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

August 28, 2012

10 CFR 50.4
10 CFR 50.90

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

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

Subject: **License Amendment Request to Change Technical Specifications to Delete References to Section XI of the ASME Code and Incorporate References to the ASME OM Code and Allow Application of 25 Percent Extension of Surveillance Intervals to Accelerated Frequencies Utilized in the IST Program - TS-475**

References:
1. Technical Specifications Task Force (TSTF)-479-A, Revision 0, "Changes to Reflect Revision to 10 CFR 50.55a," dated December 19, 2005
2. TSTF-497-A, Revision 0, "Limit Inservice Testing Program SR 3.0.2 Application to Frequencies of 2 Years or Less," dated August 28, 2008

In accordance with the provisions of 10 CFR 50.90, "Application for amendment of license, construction permit, or early site permit," the Tennessee Valley Authority (TVA) is submitting a request for an amendment to Facility Operating Licenses DPR-33 for Browns Ferry Nuclear Plant (BFN), Unit 1, DPR-52 for BFN, Unit 2, and DPR-68 for BFN, Unit 3.

This license amendment request (LAR) seeks approval to revise the BFN Technical Specification (TS) 5.5.6, "Inservice Testing Program" to delete the references to Section XI of the ASME Code and incorporate references to the ASME Code for Operation and Maintenance of Nuclear Power Plants (ASME OM Code). The proposed revision also indicates that the allowance for a 25 percent extension of surveillance intervals may be applied to accelerated frequencies utilized in the IST Program.

The proposed changes are consistent with Technical Specification Task Force (TSTF) Technical Change Travelers 479-A (Reference 1) and 497-A (Reference 2). The changes are also consistent with the implementation of the BFN, Units 1, 2, and 3

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current 10-year interval IST programs in accordance with the requirements of 10 CFR 50.55a(f), i.e., the current IST programs are based on the 1995 edition through the 1996 addenda of the ASME OM Code.

The enclosure to this letter provides the evaluation for the proposed changes. Attachments 1 through 4 of the enclosure to this letter provides the marked-up proposed TS and Bases pages, and the retyped proposed TS and Bases pages for BFN, Units 1, 2 and 3. The evaluation for the proposed changes includes a description of the proposed changes, the technical evaluation, the no significant hazards determination, and the environmental evaluation.

The TVA has determined that there are no significant hazards considerations associated with the proposed change and that the proposed TS change qualifies for categorical exclusion from environmental review pursuant to the provisions of 10 CFR 51.22(c)(9). Additionally, in accordance with 10 CFR 50.91(b)(1), "Notice for public comment; State consultation," a copy of this application, with attachments, is being provided to the designated State of Alabama official.

The TVA requests the approval of the proposed License Amendments by August 30, 2013, with implementation of the proposed License Amendments within 60 days of NRC approval.

There are no new regulatory commitments in this License Amendment Request. If you have any questions, or require additional information, please contact Tom Hess at 423-751-3487.

I declare under penalty of perjury that the foregoing is true and correct. Executed on the 28th day of August, 2012.

Respectfully,

J. W. Shea
Vice President, Nuclear Licensing

Enclosure: Analysis of Proposed Technical Specifications Changes Regarding Travelers - TSTF-479-A and TSTF-497-A

cc (Enclosure):

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

ENCLOSURE

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

Technical Specifications Change 475

License Amendment Request to Delete References to Section XI of the ASME Code and Incorporate References to the ASME OM Code and Allow Application of 25 Percent Extension of Surveillance Intervals to Accelerated Frequencies Utilized in the IST Program

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Analysis of Proposed Technical Specifications Changes Regarding Travelers - TSTF-479-A and TSTF-497-A

1.0 SUMMARY DESCRIPTION

The Tennessee Valley Authority (TVA) requests an amendment to Operating Licenses DPR-33 for Browns Ferry Nuclear Plant (BFN), Unit 1, DPR-52 for BFN, Unit 2, and DPR-68 for BFN, Unit 3. The proposed amendment revises the Technical Specification (TS)5.5.6, "Inservice Testing Program" for consistency with the requirements of 10 CFR 50.55a(f)(4) for pumps and valves, which are classified as American Society of Mechanical Engineers (ASME) Code Class 1, Class 2, and Class 3. The amendment also establishes the 25 percent extension for accelerated frequencies used in the Inservice Test (IST) Program.

TVA proposes these changes based on NRC-approved Technical Specifications Task Force (TSTF) -479-A, "Changes to Reflect Revision of 10 CFR 50.55a," Revision 0, and TSTF-497-A, "Limit Inservice Testing Program [Surveillance Requirement] SR 3.0.2 Application to Frequencies of Two Years or Less," Revision 0.

2.0 DETAILED DESCRIPTION

The proposed changes will revise BFN, Units 1, 2, and 3, TS 5.5.6, Inservice Testing Program, as follows:

Change:

> Section XI of the ASME Boiler and Pressure Vessel Code

To

> ASME Code for Operations and Maintenance of Nuclear Power Plants (ASME OM Code)

Change:

> The provisions of SR 3.0.2 are applicable to the above required Frequencies for performing inservice testing activities.

