

Catawba Unit 1 Cycle 9
Core Operating Limits Report
February 1995

Duke Power Company

		Date
Prepared By:	<u>Scott B. Chene</u>	<u>2/14/95</u>
Checked By:	<u>Nicholas R. Huger</u>	<u>2/15/95</u>
Checked By:	<u>Vijay D. Daji</u>	<u>2-15-95</u>
Approved By:	<u>RH Clark</u>	<u>2-15-95</u>

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 1 Cycle 9 Reload Safety Evaluation (CNC-1552.08-00-0236).

INSERTION SHEET FOR REVISION 6

Remove

Pages 1 - 154

Insert

Pages 1 - 19

Appendix A, Pages 1 - 204

REVISION LOG

<u>Revision</u>	<u>Effective Date</u>	<u>Comment</u>
Original Issue	September 8, 1992	C1C07 COLR
Revision 1	October 10, 1992	C1C07 COLR rev 1
Revision 2	December 1, 1993	C1C08 COLR
Revision 3	April 14, 1994	C1C08 COLR rev 1
Revision 4	October 24, 1994	C1C08 COLR rev 2
Revision 5	November 30, 1994	C1C08 COLR rev 3
Revision 6	February 15, 1995	C1C09 COLR

1.0 Core Operating Limits Report

This Core Operating Limits Report (COLR) has been prepared in accordance with the requirements of Technical Specification 6.9.1.9.

The Technical Specifications affected by this report are listed below:

<u>Tech Spec Section</u>	<u>Technical Specifications</u>	<u>COLR Section</u>	<u>COLR Page</u>
2.2.1	Reactor Trip System Instrumentation Setpoints	2.0	5
3/4.1.1.3	Moderator Temperature Coefficient	3.0	7
3/4.1.2.5	Borated Water Source - Shutdown	3.1	9
3/4.1.2.6	Borated Water Source - Operating	3.2	10
3/4.1.3.5	Shutdown Rod Insertion Limit	3.3	10
3/4.1.3.6	Control Rod Insertion Limit	3.4	10
3/4.2.1	Axial Flux Difference	3.5	10
3/4.2.2	Heat Flux Hot Channel Factor	3.6	13
3/4.2.3	Nuclear Enthalpy Rise Hot Channel Factor	3.7	16
3/4.3.3.11	Boron Dilution Mitigation System	3.8	18
3/4.5.1	Accumulators	3.9	18
3/4.5.4	Refueling Water Storage Tank	3.10	18
3/4.9.1	Refueling Operations - Boron Concentration	3.11	19
3/4.9.2	Instrumentation	3.12	19
4.7.13.3	Standby Makeup Pump Water Supply - Boron	3.13	19

1.1 Operating Limits

The cycle-specific parameter limits for the specifications listed in Section 1.0 are presented in the following subsections. These limits have been developed using NRC approved methodologies specified in Technical Specification 6.9.1.9.

2.0 Reactor Trip System Instrumentation Setpoints (Specification 2.2.1)

2.0.1 Overtemperature ΔT Setpoint Parameter Values

<u>Parameter</u>	<u>Value</u>
Overtemperature ΔT reactor trip setpoint	$K_1 = 1.1954$
Overtemperature ΔT reactor trip heatup setpoint penalty coefficient	$K_2 = 0.03371/^{\circ}\text{F}$
Overtemperature ΔT reactor trip depressurization setpoint penalty coefficient	$K_3 = 0.001529/\text{psi}$
Measured reactor vessel ΔT lead/lag time constants	$\tau_1 = 12 \text{ sec.}$ $\tau_2 = 3 \text{ sec.}$
Measured ΔT lag time constant	$\tau_3 = 0 \text{ sec.}$
Measured reactor vessel average temperature lead/lag time constants	$\tau_4 = 22 \text{ sec.}$ $\tau_5 = 4 \text{ sec.}$
Measure reactor vessel average temperature lag time constant	$\tau_6 = 0 \text{ sec.}$
$f_1(\Delta I)$ "positive" breakpoint	$= 8.0 \% \Delta I$
$f_1(\Delta I)$ "negative" breakpoint	$= -42.0 \% \Delta I$
$f_1(\Delta I)$ "positive" slope	$= 1.640 \% \Delta T_{\text{v}} / \% \Delta I$
$f_1(\Delta I)$ "negative" slope	$= 3.672 \% \Delta T_{\text{v}} / \% \Delta I$

2.0.2 Overpower ΔT Setpoint Parameter Values

<u>Parameter</u>	<u>Value</u>
Overpower ΔT reactor trip setpoint	$K_4 = 1.0855$
Overpower ΔT reactor trip heatup setpoint penalty coefficient (for $T > 590.8$ °F)	$K_6 = 0.001262/^\circ\text{F}$
Overpower ΔT reactor trip heatup setpoint penalty coefficient (for $T \leq 590.8$ °F)	$K_6 = 0.0/^\circ\text{F}$
Measured reactor vessel ΔT lead/lag time constants	$\tau_1 = 12$ sec. $\tau_2 = 3$ sec.
Measured ΔT lag time constant	$\tau_3 = 0$ sec.
Measure reactor vessel average temperature lag time constant	$\tau_6 = 0$ sec.
Measure reactor vessel average temperature rate-lag time constant	$\tau_7 \equiv 10$ sec.
$f_2(\Delta I)$ "positive" breakpoint	$= 35.0\ \% \Delta I$
$f_2(\Delta I)$ "negative" breakpoint	$= -35.0\ \% \Delta I$
$f_2(\Delta I)$ "positive" slope	$= 7.0\ \% \Delta T_0 / \% \Delta I$
$f_2(\Delta I)$ "negative" slope	$= 7.0\ \% \Delta T_0 / \% \Delta I$

3.0 Moderator Temperature Coefficient (Specification 3/4.1.1.3)

3.0.1 The Moderator Temperature Coefficient (MTC) Limits are:

The MTC shall be less positive than the limits shown in Figure 1. The BOC, ARO, HZP MTC shall be less positive than $0.7\text{E-}04 \Delta\text{K/K/}^\circ\text{F}$.

The EOC, ARO, RTP MTC shall be less negative than $-4.1\text{E-}04 \Delta\text{K/K/}^\circ\text{F}$.

3.0.2 The MTC Surveillance Limit is:

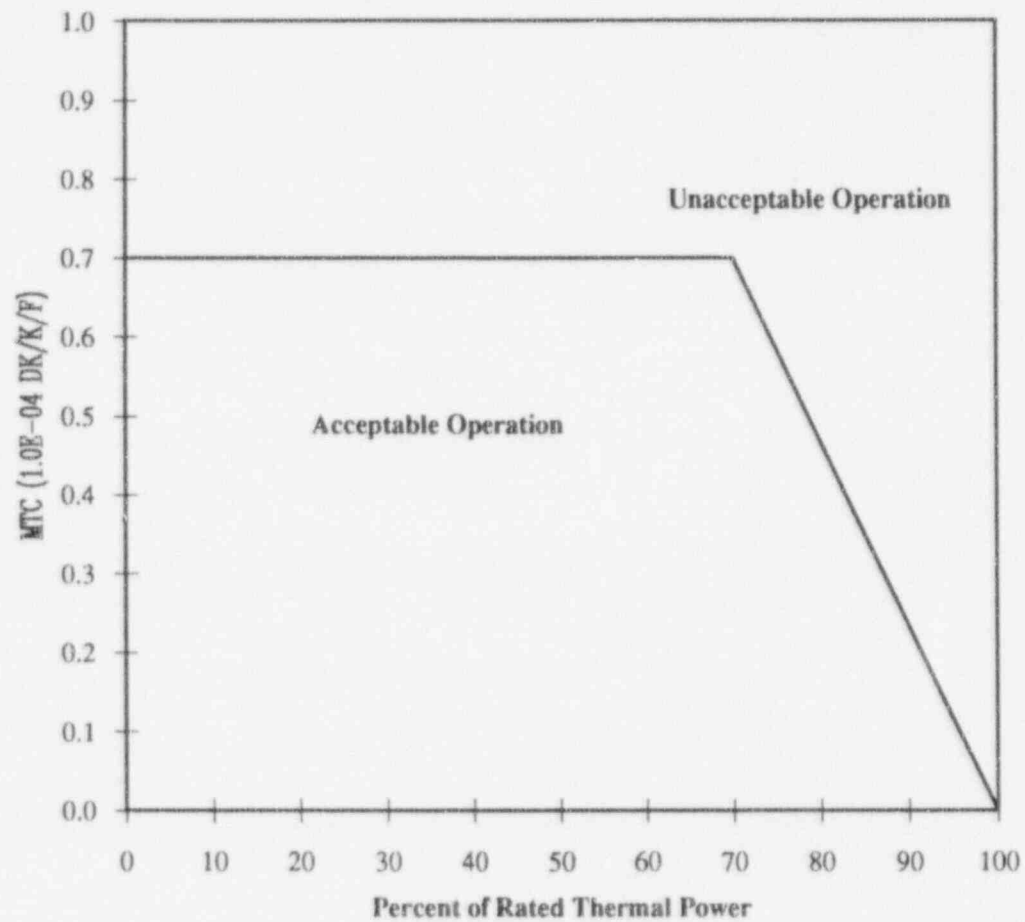
The 300 PPM/ARO/ RTP MTC should be less negative than or equal to $-3.2\text{E-}04 \Delta\text{K/K/}^\circ\text{F}$.

where:

- BOC = Beginning of Cycle
- EOC = End of Cycle
- ARO = All Rods Out
- HZP = Hot Zero Thermal Power
- RTP = Rated Thermal Power

Figure 1

Moderator Temperature Coefficient Versus Power Level



3.1 Borated Water Source - Shutdown (Specification 3/4.1.2.5)**3.1.1 Volume and boron concentrations for the Boric Acid Storage System and the Refueling Water Storage Tank (RWST) during modes 5 and 6:**

<u>Parameter</u>	<u>Limit</u>
Boric Acid Storage System minimum boron concentration for LCO 3.1.2.5a	7,000 ppm
Boric Acid Storage System minimum contained water volume for LCO 3.1.2.5a	12,000 gallons
Boric Acid Storage System minimum water volume required to maintain SDM at 7,000 ppm	585 gallons
Refueling Water Storage Tank minimum boron concentration for LCO 3.1.2.5b	2,475 ppm
Refueling Water Storage Tank minimum contained borated water volume for LCO 3.1.2.5b	45,000 gallons
Refueling Water Storage Tank minimum water volume required to maintain SDM at 2,475 ppm	3,500 gallons

3.2 Borated Water Source - Operating (Specification 3/4.1.2.6)

3.2.1 Volume and boron concentrations for the Boric Acid Storage System and the Refueling Water Storage Tank (RWST) during **modes 1, 2, 3, and 4:**

<u>Parameter</u>	<u>Limit</u>
Boric Acid Storage System minimum boron concentration for LCO 3.1.2.6a	7,000 ppm
Boric Acid Storage System minimum contained water volume for LCO 3.1.2.6a	22,000 gallons
Boric Acid Storage System minimum water volume required to maintain SDM at 7,000 ppm	9,851 gallons
Refueling Water Storage Tank minimum boron concentration for LCO 3.1.2.6b	2,475 ppm
Refueling Water Storage Tank minimum contained borated water volume for LCO 3.1.2.6b	98,607 gallons
Refueling Water Storage Tank minimum water volume required to maintain SDM at 2,475 ppm	57,107 gallons

3.3 Shutdown Rod Insertion Limit (Specification 3/4.1.3.5)

3.3.1 The shutdown rods shall be withdrawn to at least 222 steps.

3.4 Control Rod Insertion Limits (Specification 3/4.1.3.6)

3.4.1 The control rod banks shall be limited to physical insertion as shown in Figure 2.

3.5 Axial Flux Difference (Specification 3/4.2.1)

3.5.1 The Axial Flux Difference (AFD) Limits are provided in Figure 3.

Figure 2

Control Rod Bank Insertion Limits Versus Percent Rated Thermal Power

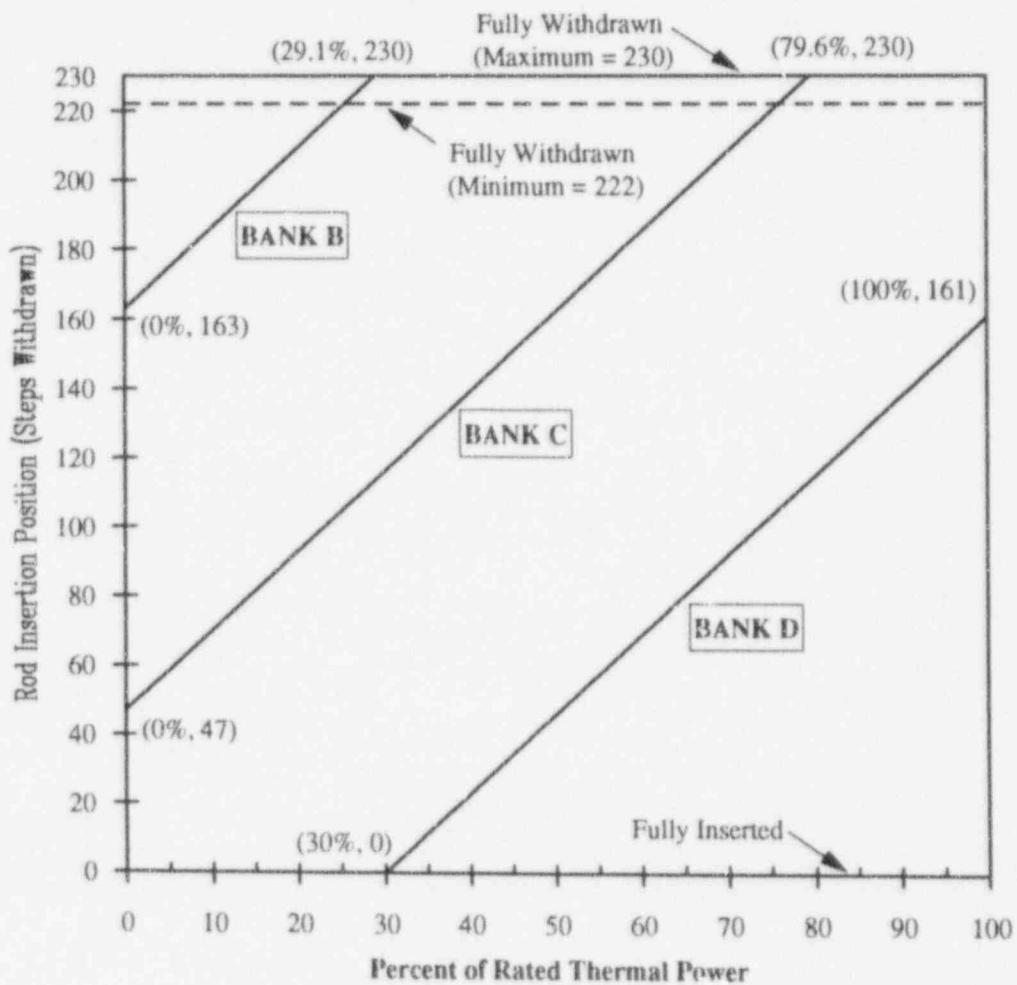
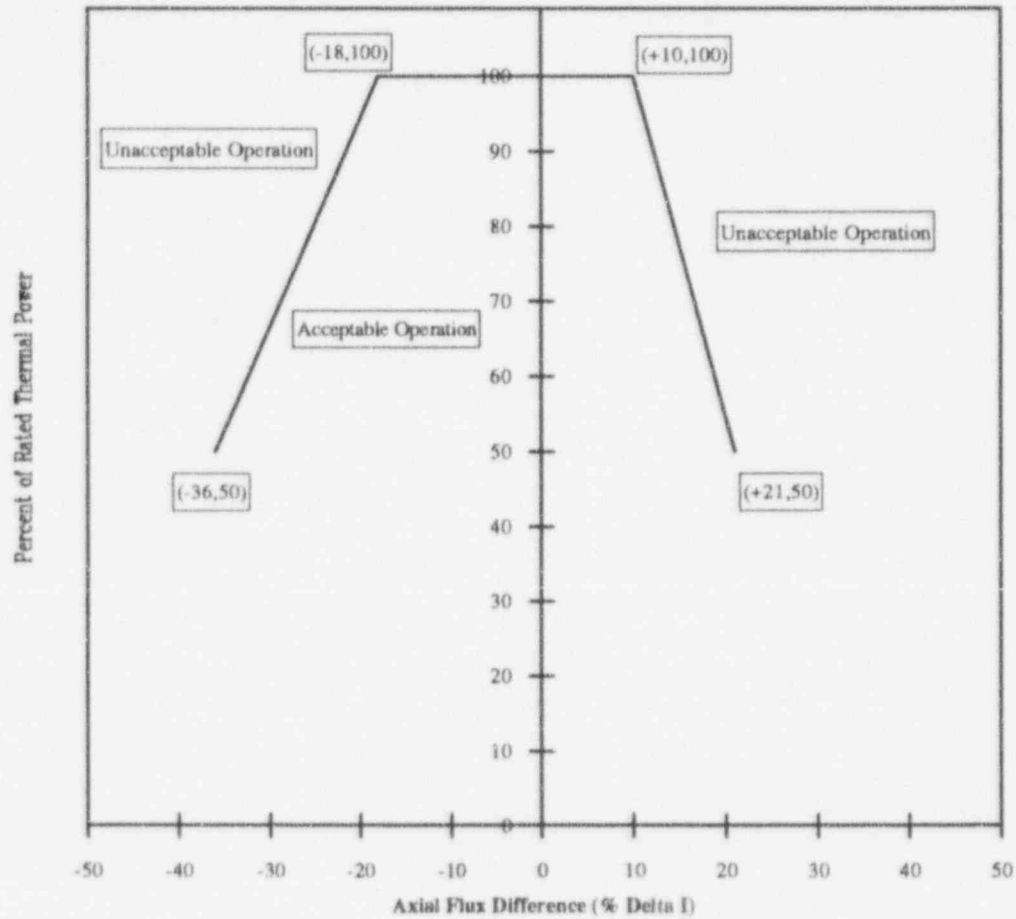


Figure 3

Axial Flux Difference Limits Versus Percent of Rated Thermal Power



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

3.6.1 $F_Q^{RTP} = 2.32$

3.6.2 $K(Z)$ is provided in Figure 4 for MkBW fuel.

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

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

where:

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

$$3.6.4 \quad [F_Q^L(X,Y,Z)]^{RPS} = \frac{F_Q^D(X,Y,Z) * M_C(X,Y,Z)}{UMT * MT * TILT}$$

where:

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

$F_Q^D(X,Y,Z)$ = Design power distributions 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.

