INFORMATION (RAI)  
BY THE OFFICE OF NUCLEAR REACTOR REGULATION  
PROPOSED ALTERNATIVE REQUEST NO. RI5-03  
FIFTH 10-YEAR INTERVAL INSERVICE INSPECTION  
NEBRASKA PUBLIC POWER DISTRICT  
COOPER NUCLEAR STATION  
DOCKET NO. 50-298

By letter dated August 17, 2017 (Agencywide Documents Access & Management System (ADAMS) Accession No. ML17241A048), Nebraska Public Power District (the licensee), submitted Alternative Request No. RI5-03, which addresses alternative examinations to the requirements of the American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code), Section XI, "Rules for Inservice Inspection of Nuclear Power Plant Components" for the Cooper Nuclear Station (CNS). Specifically, pursuant to Title 10 of the *Code of Federal Regulations* (10 CFR) paragraph 50.55a(z)(1), the licensee requested approval to implement ASME Code Case N-702 in lieu of the ASME Code Section XI requirement to volumetrically examine all Category B-D, Item B3.90 nozzle-to-vessel welds and all Category B-D, Item B3.100 nozzle inside radius sections. To complete its review, the U.S. Nuclear Regulatory Commission (NRC) staff requests the following additional information.

**RAI RI5-03-1**

In the August 17, 2017 submittal (Attachment 1, page 51 of 68), the licensee stated, in part:

CNS performed a plant specific probabilistic fracture mechanics to supplement the criteria of Code Case N-702 and BWRVIP-241 in order to demonstrate that the PoF [probability of vessel failure] remains acceptable over the period of extended operation [PEO]. Conservatively assuming zero inspection for the initial 40 years of operation and examination of 25% [percent] for PEO, the evaluation concluded the average PoF for a LTOP [low-temperature overpressure] event is  $2.92 \times 10^{-11}$  per year (Reference 1) for the nozzle inner radius, and  $<8.33 \times 10^{-13}$  per year (Reference 1) for the nozzle-to-shell weld, both of which are less than the NRC safety goal of  $5 \times 10^{-6}$  per year.

In the above quote, the title for BWRVIP-241 is "Probabilistic Fracture Mechanics Evaluation for the Boiling Water Reactor Nozzle-to-Vessel Shell Welds and Nozzle Blend Radii" (ADAMS Accession No. ML11119A041).

Enclosure

However, "Reference 1" or ER 2017-027, "Review of Structural Integrity Calculations 1400334.301 & 1400334.302 for Code Case N-702 Relief Request, Revision 0," (Proprietary) dated June 7, 2017, was not provided with the submittal. In addition, the PoF for the limiting condition (normal operation) was not mentioned in the submittal.

Because the "Reference 1" calculations were not provided with the submittal, the NRC staff does not have enough information to complete its safety evaluation. Therefore, the NRC requests that the licensee provide the "Reference 1" calculations in order for the NRC to review the probabilistic fracture mechanics analysis of the nozzle inner radius and the nozzle-to-shell welds of this proposed alternative. In the response, please include the PoF for the limiting condition (normal operation), in accordance with the safety evaluation for BWRVIP-108, "Technical Basis for the Reduction of Inspection Requirements for the Boiling Water Reactor Nozzle-to-Vessel Shell Welds and Nozzle Inner Radii" (ADAMS Accession No. ML073600374).