SMB

UNION ELECTRIC COMPANY
Callaway Plant

ULNRC 1251

January 31, 1986

PRIORITY ROUTING

First		Second	
RA		HC	
DRA		EIC	
DRP		SGA	
DRS		ML	
DRSS		OL	
DRMA		OI	
		PAO	

orig + file

Mr. James G. Keppler
Administrator, Region III
U. S. Nuclear Regulatory Commission
799 Roosevelt Road
Glen Ellyn, Illinois 60137

Docket No. STN 50-483

Dear Mr. Keppler:

As required by Technical Specification 6.9.1.9, this Callaway Cycle 2 Radial Peaking Factor Limit Report is forwarded for your information. Included are the F_{xy} limits for rated thermal power (F_{xy}^{RTP}) for all core planes containing Bank D control rods and all unrodded core planes, and the plot of predicted ($F^T_q \cdot P_{Rel}$) vs. axial core height with the limit envelope.

G. L. Randolph
Manager, Callaway Plant

RDA KRB
GLR/RDA/KRB/crc

Enclosures

cc: Director of Nuclear Reactor Regulation
Attention: Chief, Core Performance Branch
U. S. Nuclear Regulatory Commission
Washington, DC 20555

FEB 7 1986

Mailing Address: P.O. Box 620 · Fulton, MO 65251

IE01 1/1

Radial Peaking Factor Limit Report

This Radial Peaking Factor Limit Report is provided in accordance with Paragraph 6.9.1.12 of the Callaway Nuclear Plant Technical Specifications.

The F_{xy} limits for RATED THERMAL POWER (3411 MWt) within specific core planes for Cycle 2 shall be:

1. F_{xy}^{RTP} less than or equal to 1.89 for all planes containing bank "D" control rods, and

2. F_{xy}^{RTP} less than or equal to 1.65 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 $[F_Q^T \cdot F_{rel}]$ vs. Axial Core Height.

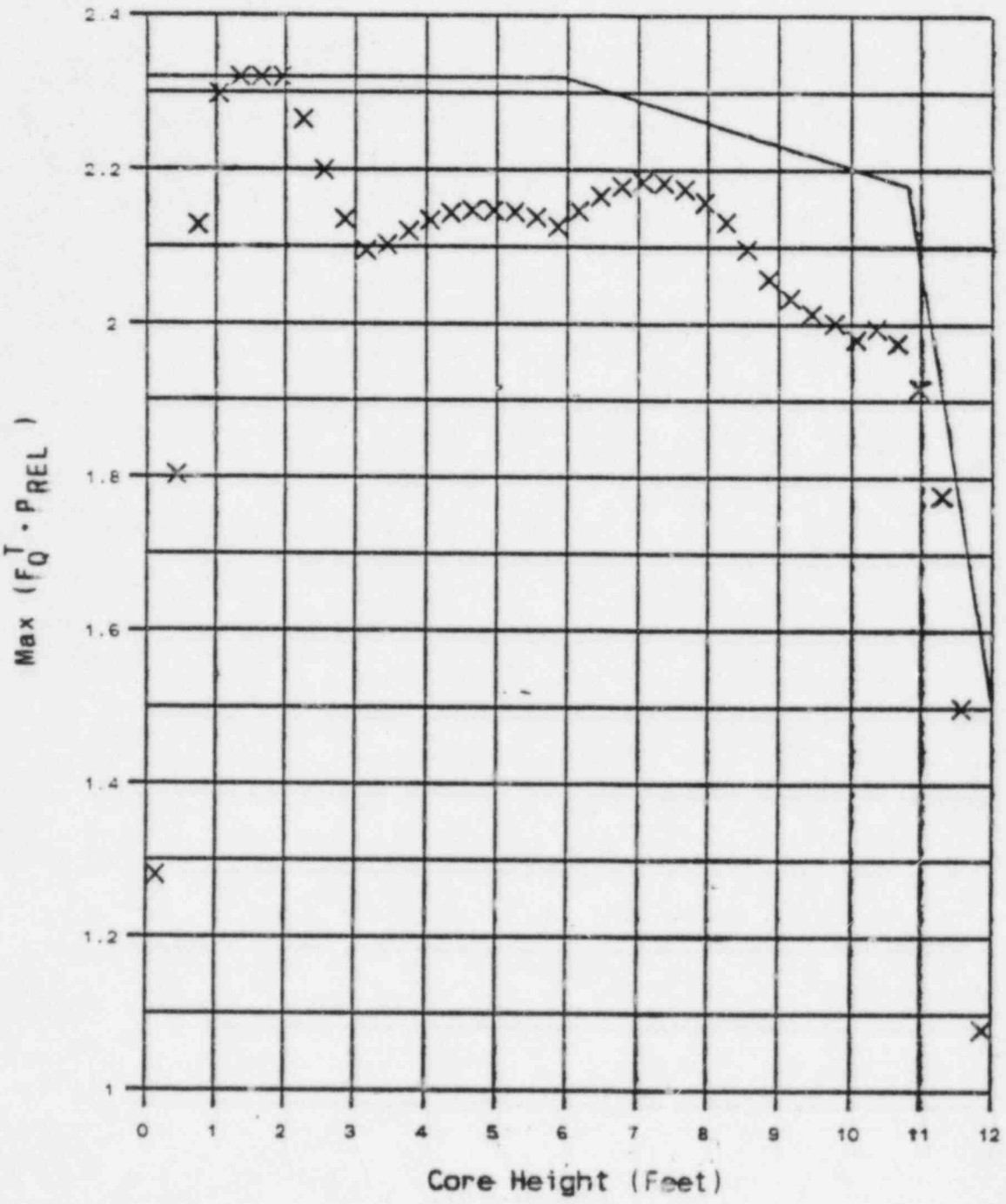

Figure 1

Maximum $F_Q^T \cdot P_{REL}$ Versus Axial Height
During Normal Core Operation