



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

January 3, 2024

Mr. James Barstow  
Vice President, Nuclear Regulatory  
Affairs and Support Services  
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. 333, 356, AND 316 REGARDING THE TECHNICAL SPECIFICATION SURVEILLANCE REQUIREMENTS 3.4.3.2 AND 3.5.1.11 REGARDING SAFETY RELIEF VALVES (EPID L-2023-LLA-0045)

Dear Mr. Barstow:

The U.S. Nuclear Regulatory Commission (the Commission) has issued the enclosed Amendment Nos. 333, 356, and 316 to Renewed Facility Operating Licenses Nos. DPR-33, DPR-52, and DPR-68 for the Browns Ferry Nuclear Plant, Units 1, 2, and 3, respectively. These amendments are in response to your application dated March 30, 2023 (Agencywide Documents Access and Management System (ADAMS) ML23089A167).

The amendments revise Browns Ferry Nuclear Plant, Units 1, 2, and 3 Technical Specification Surveillance Requirements 3.4.3.2 and 3.5.1.11 by supplementing the current requirement to verify that the safety relief valves and automatic depressurization valves, respectively, open when manually actuated with an alternate requirement that demonstrates the valves are capable of being opened in accordance with the inservice testing program (IST). The amendments also revise the surveillance frequency to be in accordance with the IST program.

J. Barstow

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

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

Enclosures:

1. Amendment No. 333 to DPR-33
2. Amendment No. 356 to DPR-52
3. Amendment No. 316 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. 333  
Renewed License No. DPR-33

1. The U.S. Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment by the Tennessee Valley Authority (the licensee) dated March 30, 2023, 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 to read as follows:

- (2) Technical Specifications

- The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 333, 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 prior to the completion of the Unit 3 Cycle 21 refueling outage in spring 2024.

FOR THE NUCLEAR REGULATORY COMMISSION

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

Attachment:  
Changes to the Technical Specifications  
and Renewed Facility Operating  
License

Date of Issuance: January 3, 2024

ATTACHMENT TO LICENSE AMENDMENT NO. 333  
RENEWED FACILITY OPERATING LICENSE NO. DPR-33  
BROWNS FERRY NUCLEAR PLANT, UNIT 1  
DOCKET NO. 50-259

Replace the following pages of the Renewed Facility Operating License and Appendix A, Technical Specifications (TSs), with the attached revised pages. The revised pages are identified by amendment number and contain marginal lines indicating the areas of change.

Remove

License DPR-33

Page 3

TSs

3.4-8  
3.5-7

Insert

License DPR-33

Page 3

TSs

3.4-8  
3.5-7

- (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. 333, 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.

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY								
SR 3.4.3.1	<p>Verify the safety function lift settings of the required 12 S/RVs are within <math>\pm 3\%</math> of the setpoint as follows:</p> <table border="0" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th style="text-align: center;"><u>Number of S/RVs</u></th> <th style="text-align: center;"><u>Setpoint (psig)</u></th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">4</td> <td style="text-align: center;">1135</td> </tr> <tr> <td style="text-align: center;">4</td> <td style="text-align: center;">1145</td> </tr> <tr> <td style="text-align: center;">5</td> <td style="text-align: center;">1155</td> </tr> </tbody> </table> <p>Following testing, lift settings shall be within <math>\pm 1\%</math>.</p>	<u>Number of S/RVs</u>	<u>Setpoint (psig)</u>	4	1135	4	1145	5	1155	In accordance with the INSERVICE TESTING PROGRAM
<u>Number of S/RVs</u>	<u>Setpoint (psig)</u>									
4	1135									
4	1145									
5	1155									
SR 3.4.3.2	<p>-----NOTE----- Not required to be performed until 12 hours after reactor steam pressure and flow are adequate to perform the test. -----</p> <p>Verify each required S/RV is capable of being opened in accordance with the INSERVICE TESTING PROGRAM.</p> <p><u>OR</u></p> <p>Verify each required S/RV opens when manually actuated.</p>	In accordance with the INSERVICE TESTING PROGRAM								

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<p>SR 3.5.1.10</p> <p>-----NOTE----- Valve actuation may be excluded. -----</p> <p>Verify the ADS actuates on an actual or simulated automatic initiation signal.</p>	<p>In accordance with the Surveillance Frequency Control Program</p>
<p>SR 3.5.1.11</p> <p>-----NOTE----- Not required to be performed until 12 hours after reactor steam pressure and flow are adequate to perform the test. -----</p> <p>Verify each ADS valve is capable of being opened in accordance with the INSERVICE TESTING PROGRAM.</p> <p><u>OR</u></p> <p>Verify each ADS valve opens when manually actuated.</p>	<p>In accordance with the INSERVICE TESTING PROGRAM</p>
<p>SR 3.5.1.12 (Deleted).</p>	





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. 356  
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 March 30, 2023, 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 to read as follows:

- (2) Technical Specifications

- The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 356, 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 prior to the completion of the Unit 3 Cycle 21 refueling outage in spring 2024.

