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

October 29, 2004

WBN-TS-04-20

10 CFR 50.90
10 CFR 50.91(a)(6)

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 WBN-TS-04-20 - REACTOR COOLANT TEMPERATURE INDICATOR INOPERABLE - EXIGENT AMENDMENT

Pursuant to 10 CFR 50.90 and 10 CFR 50.91(a)(6) TVA requests an Exigent Technical Specification (TS) Change to License NPF-90 for WBN Unit 1. The proposed Exigent TS change will provide a one time change to Function 4a, "Reactor Coolant System (RCS) Hot Leg Temperature Indication," of TS Table 3.3.4-1. The request is necessary because TVA discovered on October 21, 2004, that Temperature Indicator (TI), 1-TI-68-65C, was not operable. This device provides indication in the Auxiliary Control Room (ACR) for the hot leg temperature of RCS Loop 4.

Upon discovery of this condition, TVA entered Action A of TS 3.3.4. Based on the actions taken, the problem most likely exists in the instrumentation (transmitter or thermocouple) located within the Reactor Building's Polar Crane Wall. While

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the plant is operating, the radiological conditions in this area prohibit access by plant personnel. Therefore, the repairs can not be safely implemented until the unit is shutdown. WBN Unit 1 is scheduled to shutdown in the Spring of 2005 to begin the Unit 1 Cycle 6 refueling outage. Since this is a relatively short period of time, it is unlikely WBN will experience an event that will require the evacuation of the Main Control Room (MCR) prior to the beginning of the outage. Therefore, relief is requested from Action A of TS 3.3.4. If the relief is not granted, Action A will require the restoration of the Loop 4 indicator within thirty days or the plant must be shutdown in accordance with Action B. The shutdown of the plant will result in an operational transient that is not necessary since the indication parameters that remain available in the ACR are adequate to safely shut the unit down should an emergency arise. Considering this and the unanticipated failure of the instrumentation, TVA could not reasonably have avoided this exigency.

Enclosure 1 to this letter provides the description and evaluation of the proposed change. Enclosure 2 contains a copy of TS Page 3.3-48 annotated to show the proposed change. Enclosure 3 forwards the revised TS page for Unit 1 which incorporates the proposed change.

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 Tennessee State Department of Public Health.

The 30 day allowed outage time (AOT) for Action A of TS 3.3.4 will expire on November 20, 2004, at approximately 2:27 p.m EST. Accordingly, TVA requests approval of the TS change by that date and that the implementation of the revised TS be effective immediately.

This letter contains no new regulatory commitments. Should there be any questions about this proposed change, please contact me at (423) 365-1824.

I declare under penalty of perjury that the foregoing is true and correct. Executed on this 29th day of October 2004.

Sincerely,

P. L. Pace
Manager, Site Licensing
and Industry Affairs

Enclosures

1. Proposed Technical Specification Change Number WBN-TS-04-20
2. Annotated Technical Specifications
3. Revised Technical Specifications

cc: See page 4

Enclosures
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ENCLOSURE 1

TENNESSEE VALLEY AUTHORITY
WATTS BAR NUCLEAR PLANT (WBN) UNIT 1
DOCKET NUMBER 390

TVA'S EVALUATION OF PROPOSED CHANGE

1.0 DESCRIPTION

Pursuant to 10 CFR 50.90 and 10 CFR 50.91(a)(6) TVA requests an Exigent Technical Specification (TS) Change to License NPF-90 for WBN Unit 1. The proposed Exigent TS change will provide a one time change to Function 4a, "Reactor Coolant System (RCS) Hot Leg Temperature Indication," of TS Table 3.3.4-1. The request is necessary because TVA discovered on October 21, 2004, that Temperature Indicator (TI), 1-TI-68-65C, was not operable. This device provides indication in the Auxiliary Control Room (ACR) for the hot leg temperature of RCS Loop 4 and is located behind the Reactor Building Polar Crane wall.

2.0 PROPOSED CHANGE

This proposed change adds a note to the bottom of TS Table 3.3.4-1, "Remote Shutdown System Instrumentation and Controls," to state the following:

> "For Function 4a, the temperature indicator for RCS hot leg 4 is not required to be operable for the remainder of Cycle 6."

