



Tennessee Valley Authority, 1101 Market Street, Chattanooga, Tennessee 37402

CNL-19-070

July 3, 2019

10 CFR 50.90  
10 CFR 50.4  
10 CFR 50.48(c)(3)

ATTN: Document Control Desk  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555-0001

Browns Ferry Nuclear Plant, Units 1, 2, and 3  
Renewed Facility Operating License Nos. DPR-33, DPR-52, and DPR-68  
NRC Docket Nos. 50-259, 50-260, and 50-296

Subject: **TVA Request for Extension of Implementation Due Dates of Modifications 102 and 106 Related to NFPA 805 Performance-Based Standard for Fire Protection for Light Water Reactor Electric Generating Plants for the Browns Ferry Nuclear Plant, Units 1, 2, and 3**

Reference: NRC Letter to TVA, "Browns Ferry Nuclear Plant, Units 1, 2 and 3 - Issuance of Amendments to Revise Modifications 85, 102, and 106 Related To National Fire Protection Association 805 Performance-Based Standard for Fire Protection of Light Water Reactor Electric Generating Plants (EPID NO. L-2018-LLA-0285)," dated April 2, 2019 (ML19037A137)

In accordance with the provisions of Title 10 of the *Code of Federal Regulations* (10 CFR) 50.90, Tennessee Valley Authority (TVA) requests an amendment to the Renewed Facility Operating License (RFOL) Nos. DPR-33, DPR-52, and DPR-68 for Browns Ferry Nuclear Plant (BFN), Units 1, 2, and 3, respectively.

TVA requests that the implementation due dates for Modifications 102 and 106 listed in Transition License Condition 2 in each unit's license be extended to the end of BFN Unit 1's Fall 2020 outage, and April 30, 2020, respectively, due to technical and scheduling difficulties related to implementation of the modifications. TVA is unable to complete Modification 102 by the current NFPA 805 implementation due date and TVA is attempting to complete Modification 106 by the current NFPA 805 implementation due date but anticipates difficulties with installation. An extension of these implementation due dates will ensure that TVA can complete

the modifications and not unnecessarily impact operational safety of the BFN units as well as personnel safety.

Modification 102 modifies the actuation for the Main Transformer, Unit Service Station Transformer and Common Service Station Transformer water spray system, such that the circuits are supervised per NFPA 15-2001, 6.5.3.1.1. Modification 106 installs additional equipment to provide water to the cooling tower lift pump bearing lubrication water system in order to provide this system with a water supply independent from the Raw Service Water and High Pressure Fire Protection pumps to ensure that pressure is maintained in the fire protection system during normal operation without using a fire pump. The above Modifications have no direct impact on the BFN Fire PRA.

The enclosure provides the description and evaluation of the requested change. TVA has determined that there are no significant hazards consideration associated with the proposed changes and that the changes to the RFOLs qualify for a categorical exclusion from environmental review pursuant to the provisions of 10 CFR 51.22(c)(9).

TVA requests NRC approval of this license amendment request by August 14, 2019.

There are no new regulatory commitments contained in this submittal. Please address any questions regarding this request to Kimberly D. Hulvey at 423-751-3275.

I declare under penalty of perjury that the foregoing is true and correct. Executed on this 3<sup>rd</sup> day of July 2019.

Respectfully,



J. T. Polickoski  
Interim Director, Nuclear Regulatory Affairs

Enclosure:

Request for Extension of Implementation Due Dates of Modifications 102 and 106  
Related to NFPA 805

cc: (with Enclosure):

NRC Regional Administrator - Region II  
NRC Senior Resident Inspector - Browns Ferry Nuclear Plant  
NRC Project Manager - Browns Ferry Nuclear Plant  
State Health Officer, Alabama Department of Public Health

ENCLOSURE

Evaluation of the Proposed Change

Subject: Request for Extension of Implementation Due Dates of Modifications 102 and 106  
Related to NFPA 805

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ATTACHMENTS:

- 1. Renewed Facility Operating License Page Markups
- 2. Renewed Facility Operating License Retyped Pages

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of Modifications 102 and 106 Related to NFPA 805

1. SUMMARY DESCRIPTION

The current state of the Browns Ferry Nuclear Plant (BFN) National Fire Protection Association (NFPA) 805 project is as follows:

Of the modification items listed in the S-2 Table provided in Reference 1 as modified by Reference 2, which defines modification commitments in transition license condition 2, two modifications remain to be completed—modifications 102 and 106. Modification 102 is installed, but the Unit 1 system will not be back in service before its license condition implementation due date of August 14, 2019. This is due to pre-existing grounds in the heat detection circuit that were revealed by the installation of the new supervisory system, resulting in trouble alarms in the system. Modification 106 is at risk to not be completed before its license condition implementation due date of October 14, 2019, because of installation difficulties and operational considerations.

This license amendment request (LAR) proposes new implementation due dates for the above modifications. The affected modifications are fire protection system upgrades for NFPA code compliance and are not credited in the BFN Fire Probabilistic Risk Assessment (FPRAs). Therefore, they have no direct impact on fire risk.

2. DETAILED DESCRIPTION

2.1 Proposed Change

The following changes to the BFN Units 1, 2, and 3 Renewed Facility Operating License (RFOL) are proposed to support changes to the schedules for Modifications 102 and 106. Note that the bolded and underlined text below indicates the requested changes to the licenses.

Transition License Condition 2

With the exception of Modifications 102 and 106, the licensee shall implement modifications to its facility, as described in Table S-2, "Plant Modifications Committed," of Tennessee Valley Authority letter CNL-18-100, dated October 18, 2018, as supplemented by letter CNL-19-027, dated February 13, 2019, to complete the transition to full compliance with 10 CFR 50.48(c) no later than the end of the second refueling outage (for each unit) following issuance of the NFPA 805 License Amendment dated October 28, 2015. Modifications 102 and 106 as described in Table S-2, shall be implemented no later than **the end of Unit 1's Fall 2020 outage**, and **April 30, 2020**, respectively. The licensee shall maintain appropriate compensatory measures in place until completion of these modifications.

TVA also requests an amendment to the BFN RFOL, paragraphs 2.C.(13) of Unit 1, 2.C.(14) of Unit 2, and 2.C.(7) of Unit 3 for BFN Units 1, 2, and 3, respectively as shown below:

BFN Unit 1 License Condition 2.C.(13):

- (13) TVA Browns Ferry Nuclear Plant shall implement and maintain in effect all provisions of the approved fire protection program that comply with 10 CFR 50.48(a) and 10 CFR 50.48(c), as specified in the license amendment request dated March 27, 2013, June 7, 2017, and May 3, 2018, and October 18, 2018, **and July 3, 2019**, as

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supplemented by letters dated May 16, 2013; December 20, 2013; January 10, 2014; January 14, 2014; February 13, 2014; March 14, 2014; May 30, 2014; June 13, 2014; July 10, 2014; August 29, 2014; September 16, 2014; October 6, 2014; December 17, 2014; March 26, 2015; April 9, 2015; June 19, 2015; August 18, 2015; September 8, 2015; October 20, 2015; September 18, 2017; and October 23, 2017, February 13, 2019; and March 8, 2019, as approved in the Safety Evaluation dated October 28, 2015; December 19, 2017; October 9, 2018, ~~and~~ April 2, 2019, and **[[INSERT SE DATE]]**. Except where NRC approval for changes or deviations is required by 10 CFR 50.48(c), and provided no other regulation, technical specification, license condition or requirement would require prior NRC approval, the licensee may make changes to the fire protection program without prior approval of the Commission if those changes satisfy the provisions set forth in 10 CFR 50.48(a) and 10 CFR 50.48(c), the change does not require a change to a technical specification or a license condition, and the criteria listed below are satisfied.