FOR THE NUCLEAR REGULATORY COMMISSION

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

Attachment:  
Changes to the Technical Specifications  
and Renewed Facility Operating  
License

Date of Issuance: January 3, 2024

ATTACHMENT TO LICENSE AMENDMENT NO. 356  
RENEWED FACILITY OPERATING LICENSE NO. DPR-52  
BROWNS FERRY NUCLEAR PLANT, UNIT 2  
DOCKET NO. 50-260

Replace the following pages of the Renewed Facility Operating License and Appendix A, Technical Specifications (TSs), with the attached revised pages. The revised pages are identified by amendment number and contain marginal lines indicating the areas of change.

Remove

Insert

License DPR-52

License DPR-52

Page 3

Page 3

TSs

TSs

3.4-8

3.4-8

3.5-7

3.5-7

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. 356, 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

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY								
SR 3.4.3.1	<p>Verify the safety function lift settings of the required 12 S/RVs are within <math>\pm 3\%</math> of the setpoint as follows:</p> <table border="0" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th style="text-align: center;">Number of <u>S/RVs</u></th> <th style="text-align: center;">Setpoint <u>(psig)</u></th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">4</td> <td style="text-align: center;">1135</td> </tr> <tr> <td style="text-align: center;">4</td> <td style="text-align: center;">1145</td> </tr> <tr> <td style="text-align: center;">5</td> <td style="text-align: center;">1155</td> </tr> </tbody> </table> <p>Following testing, lift settings shall be within <math>\pm 1\%</math>.</p>	Number of <u>S/RVs</u>	Setpoint <u>(psig)</u>	4	1135	4	1145	5	1155	In accordance with the INSERVICE TESTING PROGRAM
Number of <u>S/RVs</u>	Setpoint <u>(psig)</u>									
4	1135									
4	1145									
5	1155									
SR 3.4.3.2	<p>-----NOTE----- Not required to be performed until 12 hours after reactor steam pressure and flow are adequate to perform the test. -----</p> <p>Verify each required S/RV is capable of being opened in accordance with the INSERVICE TESTING PROGRAM.</p> <p><u>OR</u></p> <p>Verify each required S/RV opens when manually actuated.</p>	In accordance with the INSERVICE TESTING PROGRAM								

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.5.1.10	<p>-----NOTE----- Valve actuation may be excluded. -----</p> <p>Verify the ADS actuates on an actual or simulated automatic initiation signal.</p>	In accordance with the Surveillance Frequency Control Program
SR 3.5.1.11	<p>-----NOTE----- Not required to be performed until 12 hours after reactor steam pressure and flow are adequate to perform the test. -----</p> <p>Verify each ADS valve is capable of being opened in accordance with the INSERVICE TESTING PROGRAM.</p> <p><u>OR</u></p> <p>Verify each ADS valve opens when manually actuated.</p>	In accordance with the INSERVICE TESTING PROGRAM
SR 3.5.1.12	(Deleted)	



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. 316  
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 March 30, 2023, 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 to read as follows:

- (2) Technical Specifications

- The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 316, 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 prior to the completion of the Unit 3 Cycle 21 refueling outage in spring 2024.

FOR THE NUCLEAR REGULATORY COMMISSION

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

Attachment:  
Changes to the Technical Specifications  
and Renewed Facility Operating License

Date of Issuance: January 3, 2024



ATTACHMENT TO LICENSE AMENDMENT NO. 316  
RENEWED FACILITY OPERATING LICENSE NO. DPR-68  
BROWNS FERRY NUCLEAR PLANT, UNIT 3  
DOCKET NO. 50-296

Replace the following pages of the Renewed Facility Operating License and Appendix A, Technical Specifications (TSs), with the attached revised pages. The revised pages are identified by amendment number and contain marginal lines indicating the areas of change.

Remove

Insert

License DPR-68

License DPR-68

Page 3

Page 3

TSs

TSs

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3.4-8

3.5-7

3.5-7

- (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. 316, 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.

