



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

September 13, 2013

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, UNIT 1 - ISSUANCE OF AMENDMENT  
UNDER EXIGENT CIRCUMSTANCES TO REMOVE NOTES FROM  
TECHNICAL SPECIFICATION FIGURES 3.4.9-1 AND 3.4.9-2  
(TAC NO. MF2564)

Dear Mr. Shea:

The U.S. Nuclear Regulatory Commission has issued the enclosed Amendment No. 284 to Facility Operating License No. DPR-33 for Browns Ferry Nuclear Plant (BFN), Unit 1. This amendment removes the Notes from Technical Specification (TS) Figures 3.4.9-1, "Pressure/Temperature Limits for Mechanical Heatup, Cooldown following Shutdown, and Reactor Critical Operations," and 3.4.9-2 "Pressure/Temperature Limits for Reactor In-Service Leak and Hydraulic Testing," in response to the Tennessee Valley Authority (licensee) application dated August 14, 2013, as supplemented by letters dated August 21 and September 6, 2013.

The amendment deletes the Notes that cover the Reactor Coolant System (RCS) Pressure and Temperature (P/T) Limit curves on TS 3.4.9, "RCS Pressure and Temperatures (P/T) Limits," Figures 3.4.9-1 and 3.4.9-2 are valid for 16 Effective Full-Power Years (EFPY) of operation. The current Notes state: "Do Not Use This Figure. This curve applies to operations > [greater than] 12 EFPY. For current operation, use previous curve, which is valid up to 12 EFPY." Therefore, to use the correct and previously approved P/T limit curves that are applicable up to 16 EFPY of operation, the Notes must be removed from TS Figures 3.4.9-1 and 3.4.9-2.

BFN Unit 1 operation is expected to reach 12 EFPY on September 20, 2013. Once 12 EFPY is achieved, BFN Unit 1 will not be allowed to continue operation in Mode 1 (i.e., critical operation) and a unit shutdown will be required unless the Notes are removed. The licensee requested this proposed TS change under exigent circumstances in accordance with Title 10, *Code of Federal Regulations* Section 50.91(a)(6).

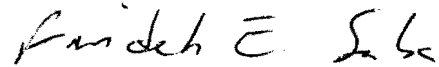
In addition, the amendment corrects the page header for these figures. The amendment changes current page header "Reactor Steam Dome Pressure," which is the title for TS 3.4.10, to "RCS P/T Limits."

J. Shea

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A copy of the related Safety Evaluation 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.

Sincerely,

A handwritten signature in black ink that reads "Farideh E. Saba". The signature is written in a cursive style with a large initial 'F' and 'S'.

Farideh E. Saba, Senior Project Manager  
Plant Licensing Branch II-2  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

Docket No. 50-259

Enclosures:

1. Amendment No. 284 to DPR-33
2. Safety Evaluation

cc w/encls: 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. 284  
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 August 14, 2013, as supplemented by letters dated August 21 and September 6, 2013, 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. 284, 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.

FOR THE NUCLEAR REGULATORY COMMISSION



Douglas A. Broaddus, Acting 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: September 13, 2013

ATTACHMENT TO LICENSE AMENDMENT NO. 284  
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 pages of the Appendix A Technical Specifications with the attached revised pages. The revised pages are identified by amendment number and contain marginal lines indicating the areas of change.

REMOVE

3.4-29b  
3.4-29c

INSERT

3.4-29b  
3.4-29c

- (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:

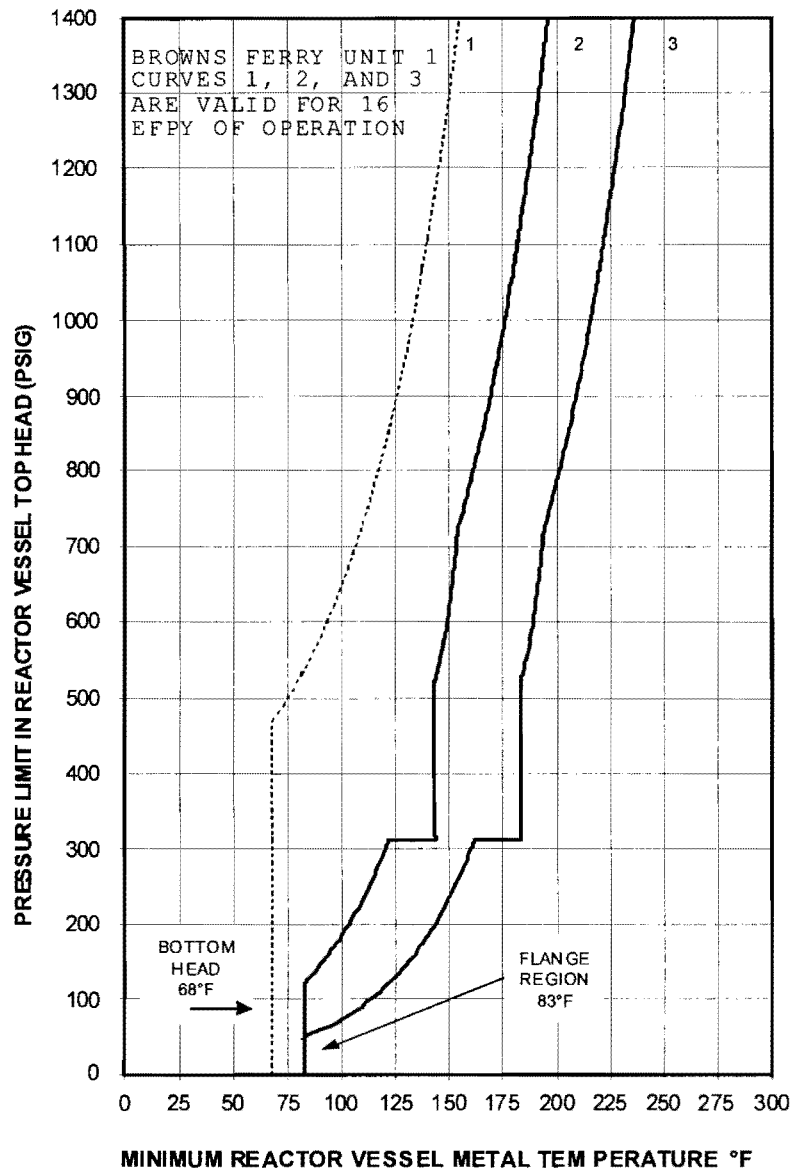
(1) Maximum Power Level

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. 284, 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.



Curve No. 1  
Minimum temperature for bottom head during mechanical heatup or cooldown following nuclear shutdown.

Curve No. 2  
Minimum temperature for upper RPV and beltline during mechanical heatup or cooldown following nuclear shutdown.