BFN Unit 2 License Condition 2.C.(14):

- (14) TVA Browns Ferry Nuclear Plant shall implement and maintain in effect all provisions of the approved fire protection program that comply with 10 CFR 50.48(a) and 10 CFR 50.48(c), as specified in the license amendment request dated March 27, 2013; June 7, 2017; and May 3, 2018, and October 18, 2018, and July 3, 2019, as supplemented by letters dated May 16, 2013; December 20, 2013; January 10, 2014; January 14, 2014; February 13, 2014; March 14, 2014; May 30, 2014; June 13, 2014; July 10, 2014; August 29, 2014; September 16, 2014; October 6, 2014; December 17, 2014; March 26, 2015; April 9, 2015; June 19, 2015; August 18, 2015; September 8, 2015; October 20, 2015; September 18, 2017, October 23, 2017, February 13, 2019, and March 8, 2019, as approved in the Safety Evaluations dated October 28, 2015; and December 19, 2017; October 9, 2018, ~~and~~ April 2, 2019, and **[[INSERT SE DATE]]**. Except where NRC approval for changes or deviations is required by 10 CFR 50.48(c), and provided no other regulation, technical specification, license condition or requirement would require prior NRC approval, the licensee may make changes to the fire protection program without prior approval of the Commission if those changes satisfy the provisions set forth in 10 CFR 50.48(a) and 10 CFR 50.48(c), the change does not require a change to a technical specification or a license condition, and the criteria listed below are satisfied.

BFN Unit 3 License Condition 2.C.(7):

- (7) TVA Browns Ferry Nuclear Plant shall implement and maintain in effect all provisions of the approved fire protection program that comply with 10 CFR 50.48(a) and 10 CFR 50.48(c), as specified in the license amendment requests dated March 27, 2013; and June 7, 2017; and May 3, 2018, and October 18, 2018, and July 3, 2019, as supplemented by letters dated May 16, 2013; December 20, 2013; January 10, 2014; January 14, 2014; February 13, 2014; March 14, 2014; May 30, 2014; June 13, 2014; July 10, 2014; August 29, 2014; September 16, 2014; October 6, 2014; December 17, 2014; March 26, 2015; April 9, 2015; June 19, 2015; August 18, 2015; September 8, 2015; October 20, 2015; September 18, 2017, October 23, 2017, February 13, 2019, and March 8, 2019, as approved in the Safety Evaluations dated October 28, 2015, December 19, 2017, October 9, 2018, ~~and~~ April 2, 2019, and **[[INSERT SE DATE]]**.

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Except where NRC approval for changes or deviations is required by 10 CFR 50.48(c), and provided no other regulation, technical specification, license condition or requirement would require prior NRC approval, the licensee may make changes to the fire protection program without prior approval of the Commission if those changes satisfy the provisions set forth in 10 CFR 50.48(a) and 10 CFR 50.48(c), the change does not require a change to a technical specification or a license condition, and the criteria listed below are satisfied.

## 2.2 Reason for the Proposed Change

Modification 102 upgrades the fire detection and suppression features for each unit's Main Transformer, Unit Station Service Transformer, and Common Station Service Transformer to be supervised. All stages of Modification 102 are complete except for Stage 5, which completes the modification on BFN Unit 3. Stage 5 is installed and currently being tested, with an anticipated completion prior to the current August 14, 2019, implementation due date.

When the supervisory modules for Modification 102 were activated on BFN Unit 1, pre-existing grounds in the existing heat detector circuitry were detected causing the system to generate trouble alarms as designed. Because the unit was at power when the modification was completed on BFN Unit 1, there are personnel safety concerns with attempting to repair the grounds in the heat detector circuitry near the transformers without denergizing the transformers and taking a BFN Unit 1 outage. Because of the trouble alarms, the heat detector input to the fire alarm system from the Unit 1 Main Bank transformers was disabled. Inputs from a manual push button station and transformer protective relays are in service and functioning. With the heat detection disabled, TVA does not consider the license condition met. The proposed change to the Modification 102 implementation due date will allow the necessary time to repair the grounds during the next refueling outage for BFN Unit 1 in fall 2020.

Modification 106 installs a new pumping station with capability to support the Cooling Tower Lift Pumps that interfaces with the Raw Service Water (RSW) system. The new pumping station has been delivered and placed on its foundation. Remaining work on the station involves electrical and piping connections and post-modification testing. Successful performance of the new pumping station depends on existing check valves in the RSW system that are old and suspected of back leakage and therefore scheduled to be replaced. One of the check valves in the Modification 106 flow path is also needed to support cooling tower operation. Therefore, the check valve is scheduled for replacement after the end of the 2019 cooling tower season. An earlier attempt to replace the check valve prior to the start of cooling tower season was delayed due to difficulty obtaining adequate isolation. The replacement of the check valve was unable to be completed before TVA required the ability to place the BFN cooling towers in service in 2019. The current implementation due date of October 14, 2019, does not provide sufficient time (margin) regarding the date when TVA no longer requires the BFN cooling towers in the fall. The end of cooling tower season is dependent on weather patterns and the effect of the extended power uprate, which is new for the 2019 cooling tower season. The proposed extended implementation due date negates the need for a separate expedited LAR in the future for this modification.

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### 3. TECHNICAL EVALUATION

#### 3.1 Technical Basis for the Request

##### MODIFICATION 102

Modification 102 upgrades the fire detection and suppression features for each unit's Main Transformer, Unit Station Service Transformer, and Common Station Service Transformer to be supervised. The transformers are protected by a water deluge system that is initiated by heat detectors and transformer protective relays. The previous design was not supervised such that certain types for failures were not immediately detected and alarmed and would only be discovered during periodic testing. As discussed in Reference 1, Modification 102 is divided into ten separate stages. All stages of Modification 102 are complete except for Stage 5, which completes the modification on Unit 3. Stage 5 is installed and currently being tested.

The affected detection and suppression systems are not credited in the FPRA. The FPRA would be unaffected by delaying completion of the modification until the end of BFN Unit 1's Fall 2020 outage. Compensatory measures are in place to address the fire suppression system.

##### MODIFICATION 106

Modification 106 installs a new water intake pumping station to supply bearing lubrication water to the cooling tower lift pumps when they are in operation during the warm season. Due to limited capability of the existing RSW pumps, operation of Fire Pumps, which share the same piping system, is currently required to provide adequate flow to the Cooling Tower Lift Pumps. The goal of Modification 106 is to eliminate reliance on fire pumps for this routine operational purpose.

The fire pumps are not modeled in the FPRA but their availability and reliability is considered to support fire suppression. They are not credited in the deterministic Nuclear Safety Capability Assessment (NSCA) to meet the nuclear safety goals. Delaying completion of the modification until April 30, 2020, would have a negligible impact on Core Damage Frequency (CDF) / Incremental Core Damage Probability and Large Early Release Frequency (LERF) / Incremental Large Early Release Probability due to the small impact that routine operation of the fire pumps has on fire suppression reliability combined with the limited time duration of the extension.

The proposed license amendments will continue to include a license condition imposing the use of NFPA 805, together with an implementation schedule that follows the guidance of RG 1.205. TVA will maintain appropriate compensatory measures in place until completion of these modifications, which follows the guidance of RG 1.205.

#### 3.2 Safety Margin

NEI 04-02, "Guidance for Implementing a Risk-Informed, Performance-Based Fire Protection Program Under 10 CFR 50.48(c)," Revision 2, Section 5.3.5.3, "Safety Margins," lists two specific criteria that should be addressed when considering the impact of plant changes on safety margins:

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- Codes and standards or their alternatives accepted for use by the NRC are met; and,
- Safety analysis acceptance criteria in the licensing basis (e.g., FSAR [Final Safety Analysis Report], supporting analyses, etc.) are met, or provides sufficient margin to account for analysis and data uncertainty.

Modifications 102 and 106 maintain codes and standards; this LAR only involves implementation timeframes. The proposed changes associated with Modifications 102 and 106 do not involve any licensing basis analyses.

Therefore, the safety margin inherent in the analyses for fire events has been preserved.

