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

May 27, 2025

Delson C. Erb
Vice President, OPS Support
Tennessee Valley Authority
1101 Market Street, LP 4A-C
Chattanooga, TN 37402-2801

SUBJECT: BROWNS FERRY NUCLEAR PLANT, UNITS 1, 2, AND 3 – ISSUANCE OF AMENDMENT NOS. 335, 358, AND 318 REGARDING ADOPTION OF TSTF-576, REVISION 3 TO REVISE SAFETY/RELIEF VALVE REQUIREMENTS (EPID L-2024-LLA-0163)

Dear Delson Erb:

The U.S. Nuclear Regulatory Commission (the Commission) has issued the enclosed Amendment Nos. 335, 358, and 318 to Renewed Facility Operating License Nos. DPR-33, DPR-52, and DPR-68, for the Browns Ferry Nuclear Plant (Browns Ferry), Units 1, 2, and 3, respectively. These amendments are in response to your application dated December 9, 2024, as supplemented by letter dated March 10, 2025.

The amendments revise Browns Ferry, Units 1, 2, and 3, Technical Specifications to reflect the adoption of Technical Specifications Task Force (TSTF) Traveler TSTF-576, Revision 3, "Revise Safety/Relief Valve Requirements."

A copy of the Safety Evaluation is also enclosed. Notice of Issuance will be included in the Commission's monthly *Federal Register* notice.

Sincerely,

/RA/

Kimberly J. Green, 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

Enclosures:
1. Amendment No. 335 to DPR-33
2. Amendment No. 358 to DPR-52
3. Amendment No. 318 to DPR-68
4. Safety Evaluation

cc: Listserv

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

TENNESSEE VALLEY AUTHORITY

DOCKET NO. 50-259

BROWNS FERRY NUCLEAR PLANT, UNIT 1

AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 335
Renewed License No. DPR-33

1. The U.S. Nuclear Regulatory Commission (the Commission) has found that:

   A. The application for amendment by Tennessee Valley Authority (the licensee) dated December 9, 2024, as supplemented by letter dated March 10, 2025, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in Title 10 of the *Code of Federal Regulations* (10 CFR) Chapter I;

   B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;

   C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;

   D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and

   E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment and paragraph 2.C.(2) of Renewed Facility Operating License No. DPR-33 is hereby amended, in part, to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 335, are hereby incorporated in the renewed operating license. The licensee shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of its date of issuance and shall be implemented within 90 days from the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

DAVID WRONA

Digitally signed by DAVID WRONA
Date: 2025.05.27 08:56:37 -04'00'

David Wrona, Chief
Plant Licensing Branch II-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Renewed Facility Operating License No. DPR-33 and the Technical Specifications

Date of Issuance: May 27, 2025

ATTACHMENT TO LICENSE AMENDMENT NO. 335

RENEWED FACILITY OPERATING LICENSE NO. DPR-33

BROWNS FERRY NUCLEAR PLANT, UNIT 1

DOCKET NO. 50-259

Replace page 3 of Renewed Facility Operating License No. DPR-33 with the attached page 3.

Replace the following pages of Appendix A, Technical Specifications, with the attached revised pages. The revised pages are identified by amendment number and contains a marginal line indicating the area of change.

Remove Pages	Insert Pages
3.4-7	3.4-7
3.4-8	3.4-8
5.0-24	5.0-24

(3) Pursuant to the Act and 10 CFR Parts 30, 40, and 70, to receive, possess, and use at any time any byproduct, source, and special nuclear material as sealed neutron sources for reactor startup, sealed sources for reactor instrumentation and radiation monitoring equipment calibration, and as fission detectors in amounts as required;

(4) Pursuant to the Act and 10 CFR Parts 30, 40, and 70, to receive, possess, and use in amounts as required any byproduct, source, or special nuclear material without restriction to chemical or physical form for sample analysis or equipment and instrument calibration or associated with radioactive apparatus or components;

(5) Pursuant to the Act and 10 CFR Parts 30 and 70, to possess but not separate, such byproduct and special nuclear materials as may be produced by the operation of the facility.

C. This renewed operating license shall be deemed to contain and is subject to the conditions specified in the following Commission regulations in 10 CFR Chapter I: Part 20, Section 30.34 of Part 30, Section 40.41 of Part 40, Sections 50.54 and 50.59 of Part 50, and Section 70.32 of Part 70; is subject to all applicable provisions of the Act and to the rules, regulations, and orders of the Commission now or hereafter in effect; and is subject to the additional conditions specified or incorporated below:

(1) Maximum Power Level

The licensee is authorized to operate the facility at steady state reactor core power levels not in excess of 3952 megawatts thermal.

(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 335, are hereby incorporated in the renewed operating license. The licensee shall operate the facility in accordance with the Technical Specifications.

For Surveillance Requirements (SRs) that are new in Amendment 234 to Facility Operating License DPR-33, the first performance is due at the end of the first surveillance interval that begins at implementation of the Amendment 234. For SRs that existed prior to Amendment 234, including SRs with modified acceptance criteria and SRs whose frequency of performance is being extended, the first performance is due at the end of the first surveillance interval that begins on the date the surveillance was last performed prior to implementation of Amendment 234.

