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Status of the U.S. Nuclear Regulatory Commission (NRC) Staff's Review of Electric Power Research Institute (EPRI) Technical Report (TR) 3002025288 "Enhanced Risk-Informed Categorization Methodology for Pressure Boundary Components" (Risk Informed CMPBC)

Please email lois.james@nrc.gov your name and affiliation.

Thank you

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January 29, 2024

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Welcome and Introduction

Purpose of Meeting –

To discuss the status of the NRC staff's review of EPRI TR 3002025288, Risk-Informed CMPBC.

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Agenda

- Welcome and Introduction
- Regulatory History of Risk-Informed CMPBC
- Key Messages
- Item 1, Deterministic Criteria
- Item 2, Overview of Risk-Informed CMPBC
- Item 3, Helpful TR Reference Material
- Item 4, High Safety Significant (HSS)-to-Low Safety Significant (LSS) Demonstration
- Item 5, Reclassification of Class 1 Components
- Public Comment
- Wrap-Up

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Regulatory History of Risk-Informed CMPBC

Date	Activity
March 11, 2021 Supplemented on: • May 5, 2021 • December 15, 2021 • February 14, 2022 • June 30, 2022	Exelon Generation Company, LLC submitted a license amendment request (LAR) for Limerick to revise the license condition approving the use 10 CFR section 50.69, "Risk-informed categorization and treatment of structures, systems and components [SSCs] for nuclear power reactors," to allow the use of alternative pressure boundary processes or approaches for categorizing SSCs
February 23, 2023	Public meeting held between NRC and Constellation to Discuss Status of NRC Review of Limerick LAR regarding 10 CFR 50.69 License Conditions
May 3, 2023	EPRI submitted a Fee Exemption Request for EPRI TR 3002025288, Risk-Informed CMPBC
May 17, 2023	NRC staff issued a partial denial of Limerick's LAR, denying the proposed alternative pressure boundary component categorization processes for 10 CFR 50.69
August 17, 2023	EPRI Submitted TR 3002025288, Risk-Informed CMPBC to support the Fee Exemption Request
November 3, 2023	NRC staff issued its Non-Accept with Opportunity to Supplement for EPRI TR 3002025288, Risk-Informed CMPBC
November 30, 2023	EPRI submitted supplemental information to support NRC staff's acceptance review

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Key Messages

- To the NRC staff, this topical report appears written as a guidance document and not a topical report, not sufficiently detailed for a topical report

- NRC staff is concerned that the deterministic aspects of the topical report are not complete at this time

- NRC staff acknowledges that EPRI revised the TR based on staff's previous comments on probabilistic risk assessment (PRA) aspects

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Item 1, Provide an Overview of Risk-Informed CMPBC

- Provide a comprehensive overview of what is being proposed for the 10 CFR 50.69 alternate methodology for pressure boundary component categorization, including walking the NRC staff through what components are out of scope of the methodology, i.e., what components will remain high safety significant (HSS); how the 14 deterministic and risk criteria must be met to determine that it is acceptable using their process to reclassify a component to low safety significant (LSS); and what other processes/programs are in place for components reclassified to LSS that licensees must continue to meet, e.g., ISI inspection, maintenance rule, quality assurance (QA) program, etc.

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Item 2, Clarify How the Deterministic Criteria Will Capture important SSCs

The proposed criteria appear to be, without a clear basis, lower in rigor than 10 CFR 50.69, criteria that were approved for Arkansas Nuclear Unit 2 (ANO). The staff understands that the proposed risk metrics in criteria 11 - 13 were developed from previous analysis cases, e.g., American Society of Mechanical Engineer (ASME) Boiler and Pressure Vessel Code (BPV) Code Case N 716, for risk-informed inservice inspections (RI-ISI). However, 10 CFR 50.69 goes beyond RI-ISI programs since it will allow licensees to relax 10 CFR 50 Appendix B, “Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants,” requirements for passive pressure boundary components based on categorization using this method. Upon examination, the staff is concerned that it could be implemented in a way that would designate very few structures, systems and components (SSCs) as HSS, making applying the ten deterministic criteria extremely important. The ten proposed deterministic criteria could apparently also be implemented to make almost all ASME Code Class 2 and 3 SSCs as LSS. Can EPRI provide information to substantiate that the proposed deterministic criteria would accurately capture the important SSCs for the range of plant designs and plant configurations across the U.S. nuclear fleet? It appears to us that the TR is written as a guidance document and not sufficient detail to be a topical report.

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Item 3, Identity Helpful TR Reference Material

Identify any significant material in the topical report's (TR's) referenced material that could help the NRC staff to understand what EPRI is leveraging to support the proposed alternative approach for 10 CFR 50.69 risk-informed pressure boundary component categorization.

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Item 4, Provide an HSS-to-LSS Demonstration

Demonstrate a couple of examples of how an SSC that could be classified as HSS under the ANO methodology could be classified as LSS under the proposed EPRI methodology. Describe what programs/processes would be applied to that component to provide defense in depth (DID) and assurance that any possible future degradation would be identified and corrected to ensure that the component will meet its intended safety function.

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Item 5, Clarify if Risk-Informed CMPBC can be used to Reclassify Class 1 SSCs

Clarify whether the proposed methodology in the EPRI TR allows for reclassifying Class 1 SSCs, and if so, demonstrate how that could be done. Or, identify any other process that EPRI considers feasible to use to allow for such reclassification.

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Next Steps

NRC to:

- Consider information received and insights from today's meeting
- Make and communicate a decision on the completeness review
- Identify a path forward that addresses the staff's need for additional opportunities for technical exchange

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Public Comment

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Wrap-Up