### 3.3 Defense-in-Depth

The three echelons of defense-in-depth are:

1. Prevent fires from starting (i.e., combustible/hot work controls)
2. Rapidly detect, control, and extinguish fires that do occur, thereby limiting damage (i.e., fire detection systems, automatic fire suppression, manual fire suppression, pre-fire plans)
3. Provide adequate level of fire protection for systems and structures so that a fire will not prevent essential safety functions from being performed (i.e., fire barriers, fire rated cable, success path remains free of fire damage, recovery actions)

The affected systems do not prevent fires from starting and are not used for plant shutdown. Therefore, these changes do not affect echelons 1 or 3. Modifications 102 and 106 are specific to fire suppression and detection systems. Therefore, the proposed changes are related to echelon 2. Inputs from manual push button station and transformer protective relays are in service and functioning, and roving fire watches are in place. The fire pumps are capable of suppressing fires as they are currently designed. Therefore, the affected fire protection systems remain capable of detecting, controlling, and extinguishing fires without Modifications 102 and 106. Therefore, defense-in-depth is maintained.

## 4. REGULATORY EVALUATION

### 4.1 Applicable Regulatory Requirements

The following regulations address fire protection:

- Section 50.48, "Fire protection," of 10 CFR, provides the NRC requirements for nuclear power plant fire protection. The NRC regulations include specific requirements for requesting approval for a risk-informed and performance-based (RI/PB) FPP based on the provisions of NFPA 805.
- Section 50.48(a)(1) of 10 CFR requires that each holder of an operating license have a FPP that satisfies General Design Criterion (GDC) 3, "Fire Protection," of Appendix A to 10 CFR part 50, "General Design Criteria for Nuclear Power Plants."



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- Section 50.48(c) of 10 CFR incorporates NFPA 805 (2001 Edition) by reference, with certain exceptions, modifications, and supplementation. This regulation establishes the requirements for using an RI/PB FPP in conformance with NFPA 805 as an alternative to the requirements associated with 10 CFR 50.48(b) and Appendix R, “Fire Protection Program for Nuclear Power Facilities Operating Prior to January 1, 1979,” to 10 CFR Part 50, or the specific plant fire protection license condition. The regulation also includes specific requirements for requesting approval for an RI/PB FPP based on the provisions of NFPA 805.

- Paragraph 50.48(c)(3)(i) of 10 CFR states, that:

A licensee may maintain a fire protection program that complies with NFPA 805 as an alternative to complying with [10 CFR 50.48(b)] for plants licensed to operate before January 1, 1979, or the fire protection license conditions for plants licensed to operate after January 1, 1979. The licensee shall submit a request to comply with NFPA 805 in the form of an application for license amendment under §50.90. The application must identify any orders and license conditions that must be revised or superseded, and contain any necessary revisions to the plant's technical specifications and the bases thereof. The Director of the Office of Nuclear Reactor Regulation, or a designee of the Director, may approve the application if the Director or designee determines that the licensee has identified orders, license conditions, and the technical specifications that must be revised or superseded, and that any necessary revisions are adequate. Any approval by the Director or the designee must be in the form of a license amendment approving the use of NFPA 805 together with any necessary revisions to the technical specifications.

- Appendix A to 10 CFR part 50, GDC 3 states, in part, that:

Structures, systems, and components important to safety shall be designed and located to minimize, consistent with other safety requirements, the probability and effect of fires and explosions. Noncombustible and heat resistant materials shall be used wherever practical throughout the unit, particularly in locations such as the containment and control room.

- The BFN units were designed and constructed based on the proposed GDC published by the Atomic Energy Commission (AEC) in the *Federal Register* (32 FR 10213) on July 11, 1967 (for BFN called “Criteria”). The AEC published the final rule that added Appendix A to 10 CFR part 50, GDC for Nuclear Power Plants, in the *Federal Register* (36 FR 3255) on February 20, 1971. Differences between the draft GDC and final GDC included a consolidation from 70 to 64 criteria. As discussed in the NRC Staff Requirements Memorandum (SRM) for SECY 92-223, dated September 18, 1992 (Reference 3), the Commission decided not to apply the final GDC to plants with construction permits issued prior to May 21, 1971. At the time of promulgation of Appendix A to 10 CFR Part 50, the Commission stressed that the final GDC were not new requirements and were promulgated to more clearly articulate the licensing requirements and practice in effect at that time. Each plant licensed before the final

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GDC were formally adopted was evaluated on a plant specific basis, determined to be safe, and licensed by the Commission. Appendix A to BFN Updated Final Safety Analysis (Reference 4), Criterion 3 - Fire Protection (Category A) states: The reactor facility shall be designed (1) to minimize the probability of events such as fires and explosions and (2) to minimize the potential effects of such events to safety. Noncombustible and fire resistant materials shall be used whenever practical throughout the facility, particularly in areas containing critical portions of the facility such as containment, control room, and components of engineered safety features.

- Pursuant to 10 CFR 50.90, whenever a holder of a license desires to amend the license or permit, an application for an amendment must be filed with the Commission describing the changes desired, and following, as far as applicable, the form prescribed for original applications. Accordingly, a licensee who seeks to amend its NFPA 805 authorizations must file an amendment stating, as applicable, the desired changes to orders, license conditions, and technical specifications.
- Pursuant to 10 CFR 50.92(a), in determining whether an amendment to a license will be issued to the applicant, the Commission will be guided by the considerations, which govern the issuance of initial licenses to the extent applicable and appropriate. Under 10 CFR 50.40, common standards for issuance of licenses include considerations of safety and satisfaction of the requirements of the National Environmental Policy Act of 1969 as implemented in 10 CFR Part 51, "Environmental Protection Regulations for Domestic Licensing and Related Regulatory Functions." Under 10 CFR 50.57(a), to issue an operating license, the Commission must find, among other things, that (1) there is reasonable assurance that the activities authorized by the operating license can be conducted without endangering the health and safety of the public; (2) there is reasonable assurance that such activities will be conducted in compliance with the regulations in this chapter; and (3) the issuance of the license will not be inimical to the common defense and security or to the health and safety of the public. Additional findings required to issue amendments related to fire protection are provided in 10 CFR 50.48, as discussed below.
- In addition, 10 CFR 50.32, "Elimination of repetition," states that "the applicant may incorporate by reference information contained in previous applications, statements or reports filed with the Commission: *Provided*, That such references are clear and specific."

#### 4.2 Applicable Codes, Standards, and Regulatory Guides

- Revision 1 of Regulatory Guide (RG) 1.205, "Risk-Informed, Performance-Based Fire Protection for Existing Light Water Nuclear Power Plants," December 2009 (Reference 5), provides guidance for use in complying with the requirements that the NRC has promulgated for RI/PB FPPs that comply with 10 CFR 50.48 and the referenced 2001 Edition of the NFPA standard. Revision 1 of RG 1.205 sets forth regulatory positions; emphasizes certain issues, clarifies the requirements of 10 CFR 50.48(c) and NFPA 805, clarifies the guidance in Nuclear Energy Institute (NEI) 04-02, Revision 2, "Guidance for Implementing a Risk-Informed, Performance-Based Fire Protection Program Under 10 CFR 50.48(c)," April 2008 (Reference 6) and provides exceptions to the NEI 04-02 guidance

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where required. Should a conflict occur between NEI 04-02 and RG 1.205, the regulatory positions in RG 1.205 govern.

- NEI 04-02, Revision 2, “Guidance for Implementing a Risk-Informed, Performance-Based Fire Protection Program Under 10 CFR 50.48(c)” (Reference 6), provides guidance for implementing the requirements of 10 CFR 50.48(c), and represents methods for implementing in whole or in part a RI/PB FPP. This implementing guidance for NFPA 805 has two primary purposes: (1) provide direction and clarification for adopting NFPA 805 as an acceptable approach to fire protection, consistent with 10 CFR 50.48(c); and (2) provide additional supplemental technical guidance and methods for using NFPA 805 and its appendices to demonstrate compliance with fire protection requirements. Although there is a significant amount of detail in NFPA 805 and its appendices, clarification and additional guidance for select issues help ensure consistency and effective utilization of the standard. The NEI 04-02 guidance focuses attention on the RI/PB FPP goals, objectives, and performance criteria contained in NFPA 805 and the RI/PB tools considered acceptable for demonstrating compliance. Revision 2 of NEI 04-02 incorporates guidance from RG 1.205 and approved Frequently Asked Questions.

