



Tennessee Valley Authority, Post Office Box 2000, Decatur, Alabama 35609-2000

October 30, 2000

TVA-BFN-TS-407

10 CFR 50.90

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

Gentlemen:

In the Matter of)	Docket Nos. 50-260
Tennessee Valley Authority)	50-296

**BROWNS FERRY NUCLEAR PLANT (BFN) - UNITS 2 AND 3 -
TECHNICAL SPECIFICATIONS (TS) CHANGE 407 - MAIN STEAM
ISOLATION VALVE (MSIV) - MAXIMUM PATHWAY LEAKAGE - TAC NOS.
MB0317 AND MB0318**

In accordance with the provisions of 10 CFR 50.90, TVA is submitting a request for a TS change (TS-407) to licenses DPR-52 and DPR-68 to remove the term "maximum pathway" from the MSIV leakage rate Surveillance Requirement (SR), SR 3.6.1.3.10. This proposed change is considered administrative and will provide consistency with 10 CFR 50 Appendix J leak rate testing terminology for evaluating MSIV leakage rates.

Enclosed is a description and justification for the proposed TS change, the significant hazards consideration determination, and marked-up copies of the appropriate pages from the current TS and Bases showing the proposed TS revisions.

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U.S. Nuclear Regulatory Commission

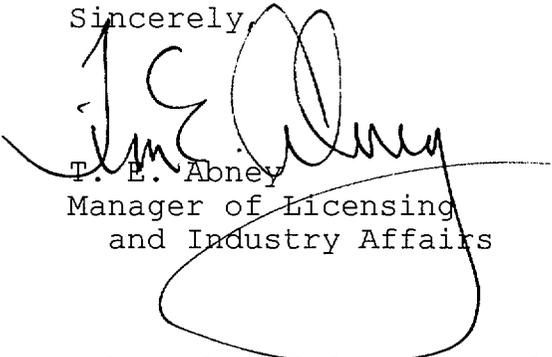
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TVA has determined that there are no significant hazards considerations associated with the proposed change and that the TS changes qualify for a categorical exclusion from environmental review pursuant to the provisions of 10 CFR 51.22(c)(9). The BFN Plant Operations Review Committee and the Nuclear Safety Review Board have reviewed this proposed change, and determined that operation of BFN Units 2 and 3 in accordance with the proposed change will not endanger the health and safety of the public. Additionally, in accordance with 10 CFR 50.91(b)(1), TVA is sending a copy of this letter and enclosures to the Alabama State Department of Public Health.

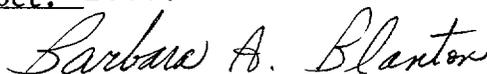
TVA is requesting approval of this change as soon as practicable and that it be made effective immediately. If you have any questions concerning this proposed TS change, please contact me at (256)729-2636.

Sincerely,


T. E. Abney
Manager of Licensing
and Industry Affairs

Subscribed and sworn to before me
on this 30th day of Oct. 2000.

Barbara A. Blanton



Notary Public
My Commission Expires 09/22/2002

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Enclosure

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Enclosure

TS-407

MSIV Maximum Pathway Leakage

TS-407

MSIV Maximum Pathway Leakage

Background

The Main Steam Isolation Valve (MSIV) leakage acceptance criteria in Technical Specifications (TS) Surveillance Requirement (SR) 3.6.1.3.10 was previously changed from 11.5 standard cubic feet per hour (scfh) for individual MSIVs to 100 scfh for individual MSIVs with a 150 scfh combined maximum pathway leakage rate for all four MS lines. This TS (TS-399) change was approved by NRC in Amendment Nos. 263 and 223 for Browns Ferry Nuclear Plant (BFN) Units 2 and 3 respectively on March 14, 2000. Unit 1 TS were not changed in TS-399.

