



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

June 14, 2022

Mr. Stuart Rymer  
Acting Director, Nuclear Regulatory Affairs  
Tennessee Valley Authority  
1101 Market Street, LP 4B  
Chattanooga, TN 37402-2801

SUBJECT: BROWNS FERRY NUCLEAR PLANT, UNITS 1, 2 AND 3 – REGULATORY  
AUDIT PLAN IN SUPPORT OF LICENSE AMENDMENT REQUEST TO ADOPT  
RISK-INFORMED COMPLETION TIMES (EPID L-2022-LLA-0049)

Dear Mr. Rymer:

By letter dated March 31, 2022, the Tennessee Valley Authority (TVA) requested to amend Renewed Facility Operating License Nos. DPR-33, DPR-52, and DPR-68 for Browns Ferry Nuclear Plant, Units 1, 2, and 3, respectively, to adopt Technical Specifications Task Force (TSTF) Traveler 505 (TSTF-505), "Provide Risk-informed Extended Completion Times, RITSTF Initiative 4b," to permit the use of risk-informed technical specification completion times for certain actions required when limiting conditions for operation are not met.

The U.S. Nuclear Regulatory Commission (NRC) staff has identified the need for a regulatory audit to examine TVA's non-docketed information with the intent to gain understanding, to verify information, and to identify information that will require docketing to support the basis of the licensing or regulatory decision.

The NRC staff will conduct the audit virtually from at the NRC Headquarters in Rockville, Maryland, via an electronic portal established by TVA, from approximately June 21 through September 16, 2022. A detailed audit plan is enclosed.

S. Rymer

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If you have any questions, please contact me at 301-415-1627 or by e-mail at [Kimberly.Green@nrc.gov](mailto:Kimberly.Green@nrc.gov).

Sincerely,

*/RA/*

Kimberly J. Green, Senior Project Manager  
Plant Licensing Branch II-2  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

Docket Nos. 50-259, 50-260, and 50-296

Enclosure: Audit Plan

cc: Listserv

REGULATORY AUDIT PLAN  
BY THE OFFICE OF NUCLEAR REACTOR REGULATION  
TO SUPPORT THE REVIEW OF LICENSE AMENDMENT REQUEST  
TO ADOPT RISK-INFORMED COMPLETION TIMES  
TENNESSEE VALLEY AUTHORITY  
BROWNS FERRY NUCLEAR PLANT UNITS 1, 2, AND 3  
DOCKET NOS. 50-259, 50-260, AND 50-296

1.0 BACKGROUND

By letter dated March 21, 2022 (Reference 1), Tennessee Valley Authority (TVA) submitted a license amendment request (LAR) to amend Renewed Facility Operating License Nos. DPR-33, DPR-52, and DPR-68 for Browns Ferry Nuclear Plant (Browns Ferry), Units 1, 2, and 3, respectively. The proposed amendments would modify the Browns Ferry units' technical specification requirements to permit the use of risk-informed completion times (RICTs). TVA would implement RICTs according to a process developed by the Technical Specifications Task Force (TSTF) and described in Traveler TSTF-505, "Provide Risk-Informed Extended Completion Times - RITSTF [Risk-Informed TSTF] Initiative 4b," Revision 2 (Reference 2). These RICTs would apply to certain actions required when particular limiting conditions for operation are not met.

The proposed amendments would also incorporate TSTF-439, "Eliminate Second Completion Times Limiting Time From Discovery of Failure to Meet an LCO," Revision 2 (Reference 3). This traveler has already been incorporated in NUREG-1433, "Standard Technical Specifications—General Electric Plants (BWR/4): Specifications" (Reference 4).

The staff of the Office of Nuclear Reactor Regulation has initiated its review of the LAR in accordance with office instruction LIC-101, "License Amendment Review Procedures" (Reference 5).

2.0 REGULATORY AUDIT BASIS

A regulatory audit is a planned license- or regulation-related activity that includes the examination and evaluation of primarily non-docketed information associated with the LAR. An audit is conducted to gain understanding, to verify information, and to identify information that will require docketing to support the basis of a licensing or regulatory decision. An audit will assist the NRC staff in efficiently conducting its review and gaining insights to TVA's processes and procedures. Information identified during the audit that the NRC staff relies upon to make the safety determination must be submitted on the docket. This audit will be conducted in accordance with NRR Office Instruction LIC-111, "Regulatory Audits" (Reference 6), with exceptions noted within this audit plan.

The NRC staff will perform the audit to support its evaluation of whether TVA's LAR can be approved per Title 10 of the *Code of Federal Regulations* (10 CFR), Section 50.90, "Application

for amendment of license, construction permit, or early site permit.” The staff’s review will be informed by NUREG-0800, “Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants,” Section 19.2, “Review of Risk Information Used to Support Permanent Plant-Specific Changes to the Licensing Basis” (Reference 7). The audit will assist the staff with understanding TVA’s proposed program for implementing RICTs for certain TSs.