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.3 Overpressure Protection System (OPS)

LCO 3.4.3 The OPS shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. OPS inoperable.	A.1 Be in MODE 3. AND A.2 Be in MODE 4.	12 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.3.1	Verify the as-left OPS lift pressures of the required safety/relief valves (S/RVs) are within ± 1% of the nominal setpoint: Number of OPS S/RVs: 4 / 4 / 5 Nominal Setpoint (psig): 1135 / 1145 / 1155	In accordance with the INSERVICE TESTING PROGRAM
SR 3.4.3.2	Verify the as-found OPS lift pressures of the required S/RVs are within the limits specified in the COLR.	In accordance with the INSERVICE TESTING PROGRAM

5.6 Reporting Requirements (continued)

5.6.4 (Deleted).

5.6.5 CORE OPERATING LIMITS REPORT (COLR)

a. Core operating limits shall be established prior to each reload cycle, or prior to any remaining portion of a reload cycle, and shall be documented in the COLR for the following:

(1) The APLHGRs for Specification 3.2.1;

(2) The LHGR for Specification 3.2.3;

(3) The MINIMUM CRITICAL POWER RATIO (MCPR) and $MCPR_{99.9\%}$ for Specification 3.2.2;

(4) The Manual Backup Stability Protection (BSP) Scram Region (Region I), the Manual BSP Controlled Entry Region (Region II), the modified APRM Flow Biased Simulated Thermal Power-High Scram setpoints used in the Automated BSP Scram Region, and the BSP Boundary for Specification 3.3.1.1; and

(5) The RBM setpoints and applicable reactor thermal power ranges for each of the setpoints for Specification 3.3.2.1, Table 3.3.2.1-1.

(6) The as-found Overpressure Protection System lift pressures for Specification 3.4.3.

b. The analytical methods used to determine the core operating limits shall be those previously reviewed and approved by the NRC, specifically those described in the following documents:

1. (Deleted).

2. XN-NF-81-58(P)(A) Revision 2 and Supplements 1 and 2, RODEX2 Fuel Rod Thermal-Mechanical Response Evaluation Model, Exxon Nuclear Company, March 1984.

(continued)

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

TENNESSEE VALLEY AUTHORITY

DOCKET NO. 50-260

BROWNS FERRY NUCLEAR PLANT, UNIT 2

AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 358
Renewed License No. DPR-52

1. The U.S. Nuclear Regulatory Commission (the Commission) has found that:

   A. The application for amendment by Tennessee Valley Authority (the licensee) dated December 9, 2024, as supplemented by letter dated March 10, 2025, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in Title 10 of the *Code of Federal Regulations* (10 CFR) Chapter I;

   B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;

   C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;

   D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and

   E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment and paragraph 2.C.(2) of Renewed Facility Operating License No. DPR-52 is hereby amended, in part, to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 358, are hereby incorporated in the renewed operating license. The licensee shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of its date of issuance and shall be implemented within 90 days from the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

DAVID WRONA

Digitally signed by DAVID WRONA
Date: 2025.05.27 08:57:21 -04'00'

David Wrona, Chief
Plant Licensing Branch II-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Attachment:
Changes to Renewed Facility Operating License No. DPR-52 and the Technical Specifications

Date of Issuance: May 27, 2025

ATTACHMENT TO LICENSE AMENDMENT NO. 358

RENEWED FACILITY OPERATING LICENSE NO. DPR-52

BROWNS FERRY NUCLEAR PLANT, UNIT 2

DOCKET NO. 50-260

Replace page 3 of Renewed Facility Operating License No. DPR-52 with the attached page 3.

Replace the following pages of Appendix A, Technical Specifications, with the attached revised pages. The revised pages are identified by amendment number and contain a marginal line indicating the area of change.

Remove Pages	Insert Pages
3.4-7	3.4-7
3.4-8	3.4-8
5.0-24	5.0-24

sealed neutron sources for reactor startup, sealed sources for reactor instrumentation and radiation monitoring equipment calibration, and as fission detectors in amounts as required;

(4) Pursuant to the Act and 10 CFR Parts 30, 40, and 70, to receive, possess, and use in amounts as required any byproduct, source, or special nuclear material without restriction to chemical or physical form for sample analysis or equipment and instrument calibration or associated with radioactive apparatus or components;

(5) Pursuant to the Act and 10 CFR Parts 30 and 70, to possess but not separate, such byproduct and special nuclear materials as may be produced by the operation of the facility.

C. This renewed operating license shall be deemed to contain and is subject to the conditions specified in the following Commission regulations in 10 CFR Chapter I: Part 20, Section 30.34 of Part 30, Section 40.41 of Part 40, Sections 50.54 and 50.59 of Part 50, and Section 70.32 of Part 70; is subject to all applicable provisions of the Act and to the rules, regulations, and orders of the Commission now or hereafter in effect; and is subject to the additional conditions specified or incorporated below:

(1) Maximum Power Level

The licensee is authorized to operate the facility at steady state reactor core power levels not in excess of 3952 megawatts thermal.

(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 358, are hereby incorporated in the renewed operating license. The licensee shall operate the facility in accordance with the Technical Specifications.

For Surveillance Requirements (SRs) that are new in Amendment 253 to Facility Operating License DPR-52, the first performance is due at the end of the first surveillance interval that begins at implementation of the Amendment 253. For SRs that existed prior to Amendment 253, including SRs with modified acceptance criteria and SRs whose frequency of performance is being extended, the first performance is due at the end of the first surveillance interval that begins on the date the surveillance was last performed prior to implementation of Amendment 253.

