



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

MAR 10 2004

WBN-TS-02-17

10 CFR 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. 02-17 - SPENT FUEL POOL RADIATION MONITORS

Pursuant to 10 CFR 50.90, TVA is submitting a request for a TS change (WBN-TS-02-17) to license NPF-90 for WBN Unit 1. The proposed TS change revises the allowable value for the spent fuel pool area radiation monitors in Technical Specification Table 3.3.8-1, "Auxiliary Building Gas Treatment System (ABGTS) Actuation Instrumentation," from less than or equal to 1161 mR/hr. to less than or equal to 562 mR/hr. The proposed change results from the discovery of a non-conservative modeling error identified during a design review.

Enclosure 1 to this letter provides the description and evaluation of the proposed change. TVA has determined that the proposed change does not involve a significant hazards consideration, 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

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and attachments to the Tennessee State Department of Public Health.

Enclosure 2 contains copies of the appropriate TS page marked-up to show the proposed change.

There are no new commitments made by this submittal. If you have any questions about this change, please contact me at (423) 365-1824.

I declare under penalty of perjury that the foregoing is true and correct. Executed on 10th day of March, 2004.

Sincerely,

A handwritten signature in black ink, appearing to read 'P. L. Pace', with a stylized, cursive script.

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

Enclosures:

1. TVA's Evaluation of the Proposed Change
2. Proposed Technical Specification Change (Marked-up)
3. Proposed Technical Specification Change (Retyped)

cc: See page 3

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cc (Enclosures):

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ENCLOSURE 1

TENNESSEE VALLEY AUTHORITY WATTS BARS BAR NUCLEAR PLANT (WBN) UNIT 1

TVA EVALUATION OF PROPOSED CHANGE

1.0 DESCRIPTION

This letter is a request to amend Operating License NPF-90 for WBN Unit 1. The proposed license amendment will revise the allowable value for the spent fuel pool area radiation monitors surveillance requirements (SRs) provided in Technical Specification (TS) Table 3.3.8-1.

2.0 PROPOSED CHANGE

The proposed change will revise TS Section 3.3.8, "Auxiliary Building Gas Treatment System (ABGTS) Actuation Instrumentation," Table 3.3.8-1, by changing the allowable value for the spent fuel pool area radiation monitors from less than or equal to 1161 mR/hr to less than or equal to 562 mR/hr.

The specific change is noted in the marked-up copy of TS page 3.3-64 provided in Enclosure 2. TVA is proposing to lower the allowable value for spent fuel pool area monitors due to a non-conservative modeling error identified in the calculation that established the safety limit for the monitors. No changes are required to the TS Bases.

3.0 BACKGROUND

The spent fuel pool area monitors, 0-RE-90-102 and -103, are provided to mitigate the offsite radiological consequences of a Fuel Handling Accident (FHA). Plant safety analyses establish analytical safety limits for these monitors to ensure that doses at site boundary remain within a small fraction of 10CFR100 limits in the event of an accident. The allowable value specified in the Technical Specification is more conservative than the analytical limit in order to account for instrument uncertainties appropriate for the monitor trip function. The actual nominal Trip Setpoints for these monitors, set forth by plant design, are normally still more conservative than required by the allowable value, thus providing additional operating margin. Upon detection of a radiation level that is higher than the setpoint level, the monitors initiate isolation of the Auxiliary Building ventilation exhaust and startup of the Auxiliary Building Gas Treatment System.

During the incorporation of the Tritium Production Core, TVA discovered a non-conservative modeling error which resulted in a revision to safety limit calculation for the spent fuel pool area radiation monitors. Previously, the model had applied isotopic release fractions required by NUREG/CR-5009 to the fuel assembly activity, then decayed the activity 100 hours prior to release to the outside environment. It was discovered that the fuel assembly activity should have been decayed for 100 hours prior to applying the release fractions. The correct calculation methodology results in a lower exposure rate at the monitor for the same fuel failure assumptions. The effect of this error is that the monitor safety limit and associated setpoint are currently non-conservatively high. Thus, it is necessary to lower the spent fuel pool area radiation monitors' allowable value in Table 3.3.8-1 of the WBN Technical Specifications.