#### 4.3 Precedent

Similar requests have been included in other LARs to transition to fire protection licensing basis under NFPA 805. The following examples are provided as similar type of requests:

1. Southern Nuclear Operating Company (SNC), “Joseph M. Farley Nuclear Plant Units 1 and 2 NFPA-805 Transition Due Date Extension,” dated August 11, 2017 (ML17226A291)
2. “Duke Energy Carolinas, LLC, Oconee Nuclear Station Units 1, 2 and 3, NFPA 805 Performance-Based Standard for Fire Protection for Light Water Reactor Generating Plants (2001 Edition), Supplement 1 to LAR 2012-09, License Amendment Request for Revision to License Condition 3.D, Transition License Conditions #1 and #2,” dated September 5, 2012 (ML12251A010)

#### 4.4 No Significant Hazards Consideration Analysis

A written evaluation of the significant hazards consideration of a proposed license amendment is required by 10 CFR 50.92. According to 10 CFR 50.92, a proposed amendment to an operating license involves no significant hazards consideration if operation of the facility in accordance with the proposed amendment would not:

- Involve a significant increase in the probability or consequences of an accident previously evaluated; or
- Create the possibility of a new or different kind of accident from any accident previously evaluated; or
- Involve a significant reduction in a margin of safety.

As required by 10 CFR 50.91(a), the TVA analysis of the issue of no significant hazards consideration using the standards in 10 CFR 50.92 is presented below.

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*1. Does the proposed amendment involve a significant increase in the probability or consequences of an accident previously evaluated?*

Response: No

The proposed amendment adds the reference to this letter to the BFN RFOL License Condition, Transition Condition 2, paragraphs 2.C.(13), 2.C.(14), and 2.C.(7) for BFN Units 1, 2, and 3, respectively. The change encompassed by the proposed amendment is to extend the implementation due dates of Modifications 102 and 106.

Modification 102 modifies the actuation circuitry for a transformer spray fire suppression system. Delaying implementation of this modification does not adversely affect accident initiators or precursors nor alter the design assumptions, conditions, and configuration of the facility or the manner in which the plant is operated and maintained. The proposed change does not affect the ability to transfer to alternate onsite power sources in the event of a loss of a transformer and therefore does not affect the ability of structures, systems, and components (SSCs) to perform their intended safety function to mitigate the consequences of an initiating event within the assumed acceptance limits.

Therefore, these proposed changes do not involve a significant increase in the probability of consequences of an accident previously identified.

*2. Does the proposed amendment create the possibility of a new or different kind of accident from any accident previously evaluated?*

Response: No

The proposed amendment adds the reference to this letter to the BFN RFOL License Condition, Transition Condition 2, paragraphs 2.C.(13), 2.C.(14), and 2.C.(7) for BFN Units 1, 2, and 3, respectively. The changes encompassed by the proposed amendment are to extend the implementation due dates of Modifications 102 and 106.

There is no direct impact to CDF or LERF. These proposed changes are an NFPA 805 Chapter 3 compliance issue only, and this level of detail is not modeled in the FPRA.

The proposed change does not result in any new or different kinds of accident from that previously evaluated because it does not change any precursors or equipment that is previously credited for accident mitigation.

Therefore, the proposed change does not create the possibility of a new or different kind of accident from any accident previously evaluated.

*3. Does the proposed amendment involve a significant reduction in a margin of safety?*

Response: No

The proposed amendment adds the reference to this letter to the BFN RFOL License Condition, Transition Condition 2, paragraphs 2.C.(13), 2.C.(14), and 2.C.(7) for BFN Units 1, 2, and 3,

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respectively. The change encompassed by the proposed amendment is to extend the implementation due dates of Modifications 102 and 106.

The proposed changes associated with Modifications 102 and 106 do not involve any licensing basis analyses. Therefore, the safety margin inherent in the analyses for fire events has been preserved.

Therefore, based on the above discussion, these proposed changes do not involve a reduction in the margin of safety.

#### 4.5 Conclusions

Based on the considerations discussed above, (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public. TVA has evaluated the proposed amendment and determined that it involves no significant hazards consideration.

#### 5. ENVIRONMENTAL CONSIDERATION

TVA has evaluated the proposed amendment and determined that the amendment does not involve (i) a significant hazards consideration, (ii) a significant change in the types or significant increase in the amounts of any effluents that may be released offsite, or (iii) a significant increase in individual or cumulative occupational radiation exposure. Accordingly, the proposed amendment meets the eligibility criterion for categorical exclusion set forth in 10 CFR 51.22(c)(9). Therefore, pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the proposed amendment.

#### 6. REFERENCES

1. TVA Letter to NRC, CNL-18-100, "TVA Request for Revision of Modifications 85, 102, and 106 Related to NFPA 805 Performance-Based Standard for Fire Protection for Light Water Reactor Electric Generating Plants for the Browns Ferry Nuclear Plant, Units 1, 2, and 3 - Tables S-2 and B-1," dated October 18, 2018 (ML18295A109)
2. TVA Letter to NRC, CNL-19-027, "Supplement to TVA Request for Revision of Modifications 85, 102, and 106 Related to NFPA 805 Performance-Based Standard for Fire Protection for Light Water Reactor Electric Generating Plants for the Browns Ferry Nuclear Plant, Units 1, 2, and 3 - Tables S-2 and B-1," dated February 13, 2019 (ML19044A708).
3. SRM from Secretary to Executive Director for Operations (EDO), "SECY-92-223 - Resolution of Deviations Identified during the Systematic Evaluation Program," dated September 18, 1992 (ML003763736).
4. TVA Letter to NRC, "Browns Ferry Nuclear Plant - Updated Final Safety Analysis Report, Amendment 27," dated October 5, 2017 (ML17286A079).

ENCLOSURE  
Evaluation of the Proposed Change  
Request for Extension of Implementation Due Dates  
of Modifications 102 and 106 Related to NFPA 805

5. NRC, "Risk-Informed, Performance-Based Fire Protection for Existing Light-Water Nuclear Power Plants," Regulatory Guide 1.205, Revision 1, December 2009 (ML092730314).
6. Nuclear Energy Institute, "Guidance for Implementing a Risk-Informed, Performance-Based Fire Protection Program Under 10 CFR 50.48(c)," Washington, DC, NEI 04-02, Revision 2, April 2008 (ML081130188).

ENCLOSURE  
Evaluation of the Proposed Change  
Request for Extension of Implementation Due Dates  
of Modifications 102 and 106 Related to NFPA 805

Attachment 1

Tennessee Valley Authority

Browns Ferry Nuclear Plant, Units 1, 2, and 3

Renewed Facility Operating License Page Markups

- (8) Deleted.
- (9) Deleted.
- (10) Deleted.
- (11)(a) The licensee shall fully implement and maintain in effect all provisions of the Commission-approved physical security, training and qualification, and safeguards contingency plans including amendments made pursuant to provisions of the Miscellaneous Amendments and Search Requirements revisions to 10 CFR 73.55 (51 FR 27817 and 27822) and to the authority of 10 CFR 50.90 and 10 CFR 50.54(p). The combined set of plans, which contains Safeguards Information protected under 10 CFR 73.21, is entitled: "Browns Ferry Nuclear Plant Physical Security Plan, Training and Qualification Plan, and Contingency Plan," submitted by letter dated April 28, 2006.
- (b) The licensee shall fully implement and maintain in effect all provisions of the Commission-approved cyber security plan (CSP), including changes made pursuant to the authority of 10 CFR 50.90 and 10 CFR 50.54(p). The licensee CSP was approved by License Amendment No. 279, as amended by changes approved by License Amendment Nos. 286 and 297.

