

From: Lamb, John
Sent: Monday, June 6, 2022 1:16 PM
To: Quarles, Adam Graham
Subject: RAI - Hatch, Units 1 and 2, TSTF-505 LAR (EPID: L-2021-LLA-0199)

Importance: High

Adam,

By letter dated October 26, 2021 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML21300A153), Southern Nuclear Operating Company (SNC, the licensee) submitted a license amendment request (LAR) for Edwin I. Hatch Nuclear Plant (Hatch), Units 1 and 2.

The proposed amendment would revise technical specification (TS) requirements to permit the use of risk-informed completion times (RICTs) for actions to be taken when limiting conditions for operation (LCOs) are not met. The proposed changes are based on Technical Specifications Task Force (TSTF) Traveler TSTF-505, Revision 2, "Provide Risk-Informed Extended Completion Times – RITSTF Initiative 4b," dated July 2, 2018 (ADAMS Accession No. ML18183A493). The U.S. Nuclear Regulatory Commission (NRC) issued a final model safety evaluation (SE) approving TSTF 505, Revision 2, on November 21, 2018 (ADAMS Accession No. ML18269A041).

After reviewing the LAR, the NRC staff requests response to the request for additional information (RAI) given below.

On May 23, 2022, the NRC staff provided a draft RAI question to SNC to make sure that the RAI is understandable, the regulatory basis is clear, to ensure there is no proprietary information, and to determine if the information was previously docketed. On June 6, 2022, a clarifying call was held and SNC stated that it would provide the RAI response by August 21, 2022.

If you have any questions, you can contact me at 301-415-3100.

Sincerely,

John

REQUEST FOR ADDITIONAL INFORMATION (RAI)

By letter dated October 26, 2021 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML21300A153), as supplemented by letter dated April 29, 2022 (ADAMS Accession No. ML22119A144) Southern Nuclear Operating Company (SNC, the licensee) submitted a license amendment request (LAR) for Edwin I. Hatch Nuclear Plant (Hatch), Units 1 and 2.

The proposed amendment would revise technical specification (TS) requirements to permit the use of risk-informed completion times (RICTs) for actions to be taken when limiting conditions for operation (LCOs) are not met. The proposed changes are based on Technical Specifications Task Force (TSTF) Traveler TSTF-505, Revision 2, "Provide Risk-Informed Extended Completion Times – RITSTF Initiative 4b," dated July 2, 2018 (ADAMS Accession No. ML18183A493). The U.S. Nuclear Regulatory Commission (NRC) issued a final model safety evaluation (SE) approving TSTF 505, Revision 2, on November 21, 2018 (ADAMS Accession No. ML18269A041).

By letter dated November 29, 2021 (ML21309A000), the NRC staff provided the Audit Plan to SNC. By letter dated March 1, 2022 (ML22048C223), the NRC staff provided SNC the Audit Agenda and Questions. During the Audit on April 7, 2022, Audit Question 12 was discussed and the NRC pointed out an error in a probabilistic risk assessment (PRA) calculation. SNC reviewed the error and provided information on the portal on May 9, 2022. The NRC reviewed the information and provided SNC a revised Audit Question 12 on May 13, 2022 (ML22140A118). During the Audit on May 20, 2022, revised Audit Question 12 was discussed.

After review, the NRC staff requests response to the request for additional information (RAI) given below.

Probabilistic Risk Assessment Licensing Branch C (APLC) RAI Questions

APLC-RAI-3 – (Revised Audit Question 12)

Section 2.3.1, Item 7, of Nuclear Energy Institute (NEI) 06-09, "Risk Informed Technical Specifications Initiative 4b: Risk Managed Technical Specifications (RMTS), Revision 0-A, dated October 12, 2012 (ADAMS Accession No. ML122860402), states that the "impact of other external events risk shall be addressed in the risk management technical specification (RMTS) program" and explains that one method to do this is by "performing a reasonable bounding analysis and applying it along with the internal events risk contribution in calculating the configuration risk and the associated RICT [Risk-Informed Completion Time]." The NRC staff's safety evaluation (SE) for NEI 06-09 states that "Where PRA models are not available, conservative or bounding analyses may be performed to quantify the risk impact and support the calculation of the RICT."