The FHA analysis that incorporated the correct methodology for applying isotopic release fractions was submitted for NRC review on May 21, 2002, in response to NRC's Request for Addition Information on the Tritium Production Core Amendment. The correct FHA analysis has already been reviewed by NRC. The Tritium Production Core Amendment request was approved by NRC letter dated September 23, 2002, as WBN License Amendment 40.

4.0 TECHNICAL ANALYSIS

The corrected calculation methodology results in a lower exposure rate at the monitor to prevent the offsite dose from exceeding the WBN Updated Final Safety Analysis Report (UFSAR) FHA dose acceptance criteria of a small fraction of the 10CFR100 limit. The effect of this error is that the monitor safety limit, associated setpoint and allowable value are currently non-conservatively high. Thus, TVA proposes to change the spent fuel pool area radiation monitors' allowable value in Table 3.3.8-1 of the WBN Technical Specifications from less than or equal to 1161 mR/hr to less than or equal to 562 mR/hr to address this non-conservatism. However, it should be noted that the actual setpoint set on the monitor (500 mR/hr) prior to discovery of the error, was below the revised allowable limit.

The differences between the existing and the proposed cases can be seen in the table below:

Case	Safety Limit	Allowable Value	Monitor Setpoint
Existing Values	2447.9 mR/hr	≤1161 mR/hr	≤500 mR/hr
Proposed Values	739.87 mR/hr	≤562 mR/hr	≤300 mR/hr

The Fuel Handling Accident Analysis described in the UFSAR is not impacted by this change. The UFSAR currently assumes that the fuel is decayed for 100 hours resulting in the current calculated dose of 1.752 rem thyroid for this accident as indicated in Table 15.5-23 of the UFSAR. The details of applying the isotopic release fractions are not discussed.

5.0 REGULATORY SAFETY ANALYSIS

5.1 No Significant Hazards Consideration

The proposed change will revise the Technical Specification for the Auxiliary Building Gas Treatment System (ABGTS) Actuation Instrumentation by changing the allowable value for the spent fuel pool area radiation monitors. 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 technical specification (TS) change to reduce the allowable value for the spent fuel pool area radiation monitors does not change any operator actions nor does it change plant systems or structures. Therefore, the proposed change does not result in a significant increase in the probability of a Fuel Handling Accident (FHA). The surveillance requirement radiation limit for the spent fuel pool area radiation monitors will be lowered to compensate for the change in source terms which resulted from the methodology change due to discovery of a modeling error. This change ensures the monitors perform their safety function of limiting the site boundary dose to a small fraction of the 10CFR100 limits. 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 spent fuel monitors which is to initiate ABGTS upon a FHA. The TS allowable value and the associated setpoints for the spent fuel pool area radiation monitors will be lowered due to calculation methodology changes resulting from discovery of a modeling error. The change will not result in the installation of any new equipment or system. No new operations procedures, 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 method for calculating the radiological consequences are revised for calculating the safety limit of the spent fuel pool area radiation monitors to correctly account for isotopic release fractions. The monitors' setpoints are based on 30 rem thyroid at the site boundary resulting from an unfiltered release. At the monitor setpoint, the monitors initiate ABGTS and thus the release is filtered. The radiological dose consequences do not change and remain less than a small fraction of the dose limit identified in 10CFR100. The surveillance requirement is being reduced for consistency with calculation methodology changes and to ensure the monitors perform their intended design function of limiting the site boundary dose to less than 30 rem thyroid subsequent to a FHA. 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 proposed amendment request changes TS Section 3.3.8, "Auxiliary Building Gas Treatment System (ABGTS) Actuation Instrumentation," Table 3.3.8-1, by changing the allowable value for the spent fuel pool area radiation monitors from less than or equal to 1161 mR/hr to less than or equal to 562 mR/hr.

10 CFR 50, Appendix A provides requirements for fuel and radioactivity control under General Design Criterion 60-64.

The WBN radiation monitoring system was designed to meet these criterion.