(3) The licensee is authorized to relocate certain requirements included in Appendix A and the former Appendix B to licensee-controlled documents. Implementation of this amendment shall include the relocation of these requirements to the appropriate documents, as described in the licensee's

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.3 Overpressure Protection System (OPS)

LCO 3.4.3 The OPS shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. OPS inoperable.	A.1 Be in MODE 3. AND A.2 Be in MODE 4.	12 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.3.1	Verify the as-left OPS lift pressures of the required safety/relief valves (S/RVs) are within ± 1% of the nominal setpoint: Number of OPS S/RVs: 4 / 4 / 5 Nominal Setpoint (psig): 1135 / 1145 / 1155	In accordance with the INSERVICE TESTING PROGRAM
SR 3.4.3.2	Verify the as-found OPS lift pressures of the required S/RVs are within the limits specified in the COLR.	In accordance with the INSERVICE TESTING PROGRAM

5.6 Reporting Requirements (continued)

5.6.4 (Deleted).

5.6.5 CORE OPERATING LIMITS REPORT (COLR)

a. Core operating limits shall be established prior to each reload cycle, or prior to any remaining portion of a reload cycle, and shall be documented in the COLR for the following:

(1) The APLHGRs for Specification 3.2.1;

(2) The LHGR for Specification 3.2.3;

(3) The MINIMUM CRITICAL POWER RATIO (MCPR) and $MCPR_{99.9\%}$ for Specification 3.2.2;

(4) The Manual Backup Stability Protection (BSP) Scram Region (Region I), the Manual BSP Controlled Entry Region (Region II), the modified APRM Flow Biased Simulated Thermal Power-High Scram setpoints used in the Automated BSP Scram Region, and the BSP Boundary for Specification 3.3.1.1; and

(5) The RBM setpoints and applicable reactor thermal power ranges for each of the setpoints for Specification 3.3.2.1, Table 3.3.2.1-1.

(6) The as-found Overpressure Protection System lift pressures for Specification 3.4.3.

b. The analytical methods used to determine the core operating limits shall be those previously reviewed and approved by the NRC, specifically those described in the following documents:

1. XN-NF-81-58(P)(A) Revision 2 and Supplements 1 and 2, RODEX2 Fuel Rod Thermal-Mechanical Response Evaluation Model, Exxon Nuclear Company, March 1984.

2. XN-NF-85-67(P)(A) Revision 1, Generic Mechanical Design for Exxon Nuclear Jet Pump BWR Reload Fuel, Exxon Nuclear Company, September 1986.

3. EMF-85-74(P) Revision 0 Supplement 1(P)(A) and Supplement 2 (P)(A), RODEX2A (BWR) Fuel Rod Thermal-Mechanical Evaluation Model, Siemens Power Corporation, February 1998.

(continued)

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

TENNESSEE VALLEY AUTHORITY

DOCKET NO. 50-296

BROWNS FERRY NUCLEAR PLANT, UNIT 3

AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 318
Renewed License No. DPR-68

1. The U.S. Nuclear Regulatory Commission (the Commission) has found that:

   A. The application for amendment by Tennessee Valley Authority (the licensee) dated December 9, 2024, as supplemented by letter dated March 10, 2025, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in Title 10 of the *Code of Federal Regulations* (10 CFR) Chapter I;

   B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;

   C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;

   D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and

   E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment and paragraph 2.C.(2) of Renewed Facility Operating License No. DPR-68 is hereby amended, in part, to read as follows:

   (2) Technical Specifications

   The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 318, are hereby incorporated in the renewed operating license. The licensee shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of its date of issuance and shall be implemented within 90 days from the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

DAVID WRONA

Digitally signed by DAVID WRONA
Date: 2025.05.27 08:57:58 -04'00'

David Wrona, Chief
Plant Licensing Branch II-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Attachment:
Changes to Renewed Facility Operating License No. DPR-68 and the Technical Specifications

Date of Issuance: May 27, 2025

ATTACHMENT TO LICENSE AMENDMENT NO. 318

RENEWED FACILITY OPERATING LICENSE NO. DPR-68

BROWNS FERRY NUCLEAR PLANT, UNIT 3

DOCKET NO. 50-296

Replace page 3 of Renewed Facility Operating License No. DPR-68 with the attached page 3.

Replace the following pages of Appendix A, Technical Specifications, with the attached revised pages. The revised pages are identified by amendment number and contain a marginal line indicating the area of change.

Remove Pages	Insert Pages
3.4-7	3.4-7
3.4-8	3.4-8
5.0-24	5.0-24

(3) Pursuant to the Act and 10 CFR Parts 30, 40, and 70, to receive, possess, and use at any time any byproduct, source, and special nuclear material as sealed neutron sources for reactor startup, sealed sources for reactor instrumentation and radiation monitoring equipment calibration, and as fission detectors in amounts as required;

(4) Pursuant to the Act and 10 CFR Parts 30, 40, and 70, to receive, possess, and use in amounts as required any byproduct, source, or special nuclear material without restriction to chemical or physical form for sample analysis or equipment and instrument calibration or associated with radioactive apparatus or components;

(5) Pursuant to the Act and 10 CFR Parts 30 and 70, to possess but not separate, such byproduct and special nuclear materials as may be produced by the operation of the facility.