In the process of developing this amendment request, TVA noted that Technical Specification Task Force (TSTF) Traveler 266 has been approved by NRC to generically transfer the remote shutdown function table (similar to WBN's Table 3.3.4-1) to the Bases. WBN intends to implement this TSTF so that future situations similar to that experienced with the hot leg temperature indicator may not require a license amendment.

Basis For Exigent Change:

As detailed in Section 3.0, "Background," of this enclosure, TVA could not have reasonably avoided this exigent request. The key factor's that are the basis for the exigent request include:

1. The repair of the affected instruments can not be made until the unit is shutdown since the affected equipment is located behind the Reactor Building Polar Crane wall.

2. TVA could not reasonably have anticipated the failure of the instrumentation.

3. The shutdown of the plant to implement the repairs is not necessary since the indication parameters that remain available in the ACR are adequate to safely shut the unit down should an emergency arise.

3.0 BACKGROUND

This exigent request addresses a function required for WBN's remote shutdown facility [Auxiliary Control Room (ACR)]. The functions required for the ACR are discussed in Section 7.4, "Systems Required for Safe Shutdown," of the Updated Final Safety Analysis Report (UFSAR).

On October 21, 2004, TVA discovered that Temperature Indicator (TI), 1-TI-68-65C, was not operable. This device provides indication in the ACR for the hot leg temperature [T(hot)] of RCS Loop 4. Technical Specification, 3.3.4, "Remote Shutdown System," requires, as shown in Table 3.3.4-1, Function 4a, that at least one temperature indicator per RCS loop be provided for remote shutdown.

Upon discovery of this condition, TVA entered Action A of TS 3.3.4. Based on the actions taken, the problem is suspected to exist in the transmitter or thermocouple located within the Reactor Building's Polar Crane Wall. Recently the transmitter experienced a problem that resulted in a deviation between the temperatures indicated in the ACR and that displayed in the MCR. Due to this, the transmitter was replaced and successfully tested during a forced outage. However, while the plant is operating, the radiological conditions in the Polar Crane area

prohibit access by plant personnel. Therefore, the repairs can not be safely implemented until the unit is shutdown. WBN Unit 1 is scheduled to shutdown in the Spring of 2005 to begin the Unit 1 Cycle 6 refueling outage. Since this is a relatively short period of time, it is unlikely WBN will experience an event that will require the evacuation of the Main Control Room (MCR) prior to the beginning of the outage. Therefore, relief is requested from Action A of TS 3.3.4. If the relief is not granted, Action A will require the restoration of the Loop 4 indicator within thirty days or the plant must be shutdown in accordance with Action B. The shutdown of the plant will result in an operational transient that is not necessary since the indication parameters that remain available in the ACR are adequate to safely shut the unit down should an emergency arise. Considering this and the unanticipated failure of the instrumentation, TVA could not reasonably have avoided this exigency.

4.0 TECHNICAL ANALYSIS

The Remote Shutdown System [also referred to as the Auxiliary Control System (ACS)] provides the control room operator with sufficient instrumentation and controls to place and maintain the unit in a safe shutdown condition from a location other than the MCR. The Remote Shutdown System is required in the unlikely event that the MCR must be evacuated due to some unspecified reason, as well as during a Control Building fire which causes loss of safe shutdown control from the MCR. This system is not required to function for mitigation of any design basis event, other than the fire or evacuation of the MCR or a design basis flood. Portions of the Remote Shutdown System that terminate in the ACR are used during the design basis flood. The ACS meets two separate failure criteria:

1. During normal operation, equipment and controls are provided to ensure that a random single failure in the ACS does not affect the corresponding MCR equipment and controls. During MCR evacuation, no single failure of ACS equipment must be assumed per the WBN design.

2. ACS equipment and controls are assumed to be damaged if the equipment is not fire protected in the zone of influence of a fire. No equipment failures other than those directly attributed to a fire must be considered.

For a fire, procedures require that the Reactor Coolant Pumps be tripped such that decay heat removal is via natural circulation. This is the most limiting condition for the events in which the ACS is required. Section 7.4, "Safe Shutdown Systems," of NUREG-0800, "Standard Review Plan," establishes the requirements for the remote control stations and the equipment used to maintain safe shutdown. Consistent with these guidelines, TVA has developed a safe shutdown logic diagram for a fire. This logic defines a sufficient set of equipment and indication to safely shutdown the reactor from the ACR. For each safety function, the equipment required to accomplish the safety function has been divided into groups of functionally related equipment necessary to accomplish the safety function.

