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

February 26, 2015

Mr. Joseph W. Shea
Vice President, Nuclear Licensing
Tennessee Valley Authority
3R Lookout Place
1101 Market Street, LP 3D-C
Chattanooga, TN 37402-2801

SUBJECT: BROWNS FERRY NUCLEAR PLANT, UNITS 1, 2, AND 3 - ISSUANCE OF AMENDMENT UNDER EXIGENT CIRCUMSTANCES TO ADD A REFERENCE TO THE ATRIUM 10XM NRC SAFETY EVALUATION APPROVAL IN TECHNICAL SPECIFICATION 5.6.5.b IN SUPPORT OF ATRIUM 10XM FUEL USE AT BROWNS FERRY (TAC NOS. MF5725, MF5726, AND MF5727)

Dear Mr. Shea:

The Nuclear Regulatory Commission (NRC, Commission) has issued the enclosed Amendment Nos. 288, 313, and 272 to Renewed Facility Operating Licenses Nos. DPR-33, DPR-52, and DPR-68 for the Browns Ferry Nuclear Plant (BFN), Units 1, 2, and 3, respectively. These amendments are in response to the Tennessee Valley Authority's (TVA's) application dated February 12, 2015.

The amendments add a notation in reference to EMF-2361(P)(A) Revision 0, EXEM BWR-2000 ECCS [Emergency Core Cooling System] Evaluation Model contained in Technical Specification (TS) 5.6.5.b for BFN, Units 1, 2, and 3, to reflect an approved Loss-of-Coolant Accident (LOCA) methodology in Safety Evaluation (SE) dated July 31, 2014, in Amendment Nos. 285, 311, and 270. The proposed change adds the July 31, 2014, SE approval date to TS 5.6.5.b in order to reflect an acceptable methodology related to the treatment of top-down core-spray cooling, that was utilized in the NRC-approved LOCA analysis supporting the transition to ATRIUM 10XM (10XM) fuel.

BFN Unit 2 is entering a refueling outage on March 14, 2015, and is scheduled to commence loading 10XM fuel on March 17, 2015. Due to the discrepancy in referenced documentation, BFN Unit 2 will be unable to issue a Core Operating Limits Report for the Unit 2 transition cycle unless the notation to the latest NRC SE is added. Accordingly, TVA requested this change under exigent circumstances in accordance with Title 10 of *Code of Federal Regulations* (CFR) Section 50.91(a)(6), and requested that the NRC expedite its review of the requested change to support approval by March 2, 2015. TVA intends to transition BFN Unit 2 to the 10XM fuel design starting with Cycle 19 in the spring of 2015, BFN Unit 3 in the spring of 2016, and BFN Unit 1 in the fall of 2016.

The NRC staff reviewed TVA's request and determined that the provisions of 10 CFR 50.91(a)(6) were applicable for processing the licensee's request under exigent circumstances. A copy of the related SE is also enclosed. The Notice of Issuance will be included in the Commission's biweekly *Federal Register* notice.

If you have any questions regarding this letter, please contact me at (301) 415-1447 or Farideh.Saba@nrc.gov.

Sincerely,

Farideh E. Saba

Farideh E. Saba, 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. 288 to DPR-33
2. Amendment No. 313 to DPR-52
3. Amendment No. 272 to DPR-68
4. Safety Evaluation

cc w/enclosures: Distribution via 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. 288
Renewed License No. DPR-33

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

   A. The application for amendment by Tennessee Valley Authority (the licensee) dated February 12, 2015, 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 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 as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 288, are hereby incorporated in the 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 during the Unit 1 refueling outage in fall of 2016.

FOR THE NUCLEAR REGULATORY COMMISSION

Shana R. Helton, Chief
Plant Licensing Branch II-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Operating License
and Technical Specifications

Date of Issuance: February 26, 2015

ATTACHMENT TO LICENSE AMENDMENT NO. 288

RENEWED FACILITY OPERATING LICENSE NO. DPR-33

DOCKET NO. 50-259

Replace Page 3 of Renewed Operating License DPR-33 with the attached Page 3.

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

REMOVE	INSERT
5.0-24b	5.0-24b

(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 3458 megawatts thermal.

(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 288, 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.