C. This renewed operating license shall be deemed to contain and is subject to the conditions specified in the following Commission regulations in 10 CFR Chapter I: Part 20, Section 30.34 of Part 30, Section 40.41 of Part 40, Sections 50.54 and 50.59 of Part 50, and Section 70.32 of Part 70; is subject to all applicable provisions of the Act and to the rules, regulations, and orders of the Commission now or hereafter in effect; and is subject to the additional conditions specified or incorporated below:

(1) Maximum Power Level

The licensee is authorized to operate the facility at steady state reactor core power levels not in excess of 3952 megawatts thermal.

(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 318, are hereby incorporated in the renewed operating license. The licensee shall operate the facility in accordance with the Technical Specifications.

For Surveillance Requirements (SRs) that are new in Amendment 212 to Facility Operating License DPR-68, the first performance is due at the end of the first surveillance interval that begins at implementation of the Amendment 212. For SRs that existed prior to Amendment 212, including SRs with modified acceptance criteria and SRs whose frequency of performance is being extended, the first performance is due at the end of the first surveillance interval that begins on the date the surveillance was last performed prior to implementation of Amendment 212.

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.3 Overpressure Protection System (OPS)

LCO 3.4.3 The OPS shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. OPS inoperable.	A.1 Be in MODE 3. AND A.2 Be in MODE 4.	12 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.3.1	Verify the as-left OPS lift pressures of the required safety/relief valves (S/RVs) are within ± 1% of the nominal setpoint: Number of OPS S/RVs: 4 / 4 / 5 Nominal Setpoint (psig): 1135 / 1145 / 1155	In accordance with the INSERVICE TESTING PROGRAM
SR 3.4.3.2	Verify the as-found OPS lift pressures of the required S/RVs are within the limits specified in the COLR.	In accordance with the INSERVICE TESTING PROGRAM

5.6 Reporting Requirements (continued)

5.6.4 (Deleted).

5.6.5 CORE OPERATING LIMITS REPORT (COLR)

a. Core operating limits shall be established prior to each reload cycle, or prior to any remaining portion of a reload cycle, and shall be documented in the COLR for the following:

(1) The APLHGRs for Specification 3.2.1;

(2) The LHGR for Specification 3.2.3;

(3) The MINIMUM CRITICAL POWER RATIO (MCPR) and $MCPR_{99.9\%}$ for Specification 3.2.2;

(4) The Manual Backup Stability Protection (BSP) Scram Region (Region I), the Manual BSP Controlled Entry Region (Region II), the modified APRM Flow Biased Simulated Thermal Power-High Scram setpoints used in the Automated BSP Scram Region, and the BSP Boundary for Specification 3.3.1.1; and

(5) The RBM setpoints and applicable reactor thermal power ranges for each of the setpoints for Specification 3.3.2.1, Table 3.3.2.1-1.

(6) The as-found Overpressure Protection System lift pressures for Specification 3.4.3.

b. The analytical methods used to determine the core operating limits shall be those previously reviewed and approved by the NRC, specifically those described in the following documents:

1. XN-NF-81-58(P)(A) Revision 2 and Supplements 1 and 2, RODEX2 Fuel Rod Thermal-Mechanical Response Evaluation Model, Exxon Nuclear Company, March 1984.

2. XN-NF-85-67(P)(A) Revision 1, Generic Mechanical Design for Exxon Nuclear Jet Pump BWR Reload Fuel, Exxon Nuclear Company, September 1986.

3. EMF-85-74(P) Revision 0 Supplement 1(P)(A) and Supplement 2 (P)(A), RODEX2A (BWR) Fuel Rod Thermal-Mechanical Evaluation Model, Siemens Power Corporation, February 1998.

(continued)

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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

AMENDMENT NO. 335 TO RENEWED FACILITY OPERATING LICENSE DPR-33

AMENDMENT NO. 358 TO RENEWED FACILITY OPERATING LICENSE DPR-52

AMENDMENT NO. 318 TO RENEWED FACILITY OPERATING LICENSE DPR-68

BROWNS FERRY NUCLEAR PLANT, UNITS 1, 2, AND 3

DOCKET NOS. 50-259, 50-260, AND 50-296

TENNESSEE VALLEY AUTHORITY

1.0 INTRODUCTION

By application dated December 9, 2024 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML24344A034), as supplemented by letter March 10, 2025 (ML25069A477), the Tennessee Valley Authority (TVA or the licensee) submitted a license amendment request (LAR) for Browns Ferry Nuclear Plant (Browns Ferry or BFN), Units 1, 2, and 3. In its application, the licensee requested that the U.S. Nuclear Regulatory Commission (NRC or the Commission) process the proposed amendments under the Consolidated Line Item Improvement Process.

The proposed changes would revise the Browns Ferry Technical Specifications (TSs) based on Technical Specifications Task Force (TSTF) Traveler TSTF-576, Revision 3, “Revise Safety/Relief Valve Requirements” (ML23256A266), and the associated NRC staff safety evaluation (SE) and supplement of Traveler TSTF-576 (ML24249A155).