### 3.0 REGULATORY AUDIT SCOPE AND METHODOLOGY

NRC’s objectives of the audit are the following:

- Learn how TVA’s proposed program implements TSTF-505 and conforms to NRC-endorsed guidance in Nuclear Energy Institute (NEI) report NEI 06-09, Revision 0-A, “Risk-Informed Technical Specifications Initiative 4b, Risk-Managed Technical Specifications (RMTS) Guidelines” (Reference 8).
- Gain a better understanding of the detailed calculations, analyses, and bases underlying the LAR and confirm the NRC staff’s understanding of the LAR.
- Gain a better understanding of the plant’s design features and its implications for the LAR.
- Identify any information needed to enable the NRC staff’s evaluation of the technical acceptability of the probabilistic risk assessment (PRA) used for this application.
- Identify any information needed to enable the NRC staff’s evaluation of whether the proposed changes challenge design-basis functions or adversely affect the capability or capacity of plant equipment to perform design-basis functions.
- Identify questions and requests that may become formal requests for additional information (RAIs) per NRR Office Instruction LIC-115, “Processing Requests for Additional Information” (Reference 9).

The NRC staff will audit the PRA methods that TVA would use to determine the risk impact from which the revised completion times would be obtained, including TVA’s assessments of internal events (including internal flooding), fire, and seismic PRAs. The NRC will also audit TVA’s assessment of risk from other external events, and TVA’s evaluation of defense-in-depth.

### 4.0 INFORMATION AND OTHER MATERIAL NECESSARY FOR THE AUDIT

During the audit, the NRC staff will request information that is not available on the docket and may request virtual meetings. The NRC staff will use an “audit items list” to identify the information to be audited (e.g., methodology, process information, and calculations). The NRC staff will document the final audit items list as an enclosure to the audit report, which will be publicly available. The attachment to this audit plan includes the initial audit items list.

Throughout the audit period, the NRC staff will submit audit questions and audit-related requests to TVA so that TVA can better prepare for audit discussions with NRC staff. Any information accessed through TVA’s portal will not be held or retained in any way by NRC staff. The NRC staff requests TVA to have the information listed in the audit items list to be readily available and accessible for the NRC staff’s review via an internet-based portal.

## 5.0 TEAM ASSIGNMENTS

The audit team will consist of the following NRC staff and contractors:

- Kimberly Green, Plant Licensing Branch 2-2 (LPL2-2)
- Malcolm Patterson, PRA Licensing Branch A (APLA)
- Jigar Patel, APLA
- Todd Hilsmeier, APLA
- Sunwoo Park, PRA Licensing Branch C (APLC)
- Keith Tetter, APLC
- Vijay Goel, Electrical Engineering Branch (EEEEB)
- Edmund Kleeh, EEEB
- Joseph Ashcraft, EICB
- Chang Li, Containment and Plant Systems Branch (SCPB)
- Nan Chien, SCPB
- Santosh Bhatt, Nuclear Systems Performance Branch (SNSB)
- Charley Peabody, SNSB
- Khadijah West, Technical Specifications Branch (STSB)
- Mark Wilk, Pacific Northwest National Laboratory (PNNL)

## 6.0 LOGISTICS

To support the review schedule communicated to TVA when the NRC staff accepted the LAR for technical review, audit activities will be performed remotely and virtually using Microsoft Teams, teleconference, and an internet-based portal or other virtual meeting space created by TVA. NRC information requests and communications with TVA staff will be coordinated through the NRC's licensing project manager.

The virtual audit will begin approximately 2 weeks from the date of this audit plan and will last through September 16, 2022. The NRC's licensing project manager will inform TVA of the entrance and exit meeting dates when they are established. The NRC intends to establish a multi-day audit meeting on mutually agreeable dates and times to discuss questions arising from the NRC's audit of the requested items.

The NRC staff requests that TVA make the information identified in Section 4.0 of this audit plan available and accessible for NRC staff's review via an internet-based portal within 2 weeks of the date of this audit plan. The NRC staff requests that any supplemental information requested be made available within 1 week of the NRC's notification of the requested information. The NRC review team requests that it be notified when an audit item is added to the portal by sending an email to the NRC licensing project manager. The NRC's licensing project manager will inform TVA via routine communications when the NRC staff no longer needs access to the portal.

## 7.0 SPECIAL REQUESTS

The NRC requests access to requested documents and information through an internet-based portal that allows the NRC staff and contractors to access documents. The following conditions associated with the portal must be maintained while the NRC staff and contractors have access to the portal:

- The portal will be password-protected. A separate password will be assigned to each member of the NRC staff and NRC contractors participating in the audit.
- The portal should prevent the NRC participants from printing, saving, downloading, or collecting any information directly from the online portal.
- Conditions of use of the portal will be displayed on the login screen and will require acknowledgment by each user.