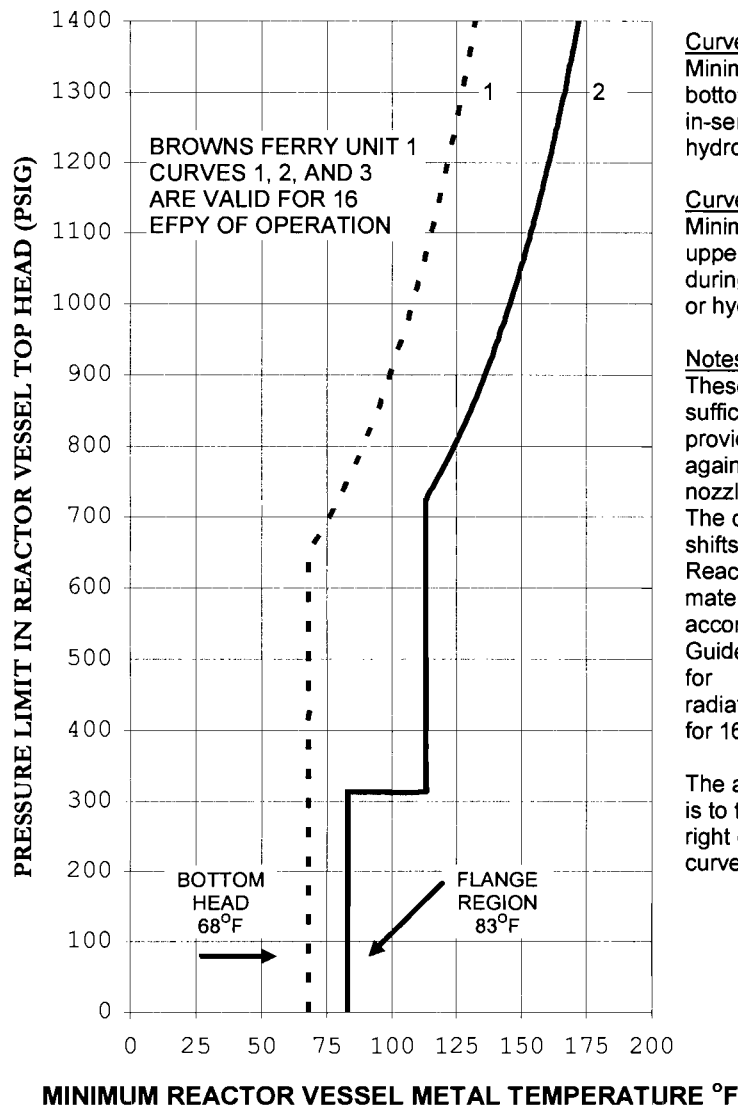
Curve No. 3  
Minimum temperature for core operation (criticality).

Notes

These curves include sufficient margin to provide protection against feedwater nozzle degradation. The curves allow for shifts in  $RT_{NDT}$  of the Reactor vessel beltline materials, in accordance with Reg. Guide 1.99 Rev. 2 to compensate for radiation embrittlement for 16 EFPY.

The acceptable area for operation is to the right of the applicable curves.

**Figure 3.4.9-1  
Pressure/Temperature Limits for  
Mechanical Heatup, Cooldown following Shutdown, and  
Reactor Critical Operations**



**Curve No. 1**  
Minimum temperature for bottom head during in-service leak or hydrostatic testing.

**Curve No. 2**  
Minimum temperature for upper RPV and beltline during in-service leak or hydrostatic testing.

**Notes**  
These curves include sufficient margin to provide protection against feedwater nozzle degradation. The curves allow for shifts in  $RT_{NDT}$  of the Reactor vessel beltline materials, in accordance with Reg. Guide 1.99 Rev. 2 to compensate for radiation embrittlement for 16 EFPY.

The acceptable area for operation is to the right of the applicable curves.

**Figure 3.4.9-2  
Pressure/Temperature Limits for  
Reactor In-Service Leak and Hydrostatic Testing**





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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 284 TO RENEWED FACILITY OPERATING

LICENSE NO. DPR-33

TENNESSEE VALLEY AUTHORITY

BROWNS FERRY NUCLEAR PLANT, UNIT 1

DOCKET NO. 50-259

1.0 INTRODUCTION

By letter to the Nuclear Regulatory Commission (NRC) dated August 14, 2013 (Agencywide Documents Access and Management System (ADAMS), Accession No. ML13227A103) as supplemented by letters dated August 21 and September 6, 2013 (ADAMS Accession Nos. ML13235A308 and ML13252A338), Tennessee Valley Authority (TVA, the licensee) requested a license amendment request (LAR) to the Browns Ferry Nuclear Plant (BFN), Unit 1 Technical Specification (TS) 3.4.9, "RCS [Reactor Coolant System] Pressure and Temperatures (P/T) Limits."