(12) Deleted.

and July 3, 2019,

and

(13) TVA Browns Ferry Nuclear Plant shall implement and maintain in effect all provisions of the approved fire protection program that comply with 10 CFR 50.48(a) and 10 CFR 50.48(c), as specified in the license amendment request dated March 27, 2013, June 7, 2017, and May 3, 2018, and October 18, 2018, as supplemented by letters dated May 16, 2013; December 20, 2013; January 10, 2014; January 14, 2014; February 13, 2014; March 14, 2014; May 30, 2014; June 13, 2014; July 10, 2014; August 22, 2014; September 16, 2014; October 6, 2014; December 17, 2014; March 26, 2015; April 9, 2015; June 19, 2015; August 18, 2015; September 8, 2015; October 20, 2015; September 18, 2017; and October 23, 2017, February 13, 2019; and March 8, as approved in the Safety Evaluation dated October 28, 2015; December 19, 2017; October 9, 2018 and April 2, 2019. Except where NRC approval for changes or deviations is required by 10 CFR 50.48(c), and provided no other regulation, technical specification, license condition or requirement would require prior NRC approval, the licensee may make changes to the fire protection program without prior approval of the Commission if those changes satisfy the provisions set forth in 10 CFR 50.48(a) and 10 CFR 50.48(c), the change does not require a change to a technical specification or a license condition, and the criteria listed below are satisfied.

,

Insert SE Date

, and

**Risk-Informed Changes that May Be Made Without Prior NRC Approval**

A risk assessment of the change must demonstrate that the acceptance criteria below are met. The risk assessment approach, methods, and data shall be acceptable to the NRC and shall be appropriate for the nature and scope of the change being evaluated; be based on the as-built, as-operated, and maintained plant; and reflect the operating experience at the plant. Acceptable methods to assess the risk of the change may include methods that have been used in the



2. Fire Protection Program Changes that Have No More than Minimal Risk Impact

Prior NRC review and approval are not required for changes to the licensee's fire protection program that have been demonstrated to have no more than a minimal risk impact. The licensee may use its screening process as approved in the NRC Safety Evaluation dated October 28, 2015, to determine that certain fire protection program changes meet the minimal criterion. The licensee shall ensure that fire protection defense-in-depth and safety margins are maintained when changes are made to the fire protection program.

**Transition License Conditions**

1. Before achieving full compliance with 10 CFR 50.48(c), as specified by (2) below, risk-informed changes to the licensee's fire protection program may not be made without prior NRC review and approval unless the change has been demonstrated to have no more than a minimal risk impact, as described in (2) above.

2. With the exception of Modifications 102 and 106, the licensee shall implement modifications to its facility, as described in Table S-2, "Plant Modifications Committed," the end of Unit 1's Fall 2020 outage Tennessee Valley Authority letter CNL-18-100, dated October 18, 2018; as implemented by letter CNL-19-027, dated February 13, 2019, to complete the transition to full compliance with 10 CFR 50.48(c) no later than the end of the second refueling outage (for each unit) following issuance of the NFPA 805 License Amendment dated October 28, 2015. Modifications 102 and 106 as described in Table S-2, shall be implemented no later than ~~August 14, 2019, and October 14, 2019~~, respectively. The licensee shall maintain appropriate compensatory measures in place until completion of these modifications.

the end of Unit 1's  
Fall 2020 outage

April 30, 2020

3. The licensee shall complete implementation items 09, 32, 33, and the second part of Implementation Item 47 as listed in Table S-3, "Implementation Items," of TVA letter CNL-17-130 dated October 23, 2017. Implementation Item 09 shall be completed by June 29, 2018. Implementation Items 32, 33, and the second part of Implementation Item 47, i.e., resolving Finding level Facts and Observations, are associated with modifications and will be completed after all procedure updates, modifications, and training are complete.

(14) The licensee shall maintain the Augmented Quality Program for the Standby Liquid Control System to provide quality control elements to ensure component reliability for the required alternative source term function defined in the Updated Final Safety Analyses Report (UFSAR).

(15) The licensee is required to confirm that the conclusions made in TVA's letter dated September 17, 2004, for the turbine building remain acceptable using seismic demand accelerations based on dynamic seismic analysis prior to the restart of Unit 1.

(16) Upon implementation of Amendment No. 275, adopting TSTF-448, Revision 3, the determination of control room envelope (CRE) unfiltered air inleakage as required by SR 3.7.3.4, in accordance with TS 5.5.13.c(i), the assessment of the CRE habitability as required by TS 5.5.13.c(ii), and the measure of CRE pressure as required by TS 5.5.13.d, shall be considered met.

- (8) Deleted.
- (9) Deleted.
- (10) Deleted.

(11)(a) The licensee shall fully implement and maintain in effect all provisions of the Commission-approved physical security, training and qualification, and safeguards contingency plans including amendments made pursuant to provisions of the Miscellaneous Amendments and Search Requirements revisions to 10 CFR 73.55 (51 FR 27817 and 27822) and to the authority of 10 CFR 50.90 and 10 CFR 50.54(p). The combined set of plans, which contains Safeguards Information protected under 10 CFR 73.21, is entitled: "Browns Ferry Nuclear Plant Physical Security Plan, Training and Qualification Plan, and Contingency Plan," submitted by letter dated April 28, 2006.

(b) The licensee shall fully implement and maintain in effect all provisions of the Commission-approved cyber security plan (CSP), including changes made pursuant to the authority of 10 CFR 50.90 and 10 CFR 50.54(p). The licensee CSP was approved by License Amendment No. 306, as amended by changes approved by License Amendment Nos. 312 and 321.

- (12) Deleted.
- (13) Deleted.

(14) TVA Browns Ferry Nuclear Plant shall implement and maintain in effect all provisions of the approved fire protection program that comply with 10 CFR 50.48(a) and 10 CFR 50.48(c), as specified in the license amendment request dated March 27, 2013; June 7, 2017; and May 3, 2018, and ~~October 18, 2018~~, as supplemented by letters dated May 16, 2013; December 20, 2013; January 10, 2014; January 14, 2014; February 13, 2014; March 14, 2014; May 30, 2014; June 13, 2014; August 29, 2014; September 16, 2014; October 6, 2014; December 17, 2014; March 26, 2015; April 9, 2015; June 19, 2015; August 18, 2015; September 8, 2015; October 1, 2015; September 18, 2017, October 23, 2017, February 13, 2019, and March 8, 2019, as approved in the Safety Evaluations dated October 28, 2015; and December 19, 2017; October 9, 2018 and April 2, 2019. ~~Except where NRC approval for changes or deviations is required by 10 CFR 50.48(c), and provided no other regulation, technical specification, license condition or requirement would require prior NRC approval, the licensee may make changes to the fire protection program without prior approval of the Commission if those changes satisfy the provisions set forth in 10 CFR 50.48(a) and 10 CFR 50.48(c), the change does not require a change to a technical specification or a license condition, and the criteria listed below are satisfied.~~

July 3, 2019,

and

Insert SE Date

, and

**Risk-Informed Changes that May Be Made Without Prior NRC Approval**

A risk assessment of the change must demonstrate that the acceptance criteria below are met. The risk assessment approach, methods, and data shall be

- Automatic and Manual Water-Based Fire Suppression Systems (Section 3.9);
- Gaseous Fire Suppression Systems (Section 3.10); and
- Passive Fire Protection Features (Section 3.11).

This License Condition does not apply to any demonstration of equivalency under Section 1.7 of NFPA 805.

1. Fire Protection Program Changes that Have No More than Minimal Risk Impact

Prior NRC review and approval are not required for changes to the licensee's fire protection program that have been demonstrated to have no more than a minimal risk impact. The licensee may use its screening process as approved in the NRC Safety Evaluation dated October 28, 2015, to determine that certain fire protection program changes meet the minimal criterion. The licensee shall ensure that fire protection defense-in-depth and safety margins are maintained when changes are made to the fire protection program.