The RCS hot leg temperature indicators are required for Steam Generator (SG) level control in redundant shutdown logic paths. If Loop 4 T(hot) indication is removed, success for this function can still be achieved via the remaining available ACS T(hot) indicators. Redundancy for SG level control exists in these paths to account for equipment in one of the redundant paths being damaged by any fire in a single area. For the case addressed by this change, the fire must exist in the Control Building, which is considered a single area, to cause an evacuation of the MCR. Since the conduit, cables and equipment that provide T(hot) indication in the ACR are routed outside the Control Building, removal of the Loop 4 T(hot) indication is acceptable due to the redundant paths not being affected by the Control Building fire. Since a redundant path for SG level control is required to remain functional by the TS for the remainder of the Cycle 6, the Remote Shutdown System can adequately perform its function to place and maintain the unit in a safe shutdown condition in a location other than the MCR. Therefore, the fire safe shutdown logic is met and adequate indication is present without Loop 4 T(hot).

ANSI/ANS-58.6-1983, "Criteria for Remote Shutdown for Light Water Reactors," provides the design guidance for the ACS. ANSI/ANS-58.6-1983 does not specifically state that RCS hot leg temperature indication is required for all 4 loops. Item 4(5) states that equipment, instrumentation and controls which are required to monitor, achieve and maintain a hot shutdown condition (following power operation) shall be located in the Auxiliary Shutdown Station wherever practical. Item (b) refers to decay heat removal as a minimum requirement for maintaining hot or cold shutdown and references the following to achieve the decay heat removal:

i) Monitor SG parameters for residual heat removal,

ii) Control Auxiliary Feedwater (AFW) flow and monitor AFW supply inventory, and

iii) Control steam relieving system.

WBN uses the RCS hot leg temperature indication for compliance with Item 4(5)(b).

The basis for continued operation with the RCS Loop 4 hot leg temperature indicator inoperable is acceptable because this parameter is only one of five parameters used to ensure decay heat removal via the SGs. The other parameters will be available in the ACR during the remainder of Cycle 6. Relaxing the requirement for one loop of T(hot) indication while maintaining the requirements for the remaining three loops of T(hot) indication, AFW Controls, SG Pressure indication and control, SG level indication, AFW flow indication and SG T(sat) indication will not adversely affect the unit's ability to remove decay heat. If the operable three loops are consistent relative to T(hot), SG T(sat) and SG level and the other parameters for the inoperable loop are not contradictory to plant conditions indicated by the operable loops (i.e., SG level and SG T(sat) for loop 4), then it is reasonable to consider that Loop 4 is performing its function to remove decay heat via its SG.

T(hot)is also used to set the reactor cooldown rate during safe shutdown from a location other than the MCR. The absence of one out of the four T(hot) indications does not adversely affect this function because the other three operable indications may be used.

Further, Abnormal Operating Instruction (AOI) 27, "Main Control Room Inaccessibility," and AOI-30.2, "Fire Safe Shutdown," are the procedures used for MCR abandonment for non-Appendix R and Appendix R fire conditions respectively. AOI-27 and AOI-30.2 both require the unit to be tripped before the MCR is abandoned. The indication for Loop 4 is used in these procedures to monitor the plant cooldown rate in the ACR. The probability of having to abandon the MCR is low and remains the same, whether the plant continues to operate or is shut down. Therefore, the change proposed in this amendment request is considered to be risk neutral.

Considering the preceding, TVA proposes to revise TS Table 3.3.4-1, Function 4a, "Reactor Coolant System (RCS) Hot Leg Temperature Indication," to allow operation until a time not to exceed the end of Cycle 6 with the Loop 4 remote shutdown indicator for RCS hot leg temperature inoperable.

5.0 REGULATORY SAFETY ANALYSIS

5.1 No Significant Hazards Consideration

The proposed change will revise the Remote Shutdown System Technical Specification Table 3.3.4-1, Function 4a, "RCS Hot Leg Temperature Indication," to allow operation with only 3 of 4 loop remote shutdown indications for Reactor Coolant System hot leg temperature until the Spring 2005 refueling outage. TVA has evaluated whether or not a significant hazards consideration is involved with the proposed amendment 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 TS change to allow operation with only 3 of 4 loop remote shutdown indications for Reactor Coolant System hot leg temperature until the Spring 2005 refueling outage is only applicable to the following conditions:

1. fire or smoke in the Main Control Room (MCR),

2. an evacuation of the MCR due to some other (non-fire) unspecified reason and

3. the design basis flood.

