Tennessee Valley Authority, Post Office Box 2000, Spring City, Tennessee 37381

JUN 2 5 1999

TVA-WBN-TS-99-004 10CFR 50.90

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

Gentlemen:

In the Matter of) Docket No. 50-390
Tennessee Valley Authority)

WATTS BAR NUCLEAR PLANT (WBN) UNIT 1 - TECHNICAL SPECIFICATION (TS) CHANGE NO. 99-004 - POTENTIAL MAIN STEAM SYSTEM OVERPRESSURIZATION CONDITION

In accordance with the provisions of 10 CFR 50.90, TVA is submitting a request for an amendment to WBN's license NPF-90 to change the Technical Specifications for Unit 1. The proposed amendment would change the Main Steam Safety Valve section (TS 3.7.1) to address a potential main steam system overpressure condition identified by WBN's Nuclear Steam Supply System (NSSS) vendor, Westinghouse Electric Corporation. That notification recommended that the WBN Technical Specifications be revised after NRC approval of a proposed revision to NUREG-1431 (Westinghouse Standard Technical Specifications). TVA has been monitoring that issue (Westinghouse Owner's Group, WOG-83 [TSTF-235, Revision 1]) which was recently approved by NRC Staff. At the time of the Westinghouse notification, TVA took interim action to revise procedure, GO-4, "Normal Power Operations," to safely address this condition. This amendment requests the addition of appropriate actions to formalize the resolution of this issue in the WBN Technical Specifications.

TVA has determined that there are no significant hazards considerations associated with the proposed change and that the change is exempt from environmental review pursuant to the provisions of 10 CFR 51.22(c)(9). The WBN Plant Operations Review Committee and the WBN Nuclear Safety Review Board have reviewed this proposed change and have determined that operation of WBN Unit 1 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 Tennessee State Department of Public Health.

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Enclosure 1 to this letter provides the description and evaluation of the proposed change, including TVA's determination that the proposed change does not involve a significant hazards consideration, and is exempt from environmental review. Enclosure 2 contains copies of the appropriate Unit 1 TS pages marked-up to show the proposed change. Enclosure 3 forwards the revised TS pages which incorporate the proposed change.

TVA requests that the revised TS be made effective within 30 days of NRC approval. If you have any questions about this change, please contact me at (423) 365-1824.

Sincerely,

P. L. Pace, Manager
Licensing and Industry Affairs

Enclosures
cc: See page 3

Subscribed and sworn to before me
on this 25th day of June 1999

E. Jeannette Long
Notary Public

My Commission Expires June 27, 2001

JUN 2 5 1999

cc (Enclosures):
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ENCLOSURE 1

TENNESSEE VALLEY AUTHORITY
WATTS BAR NUCLEAR PLANT (WBN)
UNIT 1
DOCKET NO. 390

PROPOSED TECHNICAL SPECIFICATION (TS) CHANGE TS-99-004
DESCRIPTION AND EVALUATION OF THE PROPOSED CHANGE

I. DESCRIPTION OF THE PROPOSED CHANGE

The proposed license amendment would revise the Watts Bar Nuclear Plant (WBN) Unit 1 Technical Specifications (TS) and associated TS Bases for Limiting Condition for Operation (LCO) 3.7.1, Main Steam Safety Valves, to provide a new requirement to reduce the Power Range Neutron Flux-High reactor trip setpoints when two or more main steam safety valves (MSSVs) per steam generator are inoperable. Although the intent of this action has been conservatively addressed in a plant operating procedure, the proposed change relocates this administrative barrier within the WBN Technical Specifications. This proposal is based on a generic change developed by the Westinghouse Owner's Group (WOG), TSTF-235, Revision 1, which has been approved by the NRC staff.

Specifically, the following changes are being proposed for LCO 3.7.1 as illustrated by the markup provided in Enclosure 2:

1. Current Condition A and Action A.1 would be revised to require a reduction in thermal power to less than or equal to 59% RTP for one or more steam generators with one MSSV inoperable. The magnitude of this power level (59%) has not changed.

2. A new Condition B would be added for one or more steam generators with two or more inoperable MSSVs. New Action B.1 would require a thermal power reduction to less than or equal to the % RTP specified in Table 3.7.1-1 within 4 hours.

   A new Action B.2 would require a reduction of the Power Range Neutron Flux - High reactor trip setpoint to less than or equal to the % RTP specified in Table 3.7.1-1, when in Mode 1, within 36 hours. Table 3.7.1-1 is revised to be compatible with new Actions B.1 and B.2. The magnitude of the maximum allowable power level for inoperable MSSVs has not changed.

3. Current Condition B and Actions B.1 and B.2 would be revised and reworded as new Condition C and Actions C.1 and C.2. The intent of this Condition and the associated Actions would remain the same.