Specifically, the licensee requested to delete the Notes that cover the RCS P/T Limit curves on TS 3.4.9, Figure 3.4.9-1, "Pressure/Temperature Limits for Mechanical Heatup, Cooldown following Shutdown, and Reactor Critical Operations," and Figure 3.4.9-2 "Pressure/Temperature Limits for Reactor In-Service Leak and Hydraulic Testing," that are applicable to 16 Effective Full Power Years (EFPY). The current Notes state: "Do Not Use This Figure. This curve applies to operations > [greater than] 12 EFPY. For current operation, use previous curve, which is valid up to 12 EFPY." Therefore, to utilize the correct and previously approved P/T limit curves once BFN Unit 1 operation has reached 12 EFPY, the Notes must be removed from TS Figures 3.4.9-1 and 3.4.9-2 that are applicable up to 16 EFPY.

BFN Unit 1 operation is expected to reach 12 EFPY on September 20, 2013. Once 12 EFPY is achieved, BFN Unit 1 will not be allowed to continue operation in Mode 1 (i.e., critical operation) and a unit shutdown will be required unless the Notes are removed. The licensee requested this proposed TS change under exigent circumstances in accordance with Title 10, *Code of Federal Regulations* (10 CFR) Section 50.91(a)(6).

In addition, the amendment corrects the page header for these figures. The amendment changes current page header, "Reactor Steam Dome Pressure," which is the title for TS 3.4.10, to "RCS P/T Limits."

The supplemental letters dated August 21 and September 6, 2013, provided additional information that clarified the application, did not expand the scope of the application as originally

noticed and did not change the original proposed no significant hazard consideration determination as published in the *Federal Register* (78 FR 52571) on August 23, 2013.

## 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. That regulation requires that the TSs include items in the following specific categories: safety limits, limiting safety system settings, and limiting control settings.

The NRC has established requirements in 10 CFR Part 50, to protect the integrity of the reactor coolant pressure boundary in nuclear power plants. The NRC staff evaluates the P/T limit curves based on the following NRC regulations and guidance: Appendix G to 10 CFR Part 50; Generic Letter (GL) 88-11, "NRC Position on Radiation Embrittlement of Reactor Vessel Materials and Its Impact on Plant Operations;" GL 92-01, "Reactor Vessel Structural Integrity," Revision (Rev.) 1; GL 92-01, Rev. 1, Supplement 1; Standard Review Plan (SRP) for the Review of Safety Analysis Reports for Nuclear Power Plants (NUREG-0800), Section 5.3.2; and Regulatory Guide (RG) 1.190, "Calculational and Dosimetry Methods for Determining Pressure Vessel Neutron Fluence." Appendix G to 10 CFR Part 50 requires that P/T limit curves for the reactor pressure vessel (RPV) be at least as conservative as those obtained by applying the methodology of Appendix G to Section XI of the American Society of Mechanical Engineers (ASME) Code. GL 88-11 advised licensees that the NRC staff would use RG 1.99, "Radiation Embrittlement of Reactor Vessel Materials," Rev. 2, to review P/T limit curves. RG 1.99, Rev. 2, contains methodologies for determining the increase in transition temperature and the decrease in upper-shelf energy resulting from neutron radiation. GL 92-01, Rev. 1, requested that licensees submit their RPV data to the NRC staff for review. GL 92-01, Rev. 1, Supplement 1, requested that licensees provide and assess data from other licensees that could affect their RPV integrity evaluations. These data are used by the NRC staff as the basis for the review of P/T limit curves. SRP Section 5.3.2 provides an acceptable method of determining the P/T limit curves for ferritic materials in the beltline of the RPV, based on the linear elastic fracture mechanics methodology of Appendix G to Section XI of the ASME Code. RG 1.190 contains methodologies for determining the best-estimate neutron fluence experienced by materials in the beltline region of light-water reactor pressure vessels, as well as for determining the overall uncertainty associated with those best-estimate values.

