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U. S. Nuclear Regulatory Commission  
Attention: Document Control Desk  
Washington, DC 20555-0001

**Subject: Beaver Valley Power Station, Unit No. 2  
Docket No. 50-412, License No. NPF-73  
Cycle 8 Reload and Core Operating Limits Report**

A midcycle revision to the Beaver Valley Power Station (BVPS) Unit No. 2 Core Operating Limits Report (COLR) is enclosed pursuant to Technical Specification 6.9.5.d. The COLR has been revised to reduce the Fq limit from 2.4 to 2.3 for the remainder of fuel cycle 8. This change was necessary to reclaim Large Break Loss of Coolant Accident (LOCA) Peak Clad Temperature (PCT) margin lost due to an error in calculation of fuel and cladding temperatures discovered by Westinghouse in the LOCBART code. Reduction in the Fq limit provides a net benefit of 100 degrees Fahrenheit in PCT reduction to offset PCT penalties assessed per 10 CFR 50.46(a)(3) of 94 degrees Fahrenheit for BVPS Unit 2. Westinghouse has reviewed the change and has verified, via review of flux maps taken prior to this change, that prior operation of the current fuel operating cycle for BVPS Unit 2 had remained within the new limit.

If you have any questions, please contact Mr. Thomas S. Cosgrove, Manager, Licensing at 724-682-5203.

Sincerely,



Lew W. Myers

Enclosure

c: Mr. D. S. Collins, Project Manager  
Mr. D. M. Kern, Sr. Resident Inspector  
Mr. H. J. Miller, NRC Region I Administrator  
Mr. L. E. Ryan (BRP/DEP)

A001

## LICENSING REQUIREMENTS MANUAL

## 4.1 CORE OPERATING LIMITS REPORT

This Core Operating Limits Report provides the cycle specific parameter limits developed in accordance with the NRC approved methodologies specified in Technical Specification Administrative Control 6.9.1.12.

Specification 3.1.3.5 Shutdown Rod Insertion Limits

The Shutdown rods shall be withdrawn to at least 225 steps.

Specification 3.1.3.6 Control Rod Insertion Limits

Control Banks A and B shall be withdrawn to at least 225 steps.

Control Banks C and D shall be limited in physical insertion as shown in Figure 4.1-1.

Specification 3.2.1 Axial Flux Difference

NOTE: The target band is  $\pm 7\%$  about the target flux from 0% to 100% RATED THERMAL POWER.

The indicated Axial Flux Difference:

- a. Above 90% RATED THERMAL POWER shall be maintained within the  $\pm 7\%$  target band about the target flux difference.
- b. Between 50% and 90% RATED THERMAL POWER is within the limits shown on Figure 4.1-2.
- c. Below 50% RATED THERMAL POWER may deviate outside the target band.

Specification 3.2.2  $F_Q(Z)$  and  $F_{xy}$  Limits

$$F_Q(Z) \leq \frac{CF_Q}{P} * K(Z) \quad \text{for } P > 0.5$$

$$F_Q(Z) \leq \frac{CF_Q}{0.5} * K(Z) \quad \text{for } P \leq 0.5$$

Where:  $CF_Q = 2.3$

$$P = \frac{\text{THERMAL POWER}}{\text{RATED THERMAL POWER}}$$

$K(Z)$  = the function obtained from Figure 4.1-3.

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The  $F_{xy}$  limits [ $F_{xy}(L)$ ] for RATED THERMAL POWER within specific core planes shall be:

$$F_{xy}(L) = F_{xy}(RTP) (1 + PF_{xy} * (1-P))$$

Where: For all core planes containing D-Bank:

$$F_{xy}(RTP) \leq 1.71$$

For unrodded core planes:

$$F_{xy}(RTP) \leq 1.64 \text{ from 1.8 ft. elevation to 2.6 ft. elevation}$$

$$F_{xy}(RTP) \leq 1.68 \text{ from 2.6 ft. elevation to 9.7 ft. elevation}$$

$$F_{xy}(RTP) \leq 1.61 \text{ from 9.7 ft. elevation to 10.2 ft. elevation}$$

$$PF_{xy} = 0.2$$

$$P = \frac{\text{THERMAL POWER}}{\text{RATED THERMAL POWER}}$$

Figure 4.1-4 provides the maximum total peaking factor times relative power ( $F_Q^T * P_{rel}$ ) as a function of axial core height during normal core operation.

