ENCLOSURE 2

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

PROPOSED TECHNICAL SPECIFICATION (TS) CHANGE TS-97-008
MARKED-UP PAGES

I. AFFECTED PAGE LIST

3.2-4
5.0-32
B3.2-9

II. MARKED PAGES

See attached.

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SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.2.1.2	----------NOTE---------- If $F^W_Q(Z)$ is within limits and measurements indicate $$\text{maximum over } z \left[\frac{F^C_Q(Z)}{K(Z)} \right]$$ has increased since the previous evaluation of $F^C_Q(Z)$: a. Increase $F^W_Q(Z)$ by ~~a factor of 1.02~~ and reverify $F^W_Q(Z)$ is within limits; or b. Repeat SR 3.2.1.2 once per 7 EFPD until two successive flux maps indicate $$\text{maximum over } z \left[\frac{F^C_Q(Z)}{K(Z)} \right]$$ has not increased. ---------- Verify $F^W_Q(Z)$ is within limit.	Once after initial fuel loading and each refueling prior to THERMAL POWER exceeding 75% RTP AND (continued)

the appropriate factor specified in the COLR

5.9 Reporting Requirements (continued)

5.9.5 CORE OPERATING LIMITS REPORT (COLR)

a. Core operating limits shall be established prior to the initial and each reload cycle, or prior to any remaining portion of a cycle, and shall be documented in the COLR for the following:

LCO 3.1.4 Moderator Temperature Coefficient
LCO 3.1.6 Shutdown Bank Insertion Limit
LCO 3.1.7 Control Bank Insertion Limits
LCO 3.2.1 Heat Flux Hot Channel Factor
LCO 3.2.2 Nuclear Enthalpy Rise Hot Channel Factor
LCO 3.2.3 Axial Flux Difference
LCO 3.9.1 Boron Concentration

b. The analytical methods used to determine the core operating limits shall be those previously reviewed and approved by the NRC, specifically those described in the following documents:

1. WCAP-9272-P-A, WESTINGHOUSE RELOAD SAFETY EVALUATION METHODOLOGY", July 1985 (W Proprietary). (Methodology for Specifications 3.1.4 - Moderator Temperature Coefficient, 3.1.6 - Shutdown Bank Insertion Limit, 3.1.7 - Control Bank Insertion Limits, 3.2.1 - Heat Flux Hot Channel Factor, 3.2.2 - Nuclear Enthalphy Rise Hot Channel Factor, 3.2.3 - Axial Flux Difference, and 3.9.1 - Boron Concentration.

Revision 1A

2. WCAP-10266-P-A Rev. 2, "THE 1981 VERSION OF WESTINGHOUSE EVALUATION MODEL USING BASH CODE", March 1987, (W Proprietary). (Methodology for Specification 3.2.1 - Heat Flux Hot Channel Factor).

3. WCAP-10216-P-A, "RELAXATION OF CONSTANT AXIAL OFFSET CONTROL F(Q) SURVEILLANCE TECHNICAL SPECIFICATION," ~~June 1983~~ (W Proprietary).(Methodology for Specifications 3.2.1 - Heat Flux Hot Channel Factor (W(Z) Surveillance Requirements For F(Q) Methodology) and 3.2.3 - Axial Flux Difference (Relaxed Axial Offset Control).)

February 1994

4. WCAP-12610-P-A, "VANTAGE + FUEL ASSEMBLY REFERENCE CORE REPORT," April 1995. (W Proprietary). (Methodology for Specification 3.2.1 - Heat Flux Hot Channel Factor).

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.2.1.2 (continued)

If the two most recent F_Q (Z) evaluations show an increase in the expression

$$\text{maximum over } z \quad \left[\frac{F_Q^C(Z)}{K(Z)} \right],$$

the appropriate factor specified in the COLR

it is required to meet the F_Q (Z) limit with the last F^W_Q (Z) increased by ~~a factor of 1.02~~, or to evaluate F_Q (Z) more frequently, each 7 EFPD. These alternative requirements prevent F_Q (Z) from exceeding its limit for any significant period of time without detection.

Performing the Surveillance in MODE 1 prior to exceeding 75% RTP ensures that the F_Q (Z) limit is met when RTP is achieved, because peaking factors are generally decreased as power level is increased.

F_Q (Z) is verified at power levels $\geq$ 10% RTP above the THERMAL POWER of its last verification, 12 hours after achieving equilibrium conditions to ensure that F_Q (Z) is within its limit at higher power levels.

The Surveillance Frequency of 31 EFPD is adequate to monitor the change of power distribution with core burnup. The Surveillance may be done more frequently if required by the results of F_Q (Z) evaluations.

