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NUCLEAR REGULATORY COMMISSION
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FINAL SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

TECHNICAL SPECIFICATIONS TASK FORCE TRAVELER

TSTF-591, REVISION 0, "REVISE RISK-INFORMED COMPLETION TIME (RICT) PROGRAM"

USING THE CONSOLIDATED LINE ITEM IMPROVEMENT PROCESS

(EPID L-2022-PMP-0003)

1.0 INTRODUCTION

By letter dated March 22, 2022 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML22081A224), the Technical Specifications Task Force (TSTF) submitted Traveler TSTF-591, Revision 0, "Revise Risk-Informed Completion Time (RICT) Program," to the U.S. Nuclear Regulatory Commission (NRC); hereafter referred to as TSTF-591. TSTF-591 proposes changes to the Standard Technical Specifications (STSS) for pressurized-water reactor (PWR) and boiling-water reactor (BWR) plant designs. Upon approval this traveler will be made available for adoption and the changes will be incorporated into future revisions of:

- NRC NUREG-1430, "Standard Technical Specifications, Babcock and Wilcox Plants," Volume 1, "Specifications," and Volume 2, "Bases," Revision 5, September 2021 (ML21272A363 and ML21272A370, respectively).
- NRC NUREG-1431, "Standard Technical Specifications, Westinghouse Plants," Volume 1, "Specifications," and Volume 2, "Bases," Revision 5, September 2021 (ML21259A155 and ML21259A159, respectively).
- NRC NUREG-1432, "Standard Technical Specifications, Combustion Engineering Plants," Volume 1, "Specifications," and Volume 2, "Bases," Revision 5, September 2021 (ML21258A421 and ML21258A424, respectively).
- NRC NUREG-1433, "Standard Technical Specifications, General Electric BWR/4 Plants" Volume 1, "Specifications," and Volume 2, "Bases," Revision 5, September 2021 (ML21272A357 and ML21272A358, respectively).
- NRC NUREG-1434, "Standard Technical Specifications, General Electric BWR/6 Plants" Volume 1, "Specifications," and Volume 2, "Bases," Revision 5, September 2021 (ML21271A582 and ML21271A596, respectively).

Enclosure

2.0 REGULATORY EVALUATION

2.1 Applicable Regulatory Requirements and Guidance

The regulation under Title 10 of the *Code of Federal Regulations* (10 CFR) 50.36(b) requires that:

Each license authorizing operation of a ... utilization facility ... will include technical specifications. The technical specifications will be derived from the analyses and evaluation included in the safety analysis report, and amendments thereto, submitted pursuant to [10 CFR] 50.34 ["Contents of applications; technical information"]. The Commission may include such additional technical specifications as the Commission finds appropriate.

The categories of items required to be in the technical specifications are listed in 10 CFR 50.36(c).

The regulation at 10 CFR 50.36(c)(5), states that administrative controls are the provisions relating to organization and management, procedures, recordkeeping, review and audit, and reporting necessary to assure operation of the facility in a safe manner.

NRC Regulatory Guides (RGs) provide one way to ensure that the regulations continue to be met. The NRC staff considered the following guidance, along with industry guidance endorsed by the NRC, during its review of the proposed changes:

- RG 1.200, Revision 3, "Acceptability of Probabilistic Risk Assessment Results for Risk-Informed Activities," December 2020 (ML20238B871).
- NUREG-0800, Revision 3, "Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants: LWR [light-water reactor] Edition" (SRP):
 - Chapter 19, Section 19.2, "Review of Risk Information Used to Support Permanent Plant-Specific Changes to the Licensing Basis: General Guidance," dated June 2007 (ML071700658).
 - Chapter 16, Section 16.0, "Technical Specifications," March 2010 (ML100351425).
 - Chapter 16, Section 16.1, "Risk-Informed Decision Making: Technical Specifications," March 2007 (ML070380228).
- NEI 06-09-A, Revision 0, "Risk-Informed Technical Specifications Initiative 4b, Risk-Managed Technical Specifications (RMTS) Guidelines" (ML063390639), provides guidance for risk-informed TS. The NRC staff issued a final safety evaluation (SE) approving NEI 06-09 on May 17, 2007 (ML071200238).
- NEI 17-07, Revision 2, "Performance of PRA Peer Reviews Using the ASME/ANS PRA Standard," provides guidance material for conducting and documenting a probabilistic risk assessment (PRA) peer review using the American Society of Mechanical Engineers (ASME)/American Nuclear Society (ANS) PRA Standard, issued August 2019 (ML19231A182).
- PWR Owners' Group (PWROG) topical report PWROG-19027-NP, Revision 2, "Newly Developed Method Requirements and Peer Review," establishes the definitions, processes, and

technical requirements necessary to implement newly developed methods (NDMs), issued July 2020 (ML20213C660). RG 1.200, Revision 3, endorsed only specified portions of PWROG-19027-NP.