**Transition License Conditions**

1. Before achieving full compliance with 10 CFR 50.48(c), as specified by (2) below, risk-informed changes to the licensee's fire protection program may not be made without prior NRC review and approval unless the change has been demonstrated to have no more than a minimal risk impact, as described in (2) above.

2. With the exception of Modifications 102 and 106, the licensee shall implement modifications to its facility, as described in Table S-2, "Plant Modifications Committed," of Tennessee Valley Authority letter CNL-18-100, dated October 18, 2018, as supplemented by letter CNL-19-027, dated February 13, 2019, to complete the transition to full compliance with 10 CFR 50.48(c) no later than the end of the second refueling outage (for each unit) following issuance of the NFPA 805 License Amendment dated October 28, 2015. Modifications 102 and 106 as described in Table S-2, shall be implemented no later than ~~August 14, 2019, and October 14, 2019, respectively.~~ The licensee shall maintain appropriate compensatory measures in place until completion of these modifications.

the end of Unit 1's  
Fall 2020 outage

April 30, 2020

3. The licensee shall complete Implementation Items 09, 32, 33, and the second part of Implementation Items 47 as listed in Table S-3, "Implementation Items," of TVA letter CNL-17-130 dated October 23, 2017. Implementation Item 09 shall be completed by June 29, 2018. Implementation Items 32, 33, and the second part of Implementation Item 47, i.e., resolving Finding level Facts and Observations, are associated with modifications and will be completed after all procedure updates, modifications, and training are complete.

- (15) The licensee shall maintain the Augmented Quality Program for the Standby Liquid Control System to provide quality control elements to ensure component reliability for the required alternative source term function defined in the Updated Final Safety Analyses Report (UFSAR).
- (16) Upon implementation of Amendment No. 275, adopting TSTF-448, Revision 3, the determination of control room envelope (CRE) unfiltered air leakage as required by SR 3.7.3.4, in accordance with TS 5.5.13.c(i), the assessment of the CRE habitability as required by TS 5.5.13.c(ii), and the measure of CRE pressure as required by TS 5.5.13.d, shall be considered met.

- (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 application dated September 6, 1996; as supplemented May 1, August 14, November 5 and 14, December 3, 4, 11, 22, 23, 29, and 30, 1997; January 23, March 12, April 16, 20, and 28, May 7, 14, 19, and 27, and June 2, 5, 10 and 19, 1998; evaluated in the NRC staff's Safety Evaluation enclosed with this amendment. This amendment is effective immediately and shall be implemented within 90 days of the date of this amendment.
- (4) Deleted.
- (5) Classroom and simulator training on all power uprate related changes that affect operator performance will be conducted prior to operating at uprated conditions. Simulator changes that are consistent with power uprate conditions will be made and simulator fidelity will be validated in accordance with ANSI/ANS 3.5-1985. Training and the plant simulator will be modified, as necessary, to incorporate changes identified during startup testing. This amendment is effective immediately.
- (6)(a) The licensee shall fully implement and maintain in effect all provisions of the Commission-approved physical security, training and qualification, and safeguards contingency plans including amendments made pursuant to provisions of the Miscellaneous Amendments and Search Requirements revisions to 10 CFR 73.55 (51 FR 27817 and 27822) and to the authority of 10 CFR 50.90 and 10 CFR 50.54(p). The combined set of plans, which contains Safeguards Information protected under 10 CFR 73.21, is entitled: "Browns Ferry Nuclear Plant Physical Security Plan, Training and Qualification Plan, and Contingency Plan," Revision 4, submitted by letter dated April 28, 2006.
- (b) The licensee shall fully implement and maintain in effect all provisions of the Commission-approved cyber security plan (CSP), including changes made pursuant to the authority of 10 CFR 50.90 and 10 CFR 50.54(p). The licensee CSP was approved by License Amendment No. 265, as amended by changes approved in License Amendment Nos. 271 and 281.
- (7) and TVA Browns Ferry Nuclear Plant shall implement and maintain in effect all provisions of the approved fire protection program that comply with 10 CFR 50.48(a) and 10 CFR 50.48(c), as specified in the license amendment requests dated March 27, 2013 and June 7, 2017; and May 3, 2018 and October 18, 2018, as supplemented by letters dated May 16, 2013; December 20, 2013; January 10, 2014; January 14, 2014; February 13, 2014; March 14, 2014; May 30, 2014; June 13, 2014; July 10, 2014; August 29, 2014; September 16, 2014; October 6, 2014; December 17, 2014; March 26, 2015; April 9, 2015; June 19, 2015; August 18, 2015; September 8, 2015; October 20, 2015; September 18, 2017, October 23, 2017, February 13, 2019, and March 8, 2019, as approved in the Safety Evaluations dated October 28, 2015, December 19, 2017, October 9, 2018, and April 2, 2019. July 3, 2019, Except where NRC approval for changes or deviations is required by 10 CFR 50.48(c), and provided no other regulation, technical specification, license condition or requirement would require prior NRC approval, the licensee , and Insert SE Date

The licensee may use an engineering evaluation to demonstrate that changes to certain NFPA 805, Chapter 3 elements are acceptable because the alternative is “adequate for the hazard.” Prior NRC review and approval would not be required for alternatives to four specific sections of NFPA 805, Chapter 3, for which an engineering evaluation demonstrates that the alternative to the Chapter 3 element is adequate for the hazard. A qualified fire protection engineer shall perform the engineering evaluation and conclude that the change has not affected the functionality of the component, system, procedure, or physical arrangement, using a relevant technical requirement or standard. The four specific sections of NFPA 805, Chapter 3, are as follows:

- Fire Alarm and Detection Systems (Section 3.8);
- Automatic and Manual Water-Based Fire Suppression Systems (Section 3.9);
- Gaseous Fire Suppression Systems (Section 3.10); and
- Passive Fire Protection Features (Section 3.11).

This License Condition does not apply to any demonstration of equivalency under Section 1.7 of NFPA 805.

2. Fire Protection Program Changes that Have No More than Minimal Risk Impact

Prior NRC review and approval are not required for changes to the licensee's fire protection program that have been demonstrated to have no more than a minimal risk impact. The licensee may use its screening process as approved in the NRC Safety Evaluation dated October 28, 2015, to determine that certain fire protection program changes meet the minimal criterion. The licensee shall ensure that fire protection defense-in-depth and safety margins are maintained when changes are made to the fire protection program.

**Transition License Conditions**

1. Before achieving full compliance with 10 CFR 50.48(c), as specified by (2) below, risk-informed changes to the licensee's fire protection program may not be made without prior NRC review and approval unless the change has been demonstrated to have no more than a minimal risk impact, as described in (2) above.

2. With the exception of Modifications 102 and 106, the licensee shall implement modifications to its facility, as described in Table S-2, “Plant Modifications Committed,” of Tennessee Valley Authority letter CNL-18-100, dated October 18, 2018, as supplemented by letter CNL-19-027, dated February 13, 2019, to complete the transition to full compliance with 10 CFR 50.48(c) no later than the end of the second refueling outage (for each unit) following issuance of the NFPA 805 License Amendment dated October 28, 2015. Modifications 102 and 106 as described in Table S-2, shall be implemented no later than ~~August 14, 2019~~, and ~~October 14, 2019~~, respectively. The licensee shall maintain appropriate compensatory measures in place until completion of these modifications.

the end of Unit 1's  
Fall 2020 outage

April 30, 2020

ENCLOSURE  
Evaluation of the Proposed Change  
Request for Extension of Implementation Due Dates  
of Modifications 102 and 106 Related to NFPA 805

Attachment 2

Tennessee Valley Authority

Browns Ferry Nuclear Plant, Units 1, 2, and 3

Renewed Facility Operating License Retyped Pages

- (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. , 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.