The proposed changes would revise the TSs related to the safety/relief valves (S/RVs). The S/RV as-found requirements would change from individual S/RV limits to the S/RVs being treated in TS as a single system called the “Overpressure Protection System (OPS).” Instead of having the TS specify a minimum number of S/RVs capable of performing their safety function, the capability of performing the safety function would be assessed from the collective capability of the S/RVs. A single valve or even multiple valves lifting outside the limits currently defined in TS would not necessarily result in the OPS being inoperable. The as-left setting tolerances are not changing and continue to require each required valve to be set to within one percent of its nominal setpoint. The as-found upper limits would be moved to the Core Operating Limits Report (COLR) and placed under licensee control. The as-found lower limits are being removed from the TS.

The supplemental letter dated March 10, 2025, provided additional information that clarified the application, did not expand the scope of the application as originally noticed, and did not change

the NRC staff's proposed no significant hazards consideration determination as published in the *Federal Register* on February 18, 2025 (90 FR 9743).

2.0 REGULATORY EVALUATION

2.1 System Description

The S/RVs function is to protect the reactor coolant pressure boundary (RCPB) and its associated safety limit (SL) from overpressure. In addition, some S/RVs are also used to provide the automatic depressurization system (ADS) function. The ADS function is specified in Limiting Condition for Operation (LCO) 3.5.1, "ECCS [emergency core cooling system]-Operating." The associated ADS LCO is not affected by the proposed changes.

TS 2.1.2, "Reactor Coolant System Pressure SL," requires reactor steam dome pressure to remain less than or equal to 1325 pounds per square inch gauge (psig). The SL is consistent with the American Society of Mechanical Engineers (ASME) Boiler and Pressure Vessel Code (BPV Code), Section III, limit of 110 percent of design pressure. Per Section 50.54 of Title 10 of the *Code of Federal Regulations* (10 CFR), the applicable requirements of 10 CFR 50.55a are conditions in every nuclear power reactor operating license issued under 10 CFR Part 50, and as specified in 10 CFR 50.55a(b), systems and components of boiling and pressurized water-cooled nuclear power reactors must meet the requirements of the ASME BPV Code and the ASME Operation and Maintenance (OM) Code. The ASME BPV Code provides overpressure protection requirements for the RCPB components to ensure that they will not be damaged during possible transients.

BFN relies only on the safety mode of operation to protect the SL. In the safety mode (or spring mode of operation), the spring-loaded disk or pilot valve opens when steam pressure overcomes the spring force holding the valve or pilot valve closed.

2.2 Requested Changes

2.2.1 Proposed TS Changes to Adopt TSTF-576

In accordance with the NRC staff-approved TSTF-576, the licensee proposed changes that would revise TS 3.4.3. Specifically, the licensee proposed the following changes to adopt TSTF-576:

- TS 3.4.3 would be renamed from "Safety/Relief Valves (S/RVs)" to "Overpressure Protection System (OPS)."

- The LCO would be revised from requiring a specified number of S/RVs to be operable to "The OPS shall be OPERABLE."

- Condition A under Actions would be deleted. A new Condition A would state "OPS inoperable." The Required Action for entering proposed Condition A would be: "Be in MODE 3 in 12 hours AND Be in MODE 4 in 36 hours." The Action and Completion Time for the proposed Condition A are the same as those in the existing Condition A. Note that BFN TSs, prior to this proposed change, do not include three conditions (A, B, and

C) as do the corresponding Standard Technical Specifications (STS)[1]. The BFN TSs only contain condition A, which is similar to the STS Condition C.

- Surveillance Requirement (SR) 3.4.3.1 would be revised to delete the as-found relief limits resulting in the SR simply requiring that the as-left OPS lift pressures of the required S/RVs be within one percent of the valves' nominal setpoints. The frequency for this SR remains unchanged and is "In accordance with the INSERVICE TESTING PROGRAM." For the frequency of this SR, TSTF-576 deleted the options for calendar frequency or use of the Surveillance Frequency Control Program (SFCP). Since the BFN TS already require the frequency to be per the Inservice Testing Program, no change is required. The BFN TS do not contain a note that is contained in the STS but is proposed for deletion by TSTF-576. Therefore, the note does not need to be deleted for BFN.

- SR 3.4.3.2 would be revised to state, "Verify the as-found OPS lift pressures of the required S/RVs are within the limits specified in the COLR." In addition to moving the limits to the COLR, the traveler removes the lower as-found tolerance. The frequency for this SR remains unchanged and is "In accordance with the INSERVICE TESTING PROGRAM." For the frequency of this SR, TSTF-576 deleted the options for calendar frequency or use of the SFCP. Since the BFN TS already require the frequency to be per the Inservice Testing Program, no change is required. The existing SR 3.4.3.2 that required each S/RV be verified to be capable of opening when manually actuated would be deleted. The note that allows the SR to be performed up to 12 hours after reactor steam pressure and flow are adequate to perform the test would also be deleted.

2.2.2 Additional Proposed TS Changes

In addition to the changes proposed consistent with the traveler discussed above, the licensee proposed the variations below.