2.2 Proposed Changes to Standard Technical Specifications

The proposed change revises the STS Section 5.5 Program, "Risk Informed Completion Time Program," by referencing RG 1.200, Revision 3, instead of Revision 2. It also adds a requirement in STS Section 5.6, "Reporting Requirements" for the licensee to submit a report to the NRC before calculating a RICT using an NDM.

2.2.1 STS 5.5.20¹ Risk Informed Completion Time Program

STS 5.5.20, which describes the RICT program, would be revised as shown below. Existing paragraph e would be replaced with the paragraph e below. Paragraphs f and g would be added.

- e. A RICT calculation must include the following hazard groups: [list specific hazards and the associated PRA models or alternate means of assessing the hazard for each applicable hazard group approved by NRC. For example, internal flood and internal events PRA model, internal fire PRA model, and seismic penalty factor]. Changes to these means of assessing the hazard groups require prior NRC approval.
- f. The PRA models used to calculate a RICT shall be maintained and upgraded in accordance with the processes endorsed in the regulatory positions of Regulatory Guide 1.200, Revision 3, "Acceptability of Probabilistic Risk Assessment Results for Risk-Informed Activities."
- g. A report shall be submitted in accordance with Specification 5.6.[X] before a newly developed method is used to calculate a RICT.]

2.2.2 STS 5.6.8², Risk Informed Completion Time Program Upgrade Report

The following would be added as STS 5.6.8:

Risk Informed Completion Time (RICT) Program Upgrade Report

A report describing newly developed methods and their implementation must be submitted following a probabilistic risk assessment (PRA) upgrade associated with newly developed methods and prior to the first use of those methods to calculate a RICT. The report shall include:

- a. The PRA models upgraded to include newly developed methods;

¹ STS 5.5.20 is the specification number for NUREGs-1430, -1431, and -1432. The number is STS 5.5.17 in NUREGs-1433 and -1434. STS 5.5.20 is used throughout this SE for simplicity.

² STS 5.6.8 is the specification number for NUREGs-1430, -1431, and -1432. The number is STS 5.6.6 and STS 5.6.7 in NUREGs-1433 and -1434, respectively. STS 5.6.8 is used throughout this SE for simplicity.

- b. A description of the acceptability of the newly developed methods consistent with Section 5.2 of PWROG-19027-NP, Revision 2, "Newly Developed Method Requirements and Peer Review;"
- c. Any open findings from the peer-review of the implementation of the newly developed methods and how those findings were dispositioned; and
- d. All changes to key assumptions related to newly developed methods or their implementation.

3.0 TECHNICAL EVALUATION

Historical Background

In the final model SE for traveler TSTF-505 (ML18269A041), the NRC staff found the guidance in NEI 06-09, to be acceptable, with clarification from the NRC staff positions, limitations, and conditions. TSTF-505, Revision 2, incorporates the RICT program into the Administrative Controls section of the STS and modifies selected CTs to permit extension provided risk is assessed and managed as described in NEI 06-09-A.

The NRC staff's SE of TSTF-505, considers determining the acceptability of the licensee's PRA models for use in the RICT program, consistent with the guidance provided in RG 1.200, Revision 2, dated March 1, 2009 (ML090410014).

PRA acceptability considers the peer review history and results of a licensee's PRA model(s). Peer reviews are independent reviews performed by qualified subject matter experts (SMEs) using the requirements established in the ASME/ANS PRA Standards. Office of Management and Budget (OMB), Circular No. A-119 Revised, "Federal Participation in the Development and Use of Voluntary Consensus Standards and in Conformity Assessment Activities," establishes policies on federal use and development of voluntary consensus standards on conformity assessment activities. Section 6 of the OMB Circular specifically provides direction on the policy for federal use of standards.