$M_C(X,Y,Z)$ = Margin remaining to the CFM limit in core location X,Y,Z from the transient power distribution. $M_C(X,Y,Z)$ calculations parallel the $M_Q(X,Y,Z)$ calculations described in DPC-NE-2011PA, except that the LOCA limit is replaced with the CFM limit. $M_C(X,Y,Z)$ is provided in Table 3, Appendix A for normal operating conditions and in Table 4, Appendix A for power escalation testing during initial startup operations.

UMT = Measurement Uncertainty (UMT = 1.05)

MT = Engineering Hot Channel Factor (MT = 1.03)

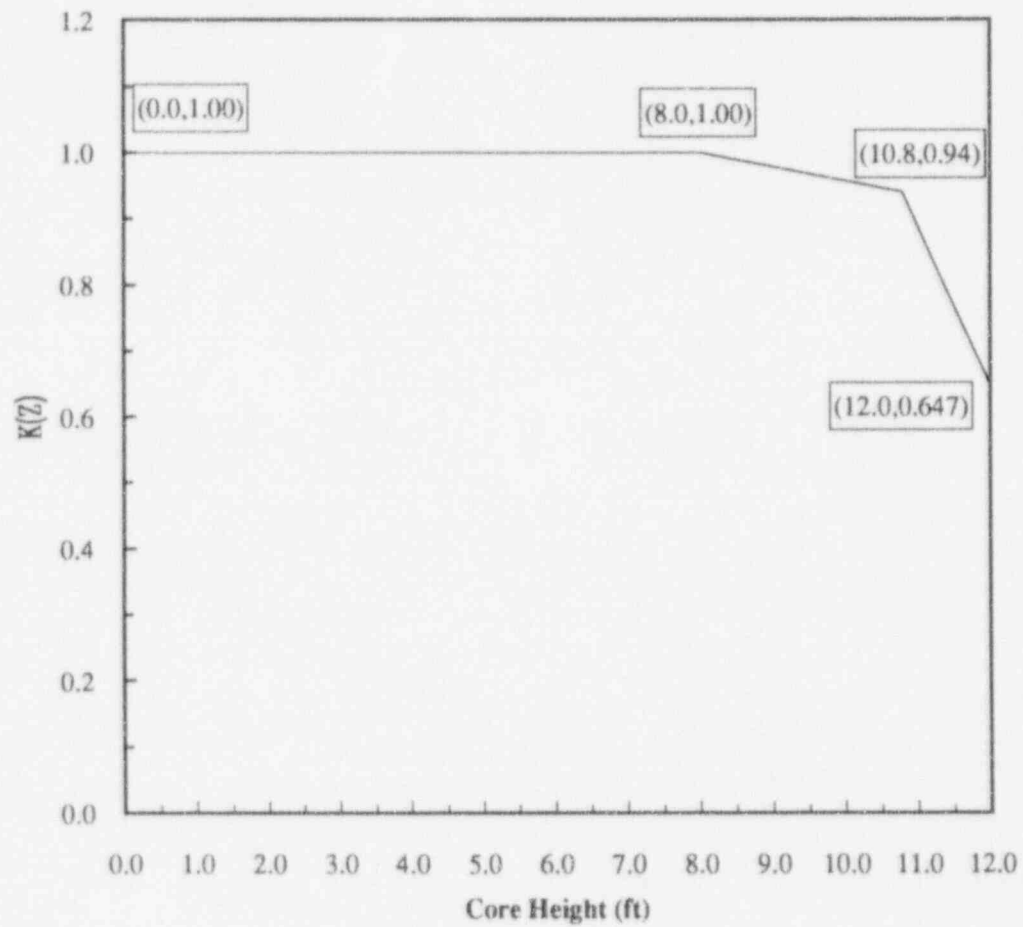
TILT = Peaking penalty that accounts for allowable quadrant power tilt ratio of 1.02. (TILT = 1.035)

NOTE: $[F_Q^L(X,Y,Z)]^{RPS}$ is the parameter identified as $F_Q^{MAX}(X,Y,Z)$ in DPC-NE-2011PA, except that $M_Q(X,Y,Z)$ is replaced by $M_C(X,Y,Z)$.

3.6.5 KSLOPE = Adjustment to the K_1 value from OTAT required to compensate for each 1% that $[F_Q^L(X,Y,Z)]^{RPS}$ exceeds its limit. (KSLOPE = 0.0725)

Figure 4

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



3.7 Nuclear Enthalpy Rise Hot Channel Factor, $F_{\Delta H}(X,Y,Z)$ (Specification 3/4.2.3)

The following parameters are required for the LCO requirements of T.S. 3/4.2.3.

$$3.7.1 \quad [F_{\Delta H}^L(X,Y)]^{LCO} = \text{MARP}(X,Y) * \left[1.0 + \frac{1}{\text{RRH}} * (1.0 - P) \right]$$

where:

MARP(X,Y) = Cycle specific Operating Limit Maximum Allowable Radial Peaks.
MARP(X,Y) radial peaking limits, provided in Table 7, Appendix A.

$$P = \frac{\text{Thermal Power}}{\text{Rated Thermal Power}}$$

RRH = Defined in section 3.7.3

The following parameters are required for core monitoring per the Surveillance requirements of T.S. 3/4.2.3.

$$3.7.2 \quad [F_{\Delta H}^L(X,Y)]^{SURV} = \frac{F_{\Delta H}^D(X,Y) \times M_{\Delta H}(X,Y)}{\text{UMR} \times \text{TILT}}$$

where:

$[F_{\Delta H}^L(X,Y)]^{SURV}$ = Cycle dependent maximum allowable design peaking factor which ensures that the $F_{\Delta H}(X,Y)$ limit will be preserved for operation within the LCO limits. $[F_{\Delta H}^L(X,Y)]^{SURV}$ includes allowances for calculational and measurement uncertainty.

$F_{\Delta H}^D(X,Y)$ = Design power distribution for $F_{\Delta H}$. $F_{\Delta H}^D(X,Y)$ is provided in Table 5, Appendix A for normal operation and in Table 6, Appendix A for power escalation testing during initial startup operations.

$M_{DH}(X,Y)$ = Margin remaining in core location X,Y relative to the Operational DNB limit in the transient power distribution. $M_{\Delta H}(X,Y)$ is provided in Table 5, Appendix A for normal operation and in Table 6, Appendix A for power escalation testing during initial startup operations.

UMR = Uncertainty value for measured radial peaks, = 1.04.

TILT = Factor to account for a peaking increase due to the allowed quadrant tilt ratio of 1.02. (TILT = 1.035).

NOTE: $[F_{\Delta H}^L(X,Y)]^{SURV}$ is the parameter identified as $[F_{\Delta H}(X,Y)]^{MAX}$ in DPC-NE-2011PA.

3.7.3 RRH = Thermal Power reduction required to compensate for each 1% that $F_{\Delta H}(X,Y)$ exceeds its limit (RRH = 3.34).

3.7.4 TRH = Reduction in OTΔT K_1 setpoint required to compensate for each 1% that $F_{\Delta H}(X,Y)$ exceeds its limit (TRH = 0.04).

Catawba 1 Cycle 9 Core Operating Limits Report

CNEI-0400-24

Appendix A

Page 1 of 204

Revision 6

Table 1
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Normal Operations

AT 100% POWER, 4 EFPD, THIS IS LEVEL 18 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* .7368 *	* .8932 *	* .8193 *	* .9039 *	* .7925 *	* .9275 *	* .7486 *	* .4841 *
	* 2.1227 *	* 1.8740 *	* 2.0737 *	* 1.8306 *	* 2.0548 *	* 1.7361 *	* 2.1380 *	* 3.2589 *
9	* .8932 *	* .9114 *	* 1.0185 *	* .8889 *	* .9778 *	* .8632 *	* .8365 *	* .5505 *
	* 1.8740 *	* 1.8837 *	* 1.6560 *	* 1.8732 *	* 1.6852 *	* 1.8945 *	* 1.9217 *	* 2.9147 *
10	* .8193 *	* 1.0185 *	* .9029 *	* .9950 *	* .8697 *	* .9361 *	* .7572 *	* .5837 *
	* 2.0737 *	* 1.6560 *	* 1.8645 *	* 1.6795 *	* 1.9216 *	* 1.7713 *	* 2.1539 *	* 2.7590 *
11	* .9039 *	* .8879 *	* .9950 *	* .7754 *	* .9114 *	* .7893 *	* .7476 *	* .4562 *
	* 1.8306 *	* 1.8750 *	* 1.6809 *	* 2.1985 *	* 1.8292 *	* 2.1357 *	* 2.2677 *	* 3.6032 *
12	* .7925 *	* .9768 *	* .8686 *	* .9104 *	* .7240 *	* .7422 *	* .5344 *	
	* 2.0548 *	* 1.6880 *	* 1.9252 *	* 1.8325 *	* 2.1195 *	* 2.0714 *	* 3.0694 *	
13	* .9275 *	* .8622 *	* .9350 *	* .7883 *	* .7422 *	* .5719 *	* .3727 *	
	* 1.7361 *	* 1.8981 *	* 1.7744 *	* 2.1378 *	* 2.0734 *	* 2.6248 *	* 4.2649 *	
14	* .7486 *	* .8354 *	* .7561 *	* .7476 *	* .5344 *	* .3727 *		
	* 2.1380 *	* 1.9235 *	* 2.1563 *	* 2.2677 *	* 3.0691 *	* 4.2649 *		
15	* .4841 *	* .5494 *	* .5826 *	* .4552 *	F-SUB-Q			
	* 3.2589 *	* 2.9149 *	* 2.7627 *	* 3.6093 *	M-SUB-Q			

AT 100% POWER, 4 EFPD, THIS IS LEVEL 17 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.0999 *	* 1.3313 *	* 1.1470 *	* 1.3045 *	* 1.0892 *	* 1.2274 *	* 1.0839 *	* .6983 *
	* 1.5601 *	* 1.3173 *	* 1.5627 *	* 1.3164 *	* 1.5533 *	* 1.3676 *	* 1.5268 *	* 2.3438 *
9	* 1.3313 *	* 1.2927 *	* 1.3420 *	* 1.2691 *	* 1.2745 *	* 1.2177 *	* 1.1910 *	* .8215 *
	* 1.3173 *	* 1.3647 *	* 1.3164 *	* 1.3557 *	* 1.3521 *	* 1.3927 *	* 1.4042 *	* 2.0218 *
10	* 1.1470 *	* 1.3420 *	* 1.2927 *	* 1.3066 *	* 1.2338 *	* 1.2509 *	* 1.0860 *	* .9221 *
	* 1.5627 *	* 1.3164 *	* 1.3529 *	* 1.3284 *	* 1.4080 *	* 1.3721 *	* 1.5618 *	* 1.8139 *
11	* 1.3045 *	* 1.2691 *	* 1.3088 *	* 1.0367 *	* 1.2209 *	* 1.1503 *	* 1.1278 *	* .6876 *
	* 1.3164 *	* 1.3556 *	* 1.3266 *	* 1.6652 *	* 1.4425 *	* 1.5125 *	* 1.5526 *	* 2.4801 *
12	* 1.0892 *	* 1.2723 *	* 1.2316 *	* 1.2167 *	* 1.1085 *	* 1.1385 *	* .7947 *	
	* 1.5533 *	* 1.3566 *	* 1.4099 *	* 1.4473 *	* 1.4934 *	* 1.4645 *	* 2.1606 *	
13	* 1.2274 *	* 1.2167 *	* 1.2499 *	* 1.1492 *	* 1.1385 *	* .9050 *	* .5623 *	
	* 1.3676 *	* 1.3946 *	* 1.3740 *	* 1.5136 *	* 1.4655 *	* 1.8217 *	* 2.9819 *	
14	* 1.0839 *	* 1.1899 *	* 1.0860 *	* 1.1278 *	* .7958 *	* .5633 *		
	* 1.5268 *	* 1.4052 *	* 1.5630 *	* 1.5526 *	* 2.1582 *	* 2.9775 *		
15	* .6983 *	* .8215 *	* .9211 *	* .6876 *	F-SUB-Q			
	* 2.3438 *	* 2.0238 *	* 1.8155 *	* 2.4831 *	M-SUB-Q			

Table I (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Normal Operations

AT 100% POWER, 4 EFPD, THIS IS LEVEL 16 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.2702	* 1.5433	* 1.2938	* 1.4801	* 1.2156	* 1.4009	* 1.2402	* .7958
	* 1.4503	* 1.1968	* 1.4426	* 1.2087	* 1.4480	* 1.2451	* 1.3882	* 2.1382
9	* 1.5433	* 1.4780	* 1.5240	* 1.4266	* 1.4426	* 1.3752	* 1.3859	* .9596
	* 1.1968	* 1.2538	* 1.2094	* 1.2555	* 1.2361	* 1.2843	* 1.2533	* 1.7993
10	* 1.2938	* 1.5240	* 1.4459	* 1.4780	* 1.3805	* 1.4266	* 1.2520	* 1.1096
	* 1.4426	* 1.2101	* 1.2623	* 1.2244	* 1.3135	* 1.2533	* 1.4098	* 1.5649
11	* 1.4801	* 1.4276	* 1.4801	* 1.1792	* 1.4009	* 1.3302	* 1.3580	* .8097
	* 1.2087	* 1.2547	* 1.2223	* 1.5403	* 1.3042	* 1.3669	* 1.3431	* 2.1900
12	* 1.2156	* 1.4394	* 1.3784	* 1.3987	* 1.3173	* 1.3859	* .9350	
	* 1.4480	* 1.2420	* 1.3151	* 1.3058	* 1.3542	* 1.2808	* 1.9249	
13	* 1.4009	* 1.3741	* 1.4244	* 1.3291	* 1.3859	* 1.0892	* .6629	
	* 1.2451	* 1.2859	* 1.2556	* 1.3678	* 1.2815	* 1.6201	* 2.6680	
14	* 1.2402	* 1.3848	* 1.2509	* 1.3580	* .9361	* .6640		
	* 1.3882	* 1.2548	* 1.4117	* 1.3431	* 1.9213	* 2.6612		
15	* .7958	* .9585	* 1.1085	* .8097	* F-SUB-Q			
	* 2.1382	* 1.8009	* 1.5661	* 2.1923	* M-SUB-Q			

AT 100% POWER, 4 EFPD, THIS IS LEVEL 15 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.3216	* 1.6247	* 1.3559	* 1.5583	* 1.2788	* 1.4994	* 1.3205	* .8418
	* 1.4604	* 1.1913	* 1.4323	* 1.2018	* 1.4397	* 1.2082	* 1.3609	* 2.1131
9	* 1.6247	* 1.5358	* 1.6119	* 1.4919	* 1.5326	* 1.4630	* 1.5005	* 1.0314
	* 1.1913	* 1.2626	* 1.1957	* 1.2562	* 1.2166	* 1.2616	* 1.2096	* 1.7489
10	* 1.3559	* 1.6119	* 1.5090	* 1.5658	* 1.4491	* 1.5294	* 1.3452	* 1.2134
	* 1.4323	* 1.1951	* 1.2645	* 1.2081	* 1.3085	* 1.2229	* 1.3715	* 1.4939
11	* 1.5583	* 1.4919	* 1.5679	* 1.2595	* 1.5112	* 1.4287	* 1.4908	* .8782
	* 1.2018	* 1.2555	* 1.2067	* 1.5124	* 1.2565	* 1.3277	* 1.2758	* 2.1089
12	* 1.2788	* 1.5294	* 1.4459	* 1.5101	* 1.4148	* 1.5230	* 1.0153	
	* 1.4397	* 1.2222	* 1.3117	* 1.2573	* 1.3241	* 1.2279	* 1.8594	
13	* 1.4994	* 1.4608	* 1.5262	* 1.4276	* 1.5230	* 1.1813	* .7154	
	* 1.2082	* 1.2631	* 1.2250	* 1.3285	* 1.2279	* 1.5760	* 2.6040	
14	* 1.3205	* 1.4983	* 1.3430	* 1.4898	* 1.0174	* .7165		
	* 1.3609	* 1.2109	* 1.3732	* 1.2758	* 1.8545	* 2.5976		
15	* .8418	* 1.0303	* 1.2124	* .8782	* F-SUB-Q			
	* 2.1131	* 1.7504	* 1.4950	* 2.1110	* M-SUB-Q			

Catawba 1 Cycle 9 Core Operating Limits Report

CNEI-0400-24

Appendix A

Page 3 of 204

Revision 6

Table 1 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Normal Operations

AT 100% POWER, 4 EFPD, THIS IS LEVEL 14 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.3002 *	* 1.6086 *	* 1.3420 *	* 1.5530 *	* 1.2745 *	* 1.5187 *	* 1.3313 *	* .8418 *
	* 1.5454 *	* 1.2518 *	* 1.5016 *	* 1.2667 *	* 1.5188 *	* 1.2535 *	* 1.4194 *	* 2.2220 *
9	* 1.6086 *	* 1.5101 *	* 1.6086 *	* 1.4823 *	* 1.5476 *	* 1.4748 *	* 1.5240 *	* 1.0421 *
	* 1.2518 *	* 1.3353 *	* 1.2477 *	* 1.3287 *	* 1.2661 *	* 1.3142 *	* 1.2506 *	* 1.8174 *
10	* 1.3420 *	* 1.6076 *	* 1.4973 *	* 1.5679 *	* 1.4459 *	* 1.5465 *	* 1.3634 *	* 1.2359 *
	* 1.5016 *	* 1.2477 *	* 1.3372 *	* 1.2668 *	* 1.3720 *	* 1.2684 *	* 1.4194 *	* 1.5385 *
11	* 1.5530 *	* 1.4823 *	* 1.5701 *	* 1.2691 *	* 1.5347 *	* 1.4480 *	* 1.5240 *	* .8889 *
	* 1.2667 *	* 1.3287 *	* 1.2654 *	* 1.5646 *	* 1.2870 *	* 1.3639 *	* 1.2951 *	* 2.1857 *
12	* 1.2745 *	* 1.5444 *	* 1.4426 *	* 1.5337 *	* 1.4309 *	* 1.5551 *	* 1.0292 *	
	* 1.5188 *	* 1.2684 *	* 1.3741 *	* 1.2878 *	* 1.2696 *	* 1.2585 *	* 1.9125 *	
13	* 1.5187 *	* 1.4726 *	* 1.5444 *	* 1.4459 *	* 1.5540 *	* 1.1974 *	* .7219 *	
	* 1.2535 *	* 1.3158 *	* 1.2706 *	* 1.3642 *	* 1.2585 *	* 1.6295 *	* 2.7010 *	
14	* 1.3313 *	* 1.5219 *	* 1.3623 *	* 1.5230 *	* 1.0314 *	* .7240 *		
	* 1.4194 *	* 1.2521 *	* 1.4213 *	* 1.2951 *	* 1.9075 *	* 2.6943 *		
15	* .8418 *	* 1.0410 *	* 1.2349 *	* .8879 *	F-SUB-Q			
	* 2.2220 *	* 1.8190 *	* 1.5407 *	* 2.1879 *	M-SUB-Q			