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY								
SR 3.4.3.1	<p>Verify the safety function lift settings of the required 12 S/RVs are within <math>\pm 3\%</math> of the setpoint as follows:</p> <table border="0" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th style="text-align: center;">Number of <u>S/RVs</u></th> <th style="text-align: center;">Setpoint <u>(psig)</u></th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">4</td> <td style="text-align: center;">1135</td> </tr> <tr> <td style="text-align: center;">4</td> <td style="text-align: center;">1145</td> </tr> <tr> <td style="text-align: center;">5</td> <td style="text-align: center;">1155</td> </tr> </tbody> </table> <p>Following testing, lift settings shall be within <math>\pm 1\%</math>.</p>	Number of <u>S/RVs</u>	Setpoint <u>(psig)</u>	4	1135	4	1145	5	1155	In accordance with the INSERVICE TESTING PROGRAM
Number of <u>S/RVs</u>	Setpoint <u>(psig)</u>									
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SR 3.4.3.2	<p>-----NOTE----- Not required to be performed until 12 hours after reactor steam pressure and flow are adequate to perform the test. -----</p> <p>Verify each required S/RV is capable of being opened in accordance with the INSERVICE TESTING PROGRAM.</p> <p><u>OR</u></p> <p>Verify each required S/RV opens when manually actuated.</p>	In accordance with the INSERVICE TESTING PROGRAM								

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.5.1.10	<p>-----NOTE----- Valve actuation may be excluded. -----</p> <p>Verify the ADS actuates on an actual or simulated automatic initiation signal.</p>	In accordance with the Surveillance Frequency Control Program
SR 3.5.1.11	<p>-----NOTE----- Not required to be performed until 12 hours after reactor steam pressure and flow are adequate to perform the test. -----</p> <p>Verify each ADS valve is capable of being opened in accordance with the INSERVICE TESTING PROGRAM.</p> <p><u>OR</u></p> <p>Verify each ADS valve opens when manually actuated.</p>	In accordance with the INSERVICE TESTING PROGRAM
SR 3.5.1.12	(Deleted)	



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NOS. 333, 356, AND 316

TO RENEWED FACILITY OPERATING LICENSE NOS. DPR-33, DPR-52, AND DPR-68

TENNESSEE VALLEY AUTHORITY

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

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

1.0 INTRODUCTION

By letter dated March 30, 2023 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML23089A167), the Tennessee Valley Authority (TVA, the licensee) submitted a license amendment request (LAR) for Browns Ferry Nuclear Plant (Browns Ferry), Units 1, 2, and 3. The requested changes would revise Technical Specification (TS) Surveillance Requirements (SRs) 3.4.3.2 and 3.5.1.11 to supplement the current requirement to verify that the safety relief valves (SRVs) and automatic depressurization system (ADS) valves, respectively, open when manually actuated with an alternate requirement that verifies the valves are capable of being opened in accordance with the inservice testing (IST) program. The requested changes would also revise the surveillance frequency to be in accordance with the IST program.

2.0 REGULATORY EVALUATION

2.1 System Description

The nuclear pressure relief system for each Browns Ferry unit includes 13 SRVs located on the main steam lines within the drywell between the reactor vessel and the first isolation valve. The SRVs are Target Rock Model 7567F two-stage, pilot-operated SRVs. These SRVs can function in either of two modes: safety mode or remote actuation mode. In the safety mode, the spring-loaded pilot valve opens when steam pressure at the valve inlet overcomes the spring force holding the pilot valve closed. With the pilot valve open, a differential pressure develops across the main valve piston and opens the main valve. In the remote actuation mode, the solenoid valve is energized, and air is directed to open the pilot valve, which opens the main valve. The SRV can be remotely actuated by a manual hand switch or through the ADS logic. Six of the SRVs function as ADS valves to automatically depressurize the reactor vessel to allow core cooling injection by low pressure emergency cooling sources.

## 2.2 Licensee's Proposed Changes

The licensee's proposed changes would supplement the current TS SRs 3.4.3.2 and 3.5.1.11 to verify that the safety relief valves open when manually actuated with an alternate requirement that verifies that the SRVs are capable of being opened in accordance with the IST. The proposed changes would also revise the SR frequencies to be "In accordance with the INSERVICE TESTING PROGRAM."

