UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

REGULATORY AUDIT PLAN

BY THE OFFICE OF NUCLEAR REACTOR REGULATION

IN SUPPORT OF THE REVIEW TECHNICAL REPORT 3002025288, REVISION 0

"ENHANCED RISK-INFORMED CATEGORIZATION METHODOLOGY FOR PRESSURE BOUNDARY COMPONENTS"

ELECTRIC POWER RESEARCH INSTITUTE

DOCKET NO. 99902021

1.0 BACKGROUND

By letter dated August 17, 2023 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML23234A266), as supplemented on November 30, 2023 (ADAMS Accession No. ML23334A210), and June 14, 2024 (ADAMS Accession No. ML24180A016), the Electric Power Research Institute (EPRI) submitted EPRI Technical Report (TR) 3002025288, "Enhanced Risk-Informed Categorization Methodology for Pressure Boundary Components," dated June 2023, to the U.S. Nuclear Regulatory Commission (NRC) for review and approval. The EPRI TR 3002025288 presents an enhanced methodology for categorizing pressure boundary components in support of Title 10 of the *Code of Federal Regulations* (10 CFR) 50.69, "Risk-Informed Categorization and Treatment of Structures, Systems And Components for Nuclear Power Reactors," applications.

By letter dated July 11, 2024 (ADAMS Accession No. ML23352A054), the NRC staff accepted EPRI TR 3002025288 for review.

The NRC staff has determined that a regulatory audit of the EPRI TR 3002025288 should be conducted in accordance with the Office of Nuclear Regulatory Reactor (NRR) Office Instruction (OI) LIC-111, "Regulatory Audits," Revision 1, dated October 2019 (ADAMS Accession No. ML19226A274), for the staff to gain a better understanding of EPRI's proposed alternative method for categorizing risk as part of compliance to 10 CFR 50.69.

A regulatory audit is a planned license or regulation-related activity that includes the examination and evaluation of primarily non-docketed information. The audit is conducted with the intent to gain understanding, to verify information, and to identify information that will require docketing to support the basis of a licensing or regulatory decision. Performing a regulatory audit is expected to assist the NRC staff in efficiently conducting its review and gaining insights to the vendor's processes and procedures. Information that the NRC staff relies upon to make the safety determination must be submitted on the docket.

2.0 REGULATORY AUDIT BASES

The NRC promulgated regulations to permit power reactor licensees and license applicants to implement an alternative regulatory framework with respect to “special treatment,” where special treatment refers to those requirements that provide increased assurance beyond normal industrial practices that structures, systems, and components (SSCs) perform their design-basis functions. Under this framework (10 CFR 50.69), licensees using a risk-informed process for categorizing SSCs according to their safety significance can remove SSCs of low safety significance from the scope of certain identified special treatment requirements.

The 10 CFR 50.69 process allows a licensee to categorize the safety significance of its SSCs using a robust categorization process defined in Nuclear Energy Institute’s guidance in NEI-0004, Revision 0, "10 CFR 50.69 SSC Categorization Guideline" (ADAMS Accession No. ML052900163), as endorsed by the NRC in Regulatory Guide 1.201, “Guidelines for Categorizing Structures, Systems, and Components in Nuclear Power Plants According to Their Safety Significance” (ADAMS Accession No. ML061090627).

3.0 REGULATORY AUDIT SCOPE

The NRC staff will conduct a virtual audit which will include technical discussion pertaining to potential request for additional information questions as well as comprehension questions on the TR itself.

4.0 INFORMATION NEEDS

The areas of focus for the regulatory audit are the information contained in the topical report and supplements, the enclosed audit information needs, and all associated and relevant supporting documentations (e.g., methodology, process information, calculations, etc.). The relevant supporting documents are identified below.