AT 100% POWER, 4 EFPD, THIS IS LEVEL 13 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.3141 *	* 1.6376 *	* 1.3687 *	* 1.5926 *	* 1.3098 *	* 1.5776 *	* 1.3741 *	* .8622 *
	* 1.5983 *	* 1.2800 *	* 1.5304 *	* 1.3012 *	* 1.5610 *	* 1.2739 *	* 1.4519 *	* 2.2878 *
9	* 1.6376 *	* 1.5283 *	* 1.6483 *	* 1.5133 *	* 1.6033 *	* 1.5240 *	* 1.5872 *	* 1.0764 *
	* 1.2800 *	* 1.3717 *	* 1.2672 *	* 1.3691 *	* 1.2816 *	* 1.3387 *	* 1.2658 *	* 1.8527 *
10	* 1.3687 *	* 1.6472 *	* 1.5251 *	* 1.6119 *	* 1.4855 *	* 1.6033 *	* 1.4148 *	* 1.2906 *
	* 1.5304 *	* 1.2674 *	* 1.3671 *	* 1.2906 *	* 1.3888 *	* 1.2816 *	* 1.4387 *	* 1.5500 *
11	* 1.5926 *	* 1.5133 *	* 1.6140 *	* 1.3130 *	* 1.5947 *	* 1.4983 *	* 1.5958 *	* .9264 *
	* 1.3012 *	* 1.3691 *	* 1.2890 *	* 1.5759 *	* 1.2912 *	* 1.3718 *	* 1.2806 *	* 2.1892 *
12	* 1.3098 *	* 1.6001 *	* 1.4833 *	* 1.5936 *	* 1.4801 *	* 1.6247 *	* 1.0721 *	
	* 1.5610 *	* 1.2838 *	* 1.3906 *	* 1.2922 *	* 1.3901 *	* 1.2632 *	* 1.9106 *	
13	* 1.5776 *	* 1.5219 *	* 1.6001 *	* 1.4983 *	* 1.6247 *	* 1.2402 *	* .7443 *	
	* 1.2739 *	* 1.3404 *	* 1.2838 *	* 1.3724 *	* 1.2637 *	* 1.6552 *	* 2.7381 *	
14	* 1.3741 *	* 1.5851 *	* 1.4137 *	* 1.5958 *	* 1.0753 *	* .7465 *		
	* 1.4519 *	* 1.2679 *	* 1.4404 *	* 1.2806 *	* 1.9050 *	* 2.7312 *		
15	* .8622 *	* 1.0753 *	* 1.2895 *	* .9253 *	F-SUB-Q			
	* 2.2878 *	* 1.8543 *	* 1.5522 *	* 2.1914 *	M-SUB-Q			

Table 1 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Normal Operations

AT 100% POWER, 4 EFPD, THIS IS LEVEL 12 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.2948 *	* 1.6247 *	* 1.3559 *	* 1.5872 *	* 1.3055 *	* 1.5872 *	* 1.3762 *	* .8589 *
	* 1.6941 *	* 1.3460 *	* 1.6130 *	* 1.3624 *	* 1.6444 *	* 1.3305 *	* 1.5239 *	* 2.4149 *
9	* 1.6247 *	* 1.5112 *	* 1.6418 *	* 1.5058 *	* 1.6119 *	* 1.5305 *	* 1.5990 *	* 1.0785 *
	* 1.3460 *	* 1.4476 *	* 1.3267 *	* 1.4367 *	* 1.3269 *	* 1.3923 *	* 1.3185 *	* 1.9403 *
10	* 1.3559 *	* 1.6418 *	* 1.5155 *	* 1.6097 *	* 1.4887 *	* 1.6129 *	* 1.4244 *	* 1.3002 *
	* 1.6130 *	* 1.3275 *	* 1.4358 *	* 1.3453 *	* 1.4444 *	* 1.3269 *	* 1.4914 *	* 1.6109 *
11	* 1.5872 *	* 1.5058 *	* 1.6119 *	* 1.3152 *	* 1.6065 *	* 1.5080 *	* 1.6140 *	* .9286 *
	* 1.3624 *	* 1.4360 *	* 1.3436 *	* 1.6367 *	* 1.3303 *	* 1.4175 *	* 1.3187 *	* 2.2698 *
12	* 1.3055 *	* 1.6086 *	* 1.4865 *	* 1.6054 *	* 1.4876 *	* 1.6408 *	* 1.0774 *	
	* 1.6444 *	* 1.3293 *	* 1.4468 *	* 1.3319 *	* 1.4381 *	* 1.2991 *	* 1.9776 *	
13	* 1.5872 *	* 1.5283 *	* 1.6097 *	* 1.5069 *	* 1.6408 *	* 1.2445 *	* .7433 *	
	* 1.3305 *	* 1.3941 *	* 1.3293 *	* 1.4184 *	* 1.2991 *	* 1.7123 *	* 2.8448 *	
14	* 1.3762 *	* 1.5969 *	* 1.4234 *	* 1.6129 *	* 1.0796 *	* .7454 *		
	* 1.5239 *	* 1.3201 *	* 1.4924 *	* 1.3192 *	* 1.9723 *	* 2.8375 *		
15	* .8589 *	* 1.0764 *	* 1.2981 *	* .9275 *	F-SUB-Q			
	* 2.4149 *	* 1.9420 *	* 1.6123 *	* 2.2721 *	M-SUB-Q			

AT 100% POWER, 4 EFPD, THIS IS LEVEL 11 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.2670 *	* 1.6011 *	* 1.3323 *	* 1.5712 *	* 1.2895 *	* 1.5797 *	* 1.3655 *	* .8472 *
	* 1.8097 *	* 1.4277 *	* 1.7131 *	* 1.4372 *	* 1.7415 *	* 1.4002 *	* 1.6098 *	* 2.5618 *
9	* 1.6011 *	* 1.4855 *	* 1.6236 *	* 1.4865 *	* 1.6054 *	* 1.5230 *	* 1.5936 *	* 1.0678 *
	* 1.4277 *	* 1.5397 *	* 1.3963 *	* 1.5186 *	* 1.3875 *	* 1.4595 *	* 1.3826 *	* 2.0460 *
10	* 1.3323 *	* 1.6236 *	* 1.4940 *	* 1.5947 *	* 1.4780 *	* 1.6065 *	* 1.4191 *	* 1.2927 *
	* 1.7131 *	* 1.3970 *	* 1.5155 *	* 1.4143 *	* 1.5136 *	* 1.3866 *	* 1.5561 *	* 1.6878 *
11	* 1.5712 *	* 1.4865 *	* 1.5969 *	* 1.3045 *	* 1.6044 *	* 1.5015 *	* 1.6129 *	* .9189 *
	* 1.4372 *	* 1.5177 *	* 1.4127 *	* 1.7239 *	* 1.3893 *	* 1.4848 *	* 1.3732 *	* 2.3834 *
12	* 1.2895 *	* 1.6022 *	* 1.4769 *	* 1.6022 *	* 1.4791 *	* 1.6386 *	* 1.0689 *	
	* 1.7415 *	* 1.3901 *	* 1.5150 *	* 1.3902 *	* 1.5077 *	* 1.3564 *	* 2.0790 *	
13	* 1.5797 *	* 1.5208 *	* 1.6033 *	* 1.5015 *	* 1.6386 *	* 1.2349 *	* .7336 *	
	* 1.4002 *	* 1.4613 *	* 1.3891 *	* 1.4848 *	* 1.3564 *	* 1.7993 *	* 3.0019 *	
14	* 1.3655 *	* 1.5915 *	* 1.4180 *	* 1.6119 *	* 1.0721 *	* .7358 *		
	* 1.6098 *	* 1.3843 *	* 1.5572 *	* 1.3732 *	* 2.0731 *	* 2.9938 *		
15	* .8472 *	* 1.0667 *	* 1.2916 *	* .9178 *	F-SUB-Q			
	* 2.5618 *	* 2.0478 *	* 1.6902 *	* 2.3838 *	M-SUB-Q			

Catawba 1 Cycle 9 Core Operating Limits Report

CNEI-0400-24

Appendix A

Page 5 of 204

Revision 6

Table 1 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Normal Operations

AT 100% POWER, 4 EFPD, THIS IS LEVEL 11 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.2649 *	* 1.6119 *	* 1.3377 *	* 1.5872 *	* 1.3002 *	* 1.6054 *	* 1.3714 *	* .8525 *
	* 1.8193 *	* 1.4316 *	* 1.7202 *	* 1.4523 *	* 1.7683 *	* 1.4353 *	* 1.6651 *	* 2.6748 *
9	* 1.6119 *	* 1.4898 *	* 1.6397 *	* 1.4962 *	* 1.6301 *	* 1.5455 *	* 1.6226 *	* 1.0774 *
	* 1.4316 *	* 1.5479 *	* 1.4079 *	* 1.5404 *	* 1.4160 *	* 1.4935 *	* 1.4206 *	* 2.1241 *
10	* 1.3377 *	* 1.6397 *	* 1.5026 *	* 1.6129 *	* 1.4962 *	* 1.6322 *	* 1.4405 *	* 1.3130 *
	* 1.7202 *	* 1.4079 *	* 1.5350 *	* 1.4307 *	* 1.5457 *	* 1.4151 *	* 1.6029 *	* 1.7401 *
11	* 1.5872 *	* 1.4962 *	* 1.6151 *	* 1.3195 *	* 1.6333 *	* 1.5240 *	* 1.6472 *	* .9328 *
	* 1.4523 *	* 1.5393 *	* 1.4298 *	* 1.7515 *	* 1.4206 *	* 1.5223 *	* 1.4041 *	* 2.4565 *
12	* 1.3002 *	* 1.6268 *	* 1.4940 *	* 1.6322 *	* 1.4994 *	* 1.6718 *	* 1.0860 *	
	* 1.7683 *	* 1.4188 *	* 1.5468 *	* 1.4215 *	* 1.5479 *	* 1.3885 *	* 2.1295 *	
13	* 1.6054 *	* 1.5422 *	* 1.6290 *	* 1.5240 *	* 1.6718 *	* 1.2488 *	* .7390 *	
	* 1.4353 *	* 1.4955 *	* 1.4178 *	* 1.5223 *	* 1.3885 *	* 1.8559 *	* 3.1060 *	
14	* 1.3794 *	* 1.6204 *	* 1.4384 *	* 1.6461 *	* 1.0892 *	* .7411 *		
	* 1.6657 *	* 1.4224 *	* 1.6041 *	* 1.4048 *	* 2.1234 *	* 3.0973 *		
15	* .8525 *	* 1.0764 *	* 1.3120 *	* .9318 *	F-SUB-Q			
	* 2.6748 *	* 2.1261 *	* 1.7414 *	* 2.4592 *	M-SUB-Q			

AT 100% POWER, 4 EFPD, THIS IS LEVEL 9 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.2231 *	* 1.5690 *	* 1.2959 *	* 1.5476 *	* 1.2627 *	* 1.5733 *	* 1.3473 *	* .8290 *
	* 1.8268 *	* 1.4307 *	* 1.7269 *	* 1.4495 *	* 1.7697 *	* 1.4270 *	* 1.6595 *	* 2.6825 *
9	* 1.5690 *	* 1.4459 *	* 1.5990 *	* 1.4566 *	* 1.5990 *	* 1.5144 *	* 1.5915 *	* 1.0517 *
	* 1.4307 *	* 1.5490 *	* 1.4043 *	* 1.5382 *	* 1.4061 *	* 1.4835 *	* 1.4106 *	* 2.1234 *
10	* 1.2959 *	* 1.5979 *	* 1.4619 *	* 1.5744 *	* 1.4641 *	* 1.6001 *	* 1.4116 *	* 1.2841 *
	* 1.7269 *	* 1.4052 *	* 1.5350 *	* 1.4270 *	* 1.5371 *	* 1.4052 *	* 1.5914 *	* 1.7405 *
11	* 1.5476 *	* 1.4566 *	* 1.5754 *	* 1.2863 *	* 1.6044 *	* 1.4940 *	* 1.6183 *	* .9071 *
	* 1.4495 *	* 1.5382 *	* 1.4252 *	* 1.7501 *	* 1.4106 *	* 1.5119 *	* 1.3946 *	* 2.4642 *
12	* 1.2627 *	* 1.5947 *	* 1.4619 *	* 1.6033 *	* 1.4673 *	* 1.6418 *	* 1.0581 *	
	* 1.7697 *	* 1.4097 *	* 1.5393 *	* 1.4115 *	* 1.5404 *	* 1.3806 *	* 2.1274 *	
13	* 1.5733 *	* 1.5123 *	* 1.5969 *	* 1.4940 *	* 1.6418 *	* 1.2209 *	* .7186 *	
	* 1.4270 *	* 1.4865 *	* 1.4079 *	* 1.5119 *	* 1.3806 *	* 1.8513 *	* 3.1265 *	
14	* 1.3473 *	* 1.5894 *	* 1.4105 *	* 1.6183 *	* 1.0614 *	* .7208 *		
	* 1.6595 *	* 1.4124 *	* 1.5925 *	* 1.3955 *	* 2.1193 *	* 3.1177 *		
15	* .8290 *	* 1.0507 *	* 1.2831 *	* .9061 *	F-SUB-Q			
	* 2.6825 *	* 2.1254 *	* 1.7432 *	* 2.4670 *	M-SUB-Q			

Table 1 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Normal Operations

AT 100% POWER, 4 EFPD, THIS IS LEVEL 8 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.2199	* 1.5754	* 1.3002	* 1.5594	* 1.2713	* 1.5936	* 1.3570	* .8322
	* 1.7783	* 1.3806	* 1.6708	* 1.3963	* 1.7031	* 1.3620	* 1.5887	* 2.5544
9	* 1.5754	* 1.4469	* 1.6119	* 1.4630	* 1.6183	* 1.5305	* 1.6151	* 1.0603
	* 1.3806	* 1.5027	* 1.3528	* 1.4895	* 1.3495	* 1.4248	* 1.3442	* 2.0236
10	* 1.3002	* 1.6108	* 1.4662	* 1.5872	* 1.4769	* 1.6204	* 1.4276	* 1.3045
	* 1.6708	* 1.3536	* 1.4865	* 1.3738	* 1.4795	* 1.3478	* 1.5266	* 1.6491
11	* 1.5594	* 1.4630	* 1.5894	* 1.2991	* 1.6290	* 1.5112	* 1.6483	* .9200
	* 1.3963	* 1.4885	* 1.3729	* 1.6809	* 1.3445	* 1.4485	* 1.3268	* 2.3406
12	* 1.2713	* 1.6140	* 1.4748	* 1.6279	* 1.4812	* 1.6697	* 1.0742	*
	* 1.7031	* 1.3524	* 1.4815	* 1.3454	* 1.4776	* 1.3126	* 2.0316	*
13	* 1.5936	* 1.5272	* 1.6172	* 1.5101	* 1.6697	* 1.2316	* .7229	*
	* 1.3620	* 1.4266	* 1.3503	* 1.4485	* 1.3126	* 1.7754	* 3.0074	*
14	* 1.3570	* 1.6129	* 1.4266	* 1.6483	* 1.0774	* .7251	*	*
	* 1.5887	* 1.3462	* 1.5276	* 1.3276	* 2.0242	* 2.9992	*	*
15	* .8322	* 1.0581	* 1.3023	* .9178	* F-SUB-Q			
	* 2.5544	* 2.0254	* 1.6516	* 2.3431	* M-SUB-Q			

AT 100% POWER, 4 EFPD, THIS IS LEVEL 7 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.1942	* 1.5508	* 1.2766	* 1.5380	* 1.2509	* 1.5776	* 1.3377	* .8172
	* 1.7270	* 1.3322	* 1.6049	* 1.3331	* 1.6292	* 1.2956	* 1.5180	* 2.4536
9	* 1.5508	* 1.4223	* 1.5894	* 1.4405	* 1.6022	* 1.5133	* 1.6001	* 1.0442
	* 1.3322	* 1.4450	* 1.2944	* 1.4232	* 1.2821	* 1.3556	* 1.2769	* 1.9342
10	* 1.2766	* 1.5883	* 1.4416	* 1.5669	* 1.4587	* 1.6044	* 1.4126	* 1.2906
	* 1.6049	* 1.2952	* 1.4250	* 1.3113	* 1.4140	* 1.2806	* 1.4512	* 1.5703
11	* 1.5380	* 1.4394	* 1.5690	* 1.2809	* 1.6151	* 1.4940	* 1.6365	* .9061
	* 1.3331	* 1.4232	* 1.3102	* 1.6165	* 1.2876	* 1.3878	* 1.2622	* 2.2351
12	* 1.2509	* 1.5979	* 1.4566	* 1.6140	* 1.4630	* 1.6558	* 1.0603	*
	* 1.6292	* 1.2851	* 1.4158	* 1.2894	* 1.4326	* 1.2625	* 1.9433	*
13	* 1.5776	* 1.5101	* 1.6022	* 1.4940	* 1.6558	* 1.2145	* .7101	*
	* 1.2956	* 1.3572	* 1.2836	* 1.3891	* 1.2618	* 1.7148	* 2.8815	*
14	* 1.3377	* 1.5979	* 1.4105	* 1.6354	* 1.0635	* .7122	*	*
	* 1.5180	* 1.2788	* 1.4526	* 1.2622	* 1.9365	* 2.8722	*	*
15	* .8172	* 1.0432	* 1.2884	* .9050	* F-SUB-Q			
	* 2.4536	* 1.9368	* 1.5725	* 2.2386	* M-SUB-Q			