By letter dated July 26, 2006 (ADAMS Accession No. ML061090658), the NRC approved Amendment No. 256 to Facility Operating License No. DPR-33 for the BFN Unit 1, in response to the licensee's request for a license amendment dated December 6, 2004 (ADAMS Accession No. ML043440227), as supplemented by letter dated June 16, 2005 (ADAMS Accession No. ML051790230). In that amendment, the NRC approved TS changes regarding revised P/T limit curves for BFN Unit 1 for "Mechanical Heatup, Cooldown following Shutdown, and Reactor Critical Operations" and "Reactor In-Service Leak and Hydrostatic Testing." The revised P/T limit curves provided new limits that were valid to 12 and 16 EFPY, which were developed in accordance with 10 CFR Part 50 Appendix G requirements, Section XI of the ASME Code

(1995 Edition including the 1996 Addenda), and ASME Section XI Code Cases N-588 and N-640.

As noted in Section 2.2.2 of the safety evaluation (SE) for Amendment No. 256, the licensee requested a two-step process for implementation of the 12 and 16 EFPY P/T limit curves. The first step was intended to implement the 12 EFPY P/T limit curves for BFN Unit 1. The second step was intended to implement the 16 EFPY P/T limit curves for BFN Unit 1 upon the expiration of the 12 EFPY P/T limit curves until the end of its original operating license. This process required NRC staff preapproval of the second (16 EFPY) set of P/T limit curves and the related TS changes and eliminated resubmittal of TS changes related to the 16 EFPY curves. The NRC staff found this two-step process acceptable, provided at the time of implementation of the second step, the licensee will assure that the P/T limit curves and associated TS changes related to the 16 EFPY curves remain valid.

The NRC staff concluded, in the SE for Amendment No. 256, that the revised P/T limit curves that were included in Enclosure 5<sup>Note 1</sup> of the licensee's submittal dated December 6, 2004, for each of the pressure test, core not critical and core critical conditions and the separate P/T limit curves, for the upper vessel, beltline, and bottom head satisfy the requirements in Appendix G of 10 CFR Part 50 and approved the P/T limit curves for incorporation into the BFN Unit 1 TSs.

However, the second set of P/T limit curves that are valid for 16 EFPY, as submitted by the licensee's letter dated December 6, 2004 and as issued in the NRC's approved TS pages for Amendment No. 256, include Notes on the curves that state:

"DO NOT USE THIS FIGURE

This curve applies to operation > 12 EFPY.

For Current Operation, use previous curve which is valid up to 12 EFPY."

These notes were added by the licensee as a precautionary measure to prevent plant operators from inadvertently using the 16 EFPY P/T limit curves prior to the expiration of the 12 EFPY P/T limit curves.

In August 2013, the licensee determined that the notes could not be administratively (i.e., without the NRC's approval) removed from the BFN Unit 1 TS figures nor could the second set of P/T limit curves be used with the note in place. As a result, the licensee determined that a license amendment was necessary to remove the note from the TS figures or, in the absence of an amendment to remove the note, a shutdown of BFN Unit 1 as early as September 20, 2013, when 12 EFPY of operation is reached, would be necessary. Once 12 EFPY is achieved, BFN Unit 1 will not be allowed to continue operation in Mode 1 (i.e., critical operation) and a unit shutdown will be required unless the licensee's LAR to remove the Notes is approved. Accordingly, the licensee requested review of their LAR under exigent circumstances in accordance with 10 CFR 50.91(a)(6).

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Note 1: Non-proprietary version of NEDC-33112, "Pressure-Temperature Curves for TVA Browns Ferry Unit 1" (ADAMS Accession No. ML04340231).

In its August 14, 2013 LAR, the licensee proposed TS changes that delete the Notes that cover the 16 EFPY P/T limit curves on TS Figures 3.4.9-1 and 3.4.9-2, which are applicable for operation up to 16 EFPY. In addition, the licensee proposed changes to correct the TS page header for the figures from "Reactor Steam Dome Pressure" to "RCS P/T Limits."