## 2.3 Regulatory Review

The Nuclear Regulatory Commission (NRC, the Commission) staff reviewed the licensee's application to determine whether (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 the activities proposed 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 the health and safety of the public. The NRC staff considered the following regulatory requirements, guidance, and licensing and design-basis information during its review of the proposed changes.

Section 50.36, "Technical specifications," of Title 10 of the *Code of Federal Regulations* (10 CFR) establishes the regulatory requirements related to the content of TSs for each nuclear power plant. Paragraph 50.36(a)(1) of 10 CFR requires an application for an operating license to include proposed TSs. A summary statement of the bases or reasons for such specifications, other than those covering administrative controls, shall also be included in the application, but shall not become part of the TSs. Paragraph 50.36(b) requires the TSs to be included in the license.

Pursuant to 10 CFR 50.36, TSs for operating reactors are required, in part, to include items in the following five specific categories: (1) safety limits and limiting safety system settings; (2) limiting conditions for operation (LCOs); (3) SRs; (4) design features; and (5) administrative controls.

Paragraph 50.36(c)(2) of 10 CFR states that LCOs are the lowest functional capability or performance levels of equipment required for safe operation of the facility, and when an LCO is not met, the licensee shall shut down the reactor or follow any remedial action permitted by the TSs until the condition can be met.

Paragraph 50.36(c)(3) of 10 CFR states that SRs 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 safety limits, and that the LCOs will be met.

The NRC regulations at 10 CFR 50.55a(f), "Preservice and inservice testing requirements," require that pumps and valves in nuclear power plants meet the IST requirements of the American Society of Mechanical Engineers (ASME) *Operation and Maintenance of Nuclear Power Plants* (OM Code), Division 1 as incorporated by reference in 10 CFR 50.55a.

### 3.0 TECHNICAL EVALUATION

The NRC staff evaluated the LAR for Browns Ferry, Units 1, 2, and 3, to determine if the proposed changes to the TSs are consistent with the guidance, regulations, and plant-specific design and licensing basis information discussed in Section 2.3 of this safety evaluation.

On August 31, 2023, Browns Ferry, Units 1, 2, and 3, commenced the Fifth 10-Year Interval IST Program using the ASME OM Code, 2020 Edition, which is incorporated by reference in 10 CFR 50.55a, as the IST Code of Record (COR). The licensee submitted this LAR during the Fourth 10-Year Interval of the IST Program at Browns Ferry, Units 1, 2, and 3. The update of the COR for the IST Program does not impact the proposed changes to the TSs requested in this LAR.

The current TSs in SRs 3.4.3.2 and 3.5.1.11 for Browns Ferry, Units 1, 2, and 3, require manual actuation tests to demonstrate the mechanical operation of the SRVs within the scope of this LAR. The licensee indicated that these manual actuation tests are currently performed once per operating cycle (i.e., 24 months) corresponding to plant start-up from refueling outages. The licensee credits the SRV manual actuation lift test for demonstrating the mechanical functioning of the SRV for the remote actuation mode and the automatic depressurization function.

The licensee proposed to revise the TS SRs 3.4.3.2 and 3.5.1.11 for the specified SRVs at Browns Ferry Units 1, 2, and 3 to allow the options of (1) applying the IST Program requirements of the COR in accordance with 10 CFR 50.55a, or (2) the current requirement for manual actuation of the SRVs. The licensee proposed changing the frequency of TS SRs 3.4.3.2 and 3.5.1.11 to "In accordance with the INSERVICE TESTING PROGRAM."

In the option to rely on the IST Program, the licensee proposed to credit overlapping Code and SR testing to ensure the capability of each SRV to open. The licensee described the SRV testing activities in the LAR, which are summarized below:

- Simulated automatic actuation tests specified in SR 3.5.1.10 and surveillances associated with TS 3.3.5.1, "Emergency Core Cooling System (ECCS) Instrumentation," are performed to demonstrate the ability of various logics and controls to actuate the SRVs up to the point of energizing the solenoids, which are performed once per operating cycle.
- Solenoid valve functional testing will be performed in-situ for each SRV solenoid valve once per operating cycle.
- An SRV pilot air actuator functional test will be performed at an offsite test facility as part of certification testing for each SRV pilot assembly, including the current practice of replacing all 13 SRV pilot assemblies each operating cycle.
- SRV pilot setpoint testing, currently required by SR 3.4.3.1, is performed using steam at an offsite test facility as part of certification testing for each SRV pilot assembly at intervals determined in accordance with the IST Program.
- SRV main stage certification testing will be performed using steam at an offsite test facility at intervals determined in accordance with the IST Program.