5.6 Reporting Requirements (continued)

5.6.5 CORE OPERATING LIMITS REPORT (COLR) (continued)

10. XN-NF-84-105(P)(A) Volume 1 and Volume 1 Supplements 1 and 2, XCOBRA-T: A Computer Code for BWR Transient Thermal-Hydraulic Core Analysis, Exxon Nuclear Company, February 1987.

11. ANF-10307PA Revision 0, AREVA MCPR Safety Limit Methodology for Boiling Water Reactors, AREVA NP, June 2011.

12. ANF-913(P)(A) Volume 1 Revision 1 and Volume 1 Supplements 2, 3 and 4, COTRANSA2: A Computer Program for Boiling Water Reactor Transient Analyses, Advanced Nuclear Fuels Corporation, August 1990.

13. ANF-1358(P)(A) Revision 3, The Loss of Feedwater Heating Transient in Boiling Water Reactors, Framatome ANP, September 2005.

14. EMF-2209(P)(A) Revision 3, SPCB Critical Power Correlation, AREVA NP, September 2009.

15. EMF-2245(P)(A) Revision 0, Application of Siemens Power Corporation's Critical Power Correlations to Co-Resident Fuel, Siemens Power Corporation, August 2000.

16. EMF-2361(P)(A) Revision 0, EXEM BWR-2000 ECCS Evaluation Model, Framatome ANP Inc., May 2001 as supplemented by the site-specific approval in NRC safety evaluations dated April 27, 2012, and July 31, 2014.

17. EMF-2292(P)(A) Revision 0, ATRIUM™-10: Appendix K Spray Heat Transfer Coefficients, Siemens Power Corporation, September 2000.

(continued)

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

TENNESSEE VALLEY AUTHORITY

DOCKET NO. 50-260

BROWNS FERRY NUCLEAR PLANT, UNIT 2

AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 313
Renewed License No. DPR-52

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

   A. The application for amendment by Tennessee Valley Authority (the licensee) dated February 28, 2013, as supplemented by letters dated September 30, 2013, and May 16, 2014, 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 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 Operating License and 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 as follows:

   (2) Technical Specifications

   The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 313, 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 during the Unit 2 refueling outage in spring of 2015.

FOR THE NUCLEAR REGULATORY COMMISSION

Shana R. Helton, Chief
Plant Licensing Branch II-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Renewed Operating License
and Technical Specifications

Date of Issuance: February 26, 2015

ATTACHMENT TO LICENSE AMENDMENT NO. 313

RENEWED FACILITY OPERATING LICENSE NO. DPR-52

DOCKET NO. 50-260

Replace Page 3 of Renewed Operating License DPR-52 with the attached Page 3.

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

REMOVE	INSERT
5.0-24b	5.0-24b

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 3458 megawatts thermal.

(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 313, 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 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

5.6 Reporting Requirements (continued)

14. EMF-2245(P)(A) Revision 0, Application of Siemens Power Corporation's Critical Power Correlations to Co-Resident Fuel, Siemens Power Corporation, August 2000.

15. EMF-2361(P)(A) Revision 0, EXEM BWR-2000 ECCS Evaluation Model, Framatome ANP Inc., May 2001 as supplemented by the site-specific approval in NRC safety evaluations dated February 15, 2013, and July 31, 2014.

16. EMF-2292(P)(A) Revision 0, ATRIUM™-10: Appendix K Spray Heat Transfer Coefficients, Siemens Power Corporation, September 2000.

17. EMF-CC-074(P)(A), Volume 4, Revision 0, BWR Stability Analysis: Assessment of STAIF with Input from MICROBURN-B2, Siemens Power Corporation, August 2000.

18. BAW-10255(P)(A), Revision 2, Cycle-Specific DIVOM Methodology Using the RAMONA5-FA Code, AREVA NP, May 2008.

19. BAW-10247PA Revision 0, Realistic Thermal-Mechanical Fuel Rod Methodology for Boiling Water Reactors, AREVA NP, February 2008.

20. ANP-10298PA Revision 0, ACE/ATRIUM 10XM Critical Power Correlation, AREVA NP, March 2010.

21. ANP-3140(P) Revision 0, Browns Ferry Units 1, 2, and 3 Improved K-factor Model for ACE/ATRIUM 10XM Critical Power Correlation, AREVA NP, August 2012.