2.2.2.1 Variations Between the BFN TS Changes and the TSTF-576 Changes

- The BFN TS have a table of contents, but it is licensee controlled. TSTF-576 revises the STS table of contents.
- The BFN TS have only one condition, Condition A for TS 3.4.3. The STS has three conditions for TS 3.4.3. This is described the section 2.2.1 above.
- The BFN TS do not contain a note in SR 3.4.3.1, which is included in the STS. The note was deleted by TSTF-576. Since it is not included in the BFN TS, the note does not need to be deleted by the proposed change. This is also noted in section 2.2.1 above.
- The BFN TS, SR 3.4.3.2, contains an option to verify that each S/RV is capable of being opened in accordance with the Inservice Test Program. This option is not included in the STS, which is the basis for TSTF-576. TSTF-576 deletes the SR entirely and replaces it as described in section 2.2.1 above. The licensee stated that the deletion of the additional option in the BFN TS is encompassed within the justifications for TSTF-576.

[1] U.S. Nuclear Regulatory Commission, "Standard Technical Specifications, General Electric BWR/4 Plants," NUREG-1433, Volume 1, "Specifications," Revision 5, and Volume 2, "Bases," Revision 5, September 2021 (ML21272A357 and ML21272A358, respectively)

2.2.2.2 Variations Between the BFN TS Bases Changes and the TSTF-576 Bases Changes

- TSTF-576 changes the Bases for TS 3.3.6.3, "Low-Low Set (LLS) Instrumentation." The licensee stated that BFN does not have an equivalent TS so the TSTF-576 change to the Bases for TS 3.3.6.3 cannot be implemented at BFN. In addition, the bracketed information in the Bases for BFN TS 3.4.3 regarding the LLS is not included in the proposed markup.
- The licensee stated that the relief mode is not credited for overpressure protection at BFN. Therefore, the bracketed language regarding relief mode is not applicable to BFN and not included in the Bases markup.
- The licensee stated that S/RVs acting in the relief mode at BFN require 50 psig to overcome the valve spring force. The TSTF-576 markup assumes that 0 psig is required. The BFN markup accounts for this difference.
- The licensee stated that the TSTF-576 markup erroneously includes a reference to the ASME OM Code in the TS 3.4.3 Bases (i.e., Reference. 2) for the ASME Boiler and Pressure Vessel Code (BPVC). For the BFN TS 3.4.3 Bases, Reference 2 would be changed to the ASME BPVC, Section III because that contains the appropriate requirements for BFN.
- The licensee stated in the applicable safety analyses section of the Bases that the bracketed number of S/RVs required by the analysis is "12" for BFN. The bracketed number in the STS and TSTF-576 markup is "11." The BFN markup reflects 12 S/RVs since this is the correct number for the plant.
- The licensee stated that the Bases LCO section contains bracketed information on the relief mode operation of the S/RVs. The licensee included the bracketed information on the relief mode because the BFN S/RVs are capable of operating in that mode. The bracketed information was removed from the TS Bases markup as discussed below in section 3.2.2.
- The licensee stated that the Bases revisions regarding the Actions are different than the TSTF-576 markup but are encompassed by the justifications in TSTF-576. This issue is discussed above in SE sections 2.2.1 and 2.2.2.1. The Bases markup reflects the BFN plant condition.
- The licensee stated that the TSTF Bases markups include proposed changes to TS 3.4.11, "Reactor Steam Dome Pressure," but that the BFN number for this TS is 3.4.10. The licensee stated that this is an administrative and non-technical variation from TSTF-576.

2.3 Applicable Regulatory Requirements and Guidance

The regulation at 10 CFR 50.36(b) requires, in part, 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.

Per 10 CFR 50.36(c) TS will include items in, among other things, the categories of SLs, LCOs, SRs, and administrative controls. Details about these categories are discussed below.
The regulation at 10 CFR 50.36(c)(1)(i)(A) addresses SLs, which states, in part:

> Safety limits for nuclear reactors are limits upon important process variables that are found to be necessary to reasonably protect the integrity of certain physical barriers that guard against the uncontrolled release of radioactivity. If any safety limit is exceeded, the reactor must be shut down.

The regulation at 10 CFR 50.36(c)(2)(i) address LCOs, which states, in part:

> Limiting conditions for operation are the lowest functional capability or performance levels of equipment required for safe operation of the facility. When a limiting condition for operation of a nuclear reactor is not met, the licensee shall shut down the reactor or follow any remedial action permitted by the technical specifications until the condition can be met.

The remedial actions permitted by the TS must provide the requisite reasonable assurance required by 10 CFR 50.40(a) and 50.57(a)(3). In its Final Policy Statement at 58 FR 39138, the Commission stated that the Bases for each LCO should explain why the LCO was determined to be the lowest functional capability or performance level for the system or component in question necessary for safe operation of the facility and what the reasons for the Applicability of the LCO are.

The regulations in 10 CFR 50.36(c)(2)(ii)(A)-(D) list the criteria for determining when an LCO of a nuclear reactor must be established. In its Final Policy Statement at 58 FR 39138, the Commission stated that the Bases should provide the justification for the technical specification, i.e., which Policy Statement criterion requires it to be in the TSs.

Criterion 3 from 10 CFR 50.36(c)(2)(ii)(C) requires the establishment of an LCO for a “structure, system, or component that is part of the primary success path and which functions or actuates to mitigate a design basis accident or transient that either assumes the failure of or presents a challenge to the integrity of a fission product barrier.”

