Catawba Unit 2 Cycle 8

Core Operating Limits Report

September 1996

Duke Power Company

		Date
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QA Condition 1

The contents of this document have been reviewed to verify that no material herein either directly or indirectly changes the results and conclusions presented in the 10CFR50.59 Catawba 2 Cycle 8 Reload Safety Evaluation.

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REVISION LOG

Revision	Effective Date	Comment
Original Issue	February 1993	C2C06 COLR
Revision 1	April 1994	C2C06 COLR rev 1
Revision 2	May 1994	C2C07 COLR
Revision 3	October 1994	C2C07 COLR rev 1
Revision 4	April 1995	C2C07 COLR rev 2
Revision 5	September 1995	C2C07 COLR rev 3
Revision 6	October 1995	C2C08 COLR
Revision 7	September 1996	C2C08 COLR rev 1

3.6 Heat Flux Hot Channel Factor, FQ(X,Y,Z) (Specification 3/4.2.2)

3.6.1 $F_Q^{RTP} = 2.32 \times K(BU)$

3.6.2 K(Z) and K(BU) are provided in Figures 4 and 5, respectively, for MkBW fuel.

The following parameters are required for the Surveillance Requirements of T.S. 3/4.2.2:

3.6.3 $$[F_Q^{\perp}(X,Y,Z)]^{OP} = \frac{F_Q^D(X,Y,Z) * M_Q(X,Y,Z)}{UMT * MT * TILT}$$

where:

$[F_Q^{\perp}(X,Y,Z)]^{OP}$ = Cycle dependent maximum allowable design peaking factor which ensures that the $F_Q(X,Y,Z)$ limit will be preserved for operation within the LCO limits. $[F_Q^{\perp}(X,Y,Z)]^{OP}$ includes allowances for calculational and measurement uncertainties.

$F_Q^D(X,Y,Z)$ = Design power distribution for F_Q. $F_Q^D(X,Y,Z)$ is provided in Table 1, Appendix A, for normal operating conditions and in Table 2, Appendix A for power escalation testing during initial startup operations.

$M_Q(X,Y,Z)$ = Margin remaining in core location X,Y,Z to the LOCA limit in the transient power distribution. $M_Q(X,Y,Z)$ is provided in Table 1, Appendix A for normal operating conditions and in Table 2, Appendix A for power escalation testing during initial startup operations.

UMT = Measurement Uncertainty (UMT = 1.05)

MT = Engineering Hot Channel Factor (MT = 1.03)

TILT = Peaking penalty that accounts for allowable quadrant power tilt ratio of 1.02. (TILT = 1.035)

NOTE: $[F_Q^{\perp}(X,Y,Z)]^{OP}$ is the parameter identified as $F_Q^{MAX}(X,Y,Z)$ in DPC-NE-2011PA.

Figure 5

K(BU), Normalized $F_Q(X,Y,Z)$ as a Function of Burnup for MkBW Fuel