The term "maximum pathway" was added to the SR 3.6.1.3.10 surveillance criteria by TS-399 based on previously approved TS changes for other utilities for the equivalent TS change. However, after further review, TVA has determined the use of "maximum pathway" in the SR wording creates a terminology inconsistency with 10 CFR 50 Appendix J test evaluation criteria for "as-found" and "as-left" MSIV test conditions. To remedy any potential for misinterpretation of the MSIV SR testing requirements, this TS change proposes the words "maximum path" be deleted from SR 3.6.1.3.10. This change is considered administrative because no changes in leak testing methods or in the disposition of leak rate results are involved.

Description of Proposed Change

In SR 3.6.1.3.10 for Units 2 and 3, the words "maximum pathway" are deleted. Corresponding TS Bases changes are also being made. See the marked-up Unit 2 and 3 TS/Bases pages at the end of this Enclosure for the detailed changes. Unit 1 TS are not affected by this proposed change.

Reason for the Proposed Change

Option B of 10 CFR 50 Appendix J (performance-based leak rate testing) in coordination with NEI 94-01, "Industry Guideline for Implementing Performance-Based Option of 10 CFR Part 50, Appendix J," Revision 0, July 26, 1995, provides evaluation criteria for leak rate testing, which address both "as-found" and "as-left" component conditions. Under Option B, "maximum pathway" terminology is exclusively associated with "as-left" leakage conditions. Appendix J also requires "as-found" leakage testing using a "minimum path" comparison. Hence, the use of term "maximum pathway" in SR 3.6.1.3.10 wording creates a potential terminology

inconsistency with 10 CFR 50 Appendix J since "maximum pathway" is always associated with "as-left" MSIV leakage conditions, yet Appendix J also requires "as-found" testing based on minimum path criteria.

To remedy any potential for misinterpretation of the MSIV SR testing requirements, this TS change proposes the words "maximum path" be deleted from SR 3.6.1.3.10. With the proposed deletion, SR 3.6.1.3.10 will simply specify that the leakage rate testing be performed in accordance with the Primary Containment Leakage Rate Testing Program in TS Section 5.5.12, which invokes Appendix J Option B testing requirements for both "as-found" and "as-left" MSIV leakage test conditions.

Additionally, Section 3.2.4 of NUREG-1022, Revision 1, January 1998, "Event Report Guidelines", specifies in regards to evaluating containment leakage test results for reporting under 10 CFR 50.73 (Licensee Event Reports), that event reportability be based on a "as-found" minimum path evaluation. Thus, the proposed TS change will also serve to remove any inferences that a "maximum path" basis rate is relevant for reportability determinations due to the term being in the existing SR criteria.

Justification for Change

TS require the establishment of a leakage testing program to periodically leak test the primary containment, and the lines and valves which penetrate primary containment. This testing program is designed to ensure containment integrity is maintained for accident mitigation.

The BFN program for containment leakage testing is described in TS Section 5.5.12, Primary Containment Leakage Rate Testing Program. SRs 3.6.1.1.1 (overall testing), 3.6.1.2.1 (air locks), 3.6.1.3.10 (MSIVs), and 3.6.1.3.11 (water tested lines) are the actual SRs which prescribe the leakage rate testing of the different components. Each of these SRs specify that the testing be performed in accordance with the Primary Containment Leakage Rate Testing Program defined in TS Section 5.5.12.

TS Section 5.5.12 requires leakage rate testing be performed in accordance with 10 CFR Appendix J Option B and Regulatory Guide 1.163, "Performance-Based Containment Leak-Test Program, September 1995." In Regulatory Guide 1.163, NRC staff cites that industry guideline, NEI 94-01, "Industry Guideline for Implementing Performance-Based Option of 10 CFR Part 50, Appendix J", is an acceptable means of demonstrating compliance with the 10 CFR 50 Appendix J. NEI 94-01, also references in part, ANSI/ANS-56.8-1994,

"Containment System Leakage Testing Requirements," for detailed descriptions of the technical methods and techniques for performing the different types of (A, B, and C) leakage tests.

