From: Franovich, Rani
Sent: Thursday, April 9, 2020 4:52 PM
To: GEH-BWRX-300RAIsPEm Resource
Subject: NEDC-33910P, "BWRX-300 Reactor Pressure Vessel Isolation and Overpressure Protection," Request for Additional Information 9370
Attachments: Letter 1 RAI_9730 Public.pdf

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Priority: Normal
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Request for Additional Information 9730

Issue Date: 04/09/2020
Application Title: GEH BWRX-300 Topical Reports
Operating Company: GE Hitachi Nuclear Energy (Wilmington, NC)
Docket No. 99900003
Review Section: 03.09.06 - Functional Design Qualification and Inservice Testing Programs for Pumps, Valves, and Dynamic Restraints
Application Section:

QUESTIONS

03.09.06-1

Section 2.1.2 in NEDC-33910 describes the Isolation Condenser System (ICS) for the BWRX-300 nuclear power plant. This section indicates that the ICS includes {{ }}. To support the NRC staff review of NEC-33910 and its conformance to 10 CFR Part 50, Appendix A, GDC 1, 2, 4, 35 and 37 for the IC condensate return valves, the NRC staff requests that GEH describe the following:

(a) Any first of a kind (FOAK) features,

(b) Valve and actuator types,

(c) Valve size,

(d) Qualification, such as compliance with ASME Standard QME-1-2007 (or later edition) as accepted in NRC Regulatory Guide 1.100,

(e) Plans for valve and actuator diversity,

(f) Incorporation of lessons learned from international operating experience where ICS valves failed to open as designed,

(g) Accessibility for inservice testing (IST) activities in accordance with 10 CFR 50.55a,

(h) Design features to avoid thermal binding or pressure locking of the valves, and

(i) OM Code leakage classification.

If any of this information is not available at this time, the staff requests that GEH indicate its plans to provide this information during future licensing activities for the BWRX-300 nuclear power plant.

03.09.06-2

Section 2.2 in NEDC-33910 provides a general overview of reactor pressure vessel (RPV) isolation concept, and Section 2.5 in NEDC-33910 specifies the RPV isolation valve design requirements for the BWRX-300 nuclear power plant. These sections indicate that there will be {{ .}} To support the NRC staff review of NEC-33910 and its conformance to 10 CFR Part 50, Appendix A, GDC 1, 2, 4, 54, 55, and 56 for the RPV isolation valves, the NRC staff requests that GEH describe the following:

(a) Any FOAK features,

(b) Valve types and sizes,

(c) Qualification, such as compliance with ASME Standard QME-1-2007 (or later edition) as accepted in NRC Regulatory Guide 1.100,

(d) Plans for valve diversity,

(e) Accessibility for IST activities in accordance with 10 CFR 50.55a,

(f) Design to avoid thermal binding or pressure locking of the valves, and

(g) ASME OM Code leakage classification.

If any of this information is not available at this time, the staff requests that GEH indicate its plans to provide this information during future licensing activities for the BWRX-300 nuclear power plant.

03.09.06-3

Section 2.6 in NEDC-33910 specifies the RPV isolation valve actuator design requirements for the BWRX-300 nuclear power plant. This section specifies that the valve and actuator designs will be qualified with ASME QME-1. This section refers to several aspects for consideration or to be considered as part of the RPV isolation valve actuator design requirements. To support the NRC staff review of NEC-33910 and its conformance to 10 CFR Part 50, Appendix A, GDC 1, 2, 4, 54, 55, and 56 for the RPV isolation valve actuator design requirements, the NRC staff requests that GEH describe the following:

(a) Any FOAK features,

(b) Actuator types,

(c) Specific QME-1 edition for qualification, such as compliance with ASME Standard QME-1-2007 (or later edition) as accepted in NRC Regulatory Guide 1.100,

(d) Plans for actuator diversity,

(e) Accessibility for IST activities in accordance with 10 CFR 50.55a, and

(f) Intent of terms such as "consideration" and "considered" in this section and elsewhere in NEDC-33910.

If any of this information is not available at this time, the staff requests that GEH indicate its plans to provide this information during future licensing activities for the BWRX-300 nuclear power plant.

03.09.06-4

Section 4.1.1 in NEDC-33910 discusses compliance with specific requirements in 10 CFR 50.34(f) related to the TMI-2 accident lessons learned. In describing compliance with 10 CFR 50.34(f)(1)(x) with respect to nonsafety-related equipment and accounting for leakage, NEDC-33910 indicates that the {{ }} are one-time actuation systems. The NRC staff requests that GEH clarify this section, or describe the {{ }}.