Table 1 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Normal Operations

AT 100% POWER, 4 EFPD, THIS IS LEVEL 6 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.1503 *	* 1.4994 *	* 1.2295 *	* 1.4887 *	* 1.2070 *	* 1.5294 *	* 1.2948 *	.7883 *
	* 1.6826 *	* 1.2939 *	* 1.5698 *	* 1.2993 *	* 1.5953 *	* 1.2636 *	* 1.4836 *	2.4092 *
9	* 1.4994 *	* 1.3752 *	* 1.5390 *	* 1.3944 *	* 1.5551 *	* 1.4673 *	* 1.5519 *	1.0089 *
	* 1.2939 *	* 1.4084 *	* 1.2604 *	* 1.3885 *	* 1.2476 *	* 1.3194 *	* 1.2445 *	1.8937 *
10	* 1.2295 *	* 1.5380 *	* 1.3944 *	* 1.5187 *	* 1.4137 *	* 1.5572 *	* 1.3698 *	1.2477 *
	* 1.5698 *	* 1.2611 *	* 1.3894 *	* 1.2775 *	* 1.3755 *	* 1.2462 *	* 1.4120 *	1.5350 *
11	* 1.4887 *	* 1.3923 *	* 1.5197 *	* 1.2370 *	* 1.5679 *	* 1.4491 *	* 1.5872 *	.8718 *
	* 1.2993 *	* 1.3885 *	* 1.2767 *	* 1.5742 *	* 1.2500 *	* 1.3479 *	* 1.2258 *	2.1941 *
12	* 1.2070 *	* 1.5508 *	* 1.4126 *	* 1.5669 *	* 1.4180 *	* 1.6065 *	* 1.0217 *	
	* 1.5953 *	* 1.2504 *	* 1.3773 *	* 1.2510 *	* 1.3836 *	* 1.2216 *	* 1.8976 *	
13	* 1.5294 *	* 1.4651 *	* 1.5551 *	* 1.4491 *	* 1.6065 *	* 1.1738 *	* .6833 *	
	* 1.2636 *	* 1.3218 *	* 1.2483 *	* 1.3487 *	* 1.2206 *	* 1.6628 *	* 2.8150 *	
14	* 1.2948 *	* 1.5497 *	* 1.3677 *	* 1.5872 *	* 1.0249 *	* .6854 *		
	* 1.4836 *	* 1.2462 *	* 1.4134 *	* 1.2258 *	* 1.8911 *	* 2.8078 *		
15	* .7883 *	* 1.0078 *	* 1.2466 *	* .8707 *	F-SUB-Q			
	* 2.4092 *	* 1.8969 *	* 1.5361 *	* 2.1973 *	M-SUB-Q			

AT 100% POWER, 4 EFPD, THIS IS LEVEL 5 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.1395 *	* 1.4930 *	* 1.2220 *	* 1.4833 *	* 1.2006 *	* 1.5251 *	* 1.2841 *	.7786 *
	* 1.5972 *	* 1.2224 *	* 1.4885 *	* 1.2303 *	* 1.5151 *	* 1.1990 *	* 1.4161 *	2.3114 *
9	* 1.4930 *	* 1.3655 *	* 1.5337 *	* 1.3848 *	* 1.5497 *	* 1.4608 *	* 1.5487 *	.9982 *
	* 1.2224 *	* 1.3377 *	* 1.1941 *	* 1.3198 *	* 1.1829 *	* 1.2528 *	* 1.1801 *	1.8128 *
10	* 1.2220 *	* 1.5326 *	* 1.3837 *	* 1.5123 *	* 1.4052 *	* 1.5530 *	* 1.3602 *	1.2424 *
	* 1.4885 *	* 1.1944 *	* 1.3214 *	* 1.2115 *	* 1.3073 *	* 1.1817 *	* 1.3440 *	1.4596 *
11	* 1.4833 *	* 1.3837 *	* 1.5144 *	* 1.2306 *	* 1.5626 *	* 1.4394 *	* 1.5851 *	.8675 *
	* 1.2303 *	* 1.3198 *	* 1.2101 *	* 1.4926 *	* 1.1820 *	* 1.2797 *	* 1.1590 *	2.0902 *
12	* 1.2006 *	* 1.5465 *	* 1.4030 *	* 1.5615 *	* 1.4073 *	* 1.6022 *	* 1.0174 *	
	* 1.5151 *	* 1.1861 *	* 1.3089 *	* 1.1829 *	* 1.3109 *	* 1.1530 *	* 1.7987 *	
13	* 1.5251 *	* 1.4587 *	* 1.5497 *	* 1.4394 *	* 1.6022 *	* 1.1631 *	* .6747 *	
	* 1.1990 *	* 1.2549 *	* 1.1839 *	* 1.2797 *	* 1.1521 *	* 1.5815 *	* 2.6937 *	
14	* 1.2841 *	* 1.5455 *	* 1.3591 *	* 1.5840 *	* 1.0207 *	* .6758 *		
	* 1.4161 *	* 1.1820 *	* 1.3453 *	* 1.1590 *	* 1.7929 *	* 2.6872 *		
15	* .7786 *	* .9971 *	* 1.2413 *	* .8654 *	F-SUB-Q			
	* 2.3114 *	* 1.8151 *	* 1.4616 *	* 2.0921 *	M-SUB-Q			

Table 1 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Normal Operations

AT 100% POWER, 4 EFPD, THIS IS LEVEL 4 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.0860 *	* 1.4266 *	* 1.1631 *	* 1.4191 *	* 1.1428 *	* 1.4512 *	* 1.2209 *	* .7368 *
	* 1.5876 *	* 1.2113 *	* 1.4835 *	* 1.2201 *	* 1.5115 *	* 1.1970 *	* 1.4151 *	* 2.3264 *
9	* 1.4266 *	* 1.3034 *	* 1.4641 *	* 1.3227 *	* 1.4780 *	* 1.3944 *	* 1.4716 *	* .9446 *
	* 1.2113 *	* 1.3268 *	* 1.1866 *	* 1.3107 *	* 1.1778 *	* 1.2464 *	* 1.1794 *	* 1.8227 *
10	* 1.1631 *	* 1.4630 *	* 1.3216 *	* 1.4437 *	* 1.3388 *	* 1.4801 *	* 1.2927 *	* 1.1727 *
	* 1.4835 *	* 1.1869 *	* 1.3123 *	* 1.2038 *	* 1.3004 *	* 1.1763 *	* 1.3416 *	* 1.4694 *
11	* 1.4191 *	* 1.3216 *	* 1.4448 *	* 1.1685 *	* 1.4844 *	* 1.3687 *	* 1.5005 *	* .8150 *
	* 1.2201 *	* 1.3107 *	* 1.2028 *	* 1.4887 *	* 1.1772 *	* 1.2737 *	* 1.1596 *	* 2.1125 *
12	* 1.1428 *	* 1.4737 *	* 1.3366 *	* 1.4823 *	* 1.3366 *	* 1.5187 *	* .9585 *	
	* 1.5115 *	* 1.1810 *	* 1.3019 *	* 1.1785 *	* 1.3042 *	* 1.1505 *	* 1.8092 *	
13	* 1.4512 *	* 1.3912 *	* 1.4769 *	* 1.3677 *	* 1.5187 *	* 1.0999 *	* .6351 *	
	* 1.1970 *	* 1.2485 *	* 1.1791 *	* 1.2741 *	* 1.1499 *	* 1.5815 *	* 2.7144 *	
14	* 1.2209 *	* 1.4683 *	* 1.2906 *	* 1.5005 *	* .9618 *	* .6372 *		
	* 1.4151 *	* 1.1817 *	* 1.3432 *	* 1.1596 *	* 1.8033 *	* 2.7044 *		
15	* .7368 *	* .9425 *	* 1.1717 *	* .8140 *	F-SUB-Q			
	* 2.3264 *	* 1.8258 *	* 1.4713 *	* 2.1145 *	M-SUB-Q			

AT 100% POWER, 4 EFPD, THIS IS LEVEL 3 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.0453 *	* 1.3741 *	* 1.1235 *	* 1.3741 *	* 1.1074 *	* 1.3944 *	* 1.1695 *	* .7004 *
	* 1.5810 *	* 1.2051 *	* 1.4737 *	* 1.2088 *	* 1.4974 *	* 1.1955 *	* 1.4199 *	* 2.3533 *
9	* 1.3741 *	* 1.2574 *	* 1.4116 *	* 1.2798 *	* 1.4244 *	* 1.3452 *	* 1.4062 *	* .8921 *
	* 1.2051 *	* 1.3210 *	* 1.1800 *	* 1.3004 *	* 1.1722 *	* 1.2384 *	* 1.1839 *	* 1.8514 *
10	* 1.1235 *	* 1.4105 *	* 1.2788 *	* 1.3955 *	* 1.2895 *	* 1.4255 *	* 1.2316 *	* 1.1042 *
	* 1.4737 *	* 1.1806 *	* 1.3012 *	* 1.1948 *	* 1.2940 *	* 1.1710 *	* 1.3507 *	* 1.4975 *
11	* 1.3741 *	* 1.2788 *	* 1.3966 *	* 1.1278 *	* 1.4201 *	* 1.3066 *	* 1.4212 *	* .7700 *
	* 1.2088 *	* 1.3008 *	* 1.1938 *	* 1.4778 *	* 1.1770 *	* 1.2779 *	* 1.1729 *	* 2.1471 *
12	* 1.1074 *	* 1.4201 *	* 1.2873 *	* 1.4180 *	* 1.2745 *	* 1.4394 *	* .9093 *	
	* 1.4974 *	* 1.1754 *	* 1.2959 *	* 1.1788 *	* 1.3094 *	* 1.1606 *	* 1.8268 *	
13	* 1.3944 *	* 1.3430 *	* 1.4223 *	* 1.3066 *	* 1.4405 *	* 1.0399 *	* .5987 *	
	* 1.1955 *	* 1.2405 *	* 1.1738 *	* 1.2779 *	* 1.1602 *	* 1.6002 *	* 2.7614 *	
14	* 1.1695 *	* 1.4030 *	* 1.2306 *	* 1.4201 *	* .9125 *	* .5998 *		
	* 1.4199 *	* 1.1861 *	* 1.3524 *	* 1.1732 *	* 1.8208 *	* 2.7545 *		
15	* .7004 *	* .8911 *	* 1.1031 *	* .7690 *	F-SUB-Q			
	* 2.3533 *	* 1.8545 *	* 1.4996 *	* 2.1502 *	M-SUB-Q			

Table 1 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Normal Operations

AT 100% POWER, 4 EFPD, THIS IS LEVEL 2 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* .9296 *	* 1.2038 *	* 1.0057 *	* 1.2220 *	* 1.0035 *	* 1.2584 *	* 1.0335 *	* .6126 *
	* 1.7263 *	* 1.3348 *	* 1.5986 *	* 1.3189 *	* 1.6051 *	* 1.2852 *	* 1.5587 *	* 2.6169 *
9	* 1.2038 *	* 1.1278 *	* 1.2563 *	* 1.1545 *	* 1.2734 *	* 1.2113 *	* 1.2316 *	* .7679 *
	* 1.3348 *	* 1.4287 *	* 1.2855 *	* 1.3975 *	* 1.2703 *	* 1.3330 *	* 1.3104 *	* 2.0899 *
10	* 1.0057 *	* 1.2552 *	* 1.1524 *	* 1.2509 *	* 1.1620 *	* 1.2745 *	* 1.0774 *	* .9253 *
	* 1.5986 *	* 1.2862 *	* 1.3993 *	* 1.2923 *	* 1.3901 *	* 1.2700 *	* 1.4968 *	* 1.7354 *
11	* 1.2220 *	* 1.1535 *	* 1.2509 *	* 1.0228 *	* 1.2713 *	* 1.1588 *	* 1.2049 *	* .6576 *
	* 1.3189 *	* 1.3993 *	* 1.2915 *	* 1.5793 *	* 1.2759 *	* 1.3949 *	* 1.3403 *	* 2.4403 *
12	* 1.0035 *	* 1.2702 *	* 1.1599 *	* 1.2691 *	* 1.1235 *	* 1.2349 *	* .7883 *	
	* 1.6051 *	* 1.2737 *	* 1.3932 *	* 1.2777 *	* 1.4396 *	* 1.3100 *	* 2.0452 *	
13	* 1.2584 *	* 1.2092 *	* 1.2713 *	* 1.1578 *	* 1.2349 *	* .8975 *	* .5141 *	
	* 1.2852 *	* 1.3354 *	* 1.2729 *	* 1.3963 *	* 1.3100 *	* 1.7991 *	* 3.1230 *	
14	* 1.0335 *	* 1.2295 *	* 1.0764 *	* 1.2049 *	* .7904 *	* .5152 *		
	* 1.5587 *	* 1.3127 *	* 1.4983 *	* 1.3411 *	* 2.0386 *	* 3.1162 *		
15	* .6126 *	* .7668 *	* .9243 *	* .6576 *	F-SUB-Q			
	* 2.6169 *	* 2.0938 *	* 1.7374 *	* 2.4430 *	M-SUB-Q			

AT 100% POWER, 4 EFPD, THIS IS LEVEL 1 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* .6201 *	* .7626 *	* .6726 *	* .7883 *	* .6822 *	* .8739 *	* .6737 *	* .4027 *
	* 2.5352 *	* 2.0669 *	* 2.3438 *	* 2.0023 *	* 2.3157 *	* 1.8085 *	* 2.3453 *	* 3.9091 *
9	* .7626 *	* .7465 *	* .8986 *	* .7604 *	* .9093 *	* .8032 *	* .8075 *	* .4852 *
	* 2.0669 *	* 2.1145 *	* 1.7600 *	* 2.0787 *	* 1.7400 *	* 1.9701 *	* 1.9571 *	* 3.2494 *
10	* .6726 *	* .8975 *	* .7593 *	* .8996 *	* .7700 *	* .9018 *	* .7015 *	* .5451 *
	* 2.3438 *	* 1.7614 *	* 2.0846 *	* 1.7580 *	* 2.0555 *	* 1.7553 *	* 2.2530 *	* 2.8894 *
11	* .7883 *	* .7604 *	* .8986 *	* .6983 *	* .8932 *	* .7497 *	* .7454 *	* .4081 *
	* 2.0023 *	* 2.0807 *	* 1.7622 *	* 2.2669 *	* 1.7743 *	* 2.1137 *	* 2.1209 *	* 3.8577 *
12	* .6822 *	* .9061 *	* .7690 *	* .8921 *	* .7240 *	* .7893 *	* .5012 *	
	* 2.3157 *	* 1.7462 *	* 2.0593 *	* 1.7764 *	* 2.1870 *	* 2.0042 *	* 3.1518 *	
13	* .8739 *	* .8011 *	* .8996 *	* .7486 *	* .7893 *	* .5698 *	* .3277 *	
	* 1.8085 *	* 1.9736 *	* 1.7587 *	* 2.1157 *	* 2.0042 *	* 2.7732 *	* 4.8083 *	
14	* .6737 *	* .8054 *	* .7004 *	* .7454 *	* .5023 *	* .3277 *		
	* 2.3453 *	* 1.9606 *	* 2.2566 *	* 2.1218 *	* 3.1473 *	* 4.8035 *		
15	* .4027 *	* .4841 *	* .5441 *	* .4070 *	F-SUB-Q			
	* 3.9091 *	* 3.2542 *	* 2.8932 *	* 3.8645 *	M-SUB-Q			

Catawba 1 Cycle 9 Core Operating Limits Report

CNEI-0400-24

Appendix A

Page 10 of 204

Revision 6

Table 1 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Normal Operations

AT 100% POWER, 100 EFPD, THIS IS LEVEL 18 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* .6704 *	* .8322 *	* .7765 *	* .8707 *	* .7808 *	* .9253 *	* .7433 *	* .4927 *
	* 2.2553 *	* 1.9841 *	* 2.1237 *	* 1.8661 *	* 2.0544 *	* 1.7167 *	* 2.1266 *	* 3.1687 *
9	* .8322 *	* .8632 *	* .9768 *	* .8654 *	* .9650 *	* .8589 *	* .8418 *	* .5526 *
	* 1.9841 *	* 1.9447 *	* 1.6808 *	* 1.8917 *	* 1.6836 *	* 1.8788 *	* 1.8852 *	* 2.8651 *
10	* .7765 *	* .9768 *	* .8718 *	* .9746 *	* .8611 *	* .9328 *	* .7497 *	* .5955 *
	* 2.1237 *	* 1.6808 *	* 1.8894 *	* 1.6864 *	* 1.9144 *	* 1.7534 *	* 2.1485 *	* 2.6680 *
11	* .8707 *	* .8643 *	* .9735 *	* .7700 *	* .9082 *	* .7808 *	* .7540 *	* .4595 *
	* 1.8661 *	* 1.8930 *	* 1.6874 *	* 2.1480 *	* 1.7884 *	* 2.0883 *	* 2.1944 *	* 3.5330 *
12	* .7808 *	* .9628 *	* .8600 *	* .9071 *	* .7144 *	* .7443 *	* .5344 *	
	* 2.0544 *	* 1.6860 *	* 1.9175 *	* 1.7115 *	* 2.0692 *	* 2.0138 *	* 2.9940 *	
13	* .9253 *	* .8579 *	* .9328 *	* .7797 *	* .7443 *	* .5676 *	* .3791 *	
	* 1.7167 *	* 1.8805 *	* 1.7549 *	* 2.0905 *	* 2.0138 *	* 2.5761 *	* 4.0926 *	
14	* .7433 *	* .8407 *	* .7497 *	* .7529 *	* .5355 *	* .3791 *		
	* 2.1266 *	* 1.8870 *	* 2.1507 *	* 2.1944 *	* 2.9896 *	* 4.0926 *		
15	* .4927 *	* .5526 *	* .5944 *	* .4595 *	F-SUB-Q			
	* 3.1687 *	* 2.8680 *	* 2.6715 *	* 3.5330 *	M-SUB-Q			

AT 100% POWER, 100 EFPD, THIS IS LEVEL 17 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* .9778 *	* 1.1888 *	* 1.0656 *	* 1.2274 *	* 1.0560 *	* 1.2295 *	* 1.0678 *	* .6951 *
	* 1.7097 *	* 1.4388 *	* 1.6205 *	* 1.3707 *	* 1.5724 *	* 1.3422 *	* 1.5282 *	* 2.3233 *
9	* 1.1888 *	* 1.2070 *	* 1.2895 *	* 1.2199 *	* 1.2670 *	* 1.1984 *	* 1.1845 *	* .8022 *
	* 1.4388 *	* 1.4431 *	* 1.3248 *	* 1.3886 *	* 1.3390 *	* 1.3933 *	* 1.3907 *	* 2.0401 *
10	* 1.0656 *	* 1.2884 *	* 1.2338 *	* 1.2831 *	* 1.2092 *	* 1.2509 *	* 1.0678 *	* .9146 *
	* 1.6205 *	* 1.3242 *	* 1.3849 *	* 1.3259 *	* 1.4115 *	* 1.3510 *	* 1.5658 *	* 1.8024 *
11	* 1.2274 *	* 1.2188 *	* 1.2841 *	* 1.0314 *	* 1.2263 *	* 1.1288 *	* 1.1096 *	* .6704 *
	* 1.3707 *	* 1.3886 *	* 1.3248 *	* 1.6339 *	* 1.4008 *	* 1.5029 *	* 1.5422 *	* 2.5090 *
12	* 1.0560 *	* 1.2649 *	* 1.2081 *	* 1.2231 *	* 1.0881 *	* 1.1256 *	* .7700 *	
	* 1.5724 *	* 1.3407 *	* 1.4135 *	* 1.4046 *	* 1.4835 *	* 1.4501 *	* 2.1706 *	
13	* 1.2295 *	* 1.1974 *	* 1.2488 *	* 1.1278 *	* 1.1235 *	* .8729 *	* .5580 *	
	* 1.3422 *	* 1.3952 *	* 1.3528 *	* 1.5040 *	* 1.4521 *	* 1.8411 *	* 2.9291 *	
14	* 1.0678 *	* 1.1835 *	* 1.0667 *	* 1.1085 *	* .7711 *	* .5580 *		
	* 1.5282 *	* 1.3923 *	* 1.5670 *	* 1.5422 *	* 2.1683 *	* 2.9291 *		
15	* .6951 *	* .8022 *	* .9146 *	* .6694 *	F-SUB-Q			
	* 2.3233 *	* 2.0421 *	* 1.8040 *	* 2.5111 *	M-SUB-Q			

