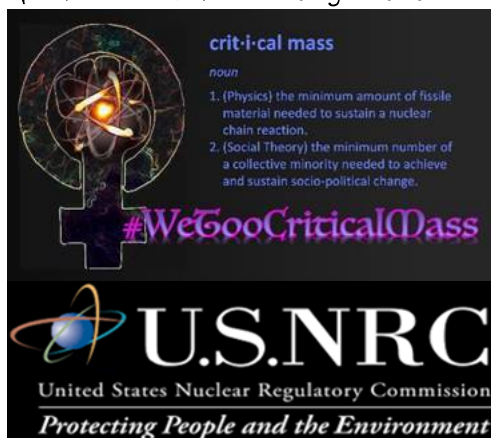


From: Franovich, Rani
Sent: Friday, July 10, 2020 9:25 PM
To: GEH-BWRX-300RAIsPEm Resource
Subject: RE: Request for Additional Information 9746
Attachments: Letter 5 RAI_9746 Public.pdf

Rani

Rani Franovich
NuScale Design Certification
GE-Hitachi BWRX-300 Design Review



Hearing Identifier: GEH_BWRX300_RAIs_Public
Email Number: 7

Mail Envelope Properties (BY5PR09MB43586AA1FD2B284384EA9EC68F620)

Subject: RE: Request for Additional Information 9746
Sent Date: 7/10/2020 9:24:46 PM
Received Date: 7/10/2020 9:24:50 PM
From: Franovich, Rani

Created By: Rani.Franovich@nrc.gov

Recipients:
"GEH-BWRX-300RAIsPEm Resource" <GEH-BWRX-300RAIsPEm.Resource@nrc.gov>
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Files	Size	Date & Time
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Letter 5 RAI_9746 Public.pdf	134385	
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image004.png	28138	

Options
Priority: Normal
Return Notification: No
Reply Requested: No
Sensitivity: Normal
Expiration Date:

Request for Additional Information 005 (RAI 9746)

Issue Date: 07/10/2020

Application Title: GEH BWRX-300 Topical Reports

Operating Company: GE Hitachi Nuclear Energy (Wilmington, NC)

Docket No. 99900003

Review Section: 03.06.02 - Determination of Rupture Locations and Dynamic Effects

Associated with the Postulated Rupture of Piping

Application Section:

QUESTIONS

03.06.02-4

SER Section 3.6.2: Section 2.2.2, "Containment Design Requirements," in NEDC-33911 states that ASME *Boiler and Pressure Vessel Code*, Section III, Division 1, Subsection NE-1120 and the design criteria from NRC Branch Technical Position (BTP) 3-4, "Postulated Rupture Locations in Fluid System Piping Inside and Outside Containment," Part B, Items 1(ii)(1)(d) and (e), are applied to eliminate postulating breaks and cracks in those portions of piping from the containment wall to including the outboard containment isolation valves (CIVs). Similar statements are also included in Section 5.1.7, "10 CFR Part 50, Appendix A, GDC4," in NEDC-33911. Eliminating postulated breaks and cracks in those portions of piping from the containment wall is safety significant to provide assurance that the containment of the BWRX-300 reactor will not be breached and cause a radioactive release to the environment that exceeds regulatory requirements.

- a. The NRC staff requests that GEH clarify that BTP 3-4, Part B, Items 1(ii)(2) through (7), if applicable, are also applied to eliminate postulating breaks and cracks in those portions of the piping.
- b. The NRC staff requests GEH describe how the BWRX-300 design requirements will provide assurance that the functionality of those outboard CIVs will not be affected by the dynamic effects resulting from postulated pipe breaks beyond those portions of piping from the containment wall to including the outboard CIVs.

03.06.02-5

SER Section 3.6.2: Section 3.1, "Scope of the Evaluation Model," in NEDC-33911 states that jet loads resulting from pipe breaks are not in the scope of the evaluation method described in this section for the BWRX-300 containment response. GEH further stated that the jet loads and zone of influence are evaluated using a separate structural method that will be described during future licensing activities. Consideration of jet loads and zone of influence is safety significant to provide assurance that a breach in the containment of the BWRX-300 reactor will not occur and cause a radioactive release to the environment that exceeds regulatory requirements. The NRC staff requests that GEH clarify that the BWRX-300 containment response to all of the dynamic effects (not only the jet loads) resulting from postulated high-energy pipe breaks, including the effects of missiles, pipe whipping, and discharging fluids, if applicable, will be evaluated and

described during future licensing activities to comply with the pertinent 10 CFR Part 50, Appendix A, GDC 4 requirements.

03.06.02-6

SER Section 3.6.2: Section 5.1.7 in NEDC-33911 states that breaks and cracks in those portions of piping from the RPV isolation valves that function as the inboard CIVs to the containment wall remain postulated to occur, and the dynamic effects of those postulated pipe breaks are to be evaluated in the BWRX-300 design. The NRC staff notes that during its review of NEDC-33910, in RAI Question 03.06.02-2, the NRC staff requested that GEH describe how the BWRX-300 design requirements will provide assurance that the functionality of those dual function safety-related valves will not be affected by the dynamic effects resulting from the postulated pipe breaks. In a letter dated May 4, 2020, GEH responded to the staff's request by referencing Section 5.1.7 in NEDC-33911 and stated that the BWRX-300 design will meet the requirements of 10 CFR Part 50, Appendix A, GDC 4. In addition, GEH stated that qualification, such as compliance with ASME Standard QME-1-2007 (or a later edition) as accepted in NRC Regulatory Guide 1.100, will be addressed in the detailed design of the valves and will be specified during future licensing activities. The capability of CIVs to perform their design-basis functions is safety significant to provide assurance that the containment of the BWRX-300 reactor can be safely isolated and prevent radioactive release to the environment that exceeds regulatory requirements. The NRC staff requests that GEH update Section 5.1.7 in NEDC-33911 to describe the valve qualification in compliance with ASME Standard QME-1-2007 as described above.



crit-i-cal mass

noun

1. (Physics) the minimum amount of fissile material needed to sustain a nuclear chain reaction.
2. (Social Theory) the minimum number of a collective minority needed to achieve and sustain socio-political change.

#WeGooCriticalMass