The Frequency of 31 EFPD is adequate to monitor the change of power distribution because such a change is sufficiently slow, when the plant is operated in accordance with the TS, to preclude adverse peaking factors between 31 day surveillances.

REFERENCES

1. Title 10, Code of Federal Regulations, Part 50.46, "Acceptance Criteria for Emergency Core Cooling Systems for Light Water Nuclear Power Reactors."

2. Regulatory Guide 1.77, Rev. 0, "Assumptions Used for Evaluating a Control Rod Ejection Accident for Pressurized water Reactors," May 1974.

(continued)

ENCLOSURE 3

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

PROPOSED TECHNICAL SPECIFICATION (TS) CHANGE TS- 97-008
REVISED PAGES

I. AFFECTED PAGE LIST

3.2-4
5.0-32
B3.2-9

II. REVISED PAGES

ATTACHED

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.2.1.2	----------NOTE---------- If F^W_Q (Z) is within limits and measurements indicate $$\text{maximum over } z \left[\frac{F^C_Q(Z)}{K(Z)} \right]$$ has increased since the previous evaluation of F^C_Q (Z): a. Increase F^W_Q (Z) by the appropriate factor specified in the COLR and reverify F^W_Q (Z) is within limits; or b. Repeat SR 3.2.1.2 once per 7 EFPD until two successive flux maps indicate $$\text{maximum over } z \left[\frac{F^C_Q(Z)}{K(Z)} \right]$$ has not increased. ----------	
	Verify F^W_Q (Z) is within limit.	Once after initial fuel loading and each refueling prior to THERMAL POWER exceeding 75% RTP AND (continued)

5.9 Reporting Requirements (continued)

5.9.5 CORE OPERATING LIMITS REPORT (COLR)

a. Core operating limits shall be established prior to the initial and each reload cycle, or prior to any remaining portion of a cycle, and shall be documented in the COLR for the following:

LCO 3.1.4 Moderator Temperature Coefficient
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LCO 3.2.2 Nuclear Enthalpy Rise Hot Channel Factor
LCO 3.2.3 Axial Flux Difference
LCO 3.9.1 Boron Concentration

b. The analytical methods used to determine the core operating limits shall be those previously reviewed and approved by the NRC, specifically those described in the following documents:

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2. WCAP-10266-P-A Rev. 2, "THE 1981 VERSION OF WESTINGHOUSE EVALUATION MODEL USING BASH CODE", March 1987, (W Proprietary). (Methodology for Specification 3.2.1 - Heat Flux Hot Channel Factor).

3. WCAP-10216-P-A, Revision 1A, "RELAXATION OF CONSTANT AXIAL OFFSET CONTROL F(Q) SURVEILLANCE TECHNICAL SPECIFICATION," February 1994 (W Proprietary).(Methodology for Specifications 3.2.1 - Heat Flux Hot Channel Factor (W(Z) Surveillance Requirements For F(Q) Methodology) and 3.2.3 - Axial Flux Difference (Relaxed Axial Offset Control).)

4. WCAP-12610-P-A, "VANTAGE + FUEL ASSEMBLY REFERENCE CORE REPORT," April 1995. (W Proprietary). (Methodology for Specification 3.2.1 - Heat Flux Hot Channel Factor).

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.2.1.2 (continued)

If the two most recent F_Q (Z) evaluations show an increase in the expression

$$\text{maximum over } z \left[\frac{F_Q^C(Z)}{K(Z)} \right],$$

it is required to meet the F_Q (Z) limit with the last F^W_Q (Z) increased by the appropriate factor specified in the COLR, or to evaluate F_Q (Z) more frequently, each 7 EFPD. These alternative requirements prevent F_Q (Z) from exceeding its limit for any significant period of time without detection.

Performing the Surveillance in MODE 1 prior to exceeding 75% RTP ensures that the F_Q (Z) limit is met when RTP is achieved, because peaking factors are generally decreased as power level is increased.

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The Surveillance Frequency of 31 EFPD is adequate to monitor the change of power distribution with core burnup. The Surveillance may be done more frequently if required by the results of F_Q (Z) evaluations.

The Frequency of 31 EFPD is adequate to monitor the change of power distribution because such a change is sufficiently slow, when the plant is operated in accordance with the TS, to preclude adverse peaking factors between 31 day surveillances.

REFERENCES

1. Title 10, Code of Federal Regulations, Part 50.46, "Acceptance Criteria for Emergency Core Cooling Systems for Light Water Nuclear Power Reactors."

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