Table 1 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Normal Operations

AT 100% POWER, 100 EFPD, THIS IS LEVEL 16 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.1149	* 1.3570	* 1.1899	* 1.3827	* 1.1760	* 1.4041	* 1.2113	* .7829
	* 1.6107	* 1.3261	* 1.5155	* 1.2623	* 1.4660	* 1.2163	* 1.3964	* 2.1372
9	* 1.3570	* 1.3505	* 1.4705	* 1.3687	* 1.4437	* 1.3516	* 1.3687	* .9189
	* 1.3261	* 1.3427	* 1.2078	* 1.2860	* 1.2211	* 1.2830	* 1.2471	* 1.8457
10	* 1.1899	* 1.4694	* 1.3837	* 1.4619	* 1.3580	* 1.4298	* 1.2167	* 1.0796
	* 1.5155	* 1.2078	* 1.2846	* 1.2092	* 1.3082	* 1.2272	* 1.4263	* 1.5825
11	* 1.3827	* 1.3677	* 1.4630	* 1.1727	* 1.4094	* 1.2948	* 1.3066	* .7711
	* 1.2623	* 1.2862	* 1.2078	* 1.5098	* 1.2706	* 1.3695	* 1.3598	* 2.2600
12	* 1.1760	* 1.4416	* 1.3559	* 1.4052	* 1.2863	* 1.3473	* .8879	*
	* 1.4660	* 1.2229	* 1.3105	* 1.2714	* 1.3554	* 1.2871	* 1.9718	*
13	* 1.4041	* 1.3495	* 1.4276	* 1.2948	* 1.3452	* 1.0303	* .6458	*
	* 1.2163	* 1.2843	* 1.2292	* 1.3704	* 1.2879	* 1.6673	* 2.6643	*
14	* 1.2113	* 1.3677	* 1.2156	* 1.3066	* .8900	* .6469	*	*
	* 1.3964	* 1.2481	* 1.4273	* 1.3598	* 1.9681	* 2.6610	*	*
15	* .7829	* .9178	* 1.0185	* .7711	* F-SUB-Q			
	* 2.1372	* 1.8473	* 1.5837	* 2.2624	* M-SUB-Q			

AT 100% POWER, 100 EFPD, THIS IS LEVEL 15 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.1524	* 1.4201	* 1.2424	* 1.4523	* 1.2338	* 1.5015	* 1.2809	* .8215
	* 1.6330	* 1.3276	* 1.5142	* 1.2534	* 1.4548	* 1.1808	* 1.3740	* 2.1210
9	* 1.4201	* 1.4041	* 1.5562	* 1.4330	* 1.5358	* 1.4319	* 1.4694	* .9746
	* 1.3276	* 1.3446	* 1.1861	* 1.2797	* 1.1908	* 1.2613	* 1.2089	* 1.8128
10	* 1.2424	* 1.5562	* 1.4448	* 1.5519	* 1.4244	* 1.5294	* 1.2938	* 1.1642
	* 1.5142	* 1.1861	* 1.2803	* 1.1873	* 1.3004	* 1.1957	* 1.3963	* 1.5267
11	* 1.4523	* 1.4319	* 1.5540	* 1.2477	* 1.5090	* 1.3805	* 1.4137	* .8236
	* 1.2534	* 1.2803	* 1.1861	* 1.4858	* 1.2326	* 1.3432	* 1.3119	* 2.2055
12	* 1.2378	* 1.5337	* 1.4223	* 1.5048	* 1.3677	* 1.4608	* .9500	*
	* 1.4548	* 1.1950	* 1.3026	* 1.2340	* 1.3390	* 1.2486	* 1.9330	*
13	* 1.5015	* 1.4298	* 1.5272	* 1.3794	* 1.4576	* 1.1031	* .6687	*
	* 1.1808	* 1.2628	* 1.1975	* 1.3440	* 1.2493	* 1.6420	* 2.6316	*
14	* 1.2809	* 1.4683	* 1.2927	* 1.4126	* .9532	* .6897	*	*
	* 1.3740	* 1.2100	* 1.3975	* 1.3119	* 1.9277	* 2.6284	*	*
15	* .8215	* .9746	* 1.1631	* .8225	* F-SUB-Q			
	* 2.1210	* 1.8143	* 1.5278	* 2.2078	* M-SUB-Q			

Table 1 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Normal Operations

AT 100% POWER, 100 EFPD, THIS IS LEVEL 14 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.1331	* 1.4052	* 1.2295	* 1.4480	* 1.2316	* 1.5155	* 1.2852	* .8172
	* 1.7267	* 1.3939	* 1.5875	* 1.3186	* 1.5295	* 1.2262	* 1.4360	* 2.2376
9	* 1.4052	* 1.3880	* 1.5562	* 1.4266	* 1.5433	* 1.4394	* 1.4844	* .9778
	* 1.3939	* 1.4056	* 1.2397	* 1.3464	* 1.2383	* 1.3137	* 1.2541	* 1.8947
10	* 1.2295	* 1.5562	* 1.4351	* 1.5551	* 1.4212	* 1.5433	* 1.3034	* 1.1749
	* 1.5875	* 1.2397	* 1.3481	* 1.2410	* 1.3610	* 1.2406	* 1.4508	* 1.5837
11	* 1.4480	* 1.4266	* 1.5572	* 1.2541	* 1.5208	* 1.3912	* 1.4309	* .8247
	* 1.3186	* 1.3473	* 1.2397	* 1.5419	* 1.2700	* 1.3873	* 1.3453	* 2.3012
12	* 1.2316	* 1.5412	* 1.4191	* 1.5197	* 1.3741	* 1.4780	* .9543	*
	* 1.5295	* 1.2404	* 1.3636	* 1.2715	* 1.3947	* 1.2931	* 2.0078	*
13	* 1.5155	* 1.4373	* 1.5412	* 1.3912	* 1.4758	* 1.1096	* .6867	*
	* 1.2262	* 1.3158	* 1.2425	* 1.3882	* 1.2931	* 1.7148	* 2.7596	*
14	* 1.2852	* 1.4823	* 1.3023	* 1.4309	* .9575	* .6897	*	*
	* 1.4360	* 1.2555	* 1.4517	* 1.3453	* 2.0022	* 2.7560	*	*
15	* .8172	* .9768	* 1.1738	* .8247	* F-SUB-Q			
	* 2.2376	* 1.8959	* 1.5848	* 2.3037	* M-SUB-Q			

AT 100% POWER, 100 EFPD, THIS IS LEVEL 13 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.1449	* 1.4309	* 1.2552	* 1.4844	* 1.2649	* 1.5722	* 1.3216	* .8343
	* 1.7790	* 1.4204	* 1.6179	* 1.3527	* 1.5690	* 1.2459	* 1.4722	* 2.3096
9	* 1.4309	* 1.4126	* 1.6033	* 1.4598	* 1.5979	* 1.4844	* 1.5401	* 1.0035
	* 1.4204	* 1.4363	* 1.2592	* 1.3794	* 1.2515	* 1.3390	* 1.2716	* .9403
10	* 1.2552	* 1.6033	* 1.4662	* 1.6022	* 1.4566	* 1.5979	* 1.3430	* 1.2188
	* 1.6179	* 1.2592	* 1.3790	* 1.2599	* 1.3815	* 1.2522	* 1.4746	* 1.6020
11	* 1.4844	* 1.4598	* 1.6033	* 1.2948	* 1.5765	* 1.4341	* 1.4876	* .8525
	* 1.3527	* 1.3803	* 1.2592	* 1.5571	* 1.2737	* 1.3979	* 1.3388	* 2.3185
12	* 1.2649	* 1.5958	* 1.4544	* 1.5754	* 1.4137	* 1.5347	* .9875	*
	* 1.5690	* 1.2533	* 1.3833	* 1.2745	* 1.4225	* 1.3069	* 2.0222	*
13	* 1.5722	* 1.4823	* 1.5958	* 1.4330	* 1.5315	* 1.1406	* .7058	*
	* 1.2459	* 1.3407	* 1.2544	* 1.3987	* 1.3069	* 1.7559	* 2.8207	*
14	* 1.3216	* 1.5380	* 1.3420	* 1.4876	* .9907	* .7069	*	*
	* 1.4722	* 1.2729	* 1.4761	* 1.3395	* 2.0164	* 2.8171	*	*
15	* .8343	* 1.0025	* 1.2177	* .8525	* F-SUB-Q			
	* 2.3096	* 1.9420	* 1.6032	* 2.3198	* M-SUB-Q			

Table 1 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Normal Operations

AT 100% POWER, 100 EFPD, THIS IS LEVEL 12 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.1310 *	* 1.4223 *	* 1.2477 *	* 1.4833 *	* 1.2649 *	* 1.5819 *	* 1.3238 *	* .8300 *
	* 1.8807 *	* 1.4911 *	* 1.6988 *	* 1.4144 *	* 1.6498 *	* 1.3009 *	* 1.5457 *	* 2.4410 *
9	* 1.4223 *	* 1.4052 *	* 1.6065 *	* 1.4587 *	* 1.6076 *	* 1.4898 *	* 1.5497 *	* 1.0035 *
	* 1.4911 *	* 1.5068 *	* 1.3095 *	* 1.4403 *	* 1.2955 *	* 1.3929 *	* 1.3256 *	* 2.0352 *
10	* 1.2477 *	* 1.6065 *	* 1.4630 *	* 1.6054 *	* 1.4576 *	* 1.6076 *	* 1.3473 *	* 1.2242 *
	* 1.6988 *	* 1.3095 *	* 1.4398 *	* 1.3095 *	* 1.4355 *	* 1.2959 *	* 1.5310 *	* 1.6682 *
11	* 1.4833 *	* 1.4576 *	* 1.6065 *	* 1.2981 *	* 1.5883 *	* 1.4394 *	* 1.4994 *	* .8525 *
	* 1.4144 *	* 1.4417 *	* 1.3091 *	* 1.6175 *	* 1.3179 *	* 1.4497 *	* 1.3842 *	* 2.4085 *
12	* 1.2649 *	* 1.6054 *	* 1.4555 *	* 1.5862 *	* 1.4169 *	* 1.5455 *	* .9885 *	
	* 1.6498 *	* 1.2975 *	* 1.4378 *	* 1.3187 *	* 1.4751 *	* 1.3474 *	* 2.0987 *	
13	* 1.5819 *	* 1.4876 *	* 1.6054 *	* 1.4384 *	* 1.5422 *	* 1.1406 *	* .7036 *	
	* 1.3009 *	* 1.3951 *	* 1.2982 *	* 1.4507 *	* 1.3474 *	* 1.8209 *	* 2.9343 *	
14	* 1.3238 *	* 1.5487 *	* 1.3462 *	* 1.4994 *	* .9917 *	* .7047 *		
	* 1.5457 *	* 1.3272 *	* 1.5321 *	* 1.3842 *	* 2.0928 *	* 2.9300 *		
15	* .8300 *	* 1.0025 *	* 1.2231 *	* .8525 *	F-SUB-Q			
	* 2.4410 *	* 2.0370 *	* 1.6688 *	* 2.4112 *	M-SUB-Q			

AT 100% POWER, 100 EFPD, THIS IS LEVEL 11 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.1117 *	* 1.4084 *	* 1.2327 *	* 1.4737 *	* 1.2541 *	* 1.5787 *	* 1.3152 *	* .8204 *
	* 2.0007 *	* 1.5731 *	* 1.7942 *	* 1.4897 *	* 1.7444 *	* 1.3678 *	* 1.6331 *	* 2.5912 *
9	* 1.4084 *	* 1.3912 *	* 1.5990 *	* 1.4480 *	* 1.6044 *	* 1.4855 *	* 1.5476 *	* .9950 *
	* 1.5731 *	* 1.5866 *	* 1.3746 *	* 1.5173 *	* 1.3551 *	* 1.4609 *	* 1.3908 *	* 2.1458 *
10	* 1.2327 *	* 1.5990 *	* 1.4512 *	* 1.5979 *	* 1.4501 *	* 1.6044 *	* 1.3420 *	* 1.2177 *
	* 1.7942 *	* 1.3746 *	* 1.5168 *	* 1.3724 *	* 1.5042 *	* 1.3551 *	* 1.6052 *	* 1.7509 *
11	* 1.4737 *	* 1.4469 *	* 1.5990 *	* 1.2906 *	* 1.5851 *	* 1.4341 *	* 1.4973 *	* .8450 *
	* 1.4897 *	* 1.5187 *	* 1.3746 *	* 1.7029 *	* 1.3775 *	* 1.5207 *	* 1.4435 *	* 2.5321 *
12	* 1.2541 *	* 1.6022 *	* 1.4480 *	* 1.5829 *	* 1.4094 *	* 1.5422 *	* .9810 *	
	* 1.7444 *	* 1.3572 *	* 1.5063 *	* 1.3787 *	* 1.5499 *	* 1.4107 *	* 2.2098 *	
13	* 1.5787 *	* 1.4833 *	* 1.6022 *	* 1.4330 *	* 1.5401 *	* 1.1331 *	* .6951 *	
	* 1.3678 *	* 1.4628 *	* 1.3576 *	* 1.5223 *	* 1.4098 *	* 1.9152 *	* 3.1005 *	
14	* 1.3152 *	* 1.5455 *	* 1.3409 *	* 1.4973 *	* .9842 *	* .6961 *		
	* 1.6331 *	* 1.3926 *	* 1.6070 *	* 1.4435 *	* 2.2032 *	* 3.0961 *		
15	* .8204 *	* .9939 *	* 1.2167 *	* .8439 *	F-SUB-Q			
	* 2.5912 *	* 2.1478 *	* 1.7523 *	* 2.5335 *	M-SUB-Q			

Catawba 1 Cycle 9 Core Operating Limits Report

CNEI-0400-24

Appendix A

Page 14 of 204

Revision 6

Table 1 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Normal Operations

AT 100% POWER, 100 EFPD, THIS IS LEVEL 10 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.1171 *	* 1.4255 *	* 1.2456 *	* 1.4962 *	* 1.2713 *	* 1.6129 *	* 1.3345 *	* .8290 *
	* 2.0620 *	* 1.6205 *	* 1.8528 *	* 1.5457 *	* 1.8148 *	* 1.4131 *	* 1.7007 *	* 2.7036 *
9	* 1.4255 *	* 1.4073 *	* 1.6279 *	* 1.4673 *	* 1.6386 *	* 1.5133 *	* 1.5808 *	* 1.0067 *
	* 1.6205 *	* 1.6434 *	* 1.4215 *	* 1.5777 *	* 1.3984 *	* 1.5128 *	* 1.4346 *	* 2.2289 *
10	* 1.2456 *	* 1.6279 *	* 1.4694 *	* 1.6268 *	* 1.4726 *	* 1.6386 *	* 1.3634 *	* 1.2402 *
	* 1.8528 *	* 1.4224 *	* 1.5755 *	* 1.4187 *	* 1.5598 *	* 1.3980 *	* 1.6642 *	* 1.8069 *
11	* 1.4962 *	* 1.4662 *	* 1.6279 *	* 1.3120 *	* 1.6204 *	* 1.4587 *	* 1.5315 *	* .8579 *
	* 1.5457 *	* 1.5789 *	* 1.4219 *	* 1.7591 *	* 1.4149 *	* 1.5691 *	* 1.4802 *	* 2.6153 *
12	* 1.2713 *	* 1.6354 *	* 1.4705 *	* 1.6183 *	* 1.4319 *	* 1.5754 *	* .9992 *	
	* 1.8148 *	* 1.4006 *	* 1.5620 *	* 1.4163 *	* 1.6056 *	* 1.4492 *	* 2.2737 *	
13	* 1.6129 *	* 1.5112 *	* 1.6354 *	* 1.4576 *	* 1.5733 *	* 1.1481 *	* .7015 *	
	* 1.4131 *	* 1.5143 *	* 1.4006 *	* 1.5702 *	* 1.4487 *	* 1.9848 *	* 3.2098 *	
14	* 1.3345 *	* 1.5787 *	* 1.3623 *	* 1.5305 *	* 1.0014 *	* .7026 *		
	* 1.7007 *	* 1.4365 *	* 1.6655 *	* 1.4802 *	* 2.2667 *	* 3.2051 *		
15	* .8290 *	* 1.0067 *	* 1.2391 *	* .8579 *	F-SUB-Q			
	* 2.7036 *	* 2.2312 *	* 1.8076 *	* 2.6168 *	M-SUB-Q			

AT 100% POWER, 100 EFPD, THIS IS LEVEL 9 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.0892 *	* 1.3977 *	* 1.2177 *	* 1.4716 *	* 1.2466 *	* 1.5936 *	* 1.3120 *	* .8118 *
	* 2.0562 *	* 1.6087 *	* 1.8451 *	* 1.5318 *	* 1.8029 *	* 1.4197 *	* 1.7148 *	* 2.7527 *
9	* 1.3977 *	* 1.3805 *	* 1.6044 *	* 1.4426 *	* 1.6183 *	* 1.4940 *	* 1.5615 *	* .9896 *
	* 1.6087 *	* 1.6301 *	* 1.4097 *	* 1.5643 *	* 1.3990 *	* 1.5140 *	* 1.4476 *	* 2.2671 *
10	* 1.2177 *	* 1.6033 *	* 1.4437 *	* 1.6022 *	* 1.4523 *	* 1.6183 *	* 1.3430 *	* 1.2199 *
	* 1.8451 *	* 1.4097 *	* 1.5632 *	* 1.4115 *	* 1.5577 *	* 1.3990 *	* 1.6784 *	* 1.8420 *
11	* 1.4716 *	* 1.4416 *	* 1.6033 *	* 1.2884 *	* 1.6001 *	* 1.4384 *	* 1.5123 *	* .8407 *
	* 1.5318 *	* 1.5654 *	* 1.4106 *	* 1.7585 *	* 1.4197 *	* 1.5766 *	* 1.4996 *	* 2.6728 *
12	* 1.2466 *	* 1.6151 *	* 1.4501 *	* 1.5990 *	* 1.4094 *	* 1.5551 *	* .9800 *	
	* 1.8029 *	* 1.4017 *	* 1.5599 *	* 1.4215 *	* 1.6111 *	* 1.4629 *	* 2.3073 *	
13	* 1.5936 *	* 1.4919 *	* 1.6151 *	* 1.4373 *	* 1.5530 *	* 1.1288 *	* .6865 *	
	* 1.4197 *	* 1.5161 *	* 1.4017 *	* 1.5777 *	* 1.4648 *	* 2.0095 *	* 3.2844 *	
14	* 1.3120 *	* 1.5594 *	* 1.3420 *	* 1.5123 *	* .9832 *	* .6876 *		
	* 1.7148 *	* 1.4495 *	* 1.6796 *	* 1.4996 *	* 2.3001 *	* 3.2795 *		
15	* .8118 *	* .9885 *	* 1.2188 *	* .8397 *	F-SUB-Q			
	* 2.7527 *	* 2.2694 *	* 1.8435 *	* 2.6760 *	M-SUB-Q			