### 3.0 TECHNICAL EVALUATION

In the July 26, 2006, SE for Amendment No. 256, the NRC staff concluded that the proposed P/T limit curves for BFN Unit 1 for 12 and 16 EFPY for each of the pressure test, core not critical and core critical conditions and the separate P/T limit curves for the upper vessel, beltline, and bottom head satisfy the requirements in Appendix G of 10 CFR Part 50. The NRC's preapproval of the 16 EFPY P/T limit curves was predicated on the licensee assuring that the P/T limit curves and associated TS changes related to the second step remain valid at the time of implementation.

Since the time of approval of the amendment, there are two items that may influence the continued validity of the 16 EFPY P/T limit curves. These two items are the calculated fluence used in the development of the curves, and the availability of additional RPV materials surveillance program test data applicable to BFN Unit 1.

In response to the NRC staff request for additional information, the licensee in its letter dated August 21, 2013 verified that the extended power uprate (EPU) power level of 3,952 megawatt thermal was assumed for the entire 16 EFPY exposure period for BFN Unit 1. The licensee also verified that the method employed in NRC-approved General Electric Topical Report NEDO-32983-A, "General Electric Methodology for Reactor Pressure Vessel Fast Neutron Flux Evaluations" (ADAMS Accessions No. ML072480121), was the only method used to determine the reactor vessel neutron fluence over the 16 EFPY operating period for BFN Unit 1. The NRC staff reviewed the licensee's response and finds it to be acceptable and concludes that the fluence used to develop the 16 EFPY P/T limit curves remains valid for BFN Unit 1. The NRC staff also notes that the calculated fluence used to develop the 12 and 16 EFPY P/T limit curves for BFN Unit 1 assumes EPU conditions since the beginning of plant operation, which is conservative.

By electronic mail messages dated August 16 and September 3, 2013, the NRC staff requested additional information related to the availability of additional RPV materials surveillance program test data applicable to BFN Unit 1. Specifically, by letter dated August 14, 2008 (ADAMS Accession No. ML081760567), the NRC issued Amendment No. 273 for the BFN Unit 1 that allowed utilization of the Boiling Water Reactor (BWR) Vessel and Internals Project (BWRVIP) Integrated Surveillance Program (ISP) at BFN Unit 1. The most recent implementation plan for the BWRVIP ISP is documented in Electric Power Research Institute (EPRI) Technical Report No. 1025144NP, "BWRVIP-86NP, Revision 1-A: BWR Vessel and Internals Project, Updated BWR Integrated Surveillance Program (ISP) Implementation Plan," May 2013 (ADAMS Accession No. ML13176A097). During a conference call on August 29, 2013, the licensee stated that the BWRVIP ISP indicates that additional surveillance material source capsule data from the following test reports are applicable to BFN Unit 1:

- EPRI Technical Report 3002000078, "BWRV/P-271 NP: BWR Vessel and Internals Project, Testing and Evaluation of the Browns Ferry Unit 2 120° [Degree] Capsule," April 2013 (ADAMS Accession No. ML13227A353).
- EPRI Technical Report 1021553, "BWRVIP-87NP, Revision 1: BWR Vessel and Internals Project, Testing and Evaluation of BWR Supplemental Surveillance Program Capsules D, G, and H," August 2010 (ADAMS Accession No. ML080770344).
- EPRI Technical Report 1021554, "BWRVIP-111NP, Revision 1: BWR Vessel and Internals Project: Testing and Evaluation of BWR Supplemental Surveillance Program Capsules E, F and I," August 2010 (ADAMS Accession No. ML080780267).
- EPRI Technical Report 1021556, "BWRVIP-169NP: BWR Vessel and Internals Project, Testing and Evaluation of BWR Supplemental Surveillance Program (SSP) Capsules A, B, and C," August 2010 (ADAMS Accession No. ML071510579).

