

TENNESSEE VALLEY AUTHORITY

CHATTANOOGA, TENNESSEE 37401
400 Chestnut Street Tower II

March 18, 1985

Director of Nuclear Reactor Regulation
Attention: Ms. E. Adensam, Chief
Licensing Branch No. 4
Division of Licensing
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Dear Ms. Adensam:

In the Matter of the Application of) Docket Nos. 50-390
Tennessee Valley Authority

In accordance with paragraph 6.9.1.9 of the Watts Bar Nuclear (WBN) unit 1 Final Draft Appendix A Technical Specifications, enclosed is the required Radial Peaking Factor Limit Report for WBN unit 1 cycle 1.

If you have any questions concerning this matter, please get in touch with Dave Ellis at FTS 858-2681.

Very truly yours,

TENNESSEE VALLEY AUTHORITY

J. A. Domer

J. A. Domer
Nuclear Engineer

Sworn to and subscribed before me
this 18th day of March 1985.

Paulette W. White
Notary Public

My Commission Expires 8-24-88

Enclosure

cc: U.S. Nuclear Regulatory Commission (Enclosure)
Region II
Attn: Dr. J. Nelson Grace, Regional Administrator
101 Marietta Street, NW, Suite 2900
Atlanta, Georgia 30323

8503270353 850318
PDR ADOCK 05000390
A PDR

*Pool
Boat
1/1*

ENCLOSURE

WATTS BAR NUCLEAR PLANT UNIT 1
RADIAL PEAKING FACTOR LIMIT FOR WATTS BAR UNIT 1 CYCLE 1

This Radial Peaking Factor Report is provided in accordance with Paragraph 6.9.1.9 of the Watts Bar Nuclear Plant Unit 1 Final Draft Appendix A Technical Specifications. Note that the reference to Paragraph 6.9.1.9 is correct for this version of the Technical Specifications. This reference may change if the Technical Specifications are altered from their present form. A plot of $F_{Q \cdot P_{Re}}^{T \cdot P}$ vs. Axial Core Height for Cycle 1 has been included as part of the Radial Peaking Factor Limit Report.

The F_{xy} limits for RATED THERMAL POWER within specific core plans for Cycle 1 shall be:

1. F_{xy}^{RTP} less than or equal to 1.71 for all core planes containing bank "D" control rods, and
2. F_{xy}^{RTP} less than or equal to 1.55 for all unrodded core planes.

These $F_Q(z)$ limits were used to confirm that the heat flux hot channel factor $F_Q(z)$ will be limited to the Technical Specifications values of:

$$F_Q(z) \leq \frac{2.303}{P} [K(z)] \text{ for } P > 0.5 \text{ and,}$$

$$F(z) \leq 4.606 [K(z)] \text{ for } P \leq 0.5$$

assuming the most limiting axial power distributions expected to result from the insertion and removal on Control Banks B, C, and D during operation including the accompanying variations in the axial xenon and power distributions as described in the "Power Distribution Control and Load Following Procedures," WCAP-8403, September 1974. Therefore, these F_{xy} limits provide assurance that the initial conditions assumed in the LOCA analysis are met, along with the ECCS acceptance criteria of 10 CFR 50.46.

See Figure 1 for a plot of $F_{Q \cdot P_{Re}}^{T \cdot P}$ vs. Axial Core Height.