(continued)

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

TENNESSEE VALLEY AUTHORITY

DOCKET NO. 50-296

BROWNS FERRY NUCLEAR PLANT, UNIT 3

AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 272
Renewed License No. DPR-68

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

   A. The application for amendment by Tennessee Valley Authority (the licensee) dated February 12, 2015, 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 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 Operating license and 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 as follows:

   (2) Technical Specifications

   The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 272, 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 during the Unit 3 refueling outage in spring of 2016.

FOR THE NUCLEAR REGULATORY COMMISSION

Shana R. Helton, Chief
Plant Licensing Branch II-2
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Renewed Operating License
and Technical Specifications

Date of Issuance: February 26, 2015

ATTACHMENT TO LICENSE AMENDMENT NO. 272

RENEWED FACILITY OPERATING LICENSE NO. DPR-68

DOCKET NO. 50-296

Replace Page 3 of Renewed Operating License DPR-68 with the attached Page 3.

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

REMOVE	INSERT
5.0-24b	5.0-24b

(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 3458 megawatts thermal.

(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 272, 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.

5.6 Reporting Requirements (continued)

12. ANF-1358(P)(A) Revision 3, The Loss of Feedwater Heating Transient in Boiling Water Reactors, Framatome ANP, September 2005.

13. EMF-2209(P)(A) Revision 3, SPCB Critical Power Correlation, AREVA NP, September 2009.

14. EMF-2245(P)(A) Revision 0, Application of Siemens Power Corporation's Critical Power Correlations to Co-Resident Fuel, Siemens Power Corporation, August 2000.

15. EMF-2361(P)(A) Revision 0, EXEM BWR-2000 ECCS Evaluation Model, Framatome ANP Inc., May 2001 as supplemented by the site-specific approval in NRC safety evaluations dated February 15, 2013, and July 31, 2014.

16. EMF-2292(P)(A) Revision 0, ATRIUM™-10: Appendix K Spray Heat Transfer Coefficients, Siemens Power Corporation, September 2000.

17. EMF-CC-074(P)(A), Volume 4, Revision 0, BWR Stability Analysis: Assessment of STAIF with Input from MICROBURN-B2, Siemens Power Corporation, August 2000.

18. BAW-10255(P)(A), Revision 2, Cycle-Specific DIVOM Methodology Using the RAMONA5-FA Code, AREVA NP, May 2008.

19. BAW-10247PA Revision 0, Realistic Thermal-Mechanical Fuel Rod Methodology for Boiling Water Reactors, AREVA NP, February 2008.

20. ANP-10298PA Revision 0, ACE/ATRIUM 10XM Critical Power Correlation, AREVA NP, March 2010.

(continued)

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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 288 TO RENEWED FACILITY OPERATING

LICENSE NO. DPR-33, AMENDMENT NO. 313 TO RENEWED FACILITY OPERATING

LICENSE NO. DPR-52, AND AMENDMENT NO. 272 TO RENEWED

FACILITY OPERATING LICENSE NO. 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 to the Nuclear Regulatory Commission (NRC) dated February 12, 2015 (Agencywide Documents Access and Management System (ADAMS), Accession No. ML15043A323), Tennessee Valley Authority (TVA, the licensee) requested a license amendment request (LAR) to the Browns Ferry Nuclear Plant (BFN), Units 1, 2, and 3 Technical Specification (TS) 5.6.5.b, "Core Operating Limits Report (COLR)."

Specifically, the licensee requested to add the approval date of the NRC Safety Evaluation (SE) dated July 31, 2014 (ADAMS Accession No. ML14113A286). to the reference for EMF-2361(P)(A) Revision 0, EXEM BWR-2000 ECCS [Emergency Core Cooling System] Evaluation Model in TS 5.6.5.b for all three units. The proposed changes to TS 5.6.5.b reflect an enhanced methodology related to the treatment of top-down core-spray cooling that was utilized in the Loss-of-Coolant Accident (LOCA) analysis supporting the transition to ATRIUM 10XM (10XM) fuel LAR and approved by the NRC on July 31, 2014.

Specifically, the licensee in LAR dated February 12, 2015, proposed to supplement TS 5.6.5.b, in Reference 16 for Unit 1 and Reference 15 for Units 2 and 3, with the approval of the 10XM fuel SE dated July 31, 2014.

