

**DUKE POWER COMPANY**

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July 23, 1984

Mr. Harold R. Denton, Director  
Office of Nuclear Reactor Regulation  
U. S. Nuclear Regulatory Commission  
Washington, D. C. 20555

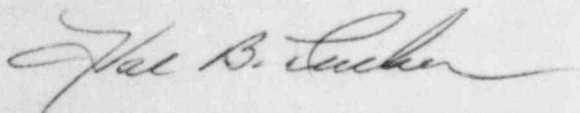
Attention: Ms. E. G. Adensam, Chief  
Licensing Branch No. 4

Re: Catawba Nuclear Station, Unit 1  
Docket No. 50-413  
Technical Specification 6.9.1.9

Dear Mr. Denton:

Pursuant to Technical Specification 6.9.1.9, please find attached the  
Radial Peaking Factor Limit Report for Catawba, Unit 1 Cycle 1.

Very truly yours,



Hal B. Tucker

RWO/slb

Attachments

cc: Mr. James P. O'Reilly, Regional Administrator  
U. S. Nuclear Regulatory Commission  
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Atlanta, Georgia 30323

Palmetto Alliance  
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Chief, Core Performance Branch  
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Catawba Nuclear Station

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## Radial Peaking Factor Limit Report

This Radial Peaking Factor Limit Report is provided in accordance with Paragraph 6.9.1.9 of the Catawba Unit 1 Nuclear Plant Technical Specifications.

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

1.  $F_{xy}^{RTP}$  less than or equal to 1.73 for all core planes containing bank "D" control rods, and
2.  $F_{xy}^{RTP}$  less than or equal to 1.57 for all unrodded core planes.

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

$$F_Q(z) \leq \left[ \frac{2.32}{P} \right] [K(z)] \quad \text{for } P > 0.5 \text{ and,}$$

$$F_Q(z) \leq [4.64] [K(z)] \quad \text{for } P \leq 0.5$$

assuming the most limiting axial power distributions expected to result from the insertion and removal of 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 10CFR50.46.

See Figure 1 for a plot of  $[F_Q^T \cdot P_{Re}]$  vs. Axial Core Height

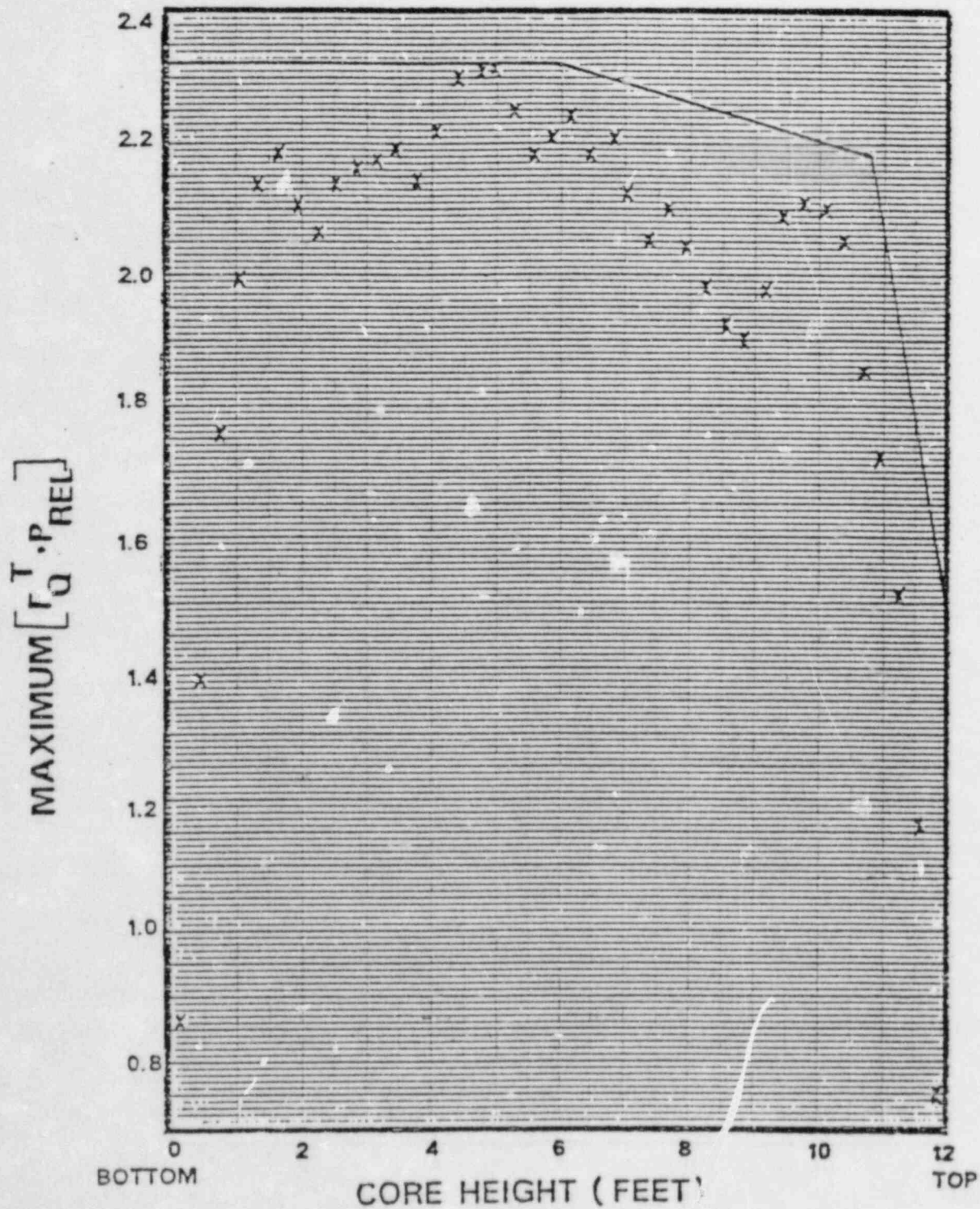


FIGURE 1

MAXIMUM  $[F_Q^T \cdot P_{REL}]$  VERSUS AXIAL HEIGHT  
DURING NORMAL CORE OPERATION