- (8) Deleted.
- (9) Deleted.
- (10) Deleted.
- (11)(a) The licensee shall fully implement and maintain in effect all provisions of the Commission-approved physical security, training and qualification, and safeguards contingency plans including amendments made pursuant to provisions of the Miscellaneous Amendments and Search Requirements revisions to 10 CFR 73.55 (51 FR 27817 and 27822) and to the authority of 10 CFR 50.90 and 10 CFR 50.54(p). The combined set of plans, which contains Safeguards Information protected under 10 CFR 73.21, is entitled: "Browns Ferry Nuclear Plant Physical Security Plan, Training and Qualification Plan, and Contingency Plan," submitted by letter dated April 28, 2006.
- (b) The licensee shall fully implement and maintain in effect all provisions of the Commission-approved cyber security plan (CSP), including changes made pursuant to the authority of 10 CFR 50.90 and 10 CFR 50.54(p). The licensee CSP was approved by License Amendment No. 279, as amended by changes approved by License Amendment Nos. 286 and 297.
- (12) Deleted.
- (13) TVA Browns Ferry Nuclear Plant shall implement and maintain in effect all provisions of the approved fire protection program that comply with 10 CFR 50.48(a) and 10 CFR 50.48(c), as specified in the license amendment request dated March 27, 2013, June 7, 2017, May 3, 2018, October 18, 2018 and July 3, 2019, as supplemented by letters dated May 16, 2013, December 20, 2013, January 10, 2014, January 14, 2014, February 13, 2014, March 14, 2014, May 30, 2014, June 13, 2014, July 10, 2014, August 29, 2014, September 16, 2014, October 6, 2014, December 17, 2014, March 26, 2015, April 9, 2015, June 19, 2015, August 18, 2015, September 8, 2015, October 20, 2015, September 18, 2017, October 23, 2017, February 13, 2019, and March 8, 2019 as approved in the Safety Evaluation dated October 28, 2015, December 19, 2017, October 9, 2018, April 2, 2019, and **[[INSERT SE DATE]]**. Except where NRC approval for changes or deviations is required by 10 CFR 50.48(c), and provided no other regulation, technical specification, license condition or requirement would require prior NRC approval, the licensee may make changes to the fire protection program without prior approval of the Commission if those changes satisfy the provisions set forth in 10 CFR 50.48(a) and 10 CFR 50.48(c), the change does not require a change to a technical specification or a license condition, and the criteria listed below are satisfied.

**Risk-Informed Changes that May Be Made Without Prior NRC Approval**

A risk assessment of the change must demonstrate that the acceptance criteria below are met. The risk assessment approach, methods, and data shall be acceptable to the NRC and shall be appropriate for the nature and scope of the change being evaluated; be based on the as-built, as-operated, and maintained plant; and reflect the operating experience at the plant. Acceptable methods to assess the risk of the change may include methods that have been used in the



2. Fire Protection Program Changes that Have No More than Minimal Risk Impact

Prior NRC review and approval are not required for changes to the licensee's fire protection program that have been demonstrated to have no more than a minimal risk impact. The licensee may use its screening process as approved in the NRC Safety Evaluation dated October 28, 2015, to determine that certain fire protection program changes meet the minimal criterion. The licensee shall ensure that fire protection defense-in-depth and safety margins are maintained when changes are made to the fire protection program.

**Transition License Conditions**

1. Before achieving full compliance with 10 CFR 50.48(c), as specified by (2) below, risk-informed changes to the licensee's fire protection program may not be made without prior NRC review and approval unless the change has been demonstrated to have no more than a minimal risk impact, as described in (2) above.
2. With the exception of Modifications 102 and 106, the licensee shall implement modifications to its facility, as described in Table S-2, "Plant Modifications Committed," of Tennessee Valley Authority letter CNL-18-100, dated October 18, 2018; as supplemented by letter CNL-19-027, dated February 13, 2019, to complete the transition to full compliance with 10 CFR 50.48(c) no later than the end of the second refueling outage (for each unit) following issuance of the NFPA 805 License Amendment dated October 28, 2015. Modifications 102 and 106 as described in Table S-2, shall be implemented no later than the end of Unit 1's Fall 2020 outage, and April 30, 2020, respectively. The licensee shall maintain appropriate compensatory measures in place until completion of these modifications.
3. The licensee shall complete implementation items 09, 32, 33, and the second part of Implementation Item 47 as listed in Table S-3, "Implementation Items," of TVA letter CNL-17-130 dated October 23, 2017. Implementation Item 09 shall be completed by June 29, 2018. Implementation Items 32, 33, and the second part of Implementation Item 47, i.e., resolving Finding level Facts and Observations, are associated with modifications and will be completed after all procedure updates, modifications, and training are complete.
- (14) The licensee shall maintain the Augmented Quality Program for the Standby Liquid Control System to provide quality control elements to ensure component reliability for the required alternative source term function defined in the Updated Final Safety Analyses Report (UFSAR).
- (15) The licensee is required to confirm that the conclusions made in TVA's letter dated September 17, 2004, for the turbine building remain acceptable using seismic demand accelerations based on dynamic seismic analysis prior to the restart of Unit 1.
- (16) Upon implementation of Amendment No. 275, adopting TSTF-448, Revision 3, the determination of control room envelope (CRE) unfiltered air inleakage as required by SR 3.7.3.4, in accordance with TS 5.5.13.c(i), the assessment of the CRE habitability as required by TS 5.5.13.c(ii), and the measure of CRE pressure as required by TS 5.5.13.d, shall be considered met.

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. , 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

- (8) Deleted.
- (9) Deleted.
- (10) Deleted.
- (11)(a) The licensee shall fully implement and maintain in effect all provisions of the Commission-approved physical security, training and qualification, and safeguards contingency plans including amendments made pursuant to provisions of the Miscellaneous Amendments and Search Requirements revisions to 10 CFR 73.55 (51 FR 27817 and 27822) and to the authority of 10 CFR 50.90 and 10 CFR 50.54(p). The combined set of plans, which contains Safeguards Information protected under 10 CFR 73.21, is entitled: "Browns Ferry Nuclear Plant Physical Security Plan, Training and Qualification Plan, and Contingency Plan," submitted by letter dated April 28, 2006.
- (b) The licensee shall fully implement and maintain in effect all provisions of the Commission-approved cyber security plan (CSP), including changes made pursuant to the authority of 10 CFR 50.90 and 10 CFR 50.54(p). The licensee CSP was approved by License Amendment No. 306, as amended by changes approved by License Amendment Nos. 312 and 321.
- (12) Deleted.
- (13) Deleted.
- (14) TVA Browns Ferry Nuclear Plant shall implement and maintain in effect all provisions of the approved fire protection program that comply with 10 CFR 50.48(a) and 10 CFR 50.48(c), as specified in the license amendment request dated March 27, 2013, June 7, 2017, May 3, 2018, October 18, 2018, and July 3, 2019, as supplemented by letters dated May 16, 2013, December 20, 2013, January 10, 2014, January 14, 2014, February 13, 2014, March 14, 2014, May 30, 2014, June 13, 2014, July 10, 2014, August 29, 2014, September 16, 2014, October 6, 2014, December 17, 2014, March 26, 2015, April 9, 2015, June 19, 2015, August 18, 2015, September 8, 2015, October 20, 2015, September 18, 2017, October 23, 2017, February 13, 2019, and March 8, 2019, as approved in the Safety Evaluations dated October 28, 2015, December 19, 2017, October 9, 2018, April 2, 2019, and **[[INSERT SE DATE]]**. Except where NRC approval for changes or deviations is required by 10 CFR 50.48(c), and provided no other regulation, technical specification, license condition or requirement would require prior NRC approval, the licensee may make changes to the fire protection program without prior approval of the Commission if those changes satisfy the provisions set forth in 10 CFR 50.48(a) and 10 CFR 50.48(c), the change does not require a change to a technical specification or a license condition, and the criteria listed below are satisfied.

**Risk-Informed Changes that May Be Made Without Prior NRC Approval**

A risk assessment of the change must demonstrate that the acceptance criteria below are met. The risk assessment approach, methods, and data shall be

- Automatic and Manual Water-Based Fire Suppression Systems (Section 3.9);
- Gaseous Fire Suppression Systems (Section 3.10); and
- Passive Fire Protection Features (Section 3.11).

