



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

July 29, 2005

TVA-BFN-TS-450

10 CFR 50.90

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

Gentlemen:

In the Matter of)	Docket Nos. 50-259
Tennessee Valley Authority)	50-260
		50-296

BROWNS FERRY NUCLEAR PLANT (BFN) - UNITS 1, 2, AND 3 - TECHNICAL SPECIFICATIONS (TS) CHANGE 450 - APPLICATION FOR TECHNICAL SPECIFICATION IMPROVEMENT TO REVISE CONTROL ROD SCRAM TIME TESTING FREQUENCY

Pursuant to 10 CFR 50.90, the Tennessee Valley Authority (TVA) is submitting a request for a TS change (TS-450) to licenses DPR-33, DPR-52, and DPR-68 for BFN Units 1, 2, and 3, respectively.

The proposed amendment would revise the TS testing frequency for the surveillance requirement (SR) in TS 3.1.4, "Control Rod Scram Times." These changes are based on TS Task Force (TSTF) change traveler TSTF-460 (Revision 0) that has been approved generically for the boiling water reactor (BWR) Standard TS, NUREG-1433 (BWR/4) and NUREG-1434 (BWR/6) by revising the frequency of SR 3.1.4.2, control rod scram time testing, from "120 days cumulative operation in MODE 1" to "200 days cumulative operation in MODE 1." A notice announcing the availability of this proposed TS change using the consolidated

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line item improvement process was published in the Federal Register on August 23, 2004 (69 FR 51854).

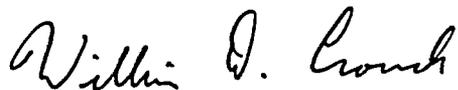
Enclosure 1 provides a description of the proposed change and confirmation of applicability. Enclosure 2 provides the existing TS pages marked-up to show the proposed change. TVA is asking that this TS change be approved by November 1, 2005, and that the implementation of the revised TS be made within 60 days of NRC approval.

TVA has determined that there are no significant hazards considerations associated with the proposed change and that the TS change qualifies for a 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), TVA is sending a copy of this letter and Enclosures to the Alabama State Department of Public Health.

There is a regulatory commitment contained in Section 6.0 of Enclosure 1. If you have any questions about this TS change, please contact me at (256)729-2636.

I declare under penalty of perjury that the foregoing is true and correct. Executed on July 29, 2005.

Sincerely,



William D. Crouch
Manager of Licensing
and Industry Affairs

Enclosures:

1. Description and Assessment
2. Proposed Technical Specifications Changes (mark-up)

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Enclosures

cc: (Enclosures)

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Enclosure 1

Browns Ferry Nuclear Plant (BFN) Units 1, 2, and 3

Technical Specifications (TS) Change 450

Application for Technical Specification Improvement to Revise Control Rod Scram Time Testing Frequency

Description and Assessment

1.0 DESCRIPTION

The proposed license amendment revises the required testing frequency for the surveillance requirement (SR) in TS 3.1.4, "Control Rod Scram Times." A notice announcing the availability of this proposed TS change using the consolidated line item improvement process (CLIIP) was published in the Federal Register on August 23, 2004 (69 FR 51854).

2.0 PROPOSED CHANGE

These changes are based on TS Task Force (TSTF) change traveler TSTF-460 (Revision 0) that has been approved generically for the boiling water reactor (BWR) Standard TS, NUREG-1433 (BWR/4) and NUREG-1434 (BWR/6). The required frequency of SR 3.1.4.2, control rod scram time testing, is changed from "120 days cumulative operation in MODE 1" to "200 days cumulative operation in MODE 1."

3.0 BACKGROUND

The background for this application is adequately addressed by the CLIIP Notice of Availability published on August 23, 2004 (69 FR 51854) and TSTF-460.

4.0 REGULATORY REQUIREMENTS AND GUIDANCE

The applicable regulatory requirements and guidance associated with this application are adequately addressed by the CLIIP Notice of Availability published on August 23, 2004 (69 FR 51854) and TSTF-460.