To

> The provisions of SR 3.0.2 are applicable to the above required Frequencies and to other normal and accelerated Frequencies specified as 2 years or less in the Inservice Testing Program for performing inservice testing activities.

Applicable sections of TS Bases will also be revised for consistency with the above proposed changes in accordance with the BFN, Units 1, 2, and 3, TS 5.5.10, Technical Specifications (TS) Bases Control Program, after the incorporation of this change into the BFN, Units 1, 2, and 3, TS.

3.0 TECHNICAL EVALUATION

The purpose of the IST program is to assess the operational readiness of pumps and valves, to detect degradation that might affect component operability, and to maintain safety margins with provisions for increased surveillance and corrective action. NRC regulation, 10 CFR 50.55a, defines the requirements for applying industry codes to each licensed nuclear powered facility. Licensees are required by 10 CFR 50.55a(f)(4)(i) to initially prepare programs to perform IST of certain ASME Section III, Code Class 1, 2, and 3 pumps and valves during the initial 120-month interval. The regulations require

that programs be developed utilizing the latest edition and addenda incorporated into paragraph (b) of 10 CFR 50.55a on the date 12 months prior to the date of issuance of the operating license subject to the limitations and modification identified in paragraph (b).

NRC regulations also require that the IST programs be revised during successive 120-month intervals to comply with the latest edition and addenda of the Code incorporated by reference in paragraph (b) 12 months prior to the start of the interval.

Section XI of the ASME Code has been revised on a continuing basis over the years to provide updated requirements for the inservice inspection and IST of components. Until 1990, the ASME Code requirements addressing the IST of pumps and valves were contained in Section XI, Subsections IWP (pumps) and IWV (valves). In 1990, the ASME published the initial edition of the OM Code that provides the rules for the IST of pumps and valves. Since the establishment of the 1990 Edition of the OM Code, the rules for the IST of pumps are no longer being updated in Section XI. Therefore, the BFN, Units 1, 2, and 3, TS are revised to appropriately refer to the ASME OM Code, consistent with ISTS NUREGs. As identified in NRC SECY-99-017 dated January 13, 1999, the NRC has generally considered the evolution of the ASME Code to result in a net improvement in the measures for inspecting piping and components and testing pumps and valves.

In addition to changes related to application of the ASME OM Code above, the TS IST Program is revised to indicate that the provisions of SR 3.0.2 are applicable to other IST frequencies that are not specified in the program. The IST Program TS may have frequencies for testing that are based on risk and do not conform to the standard testing frequencies specified in the TS. For example, an IST Program may use ASME Code Case OMN-1, "Alternative Rules for Preservice and Inservice Testing of Certain Electric Motor-Operated Valve Assemblies in Light-Water Reactor Plants," in lieu of stroke time testing. The Frequency of the Surveillance may be determined through a mix of risk informed and performance based means in accordance with the IST program. This is consistent with the guidance in NUREG-1482, "Guidelines for Inservice Testing at Nuclear Power Plants," which indicates that the 25 percent extension of the interval specified in the Frequency would apply to increased frequencies the same as it applies to regular frequencies. If a test interval is specified in 10 CFR 50.55a, the TS SR 3.0.2 Bases indicates that the requirement of the regulation take precedence over the TS.

At the February 23, 2006, meeting between the NRC and the TSTF, members of the Component Branch of the NRC stated that TSTF-479 did not provide an adequate justification for applying SR 3.0.2 to frequencies specified in the IST program as greater than 2 years and the NRC would not approve plant-specific amendments based on TSTF-479 incorporating this change without further justification. After consideration, the TSTF declined to develop a technical justification for applying SR 3.0.2 to IST frequencies specified as greater than 2 years at the time due to inadequate cost benefit. As a result, TSTF-497-A was developed as an administrative change to the ISTS NUREGs, which modifies the IST program, paragraph (b), to remove the provisions that were not deemed by the NRC to be adequately justified in TSTF-479.

Based on the above, the proposed change is consistent with the ISTS NUREGs, TSTF-479-A, TSTF-497-A, and the previous NRC request regarding application of SR 3.0.2.

4.0 REGULATORY EVALUATION

4.1 Applicable Regulatory Requirements / Criteria

NRC regulation, 10 CFR 50.55a, defines the requirements for applying industry codes to each licensed nuclear powered facility. Licensees are required by 10 CFR 50.55a(f)(4)(i) to initially prepare programs to perform inservice testing of certain ASME Section III, Code Class 1, 2, and 3 pumps and valves during the initial 120-month interval. The regulations require that programs be developed utilizing the latest edition and addenda incorporated into paragraph (b) of 10 CFR 50.55a on the date 12 months prior to the date of issuance of the operating license subject to the limitations and modification identified in paragraph (b).

This TS change will ensure the above regulation continues to be met by application of the ASME OM Code, which replaced Section XI of the Boiler and Pressure Vessel Code for Inservice Testing (IST) of pumps and valves in 1990. Therefore, 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) Issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

4.2 Precedent

In 1990, the ASME published the initial edition of the ASME OM Code which establishes rules for IST of pumps and valves. The ASME intended that the ASME OM Code replace Section XI of the Boiler and Pressure Vessel Code for IST of pumps and valves.