This License Condition does not apply to any demonstration of equivalency under Section 1.7 of NFPA 805.

1. Fire Protection Program Changes that Have No More than Minimal Risk Impact

Prior NRC review and approval are not required for changes to the licensee's fire protection program that have been demonstrated to have no more than a minimal risk impact. The licensee may use its screening process as approved in the NRC Safety Evaluation dated October 28, 2015, to determine that certain fire protection program changes meet the minimal criterion. The licensee shall ensure that fire protection defense-in-depth and safety margins are maintained when changes are made to the fire protection program.

**Transition License Conditions**

1. Before achieving full compliance with 10 CFR 50.48(c), as specified by (2) below, risk-informed changes to the licensee's fire protection program may not be made without prior NRC review and approval unless the change has been demonstrated to have no more than a minimal risk impact, as described in (2) above.
  2. With the exception of Modifications 102 and 106, the licensee shall implement modifications to its facility, as described in Table S-2, "Plant Modifications Committed," of Tennessee Valley Authority letter CNL-18-100, dated October 18, 2018, as supplemented by letter CNL-19-027, dated February 13, 2019, to complete the transition to full compliance with 10 CFR 50.48(c) no later than the end of the second refueling outage (for each unit) following issuance of the NFPA 805 License Amendment dated October 28, 2015. Modifications 102 and 106 as described in Table S-2, shall be implemented no later than the end of Unit 1's Fall 2020 outage, and April 30, 2020, respectively. The licensee shall maintain appropriate compensatory measures in place until completion of these modifications.
  3. The licensee shall complete Implementation Items 09, 32, 33, and the second part of Implementation Items 47 as listed in Table S-3, "Implementation Items," of TVA letter CNL-17-130 dated October 23, 2017. Implementation Item 09 shall be completed by June 29, 2018. Implementation Items 32, 33, and the second part of Implementation Item 47, i.e., resolving Finding level Facts and Observations, are associated with modifications and will be completed after all procedure updates, modifications, and training are complete.
- (15) The licensee shall maintain the Augmented Quality Program for the Standby Liquid Control System to provide quality control elements to ensure component reliability for the required alternative source term function defined in the Updated Final Safety Analyses Report (UFSAR).
- (16) Upon implementation of Amendment No. 275, adopting TSTF-448, Revision 3, the determination of control room envelope (CRE) unfiltered air leakage as required by SR 3.7.3.4, in accordance with TS 5.5.13.c(i), the assessment of the CRE habitability as required by TS 5.5.13.c(ii), and the measure of CRE pressure as required by TS 5.5.13.d, shall be considered met.

- (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. , 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) 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 application dated September 6, 1996; as supplemented May 1, August 14, November 5 and 14, December 3, 4, 11, 22, 23, 29, and 30, 1997; January 23, March 12, April 16, 20, and 28, May 7, 14, 19, and 27, and June 2, 5, 10 and 19, 1998; evaluated in the NRC staff's Safety Evaluation enclosed with this amendment. This amendment is effective immediately and shall be implemented within 90 days of the date of this amendment.
- (4) Deleted.
- (5) Classroom and simulator training on all power uprate related changes that affect operator performance will be conducted prior to operating at uprated conditions. Simulator changes that are consistent with power uprate conditions will be made and simulator fidelity will be validated in accordance with ANSI/ANS 3.5-1985. Training and the plant simulator will be modified, as necessary, to incorporate changes identified during startup testing. This amendment is effective immediately.
- (6)(a) The licensee shall fully implement and maintain in effect all provisions of the Commission-approved physical security, training and qualification, and safeguards contingency plans including amendments made pursuant to provisions of the Miscellaneous Amendments and Search Requirements revisions to 10 CFR 73.55 (51 FR 27817 and 27822) and to the authority of 10 CFR 50.90 and 10 CFR 50.54(p). The combined set of plans, which contains Safeguards Information protected under 10 CFR 73.21, is entitled: "Browns Ferry Nuclear Plant Physical Security Plan, Training and Qualification Plan, and Contingency Plan," Revision 4, submitted by letter dated April 28, 2006.
- (b) The licensee shall fully implement and maintain in effect all provisions of the Commission-approved cyber security plan (CSP), including changes made pursuant to the authority of 10 CFR 50.90 and 10 CFR 50.54(p). The licensee CSP was approved by License Amendment No. 265, as amended by changes approved by License Amendment Nos. 271 and 281.
- (7) TVA Browns Ferry Nuclear Plant shall implement and maintain in effect all provisions of the approved fire protection program that comply with 10 CFR 50.48(a) and 10 CFR 50.48(c), as specified in the license amendment requests dated March 27, 2013, June 7, 2017, May 3, 2018, October 18, 2018, and July 3, 2019, as supplemented by letters dated May 16, 2013, December 20, 2013, January 10, 2014, January 14, 2014; February 13, 2014, March 14, 2014, May 30, 2014, June 13, 2014, July 10, 2014; August 29, 2014, September 16, 2014, October 6, 2014, December 17, 2014, March 26, 2015, April 9, 2015, June 19, 2015, August 18, 2015, September 8, 2015, October 20, 2015, September 18, 2017, October 23, 2017, February 13, 2019, and March 8, 2019, as approved in the Safety Evaluations dated October 28, 2015, December 19, 2017, October 9, 2018, April 2, 2019, and **[[INSERT SE DATE]]**. Except where NRC approval for changes or deviations is required by 10 CFR 50.48(c), and provided no other regulation, technical specification, license condition or requirement would require prior NRC approval, the licensee

The licensee may use an engineering evaluation to demonstrate that changes to certain NFPA 805, Chapter 3 elements are acceptable because the alternative is "adequate for the hazard." Prior NRC review and approval would not be required for alternatives to four specific sections of NFPA 805, Chapter 3, for which an engineering evaluation demonstrates that the alternative to the Chapter 3 element is adequate for the hazard. A qualified fire protection engineer shall perform the engineering evaluation and conclude that the change has not affected the functionality of the component, system, procedure, or physical arrangement, using a relevant technical requirement or standard. The four specific sections of NFPA 805, Chapter 3, are as follows:

- Fire Alarm and Detection Systems (Section 3.8);
- Automatic and Manual Water-Based Fire Suppression Systems (Section 3.9);
- Gaseous Fire Suppression Systems (Section 3.10); and
- Passive Fire Protection Features (Section 3.11).

This License Condition does not apply to any demonstration of equivalency under Section 1.7 of NFPA 805.

2. Fire Protection Program Changes that Have No More than Minimal Risk Impact

Prior NRC review and approval are not required for changes to the licensee's fire protection program that have been demonstrated to have no more than a minimal risk impact. The licensee may use its screening process as approved in the NRC Safety Evaluation dated October 28, 2015, to determine that certain fire protection program changes meet the minimal criterion. The licensee shall ensure that fire protection defense-in-depth and safety margins are maintained when changes are made to the fire protection program.

**Transition License Conditions**

1. Before achieving full compliance with 10 CFR 50.48(c), as specified by (2) below, risk-informed changes to the licensee's fire protection program may not be made without prior NRC review and approval unless the change has been demonstrated to have no more than a minimal risk impact, as described in (2) above.
2. With the exception of Modifications 102 and 106, the licensee shall implement modifications to its facility, as described in Table S-2, "Plant Modifications Committed," of Tennessee Valley Authority letter CNL-18-100, dated October 18, 2018, as supplemented by letter CNL-19-027, dated February 13, 2019, to complete the transition to full compliance with 10 CFR 50.48(c) no later than the end of the second refueling outage (for each unit) following issuance of the NFPA 805 License Amendment dated October 28, 2015. Modifications 102 and 106 as described in Table S-2, shall be implemented no later than the end of Unit 1's Fall 2020 outage, and April 30, 2020, respectively. The licensee shall maintain appropriate compensatory measures in place until completion of these modifications.