

ATTACHMENT

Braidwood Unit 2 Cycle 5

Operating Limits Report (OLR)

Revision 1

**BRAIDWOOD UNIT 2 CYCLE 5
OPERATING LIMITS REPORT - F_{xy} PORTION**

This Radial Peaking Factor Limits Report is provided in accordance with paragraph 6.9.1.9 of the Braidwood Unit 2 Nuclear Plant Technical Specifications.

The F_{xy} limits for RATED THERMAL POWER within specified core planes for Cycle 5 shall be:

- a: For the lower core region from greater than or equal to 0% to less than or equal to 50%:

- 1) For all core planes containing bank "D" control rods:

$$F_{xy}^{RTP} \leq 2.052$$

- 2) For all unrodded core planes:

$$F_{xy}^{RTP} \leq 1.735$$

- b: For the upper core region from greater than 50% to less than or equal to 100%:

- 1) For all core planes containing bank "D" control rods:

$$F_{xy}^{RTP} \leq 2.052$$

- 2) For all unrodded core planes:

$$F_{xy}^{RTP} \leq 1.817$$

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

$$F_{\alpha}(z) \leq \frac{[2.50]}{P} [K(Z)] \quad \text{for } P > 0.5 \text{ and,}$$

$$F_{\alpha}(z) \leq [5.00] [K(Z)] \quad \text{for } P \leq 0.5$$

assuming the most limiting axial power distributions expected to result from the insertion and removal of control Banks 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 and the ECCS acceptance criteria of 10 CFR 50.46 are met.

See the attached Figure for the plot of [F_α(z) x P_{rel}] vs. Axial Core Height.

BRAIDWOOD UNIT 2 CYCLE 5
OPERATING LIMITS REPORT - MTC PORTION

a) The Moderator Temperature Coefficient (MTC) limits are:

- 1) The BOL/ARO/HZP-MTC shall be less positive than $0 \Delta k/k/^\circ F$.
- 2) The EOL/ARO/RTP-MTC shall be less negative than $-4.1 \times 10^{-4} \Delta k/k/^\circ F$.

b) The MTC surveillance limit is:

The 300 ppm/ARO/RTP-MTC should be less negative than or equal to $-3.2 \times 10^{-4} \Delta k/k/^\circ F$.

where: BOL stands for Beginning of Cycle Life
ARO stands for All Rods Out
HZP stands for Hot Zero Thermal Power
EOL stands for End of Cycle Life
RTP stands for RATED THERMAL POWER

**BRAIDWOOD UNIT 2 CYCLE 5
OPERATING LIMITS REPORT**

Table 1: $[F_c(z) * P_{Rel}]$ vs. Axial Core Height

		CORE HEIGHT (FEET)	MAXIMUM $F_c * P$
BOTTOM	1	0.1252	0.424
	2	0.3756	0.844
	3	0.6259	1.882
	4	0.8763	2.170
	5	1.1267	2.395
	6	1.3771	2.488
	7	1.6274	2.500
	8	1.8778	2.499
	9	2.1282	2.285
	10	2.3786	2.354
	11	2.6289	2.355
	12	2.8793	2.378
	13	3.1297	2.399
	14	3.3801	2.414
	15	3.6305	2.427
	16	3.8808	2.243
	17	4.1312	2.430
	18	4.3816	2.433
	19	4.6320	2.423
	20	4.8823	2.409
	21	5.1327	2.391
	22	5.3831	2.366
	23	5.6335	2.156
	24	5.8838	2.323
	25	6.1342	2.442
	26	6.3846	2.456
	27	6.6350	2.464
	28	6.8853	2.467
	29	7.1357	2.447
	30	7.3861	2.289
	31	7.6365	2.433
	32	7.8868	2.408
	33	8.1372	2.382
	34	8.3876	2.380
	35	8.6380	2.371
	36	8.8883	2.315
	37	9.1387	2.246
	38	9.3891	2.347
	39	9.6395	2.368
	40	9.8898	2.377
	41	10.1402	2.362
	42	10.3906	2.360
	43	10.6410	2.241
	44	10.8914	2.162
	45	11.1417	2.010
	46	11.3921	1.747
	47	11.6425	0.805
TOP	48	11.8929	0.441

**Braidwood Unit 2 Cycle 5
FQ(Z) x P versus Core Height
Fxy Limit Analysis**