The inoperability of the one T(hot) indicator does not change the probability of occurrence for these events since it is not an accident initiator. The T(hot) indicators on the four loops are non-safety related equipment. During safe shutdown for a MCR evacuation event, design basis

flood or fire related event, no fuel damage is postulated to occur, nor is the integrity of the reactor coolant pressure boundary or containment barriers postulated to be lost. Sufficient redundancy exists with the operational instrumentation to ensure that decay heat removal functions are not adversely impacted by this change. Therefore, the proposed change does not involve 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 TS change does not alter the function of the Remote Shutdown System which is to achieve and maintain safe reactor shutdown from outside the MCR. The TS instrumentation and controls required will be such that sufficient capability is retained for decay heat removal via the Steam Generators (SGs) to provide the indication required for safe shutdown capabilities. The change will not result in the installation of any new equipment or system. The T(hot) instrument is used for indication only and has no automatic control functions. No new operations procedures will be created by this change. Appropriate operational procedures will be updated to clarify that the Loop 4 T(hot) indication in the Auxiliary Control Room (ACR) is not available during the remainder of Cycle 6. No new operating conditions or modes will be created by this proposed change. Therefore, the proposed change does not create the possibility of a new or different kind of accident from any previously evaluated.

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

Response: No.

The radiological dose consequences are not impacted since this change is only applicable to the following conditions:

1. fire or smoke in the MCR,

2 an evacuation of the MCR due to some other (non-fire) unspecified reason, and

3. the design basis flood.

During safe shutdown for a MCR evacuation event, design basis flood or fire related event, no fuel damage is postulated to occur, nor is the integrity of the reactor coolant pressure boundary or containment barriers postulated to be lost. Sufficient redundancy exists with the operational instrumentation to ensure that decay heat removal functions are not adversely impacted by this change. Therefore, the proposed change does not involve a significant reduction in a margin of safety.

Based on the above, TVA concludes that the proposed amendment does not involve a 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.

5.2 Applicable Regulatory Requirements/Criteria

The Bases for TS 3.3.4 states that the operability of the remote shutdown control and instrumentation functions ensures there is sufficient information available on selected unit parameters to place and maintain the unit in MODE 3 should the MCR become inaccessible. Should it be necessary to go to MODE 4 or MODE 5, decay heat removal via the Residual Heat Removal (RHR) System is available to support the transition.

The Remote Shutdown System is required to provide equipment at appropriate locations outside the MCR with a capability to promptly shut down and maintain the unit in a safe condition in MODE 3. The criteria governing the design and specific system requirements of the Remote Shutdown System are located in 10 CFR 50, Appendix A, General Design Criteria (GDC) 19, "Control Room." WBN's compliance with GDC 19 is discussed in UFSAR Section 3.1, "Conformance with NRC General Design Criteria." NRC's review of UFSAR Section 3.1, is documented in Section 3.1.1, "Conformance with General Design Criteria," of the Safety Evaluation Report (SER) dated June 1982.

As indicated previously, the instrumentation functions required for the ACR are discussed in Section 7.4, "Systems Required for Safe Shutdown," of the UFSAR. NRC's review of this portion of the UFSAR and other relevant UFSAR sections related to the ACR or the function of the hot leg temperature indication are provided in the following sections of the SER or in Supplements to the SER:

SER June 1982 - Section 7.4
SER Supplement 5 - Section 1.7
SER Supplement 7 - Section 7.4
SER Supplement 8 - Section 4.4.3.4
SER Supplement 18 - Appendix FF, Section 3.4

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 amendment will not be inimical to the common defense and security or to the health and safety of the public.

6.0 ENVIRONMENTAL CONSIDERATION

A review has determined that the proposed amendment would change a requirement with respect to installation or use of a facility component located within the restricted area, as defined in 10 CFR 20, or would change an inspection or surveillance requirement. However, 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.