For BFN, Unit 1, the proposed change for TS 5.6.5.b Reference 16 is (changes are in bolded and underlined fonts):

> EMF-2361(P)(A) Revision 0, EXEM BWR-2000 ECCS Evaluation Model, Framatome ANP Inc., May 2001 as supplemented by the site-specific approval in NRC safety evaluations dated April 27, 2012**, and July 31, 2014**.

Enclosure 4

For BFN, Units 2 and 3, the proposed change for TS 5.6.5.b Reference 15 is (changes are in bolded and underlined fonts):

> EMF-2361(P)(A) Revision 0, EXEM BWR-2000 ECCS Evaluation Model, Framatome ANP Inc., May 2001 as supplemented by the site-specific approval in NRC safety evaluation**s** dated February 15, 2013**, and July 31, 2014**.

The licensee, in its application dated February 12, 2015, requested that the proposed license amendments be processed by the NRC on an exigent basis in accordance with the provisions in Title 10 of the *Code of Federal Regulations* (10 CFR) Section 50.91(a)(6). The NRC's evaluation regarding the exigent circumstances is discussed in Section 4.0 of this SE.

2.0 REGULATORY EVALUATION

Section 182a of the Atomic Energy Act (the Act) requires applicants for nuclear power plant operating licenses to include TSs as part of the license. The TSs ensure the operational capability of structures, systems, and components that are required to protect the health and safety of the public. The regulatory requirements related to the content of the TSs are contained in 10 CFR 50.36.

Section 50.36(b) of 10 CFR requires, in part, that each license authorizing operation of a production or utilization facility of a type described in 10 CFR 50.21 or 50.22 include technical specifications that are derived from the analyses and evaluation included in the safety analysis report, and amendments thereto, submitted pursuant to 10 CFR 50.34.

Section 50.46, "Acceptance criteria for emergency core cooling system for Light-Water Nuclear Power Reactors," of 10 CFR requires that the fuel be protected in the event of design basis LOCA such that peak clad temperature, cladding oxidation, hydrogen generation, coolable geometry, and long-term cooling be maintained within limits specified by the regulations.

3.0 TECHNICAL EVALUATION

By letter dated July 31, 2014, the NRC approved Amendment No. 285 to Facility Operating License No. DPR-33 for the BFN Unit 1, Amendment No. 311 to Facility Operating License No. DPR-52 for the BFN Unit 2, and Amendment No. 270 to Facility Operating License No. DPR-68 for the BFN Unit 3 in response to the licensee's request for a license amendment dated February 28, 2013 (ADAMS Accession No. ML13070A307), as supplemented by letters dated September 30, 2013, and May 16, 2014 (ADAMS Accession Nos. ML13276A063 and ML14139A180, respectively). In the July 31, 2014, amendments, the NRC approved TS changes regarding a planned transition to 10XM fuel design. The amendments added three additional AREVA analysis methodologies to the list of approved methods to be used in determining core operating limits in the Core Operating Limits Report.

The NRC had previously approved amendments with respect to transition to ATRIUM-10 fuel in Amendment No. 281 (ADAMS Accession No. ML12129A149) dated April 27, 2012, for Unit 1 and Amendment Nos. 309 and 268 (ADAMS Accession No. ML13018A342) dated February 15, 2015, for Units 2 and 3, respectively. In Amendment Nos. 281, 309, and 268, regarding LOCA methodology for ATRIUM-10 fuel, the licensee added revisions of the TS 5.6.5.b for BFN

Units 1, 2, and 3 to include specific reference to the NRC-approved modified LOCA methodology. Accordingly, the TS 5.6.5.b reference for the EXEM BWR-2000 ECCS Evaluation Model included a notation to the site-specific approval in NRC SEs dated April 27, 2012 and February 15, 2013.

The 2014 SE for Amendment Nos. 285, 311, and 270 approved an enhanced LOCA methodology change used to show compliance with 10 CFR 50.46. However, this LOCA methodology change associated with the 10XM fuel was slightly different from the LOCA methodology that was approved for transition to ATRIUM-10 fuel in the SEs dated April 27, 2102, and February 15, 2013. Therefore, a reference to the SE dated July 31, 2014, must be included with the TS 5.6.5.b EXEM BWR-2000 ECCS Evaluation Model reference, in order for the licensee to use the NRC-approved analysis for determining the core operating limits in the COLR supporting the transition to 10XM fuel.

