Lee, Samson

From: Lee, Samson
Sent: Thursday, January 23, 2020 10:42 AM
To: Villar, Enrique:(Exelon Nuclear)
Cc: Hawes, Mark:(Exelon Nuclear)
Subject: FitzPatrick request for additional information: License Amendment Request for Change to the Technical Specifications to Revise the Allowable Value for Reactor Water Cleanup (RWCU) System Primary Containment Isolation (EPID: L-2019-LLA-0190)

By letter dated September 5, 2019 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML19248B085), as supplemented by letter dated November 6, 2019 (ADAMS Accession No. ML19310D579), Exelon Generation Company, LLC (Exelon, the licensee), submitted a license amendment request (LAR) proposing changes to the technical specifications (TS) for the James A. FitzPatrick Nuclear Power Plant (JAF). The proposed changes revise the JAF TS Allowable Value for Reactor Water Cleanup (RWCU) System isolation on low Reactor Pressure Vessel (RPV) water level from Level 3 (≥ 177 inches) to Level 2 (≥ 107 inches) in Tables 3.3.6.1-1 and 3.3.5.2-1. The NRC staff has reviewed the LAR and determined that additional information is required to complete the review. The NRC staff's requests for additional information (RAIs) are listed below. These RAIs are in the human factors engineering areas. The staff may have additional RAIs in other review areas. A clarification call was held on January 21, 2020. The Exelon staff indicated that there was no proprietary or sensitive information. The Exelon staff requested, and NRC agreed, to a RAI response by February 24, 2020.

The NRC staff considers that timely responses to RAIs help ensure sufficient time is available for staff review and contribute toward the NRC's goal of efficient and effective use of staff resources. Please note that if you do not respond to this request by the agreed-upon date or provide an acceptable alternate date, we may deny your application for amendment under the provisions of Title 10 of the Code of Federal Regulations, Section 2.108. If circumstances result in the need to revise the agreed upon response date, please contact me at (301) 415-3168 or via e-mail Samson.Lee@nrc.gov.

Human Factors Engineering

RAI-IOLB-1

Title 10 of the *Code of Federal Regulations* (10 CFR), Section 50.34(f)(2)(iii) requires, in part, that the licensee or applicant provide, for Commission review, a control room design that reflects state-of-the-art human factor principles.

Chapter 18, "Human Factors Engineering," Revision 3, of NUREG-0800, "Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants: LWR Edition," provides guidance for the review of Human Factors Engineering (HFE) considerations of plant modifications and important human actions (HAs). Specifically, Section I, "Areas of Review," Subsection 5, "Important Human Actions," states, in part, that this document is used to review changes or modification to licenses for nuclear power plants that include or result in changes to human actions. An HFE review is also conducted if such a modification affects the role of personnel or the tasks they perform, the sequence of actions, the timing, or the overall workload, and is potentially significant to plant safety.

Provide additional information regarding whether the proposed change would result in any changes to the existing manual operator actions or introduce any new manual operator actions associated with the action to isolate Primary Containment. If there are any changes to the existing manual operator actions, describe the extent to which the changes affect personnel tasks, the sequence of actions, the amount of time required and/or available to perform such actions, and/or any impact on the operator workload.

RAI-IOLB-2

Section 50.34(f)(3)(i) of 10 CFR 50 requires that the licensee or applicant provide administrative procedures for evaluating operating, design, and construction experience and for ensuring that applicable important industry experiences will be provided in a timely manner to those designing and constructing the plant.

NUREG-0711, "Human Factors Engineering," Revision 3, provides guidance for the staff's review of HFE programs, to ensure that HFE practices and guidelines were appropriately considered and incorporated in the plant design and modifications. NUREG-0711, Review Element 3, "Operating Experience Review," provides guidance for the NRC staff's evaluation of the operating experience review (OER) that would be performed by a licensee, as part of the HFE program, to identify HFE-related safety issues. Section 3.4, "Review Criteria," states, in part, that the applicant's OER should include information about relevant human factors issues in the predecessor plant(s) or highly similar plants, systems, and human-system interfaces (HSIs), recognized industry HFE issues, related HSI technology, issues identified by plant personnel, and important HAs. Further, Section 3.4.3, "Plant Modifications," states that, in addition to other considerations, the applicant's OER should provide information on the plant's systems, HSIs, procedures, or training that are being modified, and account for the operating experience of the plant that will be modified, including experiences with the systems that will be changed.

Provide additional information regarding the OER that was performed by Exelon, as it relates to the proposed change revising the JAF TS Allowable Value for RWCU System isolation on low RPV water level from Level 3 to Level 2. In your response, describe whether the review identified any human performance issues associated with the existing procedural guidance, training, and any human performance issues associated with the operator actions required for RWCU System isolation, by reviewing operating experience at JAF and applicable industry experience, as appropriate.

RAI-IOLB-3

Title 10 of the *Code of Federal Regulations* (10 CFR), Section 50.34(f)(2)(iii) requires, in part, that the licensee or applicant provide, for Commission review, a control room design that reflects state-of-the-art human factor principles. NUREG-0711, "Human Factors Engineering," Revision 3, provides guidance for the staff's review of HFE programs, to ensure that HFE practices and guidelines were appropriately considered and incorporated in the plant design and modifications.

a. NUREG-0711, Review Element 9, "Procedure Development," provides guidance for the staff's evaluation of the licensee's procedure development program. Section 9.4, "Review Criteria," states, in part, that the licensee should have a plan for maintaining procedures and controlling updates. It further states that procedure modifications should be integrated across the full set of procedures and that changes in particular parts of the procedures should not conflict with other parts nor be inconsistent with them.

   Provide additional information describing the impact, if any, that the proposed change will have on plant procedures, including any affected emergency operating procedures, plant and system operations, abnormal and emergency operations, and alarm response. In your response, identify the affected procedures and describe the scope of changes those documents.

b. NUREG-0711, Review Element 10, "Training Program Development," provides guidance for the staff's evaluation of the licensee's training program. Section 10.4.6, "Evaluation and Modification of Training," states, in part, that the licensee should define the methods for verifying the accuracy and completeness of the training course materials. It further states that the licensee should establish procedures for refining and updating the content and conduct of training, including procedures for tracking modifications in the training courses.

   Provide additional information describing the impact, if any, that the proposed change will have on Exelon's training program for licensed and non-licensed personnel.

c. NUREG-0711, Review Element 11, “Human Factors Verification and Validation,” provides guidance for the staff’s evaluation of the verification and validation (V&V) activities, which comprehensively determine that the HFE design conforms to HFE design principles and that it enables plant personnel to successfully perform their tasks to assure plant safety and operational goals. Section 11.4.3, “Integrated System Validation,” states, in part, that the objective of the Integrated System Validation (ISV) review is to verify that the applicant validated, using performance-based tests, that the integrated system design supports the safe operation of the plant.

   Provide additional information regarding the V&V activities that have been, or will be conducted to provide reasonable assurance that following the implementation of the proposed changes, operator actions required for RWCU System isolation can continue to be performed safely and reliably within the established time and performance criteria, with effective situational awareness, and acceptable workload levels. In your response, provide information that addresses the applicable criteria described in Section 11.4.3 of NUREG-0711.