7.0 REFERENCES

The remote shutdown system indication problem detailed in this amendment request is similar to the issue addressed in an amendment approved for Comanche Peak Steam Electric Station (CPSES) on February 2, 1996. This amendment (Amendment Numbers 45 and 31) revised Technical Specification (TS) Table 3.3-5, "Remote Shutdown Monitoring Instrumentation," to indicate that CPSES Unit 2 may operate to the next refueling outage with the indication for one loop of "Wide Range RCS Temp. - T_h" inoperable.

Other documents related to this amendment request include:

1. UFSAR Section 7.4, "Systems Required for Safe Shutdown"

2. 10 CFR 50, Appendix A, GDC 19, "Control Room"

3. NUREG 0800, "Standard Review Plan"

ENCLOSURE 2

TENNESSEE VALLEY AUTHORITY
WATTS BAR NUCLEAR PLANT (WBN) UNIT 1
DOCKET NUMBER 390

PROPOSED TECHNICAL SPECIFICATION (TS) CHANGE
NUMBER WBN-TS- 04-020
ANNOTATED TECHNICAL SPECIFICATIONS (TS)

I. Affected Page List - TS:
3.3-48

Note:
For the attached annotated pages, wording additions are shown as bold-italicized text and deletions are shown as strikethrough.

Table 3.3.4-1 (page 1 of 1)
Remote Shutdown System Instrumentation and Controls

FUNCTION/INSTRUMENT OR CONTROL PARAMETER	REQUIRED NUMBER OF FUNCTIONS
1. Reactivity Control	
a. Source Range Neutron Flux	1
b. Reactor Trip Breaker Position Indication	1 per trip breaker
2. Reactor Coolant System (RCS) Pressure Control	
a. Pressurizer Pressure Indication or RCS Wide Range Pressure Indication	1
b. Pressurizer Power Operated Relief Valve (PORV) Control and Pressurizer Block Valve Control	1 each per relief path
c. Pressurizer Heater Control	1
3. RCS Inventory Control	
a. Pressurizer Level Indication	1
b. Charging and Letdown Flow Control and Indication	1
4. Decay Heat Removal via Steam Generators (SGs)	
a. RCS Hot Leg Temperature Indication	1 per loop *(Refer to Note A below)*
b. AFW Controls	1
c. SG Pressure Indication and Control	1 per SG
d. SG Level Indication and AFW Flow Indication	1 per SG
e. SG T_{sat} Indication	1 per SG
5. Decay Heat Removal via RHR System	
a. RHR Flow Control	1
b. RHR Temperature Indication	1

Notes:

A. For Function 4a, the temperature indicator for RCS hot leg 4 is not required to be operable for the remainder of Cycle 6.

ENCLOSURE 3

TENNESSEE VALLEY AUTHORITY
WATTS BAR NUCLEAR PLANT (WBN)
UNIT 1
DOCKET NUMBER 390

PROPOSED TECHNICAL SPECIFICATION (TS) CHANGE
NUMBER WBN-TS- 04-020
REVISED TECHNICAL SPECIFICATIONS (TS)

I. Affected Page List - TS:

3.3-48

Table 3.3.4-1 (page 1 of 1)
Remote Shutdown System Instrumentation and Controls

FUNCTION/INSTRUMENT OR CONTROL PARAMETER	REQUIRED NUMBER OF FUNCTIONS
1. Reactivity Control	
a. Source Range Neutron Flux	1
b. Reactor Trip Breaker Position Indication	1 per trip breaker
2. Reactor Coolant System (RCS) Pressure Control	
a. Pressurizer Pressure Indication or RCS Wide Range Pressure Indication	1
b. Pressurizer Power Operated Relief Valve (PORV) Control and Pressurizer Block Valve Control	1 each per relief path
c. Pressurizer Heater Control	1
3. RCS Inventory Control	
a. Pressurizer Level Indication	1
b. Charging and Letdown Flow Control and Indication	1
4. Decay Heat Removal via Steam Generators (SGs)	
a. RCS Hot Leg Temperature Indication	1 per loop (Refer to Note A below)
b. AFW Controls	1
c. SG Pressure Indication and Control	1 per SG
d. SG Level Indication and AFW Flow Indication	1 per SG
e. SG T_{sat} Indication	1 per SG
5. Decay Heat Removal via RHR System	
a. RHR Flow Control	1
b. RHR Temperature Indication	1

Notes:
A. For Function 4a, the temperature indicator for RCS hot leg 4 is not required to be operable for the remainder of Cycle 6.