The NRC staff determined, in the SE for Amendment Nos. 285, 311, and 270 that:

> The licensee performed the break spectrum analysis and LOCA analysis using the NRC-approved AREVA EXEM BWR-2000 LOCA methodology. All SER restrictions and ranges of applicability for the EXEM BWR-2000 methodology were reviewed prior to final documentation of the LOCA analysis to ensure compliance with NRC requirements and methodology limitations. The NRC staff finds the LOCA limiting analysis methodology and results acceptable.

Based on the foregoing, the NRC staff finds that the licensee's proposed TS changes that add a notation regarding the SE of Amendment Nos. 285, 311, and 270 to the reference in BFN Units 1, 2, and 3 TS 5.6.5.b for EXEM BWR-2000 ECCS Evaluation Model do not change the technical evaluation or conclusion of the previously approved amendments regarding transition to 10XM fuel for all three units. The proposed amendments do not involve any physical changes to the plant and do not involve any changes in the operation of the plant. Therefore, the NRC staff concludes that the licensee's proposed license amendments are acceptable.

4.0 EXIGENT CIRCUMSTANCES

Background

The NRC's regulations contain provisions for issuance of amendments when the usual 30-day public comment period cannot be met. These provisions are applicable under exigent circumstances. Consistent with the requirements in 10 CFR 50.91(a)(6), exigent circumstances exist when: (1) a licensee and the NRC must act quickly; (2) time does not permit the NRC to publish a *Federal Register* notice allowing 30 days for prior public comment; and (3) the NRC determines that the amendment involves no significant hazards considerations.

Licensee's Basis for Exigent Circumstances

The licensee in its LAR dated February 12, 2015, requested that the proposed amendment be processed by the NRC on an exigent basis. As discussed in the licensee's submittal:

> In Reference 1[1] and supplemented by Reference 2, Tennessee Valley Authority (TVA) submitted a license amendment request (LAR) to revise the BFN, Units 1, 2, and 3, Technical Specifications (TS) for the addition of analytical methodologies to TS 5.6.5.b for BFN Units 1, 2, and 3, in support of ATRIUM-10 XM fuel use. The NRC approved that LAR in an SE dated July 31, 2014 (Reference 3), which stated that three new analytical methodologies could be added to the BFN TS 5.6.5.b for use in determining the core operating limits in the Core Operating Limits Report (COLR) in support of transition to AREVA ATRIUM-10 XM fuel. In addition, the SE approved a LOCA methodology change used to show compliance with Title 10 of the *Code of Federal Regulations* (10 CFR) 50.46, "Acceptance Criteria for Emergency Core Cooling Systems for Light Water Nuclear Power Reactors." However, this LOCA methodology change associated with the ATRIUM-10 XM fuel is slightly different from the LOCA methodology for which TVA had previously received approval with respect to ATRIUM-10 fuel (References 4 and 5). NRC approval of the earlier LOCA methodology for ATRIUM-10 fuel (References 4 and 5) required revision of the TS 5.6.5.b to include specific reference to the approved modified LOCA methodology. Accordingly, the TS 5.6.5.b reference for the EXEM BWR-2000 ECCS Evaluation Model (Reference 6) included a notation to the site-specific approval in NRC safety evaluation dated April 27, 2012 (for Unit 1) and February 15, 2013 (for Units 2 and 3). Therefore, prior to use of the NRC-approved Loss of Coolant Accident (LOCA) analysis for determining the core operating limits in the COLR supporting the transition to ATRIUM-10XM fuel, reference to the new SE must be included with the TS 5.6.5.b EXEM BWR-2000 ECCS Evaluation Model reference.
>
> BFN Unit 2 is entering an outage on March 14, 2015, and is scheduled to commence loading ATRIUM-10 XM fuel on March 17, 2015. Accordingly, TVA is requesting this proposed change under exigent circumstances in accordance with 10 CFR 50.91(a)(6), and requests that the NRC expedite their review of the requested change to support the upcoming BFN Unit 2 Cycle 19 operation.

Under the provisions in 10 CFR 50.91(a)(6), the NRC notifies the public in one of two ways: (1) by issuing a *Federal Register* notice providing notice of an opportunity for hearing and allowing at least 2 weeks from the date of the notice for prior public comment; or (2) by using local media to provide reasonable notice to the public in the area surrounding the licensee's facility. In this case, the NRC used the second approach and published a public notice in a newspaper local to BFN, "The Huntsville Times," on February 18 and February 20, 2015.