The ASME/ANS PRA Standard establishes two primary peer reviews that are performed to assess the technical adequacy of the PRA models: (1) full scope and (2) focused scope. The results of a peer review are considered facts and observations (F&Os). An independent assessment review may be performed by qualified SME(s) to assess the licensee's satisfactory closure of F&Os. PRA models are a snapshot in time and are continually updated to reflect the as-built, as-operated plant using the technical requirements established in the ASME/ANS PRA Standards along with RG 1.200 guidance to ensure configuration and control is maintained. NEI 17-07, as endorsed in RG 1.200, Revision 3, provides industry guidance to perform these peer reviews.

As the NRC moves forward to make greater use of risk information in decision making, the NRC staff identified enhancements to its risk-informed regulatory framework. One enhancement was the need for a streamlined process to facilitate the acceptance by the NRC and PRA community of NDMs to be used in support of risk-informed applications. The industry developed guidance published in PWROG-19027-NP that addresses, amongst other things, the technical adequacy of NDMs. The NRC staff subsequently endorsed specified portions of PWROG-19027-NP in RG 1.200, Revision 3.

Evaluation of TSTF-591

RG 1.200, Revision 3, was issued after the approval of TSTF-505, Revision 2. Traveler TSTF-591 proposes to replace the STS requirement to maintain and upgrade³ the PRA in accordance with RG 1.200, Revision 2, with a requirement to follow RG 1.200, Revision 3. RG 1.200, Revision 3, does not change the factors used to assess PRA technical adequacy and acceptability. Revision 3 of RG 1.200 continues to include guidance to maintain and upgrade the PRA while adding a glossary of key terms, a list of hazards to be considered in the development and use of the PRA, and enhanced guidance related to key assumptions and sources of uncertainty. Furthermore, RG 1.200, Revision 3, does the following:

- Endorses, with NRC staff exceptions and clarifications, the ASME/ANS RA-S Case 1, “Case for ASME/ANS RA-Sb-2013 Standard for Level 1/Large Early Release Frequency Probabilistic Risk Assessment of Nuclear Power Plant Applications,” dated November 22, 2017.
- Endorses NEI 17-07, Revision 2, “Performance of PRA Peer Reviews Using the ASME/ANS PRA Standard,” issued August 2019.
- Endorses the following portions of PWROG-19027-NP:
 - Process for the peer review of NDMs,
 - Process for determining whether a change to a PRA is classified as PRA maintenance or a PRA upgrade, and
 - Key definitions related to NDMs, PRA maintenance, and PRA upgrade.

The proposed language for paragraph e on STS 5.5.20 incorporates defined terms provided in the glossary of RG 1.200, Revision 3. The NRC staff concludes that the proposed changes using the defined terms provided in RG 1.200, Revision 3, do not introduce any technical discrepancies for the implementation of the RICT program.

The proposed addition paragraph f of STS 5.5.20 incorporates a requirement that PRA models used to calculate a RICT be maintained and upgraded in accordance with the processes endorsed in the regulatory positions of RG 1.200, Revision 3. RG 1.200 Regulatory Position C.2.2.2.2, states, in part:

[a]n acceptable approach to performing a peer review for an NDM is the guidance in NEI 17-07, Revision 2. NEI 17-07, Revision 2, [as endorsed by RG 1.200, Revision 3,] states, in part, that if an NDM is deemed not technically acceptable in the NDM peer review report, or if at least one finding-level F&O on the NDM remain open, a licensee or applicant may not use it in a PRA supporting risk-informed licensing applications.

The report that will be submitted to the NRC staff for NDM use in the RICT program can only be used to describe NDMs that are technically acceptable with all the open F&Os resulting from the technical review of the NDM closed using an NRC-endorsed peer review process. Furthermore,

³ Per RG 1.200, Revision 3, PRA upgrade is defined as: A change in the PRA that results in the applicability of one or more supporting requirements that were not previously included within the PRA (e.g., performing qualitative screening for Part 4 of ASME/ANS Level 1/LERF PRA Standard when the related high-level requirement was previously not applicable, or adding a new hazard model), an implementation of a PRA method in a different context, or the incorporation of a PRA method not previously used.