The Radiation Monitoring system accident functions are discussed in UFSAR sections 3.1, 5.2, 9.1, 9.4, 11.4, and 12.3. For these sections, the principal review performed by NRC is documented in NUREG-0847, "Safety Evaluation Report (SER) related to the operation of Watts Bar Nuclear plant Units 1 and 2, Docket Nos. 50-390 and 50-391," dated June 1982 and Supplemental Safety Evaluation Reports (SSER) numbers 5, 10, 14, 15, 16, 18, and 20. The assessment of these functions is documented in the following sections of the SER:

SER/SSER No.	Sections
SER NUREG-0847	5.2.5, 7.5, 9.3.2, 9.4.1, 10.4.2, 11.2, 11.5, 11.6, 12.4, and 12.7.2
5	11.7
10	12.4
14	7.5
15	7.5.2
16	11.2, 11.3, 11.4, and 11.5
18	12.4
20	11.5

The staff evaluated the Watts Bar Radiation Monitoring system using the criteria set forth in NUREG-0800, Standard Review Plan (SRP) Sections 11 and 12.

The proposal to revise the allowable surveillance requirement value will not involve any changes to the spent fuel pool radiation monitor design functions but will involve lowering two radiation monitor setpoints to the new value. This setpoint change will be in accordance with established TVA design change process.

For the FHA, the Main Control Room (MCR) is isolated and the ventilation and air conditioning systems are initiated by radiation monitors 0-RE-90-205 and 0-RE-90-206 when radiation is detected in the air supply to the MCR. The dose to the Control Room is calculated using air inleakage and other inputs as described in UFSAR Table 15.5-20. The spent fuel pool area radiation monitors, 0-RE-90-102 and -103, are not used to isolate the MCR. The proposed change affects setpoints of the spent fuel pool area radiation monitors and does not impact or affect MRC inleakage or the MCR dose analysis since the MCR does not rely on radiation monitors 0-RE-90-102 and 0-RE-90-103 for MCR isolation.

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)(q). 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

1. WBN Updated Final Safety Analysis Report, Amendment 3, dated August 30, 2002.
2. NUREG-0847, "Safety Evaluation Report (SER), related to the operation of Watts Bar Nuclear Plant Units 1 and 2, Docket Nos. 50-390 and 50-391," dated June 1982
3. Supplemental Safety Evaluation Reports (SSER) 5, 10, 14, 15, 16, 18, and 20 related to the operation of Watts Bar Nuclear Plant Units 1 and 2, Docket Nos. 50-390 and 50-391 date November 1990, October 1992, December 1994, June 1995, September 1995, October 1995, February 1996, respectively.

ENCLOSURE 2

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**TABLE 3.3.8-1
ABGTS ACTUATION INSTRUMENTATION**

PROPOSED TECHNICAL SPECIFICATION PAGE MARKUP

Table 3.3.8-1 (page 1 of 1)
ABGTS Actuation Instrumentation

REPLACE WITH

≤ 562 mR/hr

FUNCTION	APPLICABLE NOOES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Manual Initiation	1,2,3,4 (a)	2 2	SR 3.3.8.3 SR 3.3.8.3	NA NA
2. Fuel Pool Area Radiation Monitors	(a)	2	SR 3.3.8.1 SR 3.3.8.2 SR 3.3.8.4	≤ 1161 mR/hr
3. Containment Isolation - Phase A	Refer to LCO 3.3.2, Function 3.a., for all initiating functions and requirements.			

(a) During movement of irradiated fuel assemblies in the fuel handling area.

ENCLOSURE 3

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**TABLE 3.3.8-1
ABGTS ACTUATION INSTRUMENTATION**

PROPOSED TECHNICAL SPECIFICATION CHANGE RETYPED

Table 3.3.8-1 (page 1 of 1)
ABGTS Actuation Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Manual Initiation	1,2,3,4 (a)	2 2	SR 3.3.8.3 SR 3.3.8.3	NA NA
2. Fuel Pool Area Radiation Monitors	(a)	2	SR 3.3.8.1 SR 3.3.8.2 SR 3.3.8.4	≤ 562 mR/hr
3. Containment Isolation - Refer to LCO 3.3.2, Function 3.a., for all Phase A	initiating functions and requirements.			

(a) During movement of irradiated fuel assemblies in the fuel handling area.