The NRC staff needs to evaluate the risk significance of the SSCs covered by the first ten predetermined criteria for a variety of representative power plants to determine if the criteria would appropriately categorize the SSCs as high-safety-significant (HSS) or LSS. To accomplish this task, the NRC staff needs documentation showing the core damage frequency, conditional core damage probability, and Failure Mode Effects Analysis for SSCs in the following systems:

- Feedwater Piping, Heat Exchangers, Vessels, and Passive Components of Active Systems
- Auxiliary/Emergency Feedwater Piping, Heat Exchangers, Vessels, and Passive Components of Active Systems
- Emergency Core Cooling System Piping and Passive Components of Active Systems
- Service Water Piping
- Standby Liquid Control System Piping
- Residual Heat Removal/Decay Removal/ Shutdown Cooling System Piping, Heat Exchangers, Vessels, and Passive Components of Active Systems
- Pressurizer and Pressurizer relief piping and Passive Components of Active Systems
- Chemical Volume and Control System
- Safety related supporting systems to the above, such as and similar to emergency diesel day tanks
- Primary pressure boundary vessels

For:

- One or more representative Westinghouse Electric Company (Westinghouse) 4 loop nuclear power plants (NPPs)
- One or more Westinghouse 3 loop NPPs
- One or more Westinghouse 2 loop NPPs
- One Babcock and Wilcox 2 Loop NPP
- One Combustion Engineering 2 Loop NPP
- One or more Boiling Water Reactor (BWR)/4 NPPs
- One BWR/6 NPP

The following documentation should be available to the audit team:

1. "Nondestructive Evaluation: N-716 Revision 1 Pilot Study Results and Lessons Learned," EPRI Report 3002003029, 2014.

2. Plant-specific reports outlining the results of the in-service inspection program as they relate to the development of the criteria of the TR.

3. "10 CFR 50.69 Categorization Guidance Document" EPRI Report 3002012984, 2018.

4. "Pipe Rupture Frequencies for Internal Flooding Probabilistic Risk Assessments: Revision 5," EPRI Report 3002024904, 2023.

5.0 TEAM AND REVIEW ASSIGNMENTS

The audit team will consist of the following NRC staff:

NAME	ASSIGNMENT	DIVISION	BRANCH
Lois James	Senior Project Manager	Division of Operating Reactor Licensing (DORL)	Licensing Projects Branch (LPLB)
Jeff Circle	Senior Reliability Analyst, Lead Technical Reviewer	Division of Risk Assessment (DRA)	PRA Licensing Branch A (APLA)
Stephen Cumblidge	Materials Engineer, Lead Technical Reviewer	Division of New and Renewed Licenses (DNRL)	Piping and Head Penetrations Branch (NPHP)
Mihaela Biro	Senior Reliability Analyst, Technical Reviewer	DRA	APLA
David Gennardo	Reliability Analyst, Technical Reviewer	DRA	APLA
Dan Widrevitz	Materials Engineer, Technical Reviewer	DNRL	Vessels and Internals Branch (NVIB)

6.0 LOGISTICS

The audit will be conducted from September 13 to November 27, 2024, through an online portal (also known as electronic portal, ePortal, or electronic reading room) established by EPRI.

The audit team will conduct a TEAMS-based entrance meeting with the vendor on September 13, 2024, for the purposes of introducing the team, discussing the scope of the

audit, and describing the information to be made available on the portal. Through the audit period between September 13 to November 27, 2024, the NRC staff will hold breakout sessions with representatives of EPRI to answer audit team questions and to have technical discussions. An exit meeting/call will be held at the conclusion of the audit on November 27, 2024.

The NRC staff does not foresee the need for an onsite visit or in-person discussions between the NRC and vendor staff to discuss information to be provided on the portal at this time. However, if the need for a such a meeting is identified in the future, the audit plan will be revised, and the schedule for the audit will be adjusted accordingly. The NRC project manager (PM) will coordinate any changes to the audit schedule and location with the vendor.

7.0 SPECIAL REQUESTS

The audit team would like access to the documents listed in Section 4.0 above through an online portal that allows the audit team to access documents via the internet. The following conditions associated with the online portal must be maintained throughout the duration that the audit team has access to the online portal:

- The online portal will be password-protected, and separate passwords will be assigned to the NRC staff who are participating in the audit.

- The online portal will be sufficiently secure to prevent the NRC staff from printing, saving, downloading, or collecting any information on the online portal.

- Conditions of use of the online portal will be displayed on the login screen and will require acknowledgement by each user.

Username and password information should be provided directly to the NRC staff. The NRC PM will provide to EPRI the names and contact information of the NRC staff who will be participating in the audit. All other communications should be coordinated through the NRC PM.

8.0 DELIVERABLES

An audit summary report will be prepared within 90 days of the completion of the audit. If the NRC staff identifies information during the audit that is needed to support its regulatory decision, the NRC staff will issue RAI(s) to the vendor.