On December 2, 2004, the TSTF submitted to the NRC TSTF-479, Revision 0, "Changes to Reflect Revision of 10 CFR 50.55a." The proposed change revised the IST Program TS located in Chapter 5 of the Improved Standardized Technical Specifications (ISTS) to reflect the latest NRC-approved version of the ASME Code. TSTF-479 also revised paragraph (b) of the IST Program TS to state, "The provisions of SR 3.0.2 are applicable to the above required Frequencies and other normal and accelerated Frequencies specified in the IST Program for performing inservice testing activities."

In letter dated December 6, 2005, the NRC approved TSTF-479 as an administrative change to the ISTS NUREGs. TSTF-479-A was incorporated into Revision 3.1 of the ISTS NUREGs.

At the February 23, 2006, meeting between the NRC and the TSTF, members of the Component Branch of the NRC stated that TSTF-479 did not provide an adequate justification for applying SR 3.0.2 to frequencies specified in the IST Program TS as greater than 2 years and the NRC would not approve plant-specific amendments based on TSTF-479-A incorporating this change without further justification. The NRC stated that they would accept applying SR 3.0.2 to IST frequencies not listed in the IST Program TS table provided that those frequencies are specified in the IST Program TS as 2 years or less.

In response, TSTF-497-A was developed as an administrative change to the ISTS NUREGs to reflect the NRC position. TSTF-497-A revises paragraph (b) of the IST Program in the ISTS to state, "The provisions of SR 3.0.2 are applicable to the above required Frequencies and to other normal and accelerated Frequencies specified as 2 years or less in the Inservice Testing Program for performing inservice testing activities." In letter dated October 4, 2006, the NRC approved TSTF-497.

These changes have been incorporated into the current version of the Improved Standard Technical Specifications. As a result, the changes are available for incorporation into licensees TS. Most recently, the NRC previously approved similar changes for Indian Point Nuclear Generating Units Nos. 2 and 3 in the following License Amendments:

> "Indian Point Nuclear Generating Unit Nos. 2 and 3 - Issuance of Amendments Re" Revision to Inservice Testing Program Technical Specifications (TAC Nos. ME7230 and ME7231)", dated May 2, 2012

4.3 No Significant Hazards Consideration

A change is proposed to the BFN, Units 1, 2, and 3, TS 5.5.6, Inservice Testing Program, to adopt the American Society of Mechanical Engineers (ASME) Operations and Maintenance (OM) Code for IST of valves and pumps. The proposed change includes application of the allowances provided by TS Surveillance Requirement (SR) 3.0.2 for IST SR frequencies of 2 years or less. TVA has evaluated whether or not a significant hazards consideration is involved with the proposed change by focusing on the three standards set forth in 10 CFR 50.92, "Issuance of amendment," as discussed below:

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

   Response: No

   The proposed change revises BFN, Units 1, 2, and 3, TS 5.5.6, Inservice Testing Program, for consistency with the requirements of 10 CFR 50.55a(f)(4) for pumps and valves, which are classified as American Society of Mechanical Engineers (ASME) Code Class 1, Class 2, and Class 3. The proposed change incorporates revisions to the ASME Code that result in a net improvement in the measures for testing pumps and valves. The proposed change also includes an administrative change to include application of the allowances provided by TS Surveillance Requirement (SR) 3.0.2 for IST SR frequencies of 2 years or less.

   The proposed change does not impact any accident initiators or analyzed events or assumed mitigation of accident or transient events. The proposed change does not involve the addition or removal of any equipment, or any design changes to the facility. Therefore, this proposed change does not represent a significant increase in the probability or consequences of an accident previously evaluated.

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

   Response: No

   The proposed change revises BFN, Units 1, 2, and 3, TS 5.5.6, Inservice Testing Program, for consistency with the requirements of 10 CFR 50.55a(f)(4) for pumps

and valves, which are classified as American Society of Mechanical Engineers (ASME) Code Class 1, Class 2, and Class 3. The proposed change incorporates revisions to the ASME Code that result in a net improvement in the measures for testing pumps and valves. The proposed change also includes an administrative change to include application of the allowances provided by TS Surveillance Requirement (SR) 3.0.2 for IST SR frequencies of 2 years or less.

The proposed change does not involve a modification to the physical configuration of the plant (i.e., no new equipment will be installed) or change in the methods governing normal plant operation. The proposed change will not impose any new or different requirements or introduce a new accident initiator, accident precursor, or malfunction mechanism. Additionally, there is no change in the types or increases in the amounts of any effluent that may be released off-site, and there is no increase in individual or cumulative occupational exposure. Therefore, this proposed change does not create the possibility of an accident of a different kind than previously evaluated.

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

   Response: No

   The proposed change revises BFN, Units 1, 2, and 3, TS 5.5.6, Inservice Testing Program, for consistency with the requirements of 10 CFR 50.55a(f)(4) for pumps and valves, which are classified as American Society of Mechanical Engineers (ASME) Code Class 1, Class 2, and Class 3. The proposed change incorporates revisions to the ASME Code that result in a net improvement in the measures for testing pumps and valves. The proposed change also includes an administrative change to include application of the allowances provided by TS Surveillance Requirement (SR) 3.0.2 for IST SR frequencies of 2 years or less. The safety function of the affected pumps and valves are maintained. Therefore, this proposed change does not involve a significant reduction in a margin of safety.