In its August 21, 2013 and September 6, 2013, responses, the licensee stated that the capsule data test results contained in BWRVIP-87NP Revision 1, BWRVIP-111NP Revision 1, BWRVIP-169NP, and BWRVIP-271NP are applicable to BFN Unit 1. The licensee stated that in 2008, the licensee performed a review of the capsule data test results documented in BWRVIP-87NP, Rev. 1, BWRVIP-111NP, Revision 1, and BWRVIP-169NP. The licensee confirmed that the existing 16 EFPY P/T curves in the BFN Unit 1 TSs, and the operating procedures required to meet these P/T limits, were not impacted in a nonconservative manner by those test results. In addition, the licensee stated that Table 5-2 of BWRVIP-271NP, which provides a comparison of actual versus predicted embrittlement, shows that the measured shift (43.2 °F) of the plate material for BFN Unit 2 (which is applicable to BFN Unit 1) is approximately two-thirds of the NRC RG 1.99, Rev. 2 predicted shift plus margin (65.43 °F). Therefore, the BFN Unit 1 TS P/T limit curves contained in the LAR remain valid for up to 16 EFPY. The staff finds these responses to be acceptable and concludes that the additional RPV materials surveillance program data do not impact the BFN Unit 1 P/T limit curves for 16 EFPY.

Therefore, since the calculated fluence used in the development of the 16 EFPY P/T limit curves for BFN Unit 1 remains valid, and there is no impact on the 16 EFPY P/T limit curves from the additional RPV materials surveillance program test data, the NRC staff concludes that the BFN Unit 1 16 EFPY P/T limit curves remain valid.

Based on the foregoing, the NRC staff concludes that the licensee's proposed TS changes that delete a note that covers the BFN Unit 1 16 EFPY P/T limit curves on TS Figures 3.4.9-1 and 3.4.9-2 and changes to correct the TS page header for the figures from "Reactor Steam Dome Pressure" to "RCS P/T Limits" are acceptable, and that the revised P/T limit curves may be incorporated into the BFN Unit 1 TSs.

#### 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.

The licensee in its LAR dated August 14, 2013, requested that the proposed amendment be processed by the NRC on an exigent basis. As discussed in the licensee's submittal:

There are two sets of P/T curves in the BFN Unit 1 TS 3.4.9: one set for operations up to 12 EFPY and another set for operations > 12 EFPY and ≤ [less than or equal to] 16 EFPY. However, the second set of P/T curves (for operations > 12 EFPY and ≤ 16 EFPY) includes Notes that state that these curves cannot be used, and to use the first set of P/T curves for operations up to 12 EFPY. Therefore, the second set of P/T curves that are applicable when operations are > 12 EFPY cannot be used until the Notes are removed. BFN Unit 1 operation is expected to reach 12 EFPY on September 20, 2013. Therefore, to utilize the correct and previously approved P/T Limit curves once BFN Unit 1 operation has reached 12 EFPY, this Note must be removed from the > 12 EFPY and ≤ 16 EFPY TS Figures 3.4.9-1 and 3.4.9-2. Once 12 EFPY is achieved, BFN Unit 1 will not be allowed to continue operation in Mode 1 (i.e., critical operation) and a unit shutdown will be required unless the Notes are removed.

TVA had been tracking BFN Unit 1 neutron fluence (in EFPY), and recognized that the second set of curves would be required to be in force in mid-September 2013. In early August 2013, TVA staff was preparing to implement the 12 EFPY to 16 EFPY curves and initially believed that the Note could be removed from the 12 EFPY to 16 EFPY curves as an administrative change. However, upon reviewing the Nuclear Regulatory Commission (NRC) Safety Evaluation associated with the TS change that placed those figures in the TS (Reference 1 [Amendment No. 256]), TVA realized that the Note was contained on the NRC-approved TS figures and was not merely an operator aid.