03.09.06-5

Section 4.1.1 in NEDC-33910 discusses compliance with specific requirements in 10 CFR 50.34(f). In describing compliance with 10 CFR 50.34(f)(2)(x) with respect to anticipated transient without scram (ATWS), NEDC-33910 indicates that based on {{ }} qualification testing, the testing associated with 10 CFR 50.34(f)(2)(x) is not required. The NRC staff requests that GEH clarify this section, or explain why {{ }} qualification testing is not subject to 10 CFR 50.34(f)(2)(x).

03.09.06-6

Section 4.1.3 in NEDC-33910 indicates that the requirements of 10 CFR 50.55a will be satisfied. This section specifically references the RPV isolation valves. This section also states that no alternative approach, exception, or exemption from these requirements is required. The NRC staff requests that GEH describe the compliance with the requirements in 10 CFR 50.55a for the {{ }}. The staff

also requests that GEH clarify the intent of the statement in this section and elsewhere in NEDC-33910 that no alternative approach, exception, or exemption from these requirements is required.

03.09.06-7

Section 4.1.6 in NEDC-33910 describes compliance with 10 CFR Part 50, Appendix A, GDC 14 regarding the reactor coolant pressure boundary. This section does not indicate if full compliance with GDC 14 is planned. The NRC staff requests that GEH clarify its compliance with GDC 14.

03.09.06-8

Section 4.1.10 in NEDC-33910 describes compliance with the intent of GDC 33 regarding reactor coolant makeup. The NRC staff requests that GEH clarify its statement that the *intent* of this criterion is met.

03.09.06-9

Section 4.1 in NEDC-33910, discussing 10 CFR Part 50 regulations and GDCs, does not mention GDC 2, as it relates to pumps, valves, and dynamic restraints important to safety to withstand the effects of natural phenomena combined with the effects of normal and accident conditions. The NRC staff requests that GEH clarify how GDC 2 will be met.

03.09.06-10

Section 4.1 in NEDC-33910, discussing 10 CFR Part 50 regulations and GDCs, does not mention GDC 54, as it relates to designing piping systems penetration containment with the capability to test periodically the operability of the isolation valves and determine valve leakage acceptability. The NRC staff requests that GEH clarify how GDC 54 will be met.

03.09.06-11

Section 4.2 in NEDC-33910, discussing NRC Regulatory Guides (RGs), does not discuss RG 1.147 or RG 1.192, as they relate to the acceptability of Code Cases for the ASME *Boiler and*

Pressure Vessel Code (BPV Code) and ASME *Operation and Maintenance of Nuclear Power Plants* (OM Code) for inservice inspection and IST activities in satisfying 10 CFR 50.55a, respectively. The NRC staff requests GEH to clarify the intent of the topical report regarding these RGs.

03.09.06-12

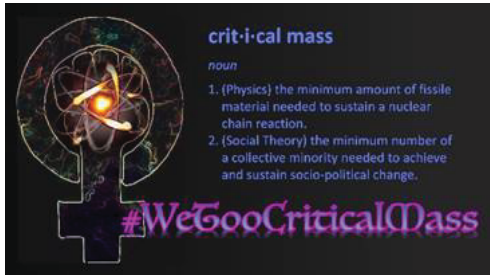
Section 4.3 in NEDC-33910, discussing NUREG-0800 Standard Review Plan (SRP), does not mention SRP Section 3.9.6, as it relates to the functional design, qualification, and IST programs for pumps, valves, and dynamic restraints. The NRC staff requests GEH to clarify the intent of the topical report regarding SRP Section 3.9.6.

03.09.06-13

Sections 4.4 and 4.5 in NEDC-33910 refer to generic issues, and operational experience and generic communications, respectively, applicable to the BWRX-300 nuclear power plant. This section only discusses two items with respect to these topics. The NRC staff requests that GEH indicate whether it will provide an up-to-date evaluation of generic issues, and operational experience and generic communications, during future licensing activities under 10 CFR Part 50 or Part 52.

03.09.06-14

In referring to specific NRC regulations, NEDC-33910 indicates in several instances that full compliance will be demonstrated during future licensing activities. The NRC staff requests that GEH clarify the intent of this statement and indicate its plans to fully comply with specific NRC regulations.


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.
#WeTooCriticalMass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