5.0 TECHNICAL ANALYSIS

TVA has reviewed the safety evaluation (SE) published on August 23, 2004 (69 FR 51854) as part of the CLIIP Notice of Availability. This verification included a review of the NRC staff's SE and the supporting information provided to support TSTF-460. TVA has concluded that the justifications presented in the TSTF proposal and the SE prepared by the NRC staff are applicable to BFN 1, 2, and 3, and justify this amendment for the incorporation of the changes to the BFN TS.

As described in the CLIIP model SE, part of the justification for the change in surveillance frequency is the high reliability of the control rod drive system. As requested in the notice of availability published on August 23, 2004 (69 FR 51854), the historical performance of the control rod drive (CRD) system at BFN has been reviewed and is summarized below. The CRD scram time test results were reviewed back through July 1998, which is when BFN converted to Standard TS and incorporated the scram timing criteria presently in TS Table 3.1.4-1. This represents 7 years of operation. BFN has 185 control rods on each unit.

Additionally, TVA plans to start installing Automatic Valve Company (AVCO) Scram Solenoid Pilot Valves (SSPVs) on Unit 3 during the refueling outage in Spring 2006 and on Unit 2 in Spring 2007. These AVCO SSPVs will replace the existing Automatic Switch Company (ASCO) SSPVs currently installed. The ASCO valves will be changed out in total over the next several outages on Units 2 and 3. Unit 1 will restart with a full set of AVCO SSPVs. The AVCO design does not utilize elastomer diaphragms as do the ASCO SSPVs. Hence, use of AVCO SSPVs eliminates the potential for diaphragm elastomer degradation and should improve scram time performance. Several domestic and foreign BWRs are using AVCO SSPVs with good results.

Unit 2 Test Results

During the time period (July 1998 to present) there were approximately 1500 individual rod scram timing tests performed on Unit 2. Of these, there were 7 rods total, which tested slow following refuel outages during the performance of the SR 3.1.4.1 full core scram time tests (SR tests all 185 rods). This result is not unexpected, since preventive maintenance on CRDs, CRD hydraulic control units, SSPVs, and scram insert and discharge valves is routinely performed during refueling outages. These maintenance activities may affect scram timing and require adjustments

on a small percentage of rods following initial startup scram testing at operating pressure. All 7 control rods met the TS Table 3.1.4-1, 90 percent insertion time criteria (position 06) of 3.36 seconds, and were adjusted as necessary and satisfactorily retested at all rod positions shortly following the startup full core scram surveillance.

Typically, the insertion limit for position 46 was not met by a small amount. Position 46 is characteristically the most common position limit to be exceeded for BWRs due to "sticking" of the elastomer diaphragms of the SSPVs. As mentioned above, the ASCO SSPVs are scheduled to be replaced with AVCO brand valves, which should show improved performance at position 46 since the AVCO SSPVs do not use elastomer diaphragms.

No rods tested slow during the performance of the 17 SR 3.1.4.2 tests (10 percent representative sample of control rods every 120 days of cumulative operation) that were conducted in this time period. This represents approximately 370 individual rod scram time tests.

Unit 3 Test Results

During the time period (July 1998 to present) there were approximately 1350 individual rod scram timing tests performed on Unit 3. Similar to Unit 2, there were 3 rods, which tested slow following refuel outages during the performance of the SR 3.1.4.1 full core scram time tests (SR tests all 185 rods). Of these 3 rods, 1 rod (30-59) remained slow during subsequent retests during Cycle 10 operation due to a problem with the CRD flange ball check valve on the affected drive. The maximum position 06 scram insertion time on this rod was 3.780 seconds compared to the TS Table 3.1.4-1 limit of 3.36 seconds. The CRD was subsequently repaired during the Cycle 10 refueling outage.

Aside from rod 30-59, during the performance of the 18 SR 3.1.4.2 tests (10 percent representative sample of control rods every 120 days of cumulative operation) that were conducted in this time period, a single rod tested slightly slow at position 46 (.464 seconds versus TS requirement of .45 seconds) during Cycle 9 operation in October 1999. These 18 SR 3.1.4.2 tests represent approximately 390 individual rod scram time tests.