Based on the above, the TVA concludes that the proposed TS changes present no significant hazards consideration under the standards set forth in 10 CFR 50.92(c), and accordingly, a finding of "no significant hazards consideration" is justified.

4.4 Conclusion

In conclusion, 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 TS changes will not be inimical to the common defense and security or the health and safety of the public.

5.0 ENVIRONMENTAL CONSIDERATION

The proposed amendment does not involve (i) a significant hazards consideration, (ii) a significant change in the types or significant increase in the amounts of any effluent 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.

6.0 REFERENCES

1. 10 CFR 50.55a, "Codes and standards"
2. SECY-99-017, "Proposed Amendment to 10 CFR 50.55a"
3. NUREG-1482, "Guidelines for Inservice Testing at Nuclear Power Plants"
4. TSTF-479-A, "Changes to Reflect Revision to 10 CFR 50.55a"
5. TSTF-497-A, "Limit Inservice Testing Program SR 3.0.2 Application to Frequencies of 2 Years or Less"

Attachment 1

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

Technical Specifications Change 475

License Amendment Request to Delete References to Section XI of the ASME Code and Incorporate References to the ASME OM Code and Allow Application of 25 percent Extension of Surveillance Intervals to Accelerated Frequencies Utilized in the IST Program

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Proposed Technical Specifications Pages - Markups

5.5 Programs and Manuals

5.5.4 Radioactive Effluent Controls Program (continued)

h. Limitations on the annual and quarterly air doses resulting from noble gases released in gaseous effluents from each unit to areas beyond the site boundary, conforming to 10 CFR 50, Appendix I;

i. Limitations on the annual and quarterly doses to a member of the public from iodine-131, iodine-133, tritium, and all radionuclides in particulate form with half lives > 8 days in gaseous effluents released from each unit to areas beyond the site boundary, conforming to 10 CFR 50, Appendix I; and

j. Limitations on the annual dose or dose commitment to any member of the public beyond the site boundary due to releases of radioactivity and to radiation from uranium fuel cycle sources, conforming to 40 CFR 190.

k. The provisions of SR 3.0.2 and SR 3.0.3 are applicable to the Radioactive Effluent Controls Program surveillance frequency.

5.5.5 Component Cyclic or Transient Limit

This program provides controls to track the FSAR Section 4.2.5, cyclic and transient occurrences to ensure that components are maintained within the design limits.

5.5.6 Inservice Testing Program

This program provides controls for inservice testing of ASME Code Class 1, 2, and 3 components. The program shall include the following:

a. Testing frequencies **applicable to the ASME Code for Operations and Maintenance of Nuclear Power Plants (ASME OM Code)** ~~specified in Section XI of the ASME Boiler and Pressure Vessel Code~~ and applicable Addenda are as follows:

(continued)

5.5 Programs and Manuals

5.5.6 Inservice Testing Program (continued)

ASME **OM**~~Boiler and Pressure Vessel~~ Code and applicable Addenda terminology for inservice testing activities	Required Frequencies for performing inservice testing activities
Weekly	At least once per 7 days
Monthly	At least once per 31 days
Quarterly or every 3 months	At least once per 92 days
Semiannually or every 6 months	At least once per 184 days
Every 9 months	At least once per 276 days
Yearly or annually	At least once per 366 days
Biennially or every 2 years	At least once per 731 days

b. The provisions of SR 3.0.2 are applicable to the above required Frequencies **and to other normal and accelerated Frequencies specified as 2 years or less in the Inservice Test Program** for performing inservice testing activities;

c. The provisions of SR 3.0.3 are applicable to inservice testing activities; and

d. Nothing in the ASME **OM**~~Boiler and Pressure Vessel~~ Code shall be construed to supersede the requirements of any TS.

(continued)

5.5 Programs and Manuals

5.5.4 Radioactive Effluent Controls Program (continued)

h. Limitations on the annual and quarterly air doses resulting from noble gases released in gaseous effluents from each unit to areas beyond the site boundary, conforming to 10 CFR 50, Appendix I;

i. Limitations on the annual and quarterly doses to a member of the public from iodine-131, iodine-133, tritium, and all radionuclides in particulate form with half lives > 8 days in gaseous effluents released from each unit to areas beyond the site boundary, conforming to 10 CFR 50, Appendix I; and

j. Limitations on the annual dose or dose commitment to any member of the public beyond the site boundary due to releases of radioactivity and to radiation from uranium fuel cycle sources, conforming to 40 CFR 190.

k. The provisions of SR 3.0.2 and SR 3.0.3 are applicable to the Radioactive Effluent Controls Program surveillance frequency.

5.5.5 Component Cyclic or Transient Limit

This program provides controls to track the FSAR Section 4.2.5, cyclic and transient occurrences to ensure that components are maintained within the design limits.