In the license amendment request (LAR), the seismic penalty approach is used to quantify the risk impact and to support the RICT evaluation. Section 5 of Enclosure 4 to the LAR indicates that a seismic PRA (SPRA) for the Hatch plant was developed and that the Hatch SPRA was not directly used in the RICT program but provided input into the calculation for seismic core damage frequency (SCDF) and seismic large early release frequency (SLERF) penalty values. The licensee compared the estimated SCDF penalty for the proposed RICT calculations against the point-estimate SCDF from the site-specific SPRA. In addition, the licensee used the SLERF to SCDF ratio from the site-specific SPRA to determine the SLERF penalty for use in the proposed RICT calculations.

The comparison of the estimated SCDF and SLERF penalties against the corresponding point-estimate mean values from the site-specific SPRA does not provide justification that the SCDF and SLERF penalty estimates are conservative. There is no upper bound on the change-in-risk calculation, and the change in risk can exceed the base SCDF and SLERF. However, it appears to the NRC staff that the SPRA could provide the means to justify that the proposed SCDF and SLERF penalty estimates are conservative, consistent with the NRC staff's SE for NEI 06-09.

During the regulatory audit conducted on April 5 - 7, 2022, the licensee attempted to address this concern by referencing Table 3.5-1 and 3.5-2 in "License Amendment Request to Revise the Required Actions of Technical Specifications 3.8.1, AC Sources – Operating, for One-Time Extension of Completion Time for Unit 1 and Swing Emergency Diesel Generators," dated July 31, 2020 (ADAMS Accession No. ML20213C715). However, the NRC staff identified potentially non-conservative Incremental Conditional Core Damage Probability (ICCDP) and Incremental Conditional Large Early Release Probability (ICLERP) values listed in Table 3.5-1 for the diesel generator (DG) 1C seismic hazard, as well as other cases for other PRAs. As a result of this inquiry, the licensee reviewed its calculations and identified errors involved in the modeling and provided reevaluated results for Hatch, Unit 1, DG 1C on the portal for the NRC staff to review.

To allow the NRC staff to better understand the effect of these changes on the RICT program, the licensee is requested to address the following:

- a. Briefly describe the modeling errors identified in the quantification results provided in Tables 3.5-1 and 3.5-2. Include in the response how each error was resolved across all hazards. Include identification of errors determined to impact the PRA models (i.e., internal events, internal floods, internal fire, seismic) and the real-time risk (RTR) model being used to support the review of the TSTF-505 LAR and confirm the resolution has been incorporated into the models as applicable.
- b. For any changes to the PRA models identified in part(a) that are used to support the TSTF-505 LAR, provide detailed justification that there is no adverse impact on the RICT program. Ensure justification includes evaluation across all hazards and the affected Hatch, Units 2, DGs.
- c. Confirm if the Hatch SPRA core damage frequency (CDF) and large early release frequency (LERF) point estimates provided in the TSTF-505 LAR are affected by the aforementioned modeling errors; if so, update the affected values in Section 5 of Enclosure 4 to the TSTF-505 LAR.
- d. The NRC staff notes that information provided in Tables 3.5-1 and 3.5-2 indicates that the SCDF and SLERF penalty values proposed in the TSTF-505 LAR are conservative when compared to the change-in-risk calculations from the Hatch SPRA for all DGs, except for EDG 1C for Hatch, Unit 1. Provide updated Table 3.5-1 for DG 1C for Hatch, Unit 1, reflecting the resolution of the modeling errors. Also, confirm that any changes to the SPRA model identified in part (a) do not affect the conclusion regarding the conservatism of the SCDF and SLERF penalty values proposed in the TSTF-505 LAR.

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