Username, password, and other portal access information should be provided directly to members of the NRC audit team. The NRC licensing project manager will provide TVA with names and contact information of the NRC staff and contractors participating in the audit. All other communications should be coordinated through the NRC project manager.

## 8.0 DELIVERABLES

The NRC staff will issue an audit summary report within 90 days of the audit exit interview. The staff may request additional information needed to complete the review of the LAR but will issue any such RAs separately from audit-related correspondence in accordance with NRR Office Instruction LIC-115, "Processing Requests for Additional Information" (Reference 9).

## 9.0 REFERENCES

1. Letter from James T. Polickoski to the U.S. Nuclear Regulatory Commission, "License Amendment Request to Revise Technical Specifications to Adopt Risk-Informed Completion Times TSTF-505-A, Revision 2, "Provide Risk-Informed Extended Completion Times – RITSTF Initiative 4b" (BFN TS-524)" March 31, 2022 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML22090A287).
2. Attachment 3 (TSTF-505, Revision 2) to the letter from the Technical Specification Task Force, "TSTF Comments on Draft Safety Evaluation for Traveler TSTF-505, "Provide Risk-Informed Extended Completion Times" and Submittal of TSTF-505, Revision 2" July 2, 2018 (ML18183A493).
3. Technical Specification Task Force, TSTF-439, Revision 2, "Eliminate Second Completion Times Limiting Time From Discovery of Failure to Meet an LCO," June 20, 2005 (ML051860296).
4. NUREG-1433, "Standard Technical Specifications: General Electric BWR/4 Plants," Revision 5.0, September 2021 (ML21272A357).
5. U.S. Nuclear Regulatory Commission, NRR Office Instruction LIC-101, Revision 6, "License Amendment Review Procedures," July 31, 2020 (ML19248C539).
6. U.S. Nuclear Regulatory Commission, NRR Office Instruction LIC-111, Revision 1, "Regulatory Audits," October 31, 2019 (ML19226A274).
7. U.S. Nuclear Regulatory Commission, NUREG-0800, "Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants: LWR Edition," Section 19.2, "Review of Risk Information Used to Support Permanent Plant-Specific Changes to the Licensing Basis: General Guidance," June 2007 (ML071700658).
8. Nuclear Energy Institute, NEI 06-09, Revision 0-A, "Risk-Informed Technical Specifications Initiative 4b, Risk-Managed Technical Specifications (RMTS) Guidelines," November 2006 (ML12286A322).
9. U.S. Nuclear Regulatory Commission, NRR Office Instruction LIC-115, Revision 1, "Processing Requests for Additional Information," August 9, 2021 (ML21141A238).

### TSTF-505 INITIAL AUDIT ITEMS LIST

Item #	Audit Item
1	Reports of full-scope and focused-scope peer reviews, closure reviews of F&Os, and any self-assessments referred to in the LAR for the internal events, internal flooding, fire, and seismic PRAs cited in the LAR.
2	Plant-specific documentation (e.g., uncertainty notebooks) related to internal events, internal flooding, fire, and seismic PRAs: <ol style="list-style-type: none"> <li>a. Review of the PRA model assumptions and sources of uncertainty (generic and plant-specific assumptions/uncertainties).</li> <li>b. Identification of key assumptions and sources of uncertainty for this LAR.</li> <li>c. Parametric uncertainty and state-of-knowledge correlation evaluation.</li> </ol>
3	PRA notebooks for the modeling of FLEX equipment and FLEX human error probabilities credited in the PRAs.
4	PRA notebook(s) pertaining to the modeling of digital control systems, including basis for the representative failure probabilities.
5	Documentation of how shared or cross-tied systems are modeled in the PRA.
6	Documentation on other external events specific to the site (e.g., seismic, high winds, external flooding).
7	If modeled, the PRA notebooks associated with the modeling of open-phase condition (OPC) in electrical switchyards and the open phase isolation system (OPIS).
8	Documentation supporting the development of the real-time risk tool and benchmarking it against the PRA.
9	Documentation supporting the example risk-informed completion times (RICT) calculations presented in LAR Enclosure 1, Table E1-2.
10	PRA configuration control and update procedures, including how they address scheduled and unscheduled PRA updates.
11	Final RICT program procedures or, if they are not available, draft procedures or guidance (e.g., for risk management actions, PRA functionality determination, and recording limiting conditions for operation).
12	Unless it is available in the current UFSAR, provide single-line diagrams of the electrical power distribution systems.
13	Design details of systems shared or cross-tied among Units 1, 2, and 3.
14	Other documentation that the TVA determines to be responsive to the U.S. Nuclear Regulatory Commission staff's information requests.

F&Os facts and observations  
 LAR license amendment request

PRA probabilistic risk assessment  
 FLEX diverse and flexible coping strategies

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DATED JUNE 14, 2022

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