NEI 94-01 specifies that the "as-found" leak rate testing results be evaluated on a minimum pathway leakage rate (MNPLR) basis and the "as-left" leakage rate be compared on a maximum pathway leakage rate (MXPLR) basis. MNPLR is defined in ANSI/ANS-56.8-1994 as the minimum leakage rate that can be attributed to a penetration leakage path (e.g., the smaller of either the inboard or outboard barrier's individual leakage rate). MXPLR is defined in ANSI/ANS-56.8-1994 as the maximum leakage attributed to a penetration path (e.g., the larger, not the total, leakage rate of two valves in series).

Following a reactor operating cycle, Appendix J Option B requires that MSIV leak rate testing be performed, and the actual "as-found" leak rate for each MSIV be determined as the summation of the leakage that passes through both of the MSIVs in each of the four MS lines (MNPLR criteria). This testing is performed during refueling outages and is conducted under SR 3.6.1.3.10.

Following the refuel outage and prior to entering a mode when primary containment is required, the commitment to 10 CFR 50 Appendix J Option B in TS Section 5.5.12 requires that containment integrity be maintained or restored to meet MXPLR criteria. This TS requirement includes the MSIVs and requires that for two MSIVs in series for each MS line, the leakage rate is counted as the leakage rate of the higher of the two valves (MXPLR criteria). SR 3.6.1.3.10 requires the MXPLR summation for the 4 MS lines be less than 150 scfh. This ensures that the design basis dose analysis assumptions for MSIV leakage criteria are maintained during plant operation.

As discussed above, 10 CFR 50 Appendix J Option B requires both "as-found" leak rate testing based on minimum pathway leakage rate and "as-left" testing based on maximum pathway leakage rate. Hence, the use of the terminology "combined maximum" in SR 3.6.1.3.10 is not completely consistent with Appendix J since "combined maximum" is associated only with "as-left" testing results. The revised SR will simply reference the Containment Leakage Rate Testing Program in TS 5.5.12 for testing methods. The term "maximum pathway" is not needed in the SR since Appendix J Option B as implemented by NEI 94-01 already requires both "as-found" and "as-left" leakage rate testing.

The proposed elimination of the term "maximum pathway" does not result in a change in testing methodology or in a change in the accident analyses. The MSIVs will continue to be leak rate tested in accordance with the 10 CFR 50 Appendix J program and TS. The proposed TS change will not effect the testing methods for individual MSIV leakage rates and decisions regarding reworking of the MSIVs following "as-found" testing. SR 3.6.1.3.10 will continue to require that the "as-left" leakage rate of individual MSIVs be no greater than 100 scfh. The TS Bases to SR 3.6.1.3.10 elaborates on this requirement by stating that any MSIV which exceeds 100 scfh be restored below alarm limit values specified in the Primary Containment Leakage Rate Testing Program. Similarly, the total "as-left" MSIV leakage for the four steam lines is still required to be below 150 scfh on a maximum pathway basis per TS SR 3.6.1.3.10. Therefore, inputs and assumptions regarding MSIV leakage for the design basis accident analyses are unaffected by the proposed TS change.

In summary, leak rate testing of the MSIVs will continue to be performed in accordance with 10 CFR 50 Appendix J Option B and associated documents in the same manner as currently being conducted. There are no changes in testing methods or in the disposition of leak test results. This change simply remedies any potential for misinterpretation of the MSIV SR testing requirements and reportability determinations by removing unneeded terminology. The change does not impact the Final Safety Analysis Report, commitments to NRC, or other licensing documents. Therefore, NRC approval of the proposed change does not involve any reduction in the margin of safety.

Environmental Impact Consideration

The proposed TS changes do not involve a significant hazards consideration, a significant change in the types of or significant increase in the amounts of any effluents that may be released offsite, or a significant increase in individual or cumulative occupational radiation exposure. Therefore, the proposed amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Therefore, pursuant to 10 CFR 51.22(b), an environmental assessment of the proposed amendment is not required.