Further review of the NRC Safety Evaluation Section 2.2.2 indicated that TVA had requested and the NRC had approved a two-step process for implementation of the P/T limit curves based on EFPY. At the time of approval, BFN Unit 1 reactor operation was less than 12 EFPY. Thus, the first step led to the immediate implementation of the P/T curves that were applicable up to 12 EFPY; the second step would implement the P/T curves applicable up to 16 EFPY after BFN reached 12 EFPY. In the Safety Evaluation, the NRC imposed specific requirements on the implementation of the second step, which were to provide assurance to the NRC that "the P-T [P/T] limit curves and associated TS changes related to the second step remain valid."

TVA initially believed that removing the Note was allowed based on the statements in the NRC Safety Evaluation approving the two sets of curves, provided the above specific requirements from the Safety Evaluation were

satisfied. TVA intended to provide the required assurance in a letter to NRC and utilize the second set of curves after BFN reached 12 EFPY. However, TVA determined that the Note could not be administratively removed from the figures nor could the second set of curves be used as is. While each set of figures clearly states when it is applicable (i.e., up to 12 EFPY or up to 16 EFPY), to prevent utilizing the incorrect set of figures, the set of figures applicable for > 12 EFPY and ≤ 16 EFPY were annotated with a Note that stated they were not to be used, and that the correct figures were the ones for operation up to 12 EFPY. TVA determined that a license amendment was necessary to remove the Note from the figures. TVA further concluded that in the absence of an amendment to remove the Notes, a shutdown of BFN Unit 1 as early as September 20, 2013, cannot be avoided.

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 issued a *Federal Register* notice 78 FR 52571 on August 23, 2013, providing notice of an opportunity for public comments by September 6, 2013 and a request for a hearing to be filed by October 22, 2013.

#### 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 remove the Notes from the figures nor could the figures for 16 EFPY be used as-is after BFN Unit 1 reached 12 EFPY. Therefore, without an approved amendment to remove the Notes from the P/T limit curves, the licensee would have to shutdown BFN Unit 1 as early as September 20, 2013, when the unit reaches 12 EFPY.

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).

#### 6.0 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's determination 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 administrative change will allow a set of TS figures, contained in a previous NRC-approved license amendment, to be used because the reactor fluence will soon reach the point at which the figures are applicable. The proposed administrative change does not revise any previously approved P/T limitations on plant operation. The change is an administrative change removing Notes that were placed on the approved figures to preclude using the figures until the fluence reached the applicable values. Because the NRC has previously approved the figures, the proposed amendment 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 administrative change will allow a set of TS figures, contained in a previous NRC-approved license amendment, to be used because the reactor fluence will soon reach the point at which the figures are applicable. The proposed administrative change does not revise any previously approved P/T limitations on plant operation. The change is an administrative change removing Notes that were placed on the approved figures to preclude using the figures until the fluence reached the applicable value.

Therefore, the proposed amendment will 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 administrative change will allow a set of TS figures, contained in a previous NRC-approved license amendment, to be used because the reactor fluence will soon reach the point at which the figures are applicable. The proposed administrative change does not revise any previously approved P/T limitations on plant operation. The change is an administrative change removing Notes that were placed on the approved figures to preclude using the figures until the fluence reached the applicable value. In addition, the margin of safety change as a result of



using these new figures was previously evaluated when the figures were originally approved. As such, deleting the Notes has no effect on a margin of safety.

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

Based on its evaluation of the licensee's determination, 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 amendment.

#### 7.0 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.

#### 8.0 ENVIRONMENTAL CONSIDERATION

The amendment changes a requirement with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20.

The Commission has previously issued a proposed finding that the amendment involves no significant hazards consideration, and there has been no public comment on such finding (78 FR 52571). The Commission has made a final determination that the amendment involves no significant hazards 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.

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.

9.0 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: G. Stevens  
G. Cheruvneki  
B. Parks

Date: September 13, 2013

J. Shea

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A copy of the related Safety Evaluation 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.

Sincerely,

*/RA/*

Farideh E. Saba, Senior Project Manager  
Plant Licensing Branch II-2  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

Docket No. 50-259

Enclosures:

- 1. Amendment No. 284 to DPR-33
- 2. Safety Evaluation

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