   Appropriate changes are also made to the TS 3.7.1 Bases, consistent with the WOG model (TSTF-235, Revision 1).

II. REASON FOR THE PROPOSED CHANGE

The proposed change is required to address a situation that could potentially lead to a main steam system overpressure condition while reactor power level is being controlled administratively in accordance with TS LCO 3.7.1 (i.e., with no high flux setpoint reduction) while operating with inoperable main steam safety valves (MSSVs).

Watts Bar is equipped with five main steam safety valves per steam generator. These spring-operated valves provide safety-grade steam relief for plant heat removal and for overpressure protection. TS LCO 3.7.1 currently permits continued operation at reduced power levels when one or more required MSSVs are inoperable. The reduced power level is accomplished by operator action. The corresponding power level limit is a function of the maximum number of MSSVs declared inoperable on any one steam generator. The greater the number of inoperable MSSVs, the lower the allowable power level. A reduction of the automatic reactor trip high flux setpoints based on the number of inoperable MSSVs is not currently required by the TS.

Westinghouse Electric Corporation has informed WBN of a postulated condition that could potentially lead to main steam system overpressurization if the power level is controlled administratively under the current LCO 3.7.1 requirements while operating with inoperable MSSVs, with no reduction in the high flux reactor trip setpoint. If the plant was operating at reduced power with reduced steam relief capacity, and a reactivity insertion accident such as an inadvertent rod cluster control assembly (RCCA) bank withdrawal were to occur, there could be an increase in core power operation until a reactor trip occurred, as designed, via either the overtemperature ΔT or high neutron flux reactor trip functions. While the core power and steam generation rate may increase significantly prior to the reactor trip, the turbine steam load would remain unchanged. Therefore, excess steam would have to be relieved to prevent main steam system overpressurization. If the non-safety grade steam dumps and safety grade atmospheric dump valves were not available, steam pressure would increase until the MSSVs were actuated. With reduced

relief capacity resulting from inoperable MSSVs, the available steam relief capacity may not be sufficient to address the difference between the turbine load and the increased core power. Overpressurization of the main steam system could then occur. Westinghouse has determined this condition is only a concern with two or more inoperable MSSVs on one or more steam generators, and then only while in Mode 1.

As an interim measure until the subject TS change request is approved, WBN has revised procedure G0-4, "Normal Power Operations" to require that when reducing power in accordance with LCO 3.7.1, the operators are to notify the appropriate personnel to adjust the Power Range Neutron Flux-High reactor trip setpoint to the designated reactor power levels in LCO 3.7.1 based on the number of inoperable MSSVs.

To address this condition, this license amendment requests the addition of appropriate Actions to TS 3.7.1 to reduce the Power Range Neutron Flux-High trip setpoint to a corresponding power level depending on the number of inoperable MSSVs.

III. SAFETY ANALYSIS

WBN utilizes five MSSVs located on each of four main steam headers. The primary purpose of the MSSVs is to provide overpressure protection for the secondary system as well as providing a heat sink for removal of energy from the RCS in the event the preferred heat sink provided by the condenser is unavailable. The design bases for the MSSVs is to limit the secondary system pressure to $\leq$ 110% of the design pressure during any anticipated operational occurrence or design basis transient or accident. As discussed in the Technical Specification Bases for LCO 3.7.1, the most limiting heat removal event for WBN that challenges the relieving capacity of the MSSVs is the full power loss of normal feedwater.

The proposed change adds new Action B.2, that, while in Mode 1, would reduce the Power Range Neutron Flux-High Reactor trip setpoints for multiple inoperable MSSVs per steam generator to address a postulated condition involving overpressurization of the main steam system. In Modes 2 and 3 the reactor protection trips specified in LCO 3.3.1, "Reactor Trip System Instrumentation," provide sufficient protection. This change increases plant safety by correcting a non-conservative TS action statement and adds an additional barrier against main steam overpressurization beyond the current TS LCO 3.7.1 required power reduction.

The subject issue is not a concern if all MSSVs are operable. The WBN FSAR Section 15.2 safety analysis of the RCCA bank

withdrawal at power event for a range of initial core power levels demonstrates that the MSSVs are capable of preventing secondary side overpressurization. Further, Westinghouse has determined that sufficient safety-grade relief capacity is still available with only one inoperable MSSV per steam generator loop such that postulated secondary side overpressurization would not occur. With one MSSV inoperable per loop, the proposed Action A.1 which requires a reduction in thermal power to less than or equal to 59% RTP with no required reduction in high flux trip setpoints, is equivalent to the current LCO 3.7.1 Action A.1 and remains acceptable.

Likewise, in proposed Action B.1, the magnitude and correlation of the required power reduction to the number of inoperable MSSVs remains sufficient and has not changed under the proposed amendment. The current TS LCO 3.7.1, Action A.1, which reduces power level according to the number of inoperable MSSVs has effectively been split into new Actions A.1 and B.1. As noted in the current Bases for LCO 3.7.1, Action A.1, the reduced power levels include an allowance for instrument and channel uncertainty in the measurement of Power Range Neutron Flux-High. This continues to be valid for the reduced power levels required by proposed Actions A.1, B.1, and B.2.