TS-407
MSIV Maximum Pathway Leakage
No Significant Hazards Consideration Determination

TVA is submitting a request for an amendment to the Units 2 and 3 Technical Specifications (TS) to delete the word "maximum pathway" from the Main Steam Isolation Valve (MSIV) Leakage Surveillance Requirement 3.6.1.3.10. This change is being made to ensure consistent application of 10 CFR 50 Appendix J requirements.

TVA has concluded that operation of Browns Ferry Nuclear Plant (BFN) Units 2 and 3 in accordance with the proposed change to the TS does not involve a significant hazards consideration. TVA's conclusion is based on its evaluation, in accordance with 10 CFR 50.91(a)(1), of the three standards set forth in 10 CFR 50.92(c).

A. The proposed amendment does not involve a significant increase in the probability or consequences of an accident previously evaluated.

The proposed change to eliminate the words "maximum pathway" does not affect any plant system or component, and does not impact operator performance or procedures. The leak rate testing of the MSIVs will continue to be performed in accordance with 10 CFR 50 Appendix J in a manner consistent with the guidance on leak rate testing presented in industry guidance documents and in the Standard TS. The change does not impact the design basis accident analyses presented in the Final Safety Analysis Report (FSAR). This proposed TS change is considered administrative in that no changes in leak testing methods or in disposition of leak rate results are involved. Therefore, the proposed change does not involve a significant increase in the probability or consequences of an accident previously evaluated.

B. The proposed amendment does not create the possibility of a new or different kind of accident from any accident previously evaluated.

The proposed change to the TS does not affect any plant system or component, and does not affect plant operation. No changes in accident analysis are involved, so the consequences of accidents will remain within the accident analysis described in the FSAR. Therefore, the proposed TS change does not create the possibility of a new or different kind of accident from any accident previously evaluated.

C. The proposed amendment does not involve a significant reduction in a margin of safety.

The proposed change does not affect any plant system or component, and does not have any impact on plant operation. No changes in accident analyses are involved, therefore, the proposed change does not involve a significant reduction in the margin of safety as currently defined in the bases of the applicable TS section or in the FSAR. For these reasons, the proposed amendment does not involve a significant reduction in the margin of safety.

TS-407
Marked-up TS Pages
MSIV Maximum Pathway Leakage

I. Affected Page List

Unit 2	Unit 3
3.6-16	3.6-16
B 3.6-35	B 3.6-35

II. Unit 2 and 3 marked-up TS/TS Base Pages are attached.

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.6.1.3.5	Verify the isolation time of each power operated, automatic PCIV, except for MSIVs, is within limits.	In accordance with the Inservice Testing Program
SR 3.6.1.3.6	Verify the isolation time of each MSIV is ≥ 3 seconds and ≤ 5 seconds.	In accordance with the Inservice Testing Program
SR 3.6.1.3.7	Verify each automatic PCIV actuates to the isolation position on an actual or simulated isolation signal.	24 months
SR 3.6.1.3.8	Verify each reactor instrumentation line EFCV actuates to the isolation position on a simulated instrument line break signal.	24 months
SR 3.6.1.3.9	Remove and test the explosive squib from each shear isolation valve of the TIP System.	24 months on a STAGGERED TEST BASIS
SR 3.6.1.3.10	Verify leakage rate through each MSIV is ≤ 100 scfh and that the combined maximum pathway leakage rate for all four main steam lines is ≤ 150 scfh when tested at ≥ 25 psig.	In accordance with the Primary Containment Leakage Rate Testing Program
SR 3.6.1.3.11	Verify combined leakage through water tested lines that penetrate primary containment are within the limits specified in the Primary Containment Leakage Rate Testing Program.	In accordance with the Primary Containment Leakage Rate Testing Program

BASES

SURVEILLANCE
REQUIREMENTS
(continued)

SR 3.6.1.3.9

The TIP shear isolation valves are actuated by explosive charges. An in place functional test is not possible with this design. The explosive squib is removed and tested to provide assurance that the valves will actuate when required. The replacement charge for the explosive squib shall be from the same manufactured batch as the one fired or from another batch that has been certified by having one of the batch successfully fired. The Frequency of 24 months on a STAGGERED TEST BASIS is considered adequate given the administrative controls on replacement charges and the frequent checks of circuit continuity (SR 3.6.1.3.4).