5.5.6 Inservice Testing Program

This program provides controls for inservice testing of ASME Code Class 1, 2, and 3 components. The program shall include the following:

a. Testing frequencies **applicable to the ASME Code for Operations and Maintenance of Nuclear Power Plants (ASME OM Code)**~~specified in Section XI of the ASME Boiler and Pressure Vessel Code~~ and applicable Addenda are as follows:

(continued)

5.5 Programs and Manuals

5.5.6 Inservice Testing Program (continued)

ASME **OM** ~~Boiler and Pressure Vessel~~ Code and applicable Addenda terminology for inservice testing activities	Required Frequencies for performing inservice testing activities
Weekly	At least once per 7 days
Monthly	At least once per 31 days
Quarterly or every 3 months	At least once per 92 days
Semiannually or every 6 months	At least once per 184 days
Every 9 months	At least once per 276 days
Yearly or annually	At least once per 366 days
Biennially or every 2 years	At least once per 731 days

b. The provisions of SR 3.0.2 are applicable to the above required Frequencies **and to other normal and accelerated Frequencies specified as 2 years or less in the Inservice Test Program** for performing inservice testing activities;

c. The provisions of SR 3.0.3 are applicable to inservice testing activities; and

d. Nothing in the ASME **OM** ~~Boiler and Pressure Vessel~~ Code shall be construed to supersede the requirements of any TS.

(continued)

5.5 Programs and Manuals

5.5.4 Radioactive Effluent Controls Program (continued)

h. Limitations on the annual and quarterly air doses resulting from noble gases released in gaseous effluents from each unit to areas beyond the site boundary, conforming to 10 CFR 50, Appendix I;

i. Limitations on the annual and quarterly doses to a member of the public from iodine-131, iodine-133, tritium, and all radionuclides in particulate form with half lives > 8 days in gaseous effluents released from each unit to areas beyond the site boundary, conforming to 10 CFR 50, Appendix I; and

j. Limitations on the annual dose or dose commitment to any member of the public beyond the site boundary due to releases of radioactivity and to radiation from uranium fuel cycle sources, conforming to 40 CFR 190.

k. The provisions of SR 3.0.2 and SR 3.0.3 are applicable to the Radioactive Effluent Controls Program surveillance frequency.

5.5.5 Component Cyclic or Transient Limit

This program provides controls to track the FSAR Section 4.2.5, cyclic and transient occurrences to ensure that components are maintained within the design limits.

5.5.6 Inservice Testing Program

This program provides controls for inservice testing of ASME Code Class 1, 2, and 3 components. The program shall include the following:

a. Testing frequencies **applicable to the ASME Code for Operations and Maintenance of Nuclear Power Plants (ASME OM Code)**~~specified in Section XI of the ASME Boiler and Pressure Vessel Code~~ and applicable Addenda are as follows:

(continued)

5.5 Programs and Manuals

5.5.6 Inservice Testing Program (continued)

ASME **OM**~~Boiler and Pressure Vessel~~ Code and applicable Addenda terminology for inservice testing activities	Required Frequencies for performing inservice testing activities
Weekly	At least once per 7 days
Monthly	At least once per 31 days
Quarterly or every 3 months	At least once per 92 days
Semiannually or every 6 months	At least once per 184 days
Every 9 months	At least once per 276 days
Yearly or annually	At least once per 366 days
Biennially or every 2 years	At least once per 731 days

b. The provisions of SR 3.0.2 are applicable to the above required Frequencies **and to other normal and accelerated Frequencies specified as 2 years or less in the Inservice Test Program** for performing inservice testing activities;

c. The provisions of SR 3.0.3 are applicable to inservice testing activities; and

d. Nothing in the ASME **OM**~~Boiler and Pressure Vessel~~ Code shall be construed to supersede the requirements of any TS.

(continued)

Attachment 2

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

Technical Specifications Change 475

License Amendment Request to Delete References to Section XI of the ASME Code and Incorporate References to the ASME OM Code and Allow Application of 25 Percent Extension of Surveillance Intervals to Accelerated Frequencies Utilized in the IST Program

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Proposed Technical Specifications Bases Pages - Markups

BASES

SURVEILLANCE REQUIREMENTS

SR 3.4.3.2 (continued)

The 24 month Frequency was developed based on the S/RV tests required by the ASME **OM** ~~Boiler and Pressure Vessel Code, Section XI~~ (Ref. 3). Operating experience with these components supports performance of the Surveillance at the 24 month Frequency. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.

REFERENCES

1. FSAR, Section 4.4.6.
2. FSAR, Section 14.5.1.
3. **ASME Code for Operation and Maintenance of Nuclear Power Plants (ASME OM Code).**~~ASME Boiler and Pressure Vessel Code, Section XI.~~
4. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.5.1.6, SR 3.5.1.7, and SR 3.5.1.8

The performance requirements of the low pressure ECCS pumps are determined through application of the 10 CFR 50, Appendix K criteria (Ref. 7). This periodic Surveillance is performed (in accordance with the ASME **OM** Code~~, Section XI,~~ requirements for the ECCS pumps) to verify that the ECCS pumps will develop the flow rates required by the respective analyses. The low pressure ECCS pump flow rates ensure that adequate core cooling is provided to satisfy the acceptance criteria of References 13 and 15. The pump flow rates are verified against a system head equivalent to the RPV pressure expected during a LOCA. The total system pump outlet pressure is adequate to overcome the elevation head pressure between the pump suction and the vessel discharge, the piping friction losses, and RPV pressure present during a LOCA. These values may be established by testing or analysis or during preoperational testing.