Table 1 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Normal Operations

AT 100% POWER, 100 EFPD, THIS IS LEVEL 8 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.0967	* 1.4159	* 1.2338	* 1.4962	* 1.2670	* 1.6301	* 1.3323	* .8215
	* 1.9807	* 1.5393	* 1.7669	* 1.4609	* 1.7242	* 1.3454	* 1.6357	* 2.6164
9	* 1.4159	* 1.3987	* 1.6354	* 1.4641	* 1.6547	* 1.5219	* 1.5979	* 1.0046
	* 1.5393	* 1.5621	* 1.3396	* 1.4955	* 1.3260	* 1.4409	* 1.3712	* 2.1551
10	* 1.2338	* 1.6354	* 1.4641	* 1.6354	* 1.4769	* 1.6547	* 1.3666	* 1.2477
	* 1.7669	* 1.3396	* 1.4955	* 1.3413	* 1.4855	* 1.3268	* 1.6006	* 1.7382
11	* 1.4962	* 1.4630	* 1.6343	* 1.3120	* 1.6386	* 1.4641	* 1.5497	* .8568
	* 1.4609	* 1.4966	* 1.3413	* 1.6708	* 1.3429	* 1.4996	* 1.4160	* 2.5305
12	* 1.2670	* 1.6115	* 1.4737	* 1.6365	* 1.4319	* 1.5915	* 1.0003	*
	* 1.7242	* 1.3292	* 1.4875	* 1.3445	* 1.5329	* 1.3806	* 2.1885	*
13	* 1.6301	* 1.5197	* 1.6515	* 1.4619	* 1.5894	* 1.1460	* .6951	*
	* 1.3454	* 1.4428	* 1.3292	* 1.5016	* 1.3832	* 1.9121	* 3.1353	*
14	* 1.3323	* 1.5958	* 1.3655	* 1.5487	* 1.0035	* .6961	*	*
	* 1.6357	* 1.3729	* 1.6029	* 1.4160	* 2.1799	* 3.1309	*	*
15	* .8215	* 1.0035	* 1.2466	* .8557	* F-SUB-Q			
	* 2.6164	* 2.1572	* 1.7396	* 2.5310	* M-SUB-Q			

AT 100% POWER, 100 EFPD, THIS IS LEVEL 7 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.0860	* 1.4094	* 1.2242	* 1.4908	* 1.2606	* 1.6311	* 1.3280	* .8161
	* 1.9176	* 1.4806	* 1.6968	* 1.3976	* 1.6473	* 1.2778	* 1.5573	* 2.5032
9	* 1.4094	* 1.3912	* 1.6333	* 1.4576	* 1.6558	* 1.5197	* 1.5990	* 1.0003
	* 1.4806	* 1.4996	* 1.2817	* 1.4333	* 1.2640	* 1.3735	* 1.3003	* 2.0536
10	* 1.2242	* 1.6322	* 1.4566	* 1.6343	* 1.4737	* 1.6558	* 1.3634	* 1.2466
	* 1.6968	* 1.2817	* 1.4351	* 1.2811	* 1.4205	* 1.2641	* 1.5223	* 1.6503
11	* 1.4908	* 1.4566	* 1.6311	* 1.3077	* 1.6397	* 1.4608	* 1.5519	* .8536
	* 1.3976	* 1.4342	* 1.2825	* 1.6103	* 1.2846	* 1.4387	* 1.3478	* 2.4087
12	* 1.2606	* 1.6526	* 1.4716	* 1.6376	* 1.4287	* 1.5936	* .9971	*
	* 1.6473	* 1.2663	* 1.4225	* 1.2861	* 1.4855	* 1.3286	* 2.0925	*
13	* 1.6311	* 1.5176	* 1.6526	* 1.4598	* 1.5915	* 1.1417	* .6897	*
	* 1.2778	* 1.3752	* 1.2663	* 1.4397	* 1.3293	* 1.8438	* 3.0012	*
14	* 1.3280	* 1.5969	* 1.3623	* 1.5519	* 1.0003	* .6908	*	*
	* 1.5573	* 1.3019	* 1.5242	* 1.3479	* 2.0849	* 2.9971	*	*
15	* .8161	* .9992	* 1.2456	* .8525	* F-SUB-Q			
	* 2.5032	* 2.0552	* 1.6516	* 2.4091	* M-SUB-Q			

Catawba 1 Cycle 9 Core Operating Limits Report

CNEI-0400-24

Appendix A

Page 16 of 204

Revision 6

Table 1 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Normal Operations

AT 100% POWER, 100 EFPD, THIS IS LEVEL 6 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.0592	* 1.3805	* 1.1952	* 1.4619	* 1.2316	* 1.6011	* 1.3023	* .7968
	* 1.8616	* 1.4337	* 1.6526	* 1.3557	* 1.6042	* 1.2394	* 1.5125	* 2.4423
9	* 1.3805	* 1.3634	* 1.6011	* 1.4287	* 1.6258	* 1.4930	* 1.5701	* .9800
	* 1.4337	* 1.4546	* 1.2431	* 1.3903	* 1.2239	* 1.3304	* 1.2602	* 1.9964
10	* 1.1952	* 1.6011	* 1.4276	* 1.6033	* 1.4459	* 1.6258	* 1.3388	* 1.2209
	* 1.6526	* 1.2431	* 1.3912	* 1.2419	* 1.3756	* 1.2239	* 1.4750	* 1.6028
11	* 1.4619	* 1.4276	* 1.5990	* 1.2788	* 1.6086	* 1.4351	* 1.5251	* .8322
	* 1.3557	* 1.3912	* 1.2445	* 1.5608	* 1.2415	* 1.3898	* 1.3024	* 2.3489
12	* 1.2316	* 1.6226	* 1.4437	* 1.6065	* 1.4019	* 1.5647	* .9746	*
	* 1.6042	* 1.2265	* 1.3774	* 1.2429	* 1.4294	* 1.2802	* 2.0309	*
13	* 1.6011	* 1.4908	* 1.6226	* 1.4341	* 1.5626	* 1.1192	* .6726	*
	* 1.2394	* 1.3320	* 1.2265	* 1.3909	* 1.2808	* 1.7787	* 2.9185	*
14	* 1.3023	* 1.5679	* 1.3377	* 1.5240	* .9778	* .6737	*	*
	* 1.5125	* 1.2622	* 1.4762	* 1.3030	* 2.0238	* 2.9115	*	*
15	* .7968	* .9789	* 1.2199	* .8322	* F-SUB-Q			
	* 2.4423	* 1.9982	* 1.6040	* 2.3514	* M-SUB-Q			

AT 100% POWER, 100 EFPD, THIS IS LEVEL 5 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.0614	* 1.3902	* 1.2017	* 1.4737	* 1.2391	* 1.6172	* 1.3088	* .7979
	* 1.7549	* 1.3458	* 1.5558	* 1.2739	* 1.5112	* 1.1630	* 1.4293	* 2.3178
9	* 1.3902	* 1.3687	* 1.6161	* 1.4362	* 1.6418	* 1.5048	* 1.5872	* .9832
	* 1.3458	* 1.3706	* 1.1663	* 1.3107	* 1.1492	* 1.2515	* 1.1828	* 1.8900
10	* 1.2017	* 1.6161	* 1.4341	* 1.6172	* 1.4544	* 1.6418	* 1.3462	* 1.2327
	* 1.5558	* 1.1669	* 1.3130	* 1.1662	* 1.2961	* 1.1492	* 1.3917	* 1.5089
11	* 1.4737	* 1.4351	* 1.6140	* 1.2873	* 1.6258	* 1.4437	* 1.5433	* .8397
	* 1.2739	* 1.3115	* 1.1681	* 1.4663	* 1.1643	* 1.3089	* 1.2205	* 2.2138
12	* 1.2391	* 1.6386	* 1.4523	* 1.6236	* 1.4084	* 1.5819	* .9832	*
	* 1.5112	* 1.1511	* 1.2983	* 1.1655	* 1.3439	* 1.1982	* 1.9095	*
13	* 1.6172	* 1.5015	* 1.6386	* 1.4416	* 1.5808	* 1.1235	* .6737	*
	* 1.1630	* 1.2536	* 1.1511	* 1.3098	* 1.1988	* 1.6776	* 2.7646	*
14	* 1.3088	* 1.5851	* 1.3452	* 1.5422	* .9864	* .6747	*	*
	* 1.4293	* 1.1841	* 1.3934	* 1.2205	* 1.9030	* 2.7612	*	*
15	* .7979	* .9821	* 1.2316	* .8386	* F-SUB-Q			
	* 2.3178	* 1.8916	* 1.5099	* 2.2160	* M-SUB-Q			

Catawba 1 Cycle 9 Core Operating Limits Report

CNEI-0400-24

Appendix A

Page 17 of 204

Revision 6

Table 1 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Normal Operations

AT 100% POWER, 100 EPPD, THIS IS LEVEL 4 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.0260	* 1.3473	* 1.1588	* 1.4266	* 1.1942	* 1.5594	* 1.2627	* .7668 *
	* 1.7212	* 1.3167	* 1.5315	* 1.2486	* 1.4903	* 1.1462	* 1.4072	* 2.2959 *
9	* 1.3473	* 1.3238	* 1.5594	* 1.3880	* 1.5840	* 1.4533	* 1.5305	* .9468 *
	* 1.3167	* 1.3446	* 1.1469	* 1.2862	* 1.1299	* 1.2285	* 1.1648	* 1.8663 *
10	* 1.1588	* 1.5594	* 1.3848	* 1.5604	* 1.4052	* 1.5840	* 1.3002	* 1.1845 *
	* 1.5315	* 1.1469	* 1.2884	* 1.1469	* 1.2728	* 1.1299	* 1.3682	* 1.4930 *
11	* 1.4266	* 1.3869	* 1.5562	* 1.2381	* 1.5669	* 1.3944	* 1.4876	* .8043 *
	* 1.2486	* 1.2876	* 1.1487	* 1.4438	* 1.1444	* 1.2831	* 1.1999	* 2.1961 *
12	* 1.1942	* 1.5797	* 1.4030	* 1.5647	* 1.3602	* 1.5230	* .9436 *	
	* 1.4903	* 1.1322	* 1.2742	* 1.1456	* 1.3165	* 1.1759	* 1.8853 *	
13	* 1.5594	* 1.4512	* 1.5808	* 1.3923	* 1.5230	* 1.0839	* .6458 *	
	* 1.1462	* 1.2305	* 1.1322	* 1.2845	* 1.1759	* 1.6456	* 2.7365 *	
14	* 1.2627	* 1.5283	* 1.2991	* 1.4865	* .9468 *	* .6469 *		
	* 1.4072	* 1.1666	* 1.3698	* 1.1999	* 1.8790	* 2.7298 *		
15	* .7668 *	* .9457 *	* 1.1835 *	* .8032 *	F-SUB-Q			
	* 2.2959 *	* 1.8679 *	* 1.4940 *	* 2.1983 *	M-SUB-Q			

AT 100% POWER, 100 EPPD, THIS IS LEVEL 3 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.0014	* 1.3163	* 1.1310	* 1.3934	* 1.1652	* 1.5112	* 1.2231	* .7401 *
	* 1.6935	* 1.2931	* 1.5066	* 1.2261	* 1.4658	* 1.1335	* 1.3949	* 2.2902 *
9	* 1.3163	* 1.2895	* 1.5165	* 1.3516	* 1.5380	* 1.4159	* 1.4812	* .9114 *
	* 1.2931	* 1.3254	* 1.1308	* 1.2672	* 1.1159	* 1.2106	* 1.1552	* 1.8628 *
10	* 1.1310	* 1.5155	* 1.3495	* 1.5165	* 1.3666	* 1.5380	* 1.2595	* 1.1363 *
	* 1.5066	* 1.1313	* 1.2694	* 1.1313	* 1.2549	* 1.1159	* 1.3557	* 1.4940 *
11	* 1.3934	* 1.3505	* 1.5133	* 1.2059	* 1.5187	* 1.3516	* 1.4341	* .7754 *
	* 1.2261	* 1.2680	* 1.1331	* 1.4217	* 1.1312	* 1.2678	* 1.1917	* 2.1887 *
12	* 1.1652	* 1.5347	* 1.3645	* 1.5165	* 1.3184	* 1.4716	* .9114 *	
	* 1.4658	* 1.1182	* 1.2571	* 1.1329	* 1.3012	* 1.1661	* 1.8691 *	
13	* 1.5112	* 1.4137	* 1.5347	* 1.3505	* 1.4683	* 1.0442	* .6201 *	
	* 1.1335	* 1.2126	* 1.1181	* 1.2692	* 1.1668	* 1.6357	* 2.7346 *	
14	* 1.2231	* 1.4780	* 1.2574	* 1.4341	* .9146 *	* .6212 *		
	* 1.3949	* 1.1564	* 1.3574	* 1.1923	* 1.8630	* 2.7313 *		
15	* .7401 *	* .9104 *	* 1.1353 *	* .7743 *	F-SUB-Q			
	* 2.2902 *	* 1.8644 *	* 1.4959 *	* 2.1909 *	M-SUB-Q			

Table 1 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Normal Operations

AT 100% POWER, 100 EFPD, THIS IS LEVEL 2 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* .9093 *	* 1.1770 *	* 1.0271 *	* 1.2531 *	* 1.0614 *	* 1.3612 *	* 1.0913 *	* .6565 *
	* 1.8155 *	* 1.4054 *	* 1.6118 *	* 1.3250 *	* 1.5619 *	* 1.2223 *	* 1.5171 *	* 2.5106 *
9	* 1.1770 *	* 1.1631 *	* 1.3548 *	* 1.2209 *	* 1.3741 *	* 1.2788 *	* 1.3077 *	* .8011 *
	* 1.4054 *	* 1.4260 *	* 1.2278 *	* 1.3607 *	* 1.2111 *	* 1.2994 *	* 1.2697 *	* 2.0619 *
10	* 1.0271 *	* 1.3548 *	* 1.2199 *	* 1.3580 *	* 1.2349 *	* 1.3730 *	* 1.1245 *	* .9735 *
	* 1.6118 *	* 1.2279 *	* 1.3615 *	* 1.2258 *	* 1.3465 *	* 1.2117 *	* 1.4738 *	* 1.6948 *
11	* 1.2531 *	* 1.2199 *	* 1.3548 *	* 1.0967 *	* 1.3709 *	* 1.2102 *	* 1.2466 *	* .6801 *
	* 1.3250 *	* 1.3623 *	* 1.2285 *	* 1.5162 *	* 1.2164 *	* 1.3730 *	* 1.3311 *	* 2.4259 *
12	* 1.0614 *	* 1.3709 *	* 1.2327 *	* 1.3687 *	* 1.1792 *	* 1.2863 *	* .8086 *	
	* 1.5619 *	* 1.2137 *	* 1.3482 *	* 1.2183 *	* 1.4096 *	* 1.2932 *	* 2.0487 *	
13	* 1.3612 *	* 1.2766 *	* 1.3709 *	* 1.2092 *	* 1.2841 *	* .9200 *	* .5441 *	
	* 1.2223 *	* 1.3009 *	* 1.2137 *	* 1.3739 *	* 1.2948 *	* 1.8018 *	* 3.0336 *	
14	* 1.0913 *	* 1.3055 *	* 1.1224 *	* 1.2456 *	* .8107 *	* .5441 *		
	* 1.5171 *	* 1.2711 *	* 1.4758 *	* 1.3311 *	* 2.0413 *	* 3.0298 *		
15	* .6565 *	* .8000 *	* .9725 *	* .6790 *	F-SUB-Q			
	* 2.5106 *	* 2.0638 *	* 1.6972 *	* 2.4284 *	M-SUB-Q			

AT 100% POWER, 100 EFPD, THIS IS LEVEL 1 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* .6297 *	* .7754 *	* .7026 *	* .8311 *	* .7326 *	* .9425 *	* .7197 *	* .4402 *
	* 2.5758 *	* 2.0958 *	* 2.3135 *	* 1.9595 *	* 2.2233 *	* 1.7268 *	* 2.2591 *	* 3.6813 *
9	* .7754 *	* .7829 *	* .9585 *	* .8150 *	* .9789 *	* .8611 *	* .8675 *	* .5216 *
	* 2.0958 *	* 2.0802 *	* 1.6980 *	* 2.0016 *	* 1.6649 *	* 1.8941 *	* 1.8749 *	* 3.1104 *
10	* .7026 *	* .9585 *	* .8140 *	* .9735 *	* .8279 *	* .9693 *	* .7476 *	* .5912 *
	* 2.3135 *	* 1.6993 *	* 2.0036 *	* 1.6750 *	* 1.9697 *	* 1.6813 *	* 2.1752 *	* 2.7429 *
11	* .8311 *	* .8140 *	* .9714 *	* .7551 *	* .9585 *	* .7990 *	* .7936 *	* .4370 *
	* 1.9595 *	* 2.0034 *	* 1.6787 *	* 2.1607 *	* 1.7004 *	* 2.0416 *	* 2.0490 *	* 3.7117 *
12	* .7326 *	* .9768 *	* .8268 *	* .9575 *	* .7754 *	* .8407 *	* .5312 *	
	* 2.2233 *	* 1.6687 *	* 1.9732 *	* 1.7030 *	* 2.1035 *	* 1.9369 *	* 3.0553 *	
13	* .9425 *	* .8589 *	* .9671 *	* .7979 *	* .8407 *	* .6040 *	* .3556 *	
	* 1.7268 *	* 1.8974 *	* 1.6837 *	* 2.0418 *	* 1.9369 *	* 2.6901 *	* 4.5546 *	
14	* .7197 *	* .8664 *	* .7465 *	* .7925 *	* .5323 *	* .3556 *		
	* 2.2591 *	* 1.8781 *	* 2.1773 *	* 2.0509 *	* 3.0510 *	* 4.5546 *		
15	* .4402 *	* .5205 *	* .5901 *	* .4359 *	F-SUB-Q			
	* 3.6813 *	* 3.1108 *	* 2.7460 *	* 3.7122 *	M-SUB-Q			