SR 3.6.1.3.10

in accordance with
the Primary
Containment
Leakage Rate
Testing Program.

The analyses in References 1 and 5 are based on leakage that is less than the specified leakage rate. Leakage through each MSIV must be ≤ 100 scfh when tested at $\geq P_t$ (25 psig). The combined ~~maximum pathway~~ leakage rate for all four main steam lines must be ≤ 150 scfh when tested at ≥ 25 psig. If the leakage rate through an individual MSIV exceeds 100 scfh, the leakage rate shall be restored below the alarm limit value as specified in the Containment Leakage Rate Testing Program referenced in TS 5.5.12. This ensures that MSIV leakage is properly accounted for in determining the overall primary containment leakage rate. The Frequency is specified in the Primary Containment Leakage Rate Testing Program.

SR 3.6.1.3.11

Surveillance of water tested lines ensures that sufficient inventory will be available to provide a sealing function for at least 30 days at a pressure of 1.1 Pa. Sufficient inventory ensures there is no path for leakage of primary containment

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.6.1.3.5	Verify the isolation time of each power operated, automatic PCIV, except for MSIVs, is within limits.	In accordance with the Inservice Testing Program
SR 3.6.1.3.6	Verify the isolation time of each MSIV is ≥ 3 seconds and ≤ 5 seconds.	In accordance with the Inservice Testing Program
SR 3.6.1.3.7	Verify each automatic PCIV actuates to the isolation position on an actual or simulated isolation signal.	24 months
SR 3.6.1.3.8	Verify each reactor instrumentation line EFCV actuates to the isolation position on a simulated instrument line break signal.	24 months
SR 3.6.1.3.9	Remove and test the explosive squib from each shear isolation valve of the TIP System.	24 months on a STAGGERED TEST BASIS
SR 3.6.1.3.10	Verify leakage rate through each MSIV is ≤ 100 scfh and that the combined maximum pathway leakage rate for all four main steam lines is ≤ 150 scfh when tested at ≥ 25 psig.	In accordance with the Primary Containment Leakage Rate Testing Program
SR 3.6.1.3.11	Verify combined leakage through water tested lines that penetrate primary containment are within the limits specified in the Primary Containment Leakage Rate Testing Program.	In accordance with the Primary Containment Leakage Rate Testing Program

BASES

SURVEILLANCE
REQUIREMENTS
(continued)

SR 3.6.1.3.9

The TIP shear isolation valves are actuated by explosive charges. An in place functional test is not possible with this design. The explosive squib is removed and tested to provide assurance that the valves will actuate when required. The replacement charge for the explosive squib shall be from the same manufactured batch as the one fired or from another batch that has been certified by having one of the batch successfully fired. The Frequency of 24 months on a STAGGERED TEST BASIS is considered adequate given the administrative controls on replacement charges and the frequent checks of circuit continuity (SR 3.6.1.3.4).

SR 3.6.1.3.10

in accordance with
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Testing Program.

The analyses in References 1 and 5 are based on leakage that is less than the specified leakage rate. Leakage through each MSIV must be ≤ 100 scfh when tested at $\geq P_t$ (25 psig). The combined ~~maximum pathway~~ leakage rate for all four main steam lines must be ≤ 150 scfh when tested at ≥ 25 psig. If the leakage rate through an individual MSIV exceeds 100 scfh, the leakage rate shall be restored below the alarm limit value as specified in the Containment Leakage Rate Testing Program referenced in TS 5.5.12. This ensures that MSIV leakage is properly accounted for in determining the overall primary containment leakage rate. The Frequency is specified in the Primary Containment Leakage Rate Testing Program.

SR 3.6.1.3.11

Surveillance of water tested lines ensures that sufficient inventory will be available to provide a sealing function for at least 30 days at a pressure of 1.1 Pa. Sufficient inventory ensures there is no path for leakage of primary containment

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