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[1] See February 12, 2015, License Amendment Request, Reference 1 and Reference 2, ADAMS Accession No. ML15043A323.

NRC Staff Conclusion

Based on the above circumstances, the NRC staff finds that the licensee made a timely application for the proposed amendment following identification of the issue. In addition, the NRC staff finds that the licensee could not avoid the exigency without an amendment to revise TS 5.6.5.b for BFN Unit 2.

Based on these findings, and the determination that the amendment involves no significant hazards consideration as discussed below, the NRC staff has determined that a valid need exists for issuance of the license amendment using the exigent provisions of 10 CFR 50.91(a)(6).

5.0 FINAL NO SIGNIFICANT HAZARDS CONSIDERATION DETERMINATION

Proposed No Significant Hazards Consideration Determination

As discussed in SE Section 4, the NRC staff published a public notice concerning the proposed amendment, in a newspaper local to BFN, The Huntsville Times, on February 18 and 20, 2015. The notice included the NRC staff's proposed no significant hazards consideration (NSHC) determination. The notice also provided an opportunity for public comment until 4:15 p.m. on February 24, 2015, regarding the staff's proposed NSHC determination. No comments were received.

Final No Significant Hazards Consideration Determination

The NRC's regulations in 10 CFR 50.92 state that the NRC may make a final determination that a license amendment involves no significant hazards consideration if operation of the facility, in accordance with the proposed amendment would not: (1) involve a significant increase in the probability or consequences of an accident previously evaluated; or (2) create the possibility of a new or different kind of accident from any accident previously evaluated; or (3) involve a significant reduction in a margin of safety.

As required by 10 CFR 50.91(a), the licensee, in its application dated February 12, 2015, provided its analysis of the issue of no significant hazards consideration, using the standards in 10 CFR 50.92. The licensee's evaluation of the issue of no significant hazards consideration is presented below.

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

   Response: No.

   The proposed amendment changes Technical Specification 5.6.5.b to reflect the NRC approval of an updated method of treating top down core spray in LOCA analysis. As such, it involves no changes to the operation of any system or component during normal, accident, or transient operating conditions. The change does not affect the initiators of

any accident. Therefore, the proposed change does not involve a significant increase in the probability or consequences of an accident previously evaluated.

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 a recent NRC Safety Evaluation (SE) to existing annotation on the AREVA LOCA method listed in the TS 5.6.5.b. As such, the amendment does not involve physical changes to plant hardware or its operating characteristics. No new failure modes are introduced. Therefore, the change does not introduce a new or different kind of accident from those previously evaluated.

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

   Response: No.

   The amendment makes changes to the Technical Specifications, to reflect the NRC SE related to the ATRIUM-10 XM fuel transition. The margin of safety will not be altered by the amendment, as the NRC has reviewed the LOCA analysis associated with that amendment and determined the results to be acceptable. No plant system, structure, or component is affected, and the behavior of plant equipment is not affected.

   Therefore, the proposed changes do not involve a significant reduction in a margin of safety.

Based on its review of the licensee's evaluation, the NRC staff concludes that the three standards of 10 CFR 50.92(c) are satisfied. Therefore, the NRC staff has made a final determination that no significant hazards considerations are involved for the proposed amendments.

6.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Alabama State official was notified of the proposed issuance of the amendment. The State official had no comments.

7.0 ENVIRONMENTAL CONSIDERATION

The NRC staff has determined that the amendment involves no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has made a final determination that no significant hazards consideration is involved for the proposed amendment as discussed above in SE Section 5.0. Accordingly, the amendment meets 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 amendment.

8.0 CONCLUSION

The Commission has concluded, based on the considerations discussed above, there is reasonable assurance that: (1) the health and safety of the public will not be endangered by operation in the proposed manner, (2) 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.

Contributors: Farideh E. Saba

Date: February 26, 2015

If you have any questions regarding this letter, please contact me at (301) 415-1447 or Farideh.Saba@nrc.gov.

Sincerely,

/RA/

Farideh E. Saba, 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. 288 to DPR-33
2. Amendment No. 313 to DPR-52
3. Amendment No. 272 to DPR-68
4. Safety Evaluation

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