Table 1 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Normal Operations

AT 100% POWER, 200 EFPD, THIS IS LEVEL 18 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	.6565	.8247	.7786	.8761	.7979	.9446	.7690	.5205
	* 2.2487	* 1.9830	* 2.0964	* 1.8430	* 2.0035	* 1.6764	* 2.0489	* 3.0031
9	.8247	.8600	.9757	.8739	.9757	.8804	.8675	.5773
	* 1.9830	* 1.9354	* 1.6717	* 1.8616	* 1.6584	* 1.8278	* 1.8240	* 2.7304
10	.7786	.9757	.8793	.9800	.8761	.9510	.7754	.6287
	* 2.0964	* 1.6717	* 1.8616	* 1.6679	* 1.8719	* 1.7157	* 2.0819	* 2.5200
11	.8761	.8739	.9789	.7872	.9243	.8022	.7818	.4819
	* 1.8430	* 1.8628	* 1.6689	* 2.0714	* 1.7402	* 2.0110	* 2.0949	* 3.3616
12	.7979	.9746	.8761	.9232	.7251	.7647	.5537	
	* 2.0035	* 1.6611	* 1.8736	* 1.7417	* 1.9925	* 1.9367	* 2.8593	
13	.9446	.8793	.9500	.8022	.7647	.5848	.4038	
	* 1.6764	* 1.8294	* 1.7172	* 2.0110	* 1.9367	* 2.4710	* 3.8080	
14	.7690	.8664	.7754	.7818	.5548	.4038		
	* 2.0489	* 1.8256	* 2.0819	* 2.0949	* 2.8558	* 3.8080		
15	.5205	.5773	.6287	.4819	F-SUB-Q			
	* 3.0031	* 2.7330	* 2.5200	* 3.3616	M-SUB-Q			

AT 100% POWER, 200 EFPD, THIS IS LEVEL 17 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	.9318	1.1363	1.0367	1.1984	1.0539	1.2402	1.0731	.7122
	* 1.7678	* 1.4924	* 1.6388	* 1.3932	* 1.5653	* 1.3196	* 1.5151	* 2.2634
9	1.1363	1.1727	1.2745	1.2049	1.2691	1.1995	1.1910	.8118
	* 1.4924	* 1.4694	* 1.3238	* 1.3941	* 1.3272	* 1.3853	* 1.3769	* 2.0016
10	1.0367	1.2756	1.2145	1.2756	1.2070	1.2574	1.0721	.9286
	* 1.6388	* 1.3232	* 1.3915	* 1.3232	* 1.4055	* 1.3365	* 1.5536	* 1.7708
11	1.1984	1.2049	1.2766	1.0399	1.2359	1.1288	1.1192	.6758
	* 1.3932	* 1.3944	* 1.3224	* 1.6025	* 1.3718	* 1.4857	* 1.5189	* 2.4786
12	1.0539	1.2681	1.2059	1.2338	1.0860	1.1288	.7700	
	* 1.5653	* 1.3290	* 1.4065	* 1.3737	* 1.4677	* 1.4306	* 2.1470	
13	1.2402	1.1984	1.2563	1.1278	1.1278	.8664	.5719	
	* 1.3196	* 1.3862	* 1.3382	* 1.4867	* 1.4316	* 1.8312	* 2.8226	
14	1.0731	1.1910	1.0721	1.1192	.7711	.5730		
	* 1.5151	* 1.3779	* 1.5545	* 1.5189	* 2.1444	* 2.8187		
15	.7122	.8107	.9286	.6758	F-SUB-Q			
	* 2.2634	* 2.0016	* 1.7708	* 2.4816	M-SUB-Q			

Catawba 1 Cycle 9 Core Operating Limits Report

CNEI-0400-24

Appendix A

Page 20 of 204

Revision 6

Table 1 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Normal Operations

AT 100% POWER, 200 EFPD, THIS IS LEVEL 16 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.0453	* 1.2681	* 1.1438	* 1.3323	* 1.1620	* 1.4019	* 1.1974	* .7883
	* 1.6926	* 1.3980	* 1.5437	* 1.2954	* 1.4671	* 1.2035	* 1.4025	* 2.1118
9	* 1.2681	* 1.2981	* 1.4416	* 1.3398	* 1.4362	* 1.3377	* 1.3537	* .9093
	* 1.3980	* 1.3765	* 1.2119	* 1.2986	* 1.2147	* 1.2849	* 1.2512	* 1.8435
10	* 1.1438	* 1.4426	* 1.3495	* 1.4426	* 1.3441	* 1.4255	* 1.2006	* 1.0678
	* 1.5437	* 1.2117	* 1.2972	* 1.2117	* 1.3084	* 1.2209	* 1.4356	* 1.5890
11	* 1.3323	* 1.3398	* 1.4437	* 1.1706	* 1.4105	* 1.2756	* 1.2863	* .7583
	* 1.2954	* 1.2986	* 1.2110	* 1.4907	* 1.2501	* 1.3719	* 1.3699	* 2.2855
12	* 1.1620	* 1.4351	* 1.3430	* 1.4073	* 1.2659	* 1.3280	* .8675	*
	* 1.4671	* 1.2166	* 1.3106	* 1.2510	* 1.3594	* 1.2942	* 1.9912	*
13	* 1.4019	* 1.3366	* 1.4234	* 1.2745	* 1.3259	* 1.0025	* .6490	*
	* 1.2035	* 1.2863	* 1.2223	* 1.3728	* 1.2958	* 1.6920	* 2.6183	*
14	* 1.1974	* 1.3527	* 1.1995	* 1.2863	* .8697	* .6490	*	*
	* 1.4025	* 1.2527	* 1.4366	* 1.3699	* 1.9857	* 2.6150	*	*
15	* .7883	* .9093	* 1.0678	* .7583	* F-SUB-Q			
	* 2.1118	* 1.8447	* 1.5899	* 2.2855	* M-SUB-Q			

AT 100% POWER, 200 EFPD, THIS IS LEVEL 15 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.0699	* 1.3130	* 1.1856	* 1.3869	* 1.2113	* 1.4876	* 1.2488	* .8150
	* 1.7299	* 1.4110	* 1.5478	* 1.2933	* 1.4618	* 1.1780	* 1.3942	* 2.1194
9	* 1.3130	* 1.3398	* 1.5197	* 1.3923	* 1.5165	* 1.4030	* 1.4330	* .9478
	* 1.4110	* 1.3848	* 1.1946	* 1.2981	* 1.1944	* 1.2720	* 1.2262	* 1.8353
10	* 1.1856	* 1.5197	* 1.4009	* 1.5208	* 1.3977	* 1.5090	* 1.2563	* 1.1310
	* 1.5478	* 1.1944	* 1.2983	* 1.1939	* 1.3069	* 1.1975	* 1.4226	* 1.5567
11	* 1.3869	* 1.3923	* 1.5219	* 1.2359	* 1.4973	* 1.3409	* 1.3677	* .7958
	* 1.2933	* 1.2981	* 1.1933	* 1.4767	* 1.2235	* 1.3614	* 1.3391	* 2.2612
12	* 1.2113	* 1.5155	* 1.3966	* 1.4930	* 1.3280	* 1.4180	* .9136	*
	* 1.4618	* 1.1966	* 1.3085	* 1.2243	* 1.3580	* 1.2716	* 1.9807	*
13	* 1.4876	* 1.4009	* 1.5080	* 1.3409	* 1.4159	* 1.0539	* .6801	*
	* 1.1780	* 1.2735	* 1.1989	* 1.3623	* 1.2732	* 1.6931	* 2.6291	*
14	* 1.2488	* 1.4319	* 1.2563	* 1.3677	* .9157	* .6801	*	*
	* 1.3942	* 1.2277	* 1.4236	* 1.3399	* 1.9751	* 2.6258	*	*
15	* .8150	* .9478	* 1.1310	* .7947	* F-SUB-Q			
	* 2.1194	* 1.8353	* 1.5575	* 2.2636	* M-SUB-Q			

Catawba 1 Cycle 9 Core Operating Limits Report

CNEI-0400-24

Appendix A

Page 21 of 204

Revision 6

Table 1 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Normal Operations

AT 100% POWER, 200 EFPD, THIS IS LEVEL 14 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.0474	* 1.2938	* 1.1706	* 1.3752	* 1.2027	* 1.4898	* 1.2413	* .8032
	* 1.8328	* 1.4839	* 1.6333	* 1.3617	* 1.5396	* 1.2292	* 1.4649	* 2.2473
9	* 1.2938	* 1.3195	* 1.5155	* 1.3805	* 1.5155	* 1.3998	* 1.4330	* .9393
	* 1.4839	* 1.4489	* 1.2498	* 1.3663	* 1.2453	* 1.3304	* 1.2799	* 1.9338
10	* 1.1706	* 1.5155	* 1.3880	* 1.5165	* 1.3869	* 1.5112	* 1.2531	* 1.1278
	* 1.6333	* 1.2498	* 1.3677	* 1.2492	* 1.3696	* 1.2475	* 1.4871	* 1.6271
11	* 1.3752	* 1.3805	* 1.5176	* 1.2338	* 1.4994	* 1.3398	* 1.3698	* .7883
	* 1.3617	* 1.3669	* 1.2485	* 1.5406	* 1.2686	* 1.4166	* 1.3824	* 2.3770
12	* 1.2027	* 1.5133	* 1.3848	* 1.4951	* 1.3238	* 1.4212	* .9071	*
	* 1.5396	* 1.2468	* 1.3714	* 1.2701	* 1.4251	* 1.3262	* 2.0794	*
13	* 1.4898	* 1.3987	* 1.5090	* 1.3388	* 1.4191	* 1.0496	* .6726	*
	* 1.2292	* 1.3315	* 1.2489	* 1.4175	* 1.3279	* 1.7861	* 2.7840	*
14	* 1.2413	* 1.4319	* 1.2520	* 1.3698	* .9104	* .6737	*	*
	* 1.4649	* 1.2807	* 1.4882	* 1.3832	* 2.0730	* 2.7805	*	*
15	* .8032	* .9382	* 1.1278	* .7872	* F-SUB-Q			
	* 2.2473	* 1.9343	* 1.6280	* 2.3796	* M-SUB-Q			

AT 100% POWER, 200 EFPD, THIS IS LEVEL 13 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.0571	* 1.3141	* 1.1920	* 1.4052	* 1.2316	* 1.5358	* 1.2670	* .8150
	* 1.8866	* 1.5110	* 1.6650	* 1.3974	* 1.5796	* 1.2509	* 1.5072	* 2.3261
9	* 1.3141	* 1.3398	* 1.5572	* 1.4084	* 1.5594	* 1.4351	* 1.4769	* .9564
	* 1.5110	* 1.4799	* 1.2685	* 1.3992	* 1.2603	* 1.3591	* 1.3020	* 1.9917
10	* 1.1920	* 1.5572	* 1.4148	* 1.5594	* 1.4159	* 1.5562	* 1.2820	* 1.1610
	* 1.6650	* 1.2682	* 1.3974	* 1.2650	* 1.3932	* 1.2611	* 1.5175	* 1.6547
11	* 1.4052	* 1.4084	* 1.5594	* 1.2681	* 1.5455	* 1.3709	* 1.4126	* .8075
	* 1.3974	* 1.4000	* 1.2667	* 1.5599	* 1.2769	* 1.4353	* 1.3862	* 2.4065
12	* 1.2316	* 1.5562	* 1.4137	* 1.5433	* 1.3537	* 1.4641	* .9307	*
	* 1.5796	* 1.2618	* 1.3950	* 1.2784	* 1.4590	* 1.3460	* 2.1075	*
13	* 1.5358	* 1.4330	* 1.5540	* 1.3709	* 1.4630	* 1.0699	* .6854	*
	* 1.2509	* 1.3602	* 1.2628	* 1.4362	* 1.3470	* 1.8411	* 2.8621	*
14	* 1.2670	* 1.4758	* 1.2809	* 1.4126	* .9339	* .6854	*	*
	* 1.5072	* 1.3036	* 1.5186	* 1.3870	* 2.1017	* 2.8583	*	*
15	* .8150	* .9553	* 1.1599	* .8075	* F-SUB-Q			
	* 2.3261	* 1.9935	* 1.6556	* 2.4091	* M-SUB-Q			

Catawba 1 Cycle 9 Core Operating Limits Report

CNEI-0400-24

Appendix A

Page 22 of 204

Revision 6

Table 1 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Normal Operations

AT 100% POWER, 200 EFPD, THIS IS LEVEL 12 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.0442	* 1.3077	* 1.1856	* 1.4041	* 1.2295	* 1.5422	* 1.2659	* .8086
	* 1.9895	* 1.5835	* 1.7438	* 1.4588	* 1.6591	* 1.3059	* 1.5834	* 2.4571
9	* 1.3077	* 1.3345	* 1.5615	* 1.4073	* 1.5637	* 1.4373	* 1.4823	* .9521
	* 1.5835	* 1.5473	* 1.3167	* 1.4588	* 1.3049	* 1.4135	* 1.3582	* 2.0951
10	* 1.1856	* 1.5615	* 1.4126	* 1.5647	* 1.4159	* 1.5626	* 1.2820	* 1.1610
	* 1.7438	* 1.3167	* 1.4559	* 1.3106	* 1.4489	* 1.3056	* 1.5780	* 1.7247
11	* 1.4041	* 1.4062	* 1.5626	* 1.2681	* 1.5530	* 1.3720	* 1.4180	* .8043
	* 1.4588	* 1.4593	* 1.3129	* 1.6204	* 1.3208	* 1.4910	* 1.4375	* 2.5050
12	* 1.2295	* 1.5615	* 1.4137	* 1.5508	* 1.3527	* 1.4694	* .9296	*
	* 1.6591	* 1.3064	* 1.4508	* 1.3216	* 1.5133	* 1.3910	* 2.1922	*
13	* 1.5422	* 1.4362	* 1.5604	* 1.3709	* 1.4673	* 1.0667	* .6801	*
	* 1.3059	* 1.4148	* 1.3072	* 1.4910	* 1.3926	* 1.9111	* 2.9830	*
14	* 1.2659	* 1.4801	* 1.2809	* 1.4169	* .9318	* .6812	*	*
	* 1.5834	* 1.3596	* 1.5786	* 1.4384	* 2.1857	* 2.9789	*	*
15	* .8086	* .9510	* 1.1610	* .8043	F-SUB-Q			
	* 2.4571	* 2.0957	* 1.7260	* 2.5066	M-SUB-Q			

AT 100% POWER, 200 EFPD, THIS IS LEVEL 11 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.0303	* 1.2981	* 1.1749	* 1.3977	* 1.2220	* 1.5401	* 1.2584	* .8000
	* 2.1051	* 1.6644	* 1.8363	* 1.5337	* 1.7501	* 1.3716	* 1.6720	* 2.6062
9	* 1.2981	* 1.3248	* 1.5572	* 1.3998	* 1.5604	* 1.4330	* 1.4780	* .9425
	* 1.6644	* 1.6248	* 1.3786	* 1.5321	* 1.3635	* 1.4807	* 1.4242	* 2.2123
10	* 1.1749	* 1.5572	* 1.4052	* 1.5615	* 1.4094	* 1.5604	* 1.2756	* 1.1535
	* 1.8363	* 1.3786	* 1.5290	* 1.3706	* 1.5171	* 1.3635	* 1.6538	* 1.8108
11	* 1.3977	* 1.3998	* 1.5583	* 1.2616	* 1.5508	* 1.3666	* 1.4137	* .7958
	* 1.5337	* 1.5332	* 1.3727	* 1.7053	* 1.3819	* 1.5616	* 1.4978	* 2.6334
12	* 1.2220	* 1.5583	* 1.4073	* 1.5487	* 1.3462	* 1.4651	* .9211	*
	* 1.7501	* 1.3652	* 1.5187	* 1.3836	* 1.5901	* 1.4572	* 2.3090	*
13	* 1.5401	* 1.4319	* 1.5583	* 1.3655	* 1.4641	* 1.0581	* .6715	*
	* 1.3716	* 1.4822	* 1.3652	* 1.5622	* 1.4581	* 2.0120	* 3.1524	*
14	* 1.2584	* 1.4769	* 1.2745	* 1.4137	* .9243	* .6726	*	*
	* 1.6720	* 1.4260	* 1.6550	* 1.4989	* 2.3018	* 3.1479	*	*
15	* .8000	* .9425	* 1.1524	* .7958	F-SUB-Q			
	* 2.6062	* 2.2139	* 1.8123	* 2.6348	M-SUB-Q			

Table 1 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Normal Operations

AT 100% POWER, 200 EFPD, THIS IS LEVEL 10 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.0389	* 1.3173	* 1.1920	* 1.4234	* 1.2424	* 1.5776	* 1.2777	* .8097
	* 2.1950	* 1.7284	* 1.9106	* 1.5934	* 1.8204	* 1.4150	* 1.7401	* 2.7174
9	* 1.3173	* 1.3452	* 1.5915	* 1.4244	* 1.5969	* 1.4619	* 1.5123	* .9553
	* 1.7284	* 1.6908	* 1.4241	* 1.5929	* 1.4054	* 1.5335	* 1.4695	* 2.3005
10	* 1.1920	* 1.5915	* 1.4287	* 1.5969	* 1.4351	* 1.5969	* 1.2970	* 1.1760
	* 1.9106	* 1.4241	* 1.5894	* 1.4138	* 1.5727	* 1.4054	* 1.7150	* 1.8694
11	* 1.4234	* 1.4234	* 1.5947	* 1.2863	* 1.5883	* 1.3912	* 1.4459	* .8097
	* 1.5934	* 1.5929	* 1.4165	* 1.7576	* 1.4153	* 1.6130	* 1.5406	* 2.7205
12	* 1.2424	* 1.5947	* 1.4330	* 1.5862	* 1.3687	* 1.4983	* .9382	*
	* 1.8204	* 1.4071	* 1.5749	* 1.4172	* 1.6447	* 1.4963	* 2.3730	*
13	* 1.5776	* 1.4608	* 1.5947	* 1.3902	* 1.4973	* 1.0731	* .6790	*
	* 1.4150	* 1.5351	* 1.4071	* 1.6136	* 1.4978	* 2.0815	* 3.2573	*
14	* 1.2777	* 1.5112	* 1.2959	* 1.4448	* .9403	* .6801	*	*
	* 1.7401	* 1.4705	* 1.7164	* 1.5406	* 2.3654	* 3.2525	*	*
15	* .8097	* .9543	* 1.1749	* .8086	F-SUB-Q			
	* 2.7174	* 2.3011	* 1.8705	* 2.7220	M-SUB-Q			