Unit 1

Unit 1 is currently in an extended outage and is scheduled for restart in early 2007. The Unit 1 CRD system is being

refurbished and will undergo extensive system testing prior to return to service and scram time testing will be conducted in accordance with TS. The CRD systems on all 3 BFN units are virtually identical in design and construction. Based on the Unit 2 and 3 historical performance experience, it is expected that the Unit 1 CRD scram time performance will be equal to or better than the Unit 2/3 performance. In addition, prior to restart, Unit 1 is planning a complete change-out of the ASCO SSPVs with AVCO valves. Therefore, TVA is requesting this TS change also be approved for Unit 1.

TSTF-460 TS Bases Change

The SR 3.1.4.2 acceptance criterion was redefined by TSTF-460 for at-power surveillance testing from 20 percent to 7.5 percent when the surveillance period is extended to 200 cumulative days of operation. This tightened acceptance criterion for the at-power surveillance aligns with the TS 3.1.4 requirement for the total number of control rods allowed to have scram times exceeding the specified limit in TS Table 3.1.4-1. TVA will incorporate the revised TSTF-460 acceptance criterion value of 7.5 percent into the TS Bases in accordance with its Bases Control Program during the implementation of this license amendment. A commitment to this effect is in Section 6.0.

Summary

The extended SR 3.1.4.2 test interval is justified by the demonstrated reliability of the BFN control rod insertion system based on historical control rod scram time test data and by the more restrictive acceptance criterion for determining whether the sample of control rods tested remains representative. As demonstrated by the scram test results above, TVA is confident future scram time testing results will easily satisfy the revised acceptance criteria discussed in the CLIIP model safety evaluation. Furthermore, the amendment does not change the Limiting Condition for Operation limits for the number and location of operable control rods that can be slow.

6.0 COMMITMENT

As discussed in the CLIIP model SE published in the Federal Register on August 23, 2004 (69 FR 51854) for this TS improvement, BFN is making the following regulatory commitment with the understanding that the NRC will include it as a condition for the issuance of the requested amendment:

TVA will incorporate the revised acceptance criterion value of 7.5 percent into the TS Bases for BFN in accordance with the Bases Control Program described in TS 5.5.10.

7.0 NO SIGNIFICANT HAZARD CONSIDERATION

TVA has reviewed the proposed no significant hazards consideration determination published on August 23, 2004 (69 FR 51854) as part of the CLIIP. TVA has concluded that the proposed determination presented in the notice is applicable to BFN and the determination is hereby incorporated by reference to satisfy the requirements of 10 CFR 50.91(a).

8.0 ENVIRONMENTAL EVALUATION

TVA has reviewed the environmental evaluation included in the model SE published on August 23, 2004 (69 FR 51854) as part of the CLIIP. TVA has concluded that the staff's findings presented in that evaluation are applicable to BFN and the evaluation is hereby incorporated by reference for this application.

9.0 PRECEDENT

This application is being made in accordance with the CLIIP. TVA is not proposing variations or deviations from the TS changes described in TSTF-460 or the NRC staff's model SE published on August 23, 2004 (69 FR 51854).

10.0 REFERENCES

Federal Register Notice: Notice of Availability of Model Application Concerning Technical Specifications Improvement Regarding Revision to the Control Rod Scram Time Testing Frequency in STS 3.1.4, "Control Rod Scram Times" for General Electric Boiling Water Reactors Using the Consolidated Line Item Improvement Process, published August 23, 2004 (69 FR 51854).

SURVEILLANCE REQUIREMENTS

NOTE

During single control rod scram time Surveillances, the control rod drive (CRD) pumps shall be isolated from the associated scram accumulator.

SURVEILLANCE		FREQUENCY
SR 3.1.4.1	Verify each control rod scram time is within the limits of Table 3.1.4-1 with reactor steam dome pressure \geq 800 psig.	Prior to exceeding 40% RTP after each reactor shutdown \geq 120 days
SR 3.1.4.2	Verify, for a representative sample, each tested control rod scram time is within the limits of Table 3.1.4-1 with reactor steam dome pressure \geq 800 psig.	120 days cumulative operation in MODE 1

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