Surveillance Requirements are addressed by 10 CFR 50.36(c)(3), and are requirements relating to test, calibration, or inspection to assure that the necessary quality of systems and components is maintained, that facility operation will be within SLs, and that the LCO will be met. In its Final Policy Statement at 58 FR 39138, the Commission stated that the Bases should explain the Bases for each SR and Surveillance Frequency; i.e., the specific functional requirement is the surveillance designed to verify, and the reason the surveillance necessary at the specified frequency to assure that the system or component function is maintained, that facility operation will be within the SLs, and that the LCO will be met.

Administrative controls are addressed by 10 CFR 50.36(c)(5) and “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.”

The COLR is the unit-specific document that provides cycle-specific parameter limits for the current reload cycle. These cycle-specific limits shall be determined for each reload cycle in accordance with TS 5.6.5, “CORE OPERATING LIMITS REPORT (COLR).” Plant operation within these limits is addressed in individual TSs. TS 5.6.5.a requires that core operating limits shall be established prior to each reload cycle, or prior to any remaining portion of a reload cycle, and shall be documented in the COLR for individual specifications that address core

operating limits listed TS 5.6.5.a. The analytical methods used to determine the core operating limits are specified in TS 5.6.5.b.

The regulations in 10 CFR 50.55a(c)(1) specify that components which are part of the RCPB must meet the requirements for Class 1 components in Section III of the ASME BPV Code, except as provided in 10 CFR 50.55a(c)(2), (3), and (4). 10 CFR 50.55a(f)(4) further requires, in part, that throughout the service life of boiling-water reactor (BWR) facilities, valves that are within the scope of the ASME OM Code must meet the inservice test requirements (except design and access provisions) set forth in the ASME OM Code to the extent practical, within the limitations of design, geometry, and materials of construction of the components.

The NRC staff's guidance for the review of TSs is in NUREG-0800, "Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants: LWR [Light-Water Reactor] Edition" (SRP), chapter 16.0, "Technical Specifications," Revision 3, dated March 2010 (ML100351425). The NRC staff's review includes consideration of whether the proposed changes are consistent with the STS for BWR/4 plants.

3.0 TECHNICAL EVALUATION

3.1 Proposed TS Changes to Adopt TSTF-576

The regulatory framework the NRC staff used to determine the acceptability of the licensee's proposed changes consisted of the requirements and guidance listed in section 2.3 of this SE. The NRC staff compared the licensee's proposed TS changes summarized in section 2.2.1 of this SE against the changes approved in TSTF-576. In accordance with SRP chapter 16.0, the NRC staff determined that the STS changes approved in TSTF-576 are applicable to BFN TSs because the BFN units are BWR/4, and the NRC staff approved the TSTF-576 changes for BWR designs.

The NRC Staff SE for TSTF-576 reviewed proposed changes to the specifications related to the S/RVs. The SE found that the proposed changes were acceptable for the associated BWR STS. The S/RV requirements would change from being based on individual S/RVs performance to S/RVs being treated in STS as a single system called the "Overpressure Protection System (OPS)." The STSs related to the S/RVs would be rewritten to focus on the performance of the system instead of focusing on the performance of individual valves. The NRC staff finds that the licensee's proposed changes to BFN TS in section 2.2.1 of this SE are consistent with those found acceptable in TSTF-576.

In the NRC SE of TSTF-576, the NRC staff concluded that the proposed changes were acceptable because the SL for RCS pressure would not be exceeded and operation within the proposed TS would continue to provide protection to the health and safety of the public. The NRC staff also concluded that there was reasonable assurance that proposed changes would continue to ensure that, when TS LCO 3.4.3 was not met, the licensee would shut down the reactor or follow any remedial action permitted by the TS until the condition could be met. For example, the proposed remedial actions continue to ensure that appropriate actions will be taken in conditions that result in a loss of the ability of the OPS to protect the RCS pressure boundary or ensure that SL 2.1.2 is not exceeded. Additionally, the SRs for the OPS provide assurance that the system is operable during the appropriate conditions of applicability. The licensee stated that it reviewed Traveler TSTF-576, Revision 3, and the associated NRC staff SE and confirmed that the information in these documents is applicable to BFN.

3.2 Additional Proposed Changes

In addition to the changes proposed consistent with the traveler discussed in section 2.2.1, the licensee proposed the variations below.

3.2.1 Variations Between the BFN TS Changes and the TSTF-576 Changes

- The BFN TS table of contents is licensee controlled. TSTF-576 revises the STS table of contents. The licensee will update the BFN table of contents outside this LAR. The NRC staff finds that this is an acceptable variation because it is administrative and has no technical or regulatory impact on the proposal or NRC conclusions on TSTF-576.
- The BFN TS have only one condition, Condition A for TS 3.4.3. The STS has three conditions for TS 3.4.3. The BFN LAR eliminates the single Condition instead of the three STS Conditions deleted by TSTF-576. The NRC staff finds that this is acceptable because the single BFN Condition has the same effect as the STS Conditions. In addition, the proposal adopts the TSTF-576 condition as evaluated by the NRC in its SE. The regulation at 10 CFR 50.36 requires a licensee to shut down the plant or to follow any remedial actions allowed by TS if an LCO is not met. Since the proposed condition requires shutting down of the plant if the LCO is not met, the replacement of the existing Condition with the proposed Condition is acceptable.
- The BFN TS do not contain a note in SR 3.4.3.1 which is included in the STS. The note is deleted by TSTF-576. Because the note is not included in the BFN TS, the note does not need to be deleted by the proposed change.
- The BFN TS, SR 3.4.3.2, contain an option to verify that each S/RV is capable of being opened in accordance with the INSERVICE TEST PROGRAM. This option is not included in the STS which is the basis for TSTF-576. TSTF-576 deletes the SR entirely and replaces it as described in section 2.2.1 of this SE. The NRC staff finds that the deletion of the option from the BFN TS is acceptable because the proposed SR 3.4.3.2 is equivalent to the SR in the approved TSTF-576.
- The NRC staff identified that the proposed SR 3.4.3.2 was slightly different from the proposed change in TSTF-576 SR. In the letter dated March 10, 2025, the licensee provided markups that corrected the slight variation. The NRC staff reviewed the corrected change and finds it to be acceptable.