Specification 3.2.3  $F_{\Delta H}^N$

$$F_{\Delta H}^N \leq CF_{\Delta H} * (1 + PF_{\Delta H} (1 - P))$$

Where:  $CF_{\Delta H} = 1.62$

$$PF_{\Delta H} = 0.3$$

$$P = \frac{\text{THERMAL POWER}}{\text{RATED THERMAL POWER}}$$

## LICENSING REQUIREMENTS MANUAL

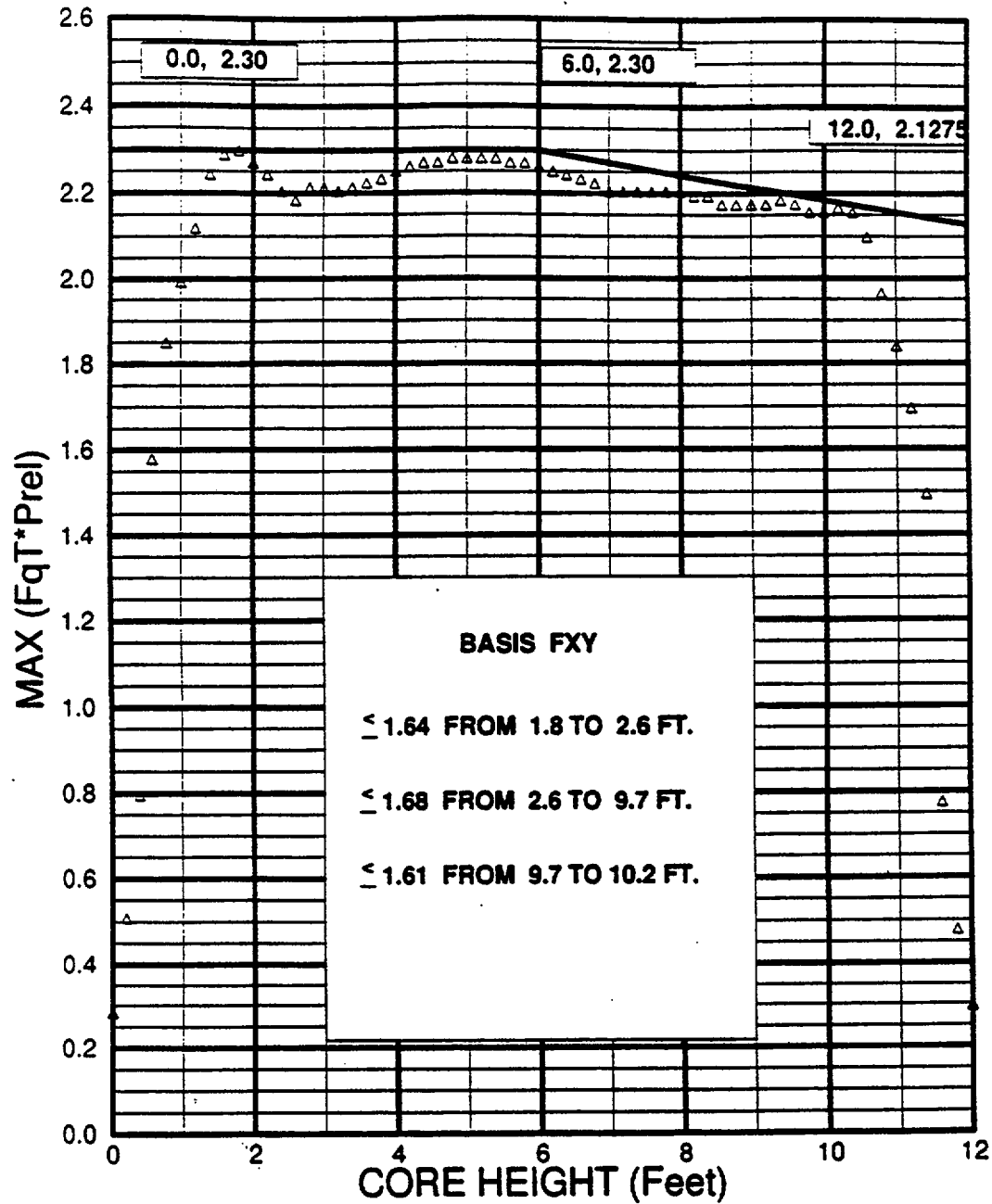


FIGURE 4.1-4

MAXIMUM (FqT\*Prel) VS. AXIAL CORE HEIGHT  
DURING NORMAL OPERATION