The flow tests for the HPCI System are performed at two different pressure ranges such that system capability to provide rated flow is tested at both the higher and lower operating ranges of the system. Additionally, adequate steam flow must be passing through the main turbine or turbine bypass valves to continue to control reactor pressure when the HPCI System diverts steam flow. Reactor steam pressure must be $\geq$ 950 psig to perform SR 3.5.1.7 and $\geq$ 150 psig to perform SR 3.5.1.8. Adequate steam flow is represented by at least two turbine bypass valves full open for SR 3.5.1.7 and SR 3.5.1.8. Therefore, sufficient time is allowed after adequate

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.6.2.3.2

Verifying that each RHR pump develops a flow rate ≥ 9000 gpm while operating in the suppression pool cooling mode with flow through the associated heat exchanger ensures that pump performance has not degraded during the cycle. Flow is a normal test of centrifugal pump performance required by ASME **OM** Code~~, Section XI~~ (Ref. 2). This test confirms one point on the pump design curve, and the results are indicative of overall performance. Such inservice inspections confirm component OPERABILITY, trend performance, and detect incipient failures by indicating abnormal performance. The Frequency of this SR is in accordance with the Inservice Testing Program.

REFERENCES

1. FSAR, Sections 5.2 and 14.6.3.
2. **ASME Code for Operation and Maintenance of Nuclear Power Plants (ASME OM Code).**~~ASME, Boiler and Pressure Vessel Code, Section XI.~~
3. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

BASES

SURVEILLANCE REQUIREMENTS

SR 3.4.3.2 (continued)

The 24 month Frequency was developed based on the S/RV tests required by the ASME **OM** ~~Boiler and Pressure Vessel Code, Section XI~~ (Ref. 3). Operating experience with these components supports performance of the Surveillance at the 24 month Frequency. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.

REFERENCES

1. FSAR, Section 4.4.6.
2. FSAR, Section 14.5.1.
3. **ASME Code for Operation and Maintenance for Nuclear Power Plants (ASME OM Code).** ~~ASME Boiler and Pressure Vessel Code, Section XI.~~
4. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.5.1.6, SR 3.5.1.7, and SR 3.5.1.8

The performance requirements of the low pressure ECCS pumps are determined through application of the 10 CFR 50, Appendix K criteria (Ref. 7). This periodic Surveillance is performed (in accordance with the ASME **OM** Code~~, Section XI,~~ requirements for the ECCS pumps) to verify that the ECCS pumps will develop the flow rates required by the respective analyses. The low pressure ECCS pump flow rates ensure that adequate core cooling is provided to satisfy the acceptance criteria of References 13 and 15. The pump flow rates are verified against a system head equivalent to the RPV pressure expected during a LOCA. The total system pump outlet pressure is adequate to overcome the elevation head pressure between the pump suction and the vessel discharge, the piping friction losses, and RPV pressure present during a LOCA. These values may be established by testing or analysis or during preoperational testing.

The flow tests for the HPCI System are performed at two different pressure ranges such that system capability to provide rated flow is tested at both the higher and lower operating ranges of the system. Additionally, adequate steam flow must be passing through the main turbine or turbine bypass valves to continue to control reactor pressure when the HPCI System diverts steam flow. Reactor steam pressure must be $\geq$ 950 psig to perform SR 3.5.1.7 and $\geq$ 150 psig to perform SR 3.5.1.8. Adequate steam flow is represented by at least two turbine bypass valves full open for SR 3.5.1.7 and SR 3.5.1.8. Therefore, sufficient time is allowed after adequate

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.6.2.3.2

Verifying that each RHR pump develops a flow rate ≥ 9000 gpm while operating in the suppression pool cooling mode with flow through the associated heat exchanger ensures that pump performance has not degraded during the cycle. Flow is a normal test of centrifugal pump performance required by ASME **OM** Code~~, Section XI~~ (Ref. 2). This test confirms one point on the pump design curve, and the results are indicative of overall performance. Such inservice inspections confirm component OPERABILITY, trend performance, and detect incipient failures by indicating abnormal performance. The Frequency of this SR is in accordance with the Inservice Testing Program.

REFERENCES

1. FSAR, Sections 5.2 and 14.6.3.
2. **ASME Code for Operation and Maintenance for Nuclear Power Plants (ASME OM Code).**~~ASME, Boiler and Pressure Vessel Code, Section XI.~~
3. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

BASES

SURVEILLANCE REQUIREMENTS

SR 3.4.3.2 (continued)

The 24 month Frequency was developed based on the S/RV tests required by the ASME **OM** ~~Boiler and Pressure Vessel Code, Section XI~~ (Ref. 3). Operating experience with these components supports performance of the Surveillance at the 24 month Frequency. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.