3.2.2 Variations Between the BFN TS Bases Changes and the TSTF-576 Bases Changes

- The NRC staff reviewed the licensee's proposed bases changes and found that the proposed changes and variation from the traveler adequately described the proposed change with revisions required to reflect the plant specific licensing basis with a single exception. To correct the issue, in the letter dated March 10, 2025, the licensee provided a revised markup to the TS Bases that does not include credit for the relief mode for RCS overpressure protection. The NRC reviewed the revised markup and determined that it correctly reflects the plant's licensing basis.

3.3 Changes to TS 5.6.5.a, "Core Operating Limits Report (COLR)"

The LAR provided an example COLR page that contained information that the NRC staff found to be inconsistent with the traveler and the plant's licensing basis. In the supplemental letter dated March 10, 2025, the licensee provided a revised COLR example page that is consistent

with the traveler, the plant's licensing basis, and provides clarity for the OPS S/RV as-found setting requirements.

Section 3.1 of the Enclosure to the LAR states "[t]he COLR specification is revised to reference the OPS specification," however, there were no proposed changes to TS 5.6.5.a to add the reference to TS 3.4.3, "Overpressure Protection System (OPS)." The NRC reviewed the updated TS markup in the March 10, 2025, supplement, and found it to meet the requirements of TS 5.6.5.a, and TSTF-576, as approved by the NRC staff.

3.4 TS Change Consistency

The NRC staff reviewed the proposed TS changes for technical clarity and consistency with the existing requirements for customary terminology and formatting. The NRC staff finds that the proposed changes are consistent with chapter 16.0 of the SRP and are therefore acceptable.

3.5 Technical Conclusion

The NRC staff finds that the proposed changes to TS 3.4.3 are acceptable because they continued to meet the requirements of 10 CFR 50.36(c)(2)(i) and 10 CFR 50.36(c)(3) as discussed in section 3.0 of the NRC staff's SE of TSTF-576. For these same reasons, the NRC staff concludes that the corresponding proposed changes to the BFN TS in section 2.2 of this SE continue to meet the requirements of 10 CFR 50.36(c)(2)(i) and 10 CFR 50.36(c)(3).

4.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Alabama State official was notified of the proposed issuance of the amendments on March 21, 2025. The State official had no comments.

5.0 ENVIRONMENTAL CONSIDERATION

The amendments change a requirement with respect to installation or use of a facility component located within the restricted area, as defined in 10 CFR Part 20. The NRC staff has determined that the amendments involve no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission previously issued a proposed finding that the amendment involves no significant hazards consideration published in the *Federal Register* on February 18, 2025 (90 FR 9743), and there has been no public comment on such finding. Accordingly, the amendments meet the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendments.

6.0 CONCLUSION

The Commission has concluded, based on the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) there is reasonable assurance that such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the

amendments will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributors: R. Beaton, NRR
S. Smith, NRR

Date of Issuance: May 27, 2025

SUBJECT: BROWNS FERRY NUCLEAR PLANT, UNITS 1, 2, AND 3 – ISSUANCE OF AMENDMENT NOS. 335, 358, AND 318 REGARDING ADOPTION OF TSTF-576, REVISION 3 TO REVISE SAFETY/RELIEF VALVE REQUIREMENTS (EPID L-2024-LLA-0163) DATED MAY 27, 2025

DISTRIBUTION:

PUBLIC
RidsNrrDorlLpl2-2 Resource
RidsNrrPMBrownsFerry Resource
RidsACRS_MailCTR
RidsRgn2MailCenter
RidsNrrDssSnsb Resource
RidsNrrDssStsb Resource
RBeaton, NRR
SSmith, NRR
CAdams, NRR

ADAMS Accession No.: ML25093A254 **NRR-058**

OFFICE	NRR/DORL/LPLII-2/PM	NRR/DORL/LPLII-2/LAiT	NRR/DSS/SNSB/BC	NRR/DSS/STSB/BC
NAME	KGreen	CAdams (SL)	DMurdock	SMehta w/edits
DATE	4/2/2025	4/4/2025	4/7/2025	4/10/2025
OFFICE	OGC – NLO w/edits	NRR/DORL/LPLII-2/BC	NRR/DORL/LPLII-2/PM	
NAME	MChwedczuk	DWrona	KGreen	
DATE	4/29/2025	5/27/2025	5/27/2025	

OFFICIAL RECORD COPY