

From: Ballard, Brent
Sent: Wednesday, January 5, 2022 12:41 PM
To: Mascitelli, Francis J:(Exelon Nuclear)
Cc: Budock, George P:(Exelon Nuclear); Pareez Golub; Waters, Michael; Johnston, Jeanne; Marshall, Michael; Jain, Bhagwat
Subject: Dec 7 Pre-submittal Meeting Written Feedback
Attachments: 07DEC Public Meeting Feedback.docx

Good afternoon Frank,

Attached is NRC staff feedback from the December 7th public meeting. For item 3, the staff believes an agreement was reached on this point but we wanted to provide the feedback in writing in case additional discussion is needed. Please let me know if you have any questions on the feedback.

When can we expect to receive Exelon's presentation for the January 11th meeting?

Thank you,
Brent

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1. How 3 channels (2 out of 3 channel logic vs. 2 out of 4) meets all design requirements. The NRC staff agrees that the 2 of 3 condition represents a system that is capable of performing its safety functions however, there remains a question of whether a system in this state continues to meet all design requirements. In particular, the single failure criteria of IEEE 603 or IEEE 279 in conjunction with surveillance testing requirements does not appear to be satisfied with a system in this condition. Refer to IEEE 279 clause 4.11, "During such operation the active parts of the system shall of themselves continue to meet the single failure criterion." Bullet 4 on slide 21 of Exelon's December 7th presentation states:

"Only three channels are needed to meet all design requirements for voted channels."

Please explain how a system in this state meets single failure criteria when a channel is out of service for surveillance testing purposes. Under the new TS, one channel can be removed for testing or otherwise be inoperable within entering an Action (as stated on 7th bullet of slide 21).

2. Demonstrating three channels provides lowest functional capability of the system.
 - a. In absence of a limiting condition for operability, operation of the system with only three functioning channels would need to demonstrate not only functional capability but would also have to show compliance with the performance criteria of IEEE 279 or IEEE 603 which include maintaining single failure criteria during periodic surveillance testing activities during which only two channels would remain operable. The NRC staff referred to several TS examples for plants with similar designs that include limiting conditions for operability that must be considered during the time in which the safety system is in a 2 of 3 logic condition. Though the LCO times vary significantly between plants, all of the example TSs include descriptions of conditions of operation that must be considered when the system is in a 2 of 3 configuration.
 - b. Please provide a description using a staged approach to loss of protection channels, and associated example Action Statements for required actions to take in the event of a loss of one of the four channels, and then for a loss of two channels, and then for a loss of two or more of the four channels of the Plant Protection System. Describe the minimum number of channels that are required to be operable for each of the Modes of Operation. Demonstrate how the design meets the requirements of IEEE 603. For example, for operations with three operable channels, describe how the design requirements of IEEE 603 are still being met if one more channel becomes inoperable.
3. Reestablish basis for continued elimination of previously removed response times from the TS. The NRC staff pointed out that if the licensee wants to retain the existing exemption from time response testing provisions, they will need to review the bases for these exemptions. If the replacement system diagnostic functions are to be credited in lieu of the current calibration and functional test surveillance tests as described in the licensee's presentation, then a new basis for these time response test exemptions may need to be established. If a basis for these exemptions is not reestablished in the LAR, then the TR test exemptions may become invalid and new test requirements would be needed.

Please discuss how the proposed relocation satisfies Criterion 2 and 3 of 10CFR 50.36(c)(2)(ii), which require an LCO to be included in the TSs:

Criterion 2- A process variable, design feature, or operating restriction that is an initial condition of a design basis accident (DBA) or transient analysis that either assumes the failure of or presents a challenge to the integrity of a fission product barrier; and

Criterion 3 - A structure, system, or component that is part of the primary success path and which functions or actuates to mitigate a DBA or transient that either assumes the failure of or presents a challenge to the integrity of a fission product barrier.

4. Please describe any potential impact on each ESFAS Actuation System LCOs/surveillance requirements and ECCS System-Level LCOs/surveillance requirements (i.e., RCIC, ECCS and NSSSS system) based on operability of the Plant Protection System. For example, what will be the limiting conditions for operation of HPCI, RCIC, ADS, Core Spray A, Core Spray B, NSSSS Isolation, etc. based on the operability condition of the Plant Protection System with one or more, and then two or more channels INOP?
5. Please describe any potential impact associated with the surveillance testing requirements for each of the Manual Initiation Functions at the system level for each subsystem of the ECCS/NSSSS systems. Which portions of the circuits for manual initiation are covered by these surveillance tests?