REFERENCES

1. FSAR, Section 4.4.6.
2. FSAR, Section 14.5.1.
3. **ASME Code for Operation and Maintenance of Nuclear Power Plants (ASME OM Code).**~~ASME Boiler and Pressure Vessel Code, Section XI.~~
4. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.5.1.6, SR 3.5.1.7, and SR 3.5.1.8

The performance requirements of the low pressure ECCS pumps are determined through application of the 10 CFR 50, Appendix K criteria (Ref. 7). This periodic Surveillance is performed (in accordance with the ASME **OM** Code~~, Section XI,~~ requirements for the ECCS pumps) to verify that the ECCS pumps will develop the flow rates required by the respective analyses. The low pressure ECCS pump flow rates ensure that adequate core cooling is provided to satisfy the acceptance criteria of References 13 and 15. The pump flow rates are verified against a system head equivalent to the RPV pressure expected during a LOCA. The total system pump outlet pressure is adequate to overcome the elevation head pressure between the pump suction and the vessel discharge, the piping friction losses, and RPV pressure present during a LOCA. These values may be established by testing or analysis or during preoperational testing.

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(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.6.2.3.2

Verifying that each RHR pump develops a flow rate ≥ 9000 gpm while operating in the suppression pool cooling mode with flow through the associated heat exchanger ensures that pump performance has not degraded during the cycle. Flow is a normal test of centrifugal pump performance required by ASME **OM** Code~~, Section XI~~ (Ref. 2). This test confirms one point on the pump design curve, and the results are indicative of overall performance. Such inservice inspections confirm component OPERABILITY, trend performance, and detect incipient failures by indicating abnormal performance. The Frequency of this SR is in accordance with the Inservice Testing Program.

REFERENCES

1. FSAR, Sections 5.2 and 14.6.3.
2. **ASME Code for Operations and Maintenance of Nuclear Power Plants (ASME OM Code)**~~ASME, Boiler and Pressure Vessel Code, Section XI~~.
3. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

Attachment 3

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

Technical Specifications Change 475

License Amendment Request to Delete References to Section XI of the ASME Code and Incorporate References to the ASME OM Code and Allow Application of 25 Percent Extension of Surveillance Intervals to Accelerated Frequencies Utilized in the IST Program

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Proposed Technical Specifications Pages - Retyped

5.5 Programs and Manuals

5.5.4 Radioactive Effluent Controls Program (continued)

h. Limitations on the annual and quarterly air doses resulting from noble gases released in gaseous effluents from each unit to areas beyond the site boundary, conforming to 10 CFR 50, Appendix I;

i. Limitations on the annual and quarterly doses to a member of the public from iodine-131, iodine-133, tritium, and all radionuclides in particulate form with half lives > 8 days in gaseous effluents released from each unit to areas beyond the site boundary, conforming to 10 CFR 50, Appendix I; and

j. Limitations on the annual dose or dose commitment to any member of the public beyond the site boundary due to releases of radioactivity and to radiation from uranium fuel cycle sources, conforming to 40 CFR 190.

k. The provisions of SR 3.0.2 and SR 3.0.3 are applicable to the Radioactive Effluent Controls Program surveillance frequency.

5.5.5 Component Cyclic or Transient Limit

This program provides controls to track the FSAR Section 4.2.5, cyclic and transient occurrences to ensure that components are maintained within the design limits.

5.5.6 Inservice Testing Program

This program provides controls for inservice testing of ASME Code Class 1, 2, and 3 components. The program shall include the following:

a. Testing frequencies applicable to the ASME Code for Operations and Maintenance of Nuclear Power Plants (ASME OM Code) and applicable Addenda are as follows:

(continued)

5.5 Programs and Manuals

5.5.6 Inservice Testing Program (continued)

ASME OM Code and applicable Addenda terminology for inservice testing activities	Required Frequencies for performing inservice testing activities
Weekly	At least once per 7 days
Monthly	At least once per 31 days
Quarterly or every 3 months	At least once per 92 days
Semiannually or every 6 months	At least once per 184 days
Every 9 months	At least once per 276 days
Yearly or annually	At least once per 366 days
Biennially or every 2 years	At least once per 731 days

b. The provisions of SR 3.0.2 are applicable to the above required Frequencies and to other normal and accelerated Frequencies specified as 2 years or less in the Inservice Test Program for performing inservice testing activities;

c. The provisions of SR 3.0.3 are applicable to inservice testing activities; and

d. Nothing in the ASME OM Code shall be construed to supersede the requirements of any TS.

(continued)

5.5 Programs and Manuals

5.5.4 Radioactive Effluent Controls Program (continued)

h. Limitations on the annual and quarterly air doses resulting from noble gases released in gaseous effluents from each unit to areas beyond the site boundary, conforming to 10 CFR 50, Appendix I;

i. Limitations on the annual and quarterly doses to a member of the public from iodine-131, iodine-133, tritium, and all radionuclides in particulate form with half lives > 8 days in gaseous effluents released from each unit to areas beyond the site boundary, conforming to 10 CFR 50, Appendix I; and

j. Limitations on the annual dose or dose commitment to any member of the public beyond the site boundary due to releases of radioactivity and to radiation from uranium fuel cycle sources, conforming to 40 CFR 190.

k. The provisions of SR 3.0.2 and SR 3.0.3 are applicable to the Radioactive Effluent Controls Program surveillance frequency.

5.5.5 Component Cyclic or Transient Limit

This program provides controls to track the FSAR Section 4.2.5, cyclic and transient occurrences to ensure that components are maintained within the design limits.