Note that in the event of such an accident where the nuclear steam supply system (NSSS) power exceeds the turbine load, the atmospheric dump valves (Steam Generator Power Operated Relief Valves) and the condenser steam dump valves would be expected to actuate to relieve energy from the steam generators prior to the opening of the MSSVs and continue to relieve steam when the available MSSVs open. With these relief systems available, the secondary side pressure limit would not be exceeded. Since they are not typically safety-grade functions, the atmospheric dump valves and condenser steam dump valves are not assumed to operate in the safety analyses. However, in reality they are a reliable first line of defense in protecting the secondary system against overpressurization and at WBN the atmospheric dumps are safety grade with safety grade manual controls. It is improbable that all of these components would be inoperable coincident with inoperable MSSVs.

TVA notes that the WOG model (TSTF-235, Revision 1), addresses an issue concerning a non-conservative Tech Spec algorithm for percent thermal power reduction for inoperable MSSVs discussed in NRC Information Notice 94-60. That issue was previously resolved in the WBN Technical Specifications prior to Unit 1 Licensing, consistent with the approach used in the WOG model, and is therefore not addressed in the proposed change except to add a reference for IN-94-60 to the Bases.

The proposed license amendment request provides an additional barrier to operating the plant in a non-conservative condition and provides assurance that the postulated main steam system overpressurization condition will not occur. The proposed change to the WBN Technical Specifications is consistent with the industry generic change developed by the WOG, TSTF-235, Revision 1, which has recently been approved by the NRC staff. With the incorporation of the proposed WBN change, assurance is provided that the design bases for the MSSVs is maintained during anticipated operational occurrences and design basis transients and accidents. The existing FSAR accident analysis remains bounding as the loss of normal feedwater event continues to represent the most significant heat removal occurrence which challenges the relieving capacity of the MSSVs.

IV. NO SIGNIFICANT HAZARDS CONSIDERATION DETERMINATION

The proposed license amendment would revise the Watts Bar Nuclear Plant (WBN) Unit 1 Technical Specifications (TS) and associated TS Bases for Limiting Condition for Operation (LCO) 3.7.1, Main Steam Safety Valves, to provide a requirement to reduce the Power Range Neutron Flux-High reactor trip setpoints when two or more main steam safety valves (MSSVs) per steam generator are inoperable. TVA has concluded that operation of WBN 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 TS LCO 3.7.1 requires a reduction of the Power Range Neutron Flux-High reactor trip setpoints to a corresponding power level depending on the number of inoperable MSSVs. The change is based on and consistent with an industry sponsored change (TSTF-235, Revision 1) which has been reviewed and accepted by the NRC Staff. Although plant procedures currently require resetting the high flux trip, it is not a TS requirement. The proposed amendment will provide a more appropriate barrier to prevent the plant from being operated under a non-conservative technical specification action statement in a region where multiple inoperable MSSVs coincident with a reactivity insertion event such as an inadvertent

rod cluster control assembly (RCCA) bank withdrawal could result in overpressurization of the secondary system.

No change is made in the probability of initiating accident, i.e., RCCA bank withdrawal, and by requiring the reactor trip setpoint reduction, a potential mismatch between core power and turbine load without sufficient steam relief capacity is eliminated. Therefore, the change requested by this amendment actually decreases the consequences of an accident previously evaluated (without credit for procedure actions to reduce the trip setpoints).

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

Without crediting existing plant procedures, the addition of the proposed TS change prevents the plant from being operated in a region where an overpressurization of the main steam system is postulated to potentially occur. The proposed change assures that the existing FSAR accident analysis remains bounding for events that challenge the relieving capacity of the MSSVs. Since the addition of the TS action adds a more appropriate administrative barrier to prevent operation in an undesired region and because the change is bounded by the current accident analysis described in the FSAR, a new or different kind of accident has not been created as a result of this license amendment.

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

The proposed TS change eliminates a non-conservative TS action to prevent the plant from being operated in a region where an overpressurization of the main steam system is postulated to potentially occur. Since the addition of the TS action adds a more effective administrative barrier to prevent operation in an undesired region and because the change is bounded by the existing FSAR accident analysis, the margin of safety has actually increased for the proposed change. For these reasons, the proposed amendment does not involve a significant reduction in the margin of safety.

V. ENVIRONMENTAL IMPACT CONSIDERATION

The proposed change does 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. Since the proposed change prevents the plant from being operated in a region where the main steam system overpressurization condition is postulated to occur, the previously performed safety analyses remained unchanged.

For these reasons, the proposed change 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 change is not required.