

2016-081 _____ BWR Vessel & Internals Project (BWRVIP)

July 19, 2016

Document Control Desk
U.S. Nuclear Regulatory Commission
11555 Rockville Pike
Rockville, MD 20852

Attention: Joseph Holonich

Subject: Project No. 704 – BWRVIP Response to NRC Request for Additional Information on Appendix A to BWRVIP-241

Reference: Letter from Joseph J. Holonich (NRC) to Tim Hanley (BWRVIP Chairman), Request for Additional Information on BWRVIP-241, Appendix A, “BWR Nozzle Radii and Nozzle-to-Vessel Welds Demonstration of Compliance with the Technical Information Requirements of the License Renewal Rule (10 CFR 54.21)” (TAC NO. MF4638), dated October 14, 2015

Enclosed is one hard copy of the BWRVIP response to the NRC’s Request for Additional Information (RAI) on the license renewal appendix (Appendix A) of the EPRI report entitled “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.” The RAI was transmitted to the BWRVIP by the NRC letter referenced above.

If you have any questions on this subject please call Steve Richter, Energy Northwest, BWRVIP Assessment Committee Technical Chairman, at 509.377.4703.

Sincerely,



Andrew McGehee, EPRI, BWRVIP Program Manager
Tim Hanley, Exelon, BWRVIP Chairman

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**Requests for Additional Information for BWRVIP-241, Appendix A
“BWR Nozzle Radii and Nozzle-to-Vessel Weld Demonstration of Compliance with the
Technical Information Requirements of the License Renewal Rule (10 CFR 54.21)”**

Each Request for Additional Information (RAI) received from the NRC is repeated verbatim below followed by the BWRVIP Response.

Background:

Section A.2 of Appendix A states:

Paragraph 54.21 (a)(1) of the rule provides the requirements for identifying if the nozzles are subject to aging management review. To satisfy the requirements of 54.21 (a)(1), the guidance provided in the NEI [Nuclear Energy Institute] industry guideline (Reference A2) was used to identify passive components and then to identify those that are long-lived. For nozzles greater than 2 inches, a screening methodology was not needed to make this determination. All of these nozzles are passive and long-lived. Therefore, the nozzles having a diameter greater than 2 inches are subject to an aging management review.

Reference A2, of Appendix A, refers to NEI Report 95-10, “Industry Guidelines for Implementing the Requirements of 10 CFR Part 54 - License Renewal Rule,” Revision 0, dated March 1996. The staff noted that NEI issued Report 95-10, Revision 6, on June of 2005, while Appendix A is referencing to a much older version of the same document (Revision 0, dated March 1996). The staff also noted that Section A2, of Appendix A, infers that nozzles having a diameter equal or less than 2 inches are not subject to an aging management review.

RAI-1

Explain why Appendix A is referencing an old guidance document which has been revised since it was first issued.

BWRVIP Response to RAI-1

For the BWRVIP-241 License Renewal (LR) Appendix, NEI 95-10, Revision 0 is reference A2. It is referred to in two places in the LR appendix. The first is in Section A.2, “Nozzles Subject to Aging Management Review (54.21(a)(1)).” Therein, it simply states that guidance from NEI reference A2 was used to identify passive and long-lived components. The descriptions of passive and long-lived components used throughout Rev. 0 and Rev. 6 are the same. The second is in Section A.4, “Time Limited Aging Analysis (54.21[c][1])”. It should be noted that it is incorrectly stated as reference A3 but should be reference A2. Therein, it states that the six criteria from the NEI guideline for identifying the TLAA analysis issues were used. The six criteria are shown on page 44 of Revision 0 and page 48 of Revision 6 and they are also the same.

Thus, based on the above discussion, there is no difference between NEI 95-10, Revision 0 and Revision 6 regarding its use and has no impact on the LR appendix. Regardless, the BWRVIP will revise Reference A2 to NEI 95-10, Revision 6.

RAI-2

If it is the intent of Appendix A to state that nozzles 2 inches and smaller are not subject to aging management review, explain why these nozzles should not be subject to aging management review.

BWRVIP Response to RAI-2

There was no intention to place a limitation on the components subject to aging management review. All RPV nozzles are within the scope of the license renewal rule and are also passive and long-lived. Thus, all RPV nozzles are subject to aging management review. To provide clarification, the BWRVIP proposes to revise Section A.2 of the license renewal appendix to read as follows:

“Paragraph 54.21(a)(1) of the rule provides the requirements for identifying if the nozzles are subject to aging management review. To satisfy the requirements of 54.21(a)(1), the guidance provided in the NEI industry guideline (Reference A2) was used to identify passive components and then to identify those that are long-lived. For the RPV nozzles, a screening methodology was not needed to make this determination. All RPV nozzles are passive and long-lived and are subject to an aging management review. However, the scope of components addressed by BWRVIP-108 and BWRVIP-241 and subject to the alternative examination requirements of ASME Code Case N-702 is limited to RPV full penetration welded nozzles.”

RAI-3

Identify nozzle(s), 2 inches and smaller, that will rely on BWRVIP-108-A and BWRVIP-241-A results for future licensing applications.

BWRVIP Response to RAI-3

A request for relief using the alternative provided by Code Case N-702 is a decision made by each licensee and for each 10-year inservice inspection interval. Decisions regarding licensing applications are also solely at the discretion of plant licensees. As such, the BWRVIP cannot provide a definitive list of BWR RPV nozzles within the U.S. fleet that have in the past or will in the future rely on BWRVIP-108 and BWRVIP-241 to obtain relief from the examination requirements of ASME Section XI, Examination Category B-D.

However, generically, the list of nozzles that potentially are 2 inches and smaller and also classified as ASME Section XI Examination Category B-D include various instrument nozzles, standby liquid control nozzles, and bottom head drain nozzles. Although the technical bases provided by BWRVIP-108 and BWRVIP-241 may be applied to any of these nozzles, it is noted that application of Code Case N-702 is only beneficial where there are multiple nozzles associated with the same system and having the same nominal pipe size at the plant. As a result, from the list above, application of Code Case N-702 is likely beneficial only for instrument nozzles having full penetration welds.