- Receipt inspection is performed in accordance with the requirements of the licensee's quality assurance program, including the verification of no foreign material in the valves.

The Browns Ferry Units 1, 2, and 3 IST Program is required to satisfy Appendix I, "Inservice Testing of Pressure Relief Devices in Water Cooled Reactor Nuclear Power Plants," to the ASME OM Code, as incorporated referenced in 10 CFR 50.55a, which specifies requirements for testing the main steam SRVs. For example, ASME OM Code, Appendix I, includes the following requirements:

Paragraph I-1320, "Test Frequencies, Class 1 Pressure Relief Valves," requires that Class 1 pressure relief valves be set pressure tested periodically with requirements for expanding the test sample based on compliance with the acceptance criteria.

Paragraph I-3310, "Class 1 Main Steam Pressure Relief Valves with Auxiliary Actuating Devices," requires specific aspects to be included in the periodic testing.

Paragraph I-3410, "Class 1 Main Steam Pressure Relief Valves with Auxiliary Actuating Devices," provides requirements for disposition after testing or maintenance. For example, paragraph I-3410(c) specifies that if disassembly includes valve disk (main) components, then valve disk stroke capability shall be verified by mechanical examination or tests. Paragraph I-3410(d) specifies that each valve with an auxiliary actuating device that has been removed for maintenance or testing and reinstalled after meeting the requirements of paragraph I-3310, shall have the electrical and pneumatic connections verified either through mechanical/electrical inspection or test prior to the resumption of electric power generation.

In considering the proposed TS changes for Browns Ferry, Units 1, 2, and 3, the NRC staff considered that in-situ manual actuation of the SRVs using reactor steam can cause undesirable SRV leakage. The proposal by the licensee for Browns Ferry, Units 1, 2, and 3, to allow reliance on the IST Program testing requirements can minimize this potential concern for SRV leakage. Licensees of other boiling-water reactor (BWR) nuclear power plants have proposed requests for TS changes related to the testing requirements for BWR dual-function main steam SRVs based on these leakage concerns. The NRC staff has approved requests at other BWR nuclear power plants regarding options to minimize in-situ testing of SRVs.

Another consideration by the NRC staff regarding this LAR is that testing in-situ of the SRVs verifies that the SRV discharge lines are not blocked. In the LAR, the licensee stated it will perform receipt inspections in accordance with its quality assurance program and will verify prior to installation that there is no foreign material in the valves. The staff finds these inspections specified by the licensee are acceptable to address this potential concern for foreign material in the SRV or its piping.

The NRC staff has reviewed the justification provided by the licensee in the LAR for the proposed changes to TS SR 3.4.3.2 and SR 3.5.1.11 for demonstrating the performance of the SRVs in the main steam lines at Browns Ferry, Units 1, 2, and 3. The staff evaluated the option proposed to allow reliance on the SRV testing requirements specified in the IST Program at Browns Ferry, together with the testing activities described in the LAR. Based on its review, the NRC staff has determined that the testing activities, in accordance with the proposed changes to TS SR 3.4.3.2 and SR 3.5.1.11, will continue to demonstrate proper SRV operation at Browns Ferry, Units 1, 2, and 3. Additionally, the current manual actuation testing specified in



TS SR 3.4.3.2 and SR 3.5.1.11 will remain available. Therefore, the NRC staff has determined that the proposed changes to TS SR 3.4.3.2 and SR 3.5.1.11 are acceptable as they provide reasonable assurance that the necessary quality of systems and components is maintained, that facility operation will be within safety limits, and that the LCOs will be met.

#### 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 October 17, 2023. 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 and changes surveillance requirements. 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 NRC has previously issued a proposed finding in the *Federal Register* on May 16, 2023 (88 FR 31286), that the amendments involve no significant hazards consideration, 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: N. Chandran, NRR  
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Date: January 3, 2024

SUBJECT: BROWNS FERRY NUCLEAR PLANT, UNITS 1, 2, AND 3 – ISSUANCE OF AMENDMENT NOS. 333, 356, AND 316 REGARDING THE TECHNICAL SPECIFICATION SURVEILLANCE REQUIREMENTS 3.4.3.2 AND 3.5.1.11 REGARDING SAFETY RELIEF VALVES (EPID L-2023-LLA-0045) DATED JANUARY 3, 2024

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DATE	11/1/2023	11/17/2023	11/13/2023	11/13/2023
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