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This program provides controls for inservice testing of ASME Code Class 1, 2, and 3 components. The program shall include the following:

a. Testing frequencies applicable to the ASME Code for Operations and Maintenance of Nuclear Power Plants (ASME OM Code) and applicable Addenda are as follows:

(continued)

5.5 Programs and Manuals

5.5.6 Inservice Testing Program (continued)

ASME OM Code and applicable Addenda terminology for inservice testing activities	Required Frequencies for performing inservice testing activities
Weekly	At least once per 7 days
Monthly	At least once per 31 days
Quarterly or every 3 months	At least once per 92 days
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Every 9 months	At least once per 276 days
Yearly or annually	At least once per 366 days
Biennially or every 2 years	At least once per 731 days

b. The provisions of SR 3.0.2 are applicable to the above required Frequencies and to other normal and accelerated Frequencies specified as 2 years or less in the Inservice Test Program for performing inservice testing activities;

c. The provisions of SR 3.0.3 are applicable to inservice testing activities; and

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(continued)

5.5 Programs and Manuals

5.5.4 Radioactive Effluent Controls Program (continued)

h. Limitations on the annual and quarterly air doses resulting from noble gases released in gaseous effluents from each unit to areas beyond the site boundary, conforming to 10 CFR 50, Appendix I;

i. Limitations on the annual and quarterly doses to a member of the public from iodine-131, iodine-133, tritium, and all radionuclides in particulate form with half lives > 8 days in gaseous effluents released from each unit to areas beyond the site boundary, conforming to 10 CFR 50, Appendix I; and

j. Limitations on the annual dose or dose commitment to any member of the public beyond the site boundary due to releases of radioactivity and to radiation from uranium fuel cycle sources, conforming to 40 CFR 190.

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5.5 Programs and Manuals

5.5.6 Inservice Testing Program (continued)

ASME OM Code and applicable Addenda terminology for inservice testing activities	Required Frequencies for performing inservice testing activities
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b. The provisions of SR 3.0.2 are applicable to the above required Frequencies and to other normal and accelerated Frequencies specified as 2 years or less in the Inservice Test Program for performing inservice testing activities;

c. The provisions of SR 3.0.3 are applicable to inservice testing activities; and

d. Nothing in the ASME OM Code shall be construed to supersede the requirements of any TS.

(continued)

Attachment 4

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

Technical Specifications Change 475

License Amendment Request to Delete References to Section XI of the ASME Code and Incorporate References to the ASME OM Code and Allow Application of 25 Percent Extension of Surveillance Intervals to Accelerated Frequencies Utilized in the IST Program

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Proposed Technical Specifications Bases Pages - Retyped

BASES

SURVEILLANCE REQUIREMENTS

SR 3.4.3.2 (continued)

The 24 month Frequency was developed based on the S/RV tests required by the ASME OM Code (Ref. 3). Operating experience with these components supports performance of the Surveillance at the 24 month Frequency. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.

REFERENCES

1. FSAR, Section 4.4.6.
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4. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.5.1.6, SR 3.5.1.7, and SR 3.5.1.8

The performance requirements of the low pressure ECCS pumps are determined through application of the 10 CFR 50, Appendix K criteria (Ref. 7). This periodic Surveillance is performed (in accordance with the ASME OM Code requirements for the ECCS pumps) to verify that the ECCS pumps will develop the flow rates required by the respective analyses. The low pressure ECCS pump flow rates ensure that adequate core cooling is provided to satisfy the acceptance criteria of References 13 and 15. The pump flow rates are verified against a system head equivalent to the RPV pressure expected during a LOCA. The total system pump outlet pressure is adequate to overcome the elevation head pressure between the pump suction and the vessel discharge, the piping friction losses, and RPV pressure present during a LOCA. These values may be established by testing or analysis or during preoperational testing.

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(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.6.2.3.2

Verifying that each RHR pump develops a flow rate ≥ 9000 gpm while operating in the suppression pool cooling mode with flow through the associated heat exchanger ensures that pump performance has not degraded during the cycle. Flow is a normal test of centrifugal pump performance required by ASME OM Code (Ref. 2). This test confirms one point on the pump design curve, and the results are indicative of overall performance. Such inservice inspections confirm component OPERABILITY, trend performance, and detect incipient failures by indicating abnormal performance. The Frequency of this SR is in accordance with the Inservice Testing Program.

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1. FSAR, Sections 5.2 and 14.6.3.
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3. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

BASES

SURVEILLANCE REQUIREMENTS

SR 3.4.3.2 (continued)

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BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.5.1.6, SR 3.5.1.7, and SR 3.5.1.8

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(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.6.2.3.2

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3. NRC No. 93-102, "Final Policy Statement on Technical Specification Improvements," July 23, 1993.

BASES

SURVEILLANCE REQUIREMENTS

SR 3.4.3.2 (continued)

The 24 month Frequency was developed based on the S/RV tests required by the ASME OM Code (Ref. 3). Operating experience with these components supports performance of the Surveillance at the 24 month Frequency. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.

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BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.5.1.6, SR 3.5.1.7, and SR 3.5.1.8

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BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.6.2.3.2

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