in response to Request for Additional Information (RAI) 1.c and 1.d, dated February 1, 2023 (ML23032A485), the TSTF confirmed the report cannot be used to satisfy Regulatory Position C.2.2.2.2 and that NDMs with open finding-level F&Os may not be used by a licensee without prior NRC approval. The NRC staff notes that some F&Os may not establish technical inadequacy applicable to the NDM, whereas the F&Os can be plant-specific (e.g., involving implementation). For these open F&Os determined to be plant-specific, consistent with RG 1.200, Revision 3, the licensee can either close the F&O using NRC-endorsed processes or disposition the F&O on a case-by-case basis. The disposition of an F&O involves qualitative or quantitative assessment for impact on the specific risk-informed application. The disposition of F&Os may consider: (1) incorporating appropriate changes into the PRA model prior to use, (2) identifying appropriate sensitivity studies to address the issue identified, or (3) providing adequate justification for the original model, including the applicability of key assumptions to the risk-informed application. The disposition of an F&O does not constitute the F&O to be closed.

The proposed addition paragraph g of STS 5.5.20 incorporates a requirement for a licensee to submit a report before an NDM is used to calculate a RICT. RG 1.200, Revision 3, defines a consensus method/model as follows:

Consensus method/model: In the context of risk-informed regulatory decisions, a method or model approach that the NRC has used or accepted for the specific risk-informed application for which it is proposed. A consensus method or model may also have a publicly available, published basis and may have been peer reviewed and widely adopted by an appropriate stakeholder group.

In response to RAI 2.a, example (c) provided, the TSTF stated, “[t]he appendix can be made available to the NRC to be loaded on ADAMS (no formal request of review or endorsement would be needed).” The use of consensus method(s) by licensees is governed within the guidance of RG 1.200, Revision 3. Consistent with the definition per RG 1.200, Revision 3, and provided above, a consensus method/model is one that has been used or accepted by the NRC for the specific risk-informed application for which it is proposed. Specifically, reporting of an NDM by a licensee under the requirements stipulated in STS 5.6.8 does not justify the NDM to meet the definition of consensus/method/model for future use. Therefore, the NRC staff concludes that for an NDM to be reported to the NRC under the requirements stipulated in STS 5.6.8, it is not a consensus method or model as defined in RG 1.200, Revision 3.

Consistent with RG 1.200, Revision 3, if the NDM has been determined to be acceptable using NRC-endorsed processes, NRC staff action is not needed prior to the licensee’s use of an NDM in a RICT calculation. The NRC staff finds that the proposed changes to STS 5.5.20 and the addition of STS 5.6.8 remains consistent with the guidance in RG 1.200, Revision 3, that also endorses NEI 17-07, Revision 2, and specific portions of PWROG-19027-NP. Section 4, Tables 1-7.2-1 through 1-7.2-7 of PWROG-19027-NP, as endorsed by the NRC staff, stipulates a list of technical supporting requirements that must be met to determine an NDM acceptable.

Furthermore, the RICT program is incorporated as a program into the Administrative Controls section of the STS. As described in 10 CFR 50.36(c)(5), administrative controls are the provisions relating to, among other things, recordkeeping and reporting necessary to assure operation of the facility in a safe manner, and each licensee shall submit any reports to the Commission pursuant to approved technical specifications as specified in 10 CFR 50.4.

4.0 CONCLUSION

The NRC staff concludes the proposed changes to STS 5.5.20 and the addition of STS 5.6.8 continue to ensure the PRA models used to calculate a RICT are maintained and upgraded by the licensee's appropriate use of endorsed guidance (i.e., the ASME/ANS PRA Standard requirements, and specific industry guidance that the NRC staff has determined are sufficient for determining the acceptability of PRA models and NDMs for use in the RICT program). Furthermore, the NRC staff concludes that the addition of STS 5.6.8 that describes the contents of a RICT program upgrade report to the NRC staff does not preclude any staff oversight of PRA changes performed to ensure the PRA model(s) continues to be maintained and upgraded consistent with RG 1.200, Revision 3.

The NRC staff finds that the proposed changes are acceptable because they continue to ensure operation of the facility in a safe manner in accordance with 10 CFR 50.36(c)(5). Accordingly, the NRC staff finds TSTF-591 acceptable. Additionally, the NRC staff determined that the proposed changes are technically clear and consistent with customary terminology and format in STSs.

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