AT 100% POWER, 200 EFPD, THIS IS LEVEL 9 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.0196	* 1.2991	* 1.1727	* 1.4073	* 1.2252	* 1.5647	* 1.2627	* .7968
	* 2.2038	* 1.7364	* 1.9254	* 1.6111	* 1.8466	* 1.4552	* 1.7927	* 2.8230
9	* 1.2991	* 1.3291	* 1.5776	* 1.4094	* 1.5851	* 1.4501	* 1.4994	* .9414
	* 1.7364	* 1.7043	* 1.4428	* 1.6123	* 1.4381	* 1.5699	* 1.5161	* 2.3922
10	* 1.1727	* 1.5776	* 1.4137	* 1.5840	* 1.4212	* 1.5840	* 1.2831	* 1.1610
	* 1.9254	* 1.4428	* 1.6076	* 1.4381	* 1.6018	* 1.4391	* 1.7683	* 1.9458
11	* 1.4073	* 1.4084	* 1.5808	* 1.2702	* 1.5765	* 1.3773	* 1.4309	* .7947
	* 1.6111	* 1.6134	* 1.4409	* 1.7942	* 1.4523	* 1.6557	* 1.5902	* 2.8375
12	* 1.7252	* 1.5829	* 1.4191	* 1.5744	* 1.3537	* 1.4833	* .9232	*
	* 1.8466	* 1.4400	* 1.6041	* 1.4542	* 1.6848	* 1.5393	* 2.4615	*
13	* 1.5647	* 1.4491	* 1.5819	* 1.3762	* 1.4823	* 1.0592	* .6662	*
	* 1.4552	* 1.5710	* 1.4409	* 1.6570	* 1.5404	* 2.1481	* 3.3954	*
14	* 1.2627	* 1.4983	* 1.2820	* 1.4309	* .9264	* .6672	*	*
	* 1.7927	* 1.5171	* 1.7697	* 1.5914	* 2.4533	* 3.3902	*	*
15	* .7968	* .9414	* 1.1599	* .7947	F-SUB-Q			
	* 2.8230	* 2.3948	* 1.9458	* 2.8412	M-SUB-Q			

Table 1 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Normal Operations

AT 100% POWER, 200 EFPD, THIS IS LEVEL 8 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.0346 *	* 1.3248 *	* 1.1963 *	* 1.4394 *	* 1.2531 *	* 1.6119 *	* 1.2884 *	* .8107 *
	* 2.1072 *	* 1.6496 *	* 1.8298 *	* 1.5255 *	* 1.7515 *	* 1.3687 *	* 1.7029 *	* 2.6717 *
9	* 1.3248 *	* 1.3559 *	* 1.6215 *	* 1.4394 *	* 1.6311 *	* 1.4855 *	* 1.5422 *	* .9596 *
	* 1.6496 *	* 1.6182 *	* 1.3586 *	* 1.5276 *	* 1.3528 *	* 1.4835 *	* 1.4270 *	* 2.2653 *
10	* 1.1963 *	* 1.6215 *	* 1.4437 *	* 1.6290 *	* 1.4533 *	* 1.6301 *	* 1.3109 *	* 1.1910 *
	* 1.8298 *	* 1.3586 *	* 1.5244 *	* 1.3544 *	* 1.5161 *	* 1.3536 *	* 1.6771 *	* 1.8311 *
11	* 1.4394 *	* 1.4394 *	* 1.6258 *	* 1.3013 *	* 1.6236 *	* 1.4084 *	* 1.4716 *	* .8140 *
	* 1.5255 *	* 1.5286 *	* 1.3569 *	* 1.6925 *	* 1.3628 *	* 1.5654 *	* 1.4955 *	* 2.6774 *
12	* 1.2531 *	* 1.6290 *	* 1.4512 *	* 1.6215 *	* 1.3827 *	* 1.5251 *	* .9457 *	
	* 1.7515 *	* 1.3544 *	* 1.5181 *	* 1.3645 *	* 1.5948 *	* 1.4466 *	* 2.3219 *	
13	* 1.6119 *	* 1.4833 *	* 1.6279 *	* 1.4073 *	* 1.5240 *	* 1.0796 *	* .6779 *	
	* 1.3687 *	* 1.4845 *	* 1.3553 *	* 1.5666 *	* 1.4485 *	* 2.0372 *	* 3.2222 *	
14	* 1.2884 *	* 1.5401 *	* 1.3098 *	* 1.4705 *	* .9489 *	* .6790 *		
	* 1.7029 *	* 1.4288 *	* 1.6771 *	* 1.4966 *	* 2.3146 *	* 3.2175 *		
15	* .8107 *	* .9596 *	* 1.1910 *	* .8140 *	F-SUB-Q			
	* 2.6717 *	* 2.2663 *	* 1.8326 *	* 2.6806 *	M-SUB-Q			

AT 100% POWER, 200 EFPD, THIS IS LEVEL 7 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.0324 *	* 1.3291 *	* 1.1984 *	* 1.4469 *	* 1.2574 *	* 1.6258 *	* 1.2938 *	* .8118 *
	* 2.0371 *	* 1.5856 *	* 1.7549 *	* 1.4591 *	* 1.6741 *	* 1.2992 *	* 1.6190 *	* 2.5472 *
9	* 1.3291 *	* 1.3612 *	* 1.6343 *	* 1.4469 *	* 1.6461 *	* 1.4951 *	* 1.5551 *	* .9628 *
	* 1.5856 *	* 1.5520 *	* 1.2989 *	* 1.4637 *	* 1.2889 *	* 1.4143 *	* 1.3532 *	* 2.1533 *
10	* 1.1984 *	* 1.6343 *	* 1.4501 *	* 1.6418 *	* 1.4619 *	* 1.6440 *	* 1.3173 *	* 1.1984 *
	* 1.7549 *	* 1.2989 *	* 1.4617 *	* 1.2936 *	* 1.4521 *	* 1.2897 *	* 1.5947 *	* 1.7338 *
11	* 1.4469 *	* 1.4459 *	* 1.6386 *	* 1.3077 *	* 1.6386 *	* 1.4159 *	* 1.4833 *	* .8172 *
	* 1.4591 *	* 1.4646 *	* 1.2958 *	* 1.6295 *	* 1.3063 *	* 1.5008 *	* 1.4234 *	* 2.5431 *
12	* 1.2574 *	* 1.6429 *	* 1.4587 *	* 1.6365 *	* 1.3902 *	* 1.5369 *	* .9489 *	
	* 1.6741 *	* 1.2904 *	* 1.4540 *	* 1.3079 *	* 1.5425 *	* 1.3908 *	* 2.2187 *	
13	* 1.6258 *	* 1.4940 *	* 1.6418 *	* 1.4148 *	* 1.5358 *	* 1.0839 *	* .6779 *	
	* 1.2992 *	* 1.4155 *	* 1.2919 *	* 1.5012 *	* 1.3920 *	* 1.9618 *	* 3.0808 *	
14	* 1.2938 *	* 1.5540 *	* 1.3163 *	* 1.4833 *	* .9521 *	* .6790 *		
	* 1.6190 *	* 1.3545 *	* 1.5958 *	* 1.4243 *	* 2.2112 *	* 3.0765 *		
15	* .8118 *	* .9618 *	* 1.1984 *	* .8161 *	F-SUB-Q			
	* 2.5472 *	* 2.1554 *	* 1.7352 *	* 2.5448 *	M-SUB-Q			

Catawba 1 Cycle 9 Core Operating Limits Report

CNEI-0400-24

Appendix A

Page 25 of 204

Revision 6

Table 1 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Normal Operations

AT 100% POWER, 200 EFPD, THIS IS LEVEL 6 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.0174 *	* 1.3152 *	* 1.1835 *	* 1.4330 *	* 1.2424 *	* 1.6129 *	* 1.2820 *	* .8011 *
	* 1.9673 *	* 1.5282 *	* 1.6989 *	* 1.4072 *	* 1.6195 *	* 1.2520 *	* 1.5623 *	* 2.4698 *
9	* 1.3152 *	* 1.3484 *	* 1.6204 *	* 1.4341 *	* 1.6333 *	* 1.4844 *	* 1.5433 *	* .9532 *
	* 1.5282 *	* 1.4961 *	* 1.2515 *	* 1.4109 *	* 1.2402 *	* 1.3611 *	* 1.3037 *	* 2.0835 *
10	* 1.1835 *	* 1.6194 *	* 1.4362 *	* 1.6279 *	* 1.4491 *	* 1.6322 *	* 1.3066 *	* 1.1867 *
	* 1.6989 *	* 1.2515 *	* 1.4091 *	* 1.2459 *	* 1.3981 *	* 1.2413 *	* 1.5358 *	* 1.6748 *
11	* 1.4330 *	* 1.4330 *	* 1.6258 *	* 1.2927 *	* 1.6247 *	* 1.4052 *	* 1.4716 *	* .8043 *
	* 1.4072 *	* 1.4118 *	* 1.2480 *	* 1.5706 *	* 1.2548 *	* 1.4420 *	* 1.3704 *	* 2.4664 *
12	* 1.2424 *	* 1.6311 *	* 1.4469 *	* 1.6226 *	* 1.3784 *	* 1.5251 *	* .9371 *	
	* 1.6195 *	* 1.2420 *	* 1.4002 *	* 1.2562 *	* 1.4772 *	* 1.3333 *	* 2.1414 *	
13	* 1.6129 *	* 1.4833 *	* 1.6290 *	* 1.4041 *	* 1.5230 *	* 1.0731 *	* .6683 *	
	* 1.2520 *	* 1.3628 *	* 1.2434 *	* 1.4430 *	* 1.3341 *	* 1.8825 *	* 2.9770 *	
14	* 1.2820 *	* 1.5412 *	* 1.3055 *	* 1.4705 *	* .9403 *	* .6694 *		
	* 1.5623 *	* 1.3052 *	* 1.5369 *	* 1.3704 *	* 2.1352 *	* 2.9730 *		
15	* .8011 *	* .9521 *	* 1.1856 *	* .8043 *	F-SUB-Q			
	* 2.4698 *	* 2.0843 *	* 1.6761 *	* 2.4675 *	M-SUB-Q			

AT 100% POWER, 200 EFPD, THIS IS LEVEL 5 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.0324 *	* 1.3398 *	* 1.2038 *	* 1.4608 *	* 1.2649 *	* 1.6504 *	* 1.3045 *	* .8129 *
	* 1.8440 *	* 1.4262 *	* 1.5883 *	* 1.3139 *	* 1.5145 *	* 1.1653 *	* 1.4652 *	* 2.3255 *
9	* 1.3398 *	* 1.3709 *	* 1.6547 *	* 1.4587 *	* 1.6697 *	* 1.5133 *	* 1.5787 *	* .9682 *
	* 1.4262 *	* 1.4001 *	* 1.1657 *	* 1.3201 *	* 1.1552 *	* 1.2722 *	* 1.2150 *	* 1.9585 *
10	* 1.2038 *	* 1.6547 *	* 1.4608 *	* 1.6633 *	* 1.4737 *	* 1.6686 *	* 1.3302 *	* 1.2134 *
	* 1.5883 *	* 1.1662 *	* 1.3193 *	* 1.1607 *	* 1.3083 *	* 1.1563 *	* 1.4394 *	* 1.5651 *
11	* 1.4608 *	* 1.4576 *	* 1.6600 *	* 1.3184 *	* 1.6622 *	* 1.4298 *	* 1.5058 *	* .8215 *
	* 1.3139 *	* 1.3209 *	* 1.1626 *	* 1.4646 *	* 1.1667 *	* 1.3488 *	* 1.2765 *	* 2.3088 *
12	* 1.2649 *	* 1.6675 *	* 1.4716 *	* 1.6600 *	* 1.4009 *	* 1.5594 *	* .9564 *	
	* 1.5145 *	* 1.1569 *	* 1.3106 *	* 1.1680 *	* 1.3798 *	* 1.2396 *	* 2.0011 *	
13	* 1.6504 *	* 1.5112 *	* 1.6654 *	* 1.4287 *	* 1.5583 *	* 1.0903 *	* .6779 *	
	* 1.1653 *	* 1.2730 *	* 1.1581 *	* 1.3496 *	* 1.2410 *	* 1.7644 *	* 2.8012 *	
14	* 1.3045 *	* 1.5776 *	* 1.3291 *	* 1.5048 *	* .9596 *	* .6790 *		
	* 1.4652 *	* 1.2157 *	* 1.4403 *	* 1.2765 *	* 1.9939 *	* 2.7977 *		
15	* .8129 *	* .9671 *	* 1.2124 *	* .8215 *	F-SUB-Q			
	* 2.3255 *	* 1.9603 *	* 1.5662 *	* 2.3088 *	M-SUB-Q			

Catawba 1 Cycle 9 Core Operating Limits Report

CNEI-0400-24

Appendix A

Page 26 of 204

Revision 6

Table 1 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Normal Operations

AT 100% POWER, 200 EFPD, THIS IS LEVEL 4 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.0110	* 1.3163	* 1.1770	* 1.4330	* 1.2349	* 1.6151	* 1.2788	* .7947
	* 1.7903	* 1.3811	* 1.5474	* 1.2749	* 1.4773	* 1.1341	* 1.4240	* 2.2724
9	* 1.3163	* 1.3441	* 1.6183	* 1.4287	* 1.6343	* 1.4844	* 1.5465	* .9478
	* 1.3811	* 1.3591	* 1.1343	* 1.2822	* 1.1233	* 1.2336	* 1.1811	* 1.9093
10	* 1.1770	* 1.6183	* 1.4309	* 1.6268	* 1.4437	* 1.6333	* 1.3055	* 1.1856
	* 1.5474	* 1.1343	* 1.2808	* 1.1291	* 1.2704	* 1.1239	* 1.3962	* 1.5265
11	* 1.4330	* 1.4276	* 1.6236	* 1.2852	* 1.6247	* 1.4019	* 1.4737	* .8000
	* 1.2749	* 1.2830	* 1.1314	* 1.4261	* 1.1337	* 1.3069	* 1.2397	* 2.2585
12	* 1.2349	* 1.6311	* 1.4416	* 1.6226	* 1.3730	* 1.5262	* .9339	
	* 1.4773	* 1.1250	* 1.2718	* 1.1348	* 1.3359	* 1.2016	* 1.9482	
13	* 1.6151	* 1.4833	* 1.6301	* 1.4009	* 1.5251	* 1.0689	* .6608	
	* 1.1341	* 1.2350	* 1.1256	* 1.3077	* 1.2029	* 1.7073	* 2.7339	
14	* 1.2788	* 1.5444	* 1.3045	* 1.4726	* .9371	* .6619		
	* 1.4240	* 1.1823	* 1.3971	* 1.2404	* 1.9414	* 2.7272		
15	* .7947	* .9478	* 1.1845	* .8000	F-SUB-Q			
	* 2.2724	* 1.9093	* 1.5275	* 2.2588	M-SUB-Q			

AT 100% POWER, 200 EFPD, THIS IS LEVEL 3 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.0025	* 1.3055	* 1.1631	* 1.4169	* 1.2188	* 1.5894	* 1.2595	* .7797
	* 1.7380	* 1.3401	* 1.5062	* 1.2400	* 1.4416	* 1.1081	* 1.3925	* 2.2302
9	* 1.3055	* 1.3248	* 1.5926	* 1.4073	* 1.6076	* 1.4651	* 1.5219	* .9307
	* 1.3401	* 1.3257	* 1.1083	* 1.2518	* 1.0973	* 1.2023	* 1.1546	* 1.8717
10	* 1.1631	* 1.5926	* 1.4084	* 1.6001	* 1.4212	* 1.6065	* 1.2863	* 1.1620
	* 1.5062	* 1.1083	* 1.2511	* 1.1034	* 1.2405	* 1.0978	* 1.3634	* 1.4993
11	* 1.4169	* 1.4062	* 1.5969	* 1.2659	* 1.5947	* 1.3816	* 1.4491	* .7872
	* 1.2400	* 1.2525	* 1.1056	* 1.3911	* 1.1076	* 1.2745	* 1.2125	* 2.2082
12	* 1.2188	* 1.6054	* 1.4191	* 1.5926	* 1.3505	* 1.5005	* .9200	
	* 1.4416	* 1.0989	* 1.2419	* 1.1088	* 1.3037	* 1.1736	* 1.9006	
13	* 1.5894	* 1.4630	* 1.6044	* 1.3805	* 1.4983	* 1.0507	* .6480	
	* 1.1081	* 1.2035	* 1.0994	* 1.2753	* 1.1749	* 1.6684	* 2.6823	
14	* 1.2595	* 1.5197	* 1.2852	* 1.4480	* .9232	* .6490		
	* 1.3925	* 1.1558	* 1.3644	* 1.2125	* 1.8941	* 2.6791		
15	* .7797	* .9307	* 1.1610	* .7872	F-SUB-Q			
	* 2.2302	* 1.8732	* 1.5003	* 2.2104	M-SUB-Q			

Catawba 1 Cycle 9 Core Operating Limits Report

CNEI-0400-24

Appendix A

Page 27 of 204

Revision 6

Table 1 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Normal Operations

AT 100% POWER, 200 EFPD, THIS IS LEVEL 2 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* .9296 *	* 1.1942 *	* 1.0699 *	* 1.2938 *	* 1.1192 *	* 1.4416 *	* 1.1428 *	* .7069 *
	* 1.8253 *	* 1.4263 *	* 1.5939 *	* 1.3213 *	* 1.5259 *	* 1.1884 *	* 1.4918 *	* 2.3994 *
9	* 1.1942 *	* 1.2102 *	* 1.4351 *	* 1.2831 *	* 1.4501 *	* 1.3366 *	* 1.3666 *	* .8397 *
	* 1.4263 *	* 1.4110 *	* 1.1944 *	* 1.3340 *	* 1.1815 *	* 1.2793 *	* 1.2497 *	* 2.0219 *
10	* 1.0699 *	* 1.4351 *	* 1.2841 *	* 1.4501 *	* 1.2970 *	* 1.4491 *	* 1.1706 *	* 1.0239 *
	* 1.5939 *	* 1.1944 *	* 1.3324 *	* 1.1854 *	* 1.3204 *	* 1.1827 *	* 1.4558 *	* 1.6559 *
11	* 1.2938 *	* 1.2820 *	* 1.4480 *	* 1.1588 *	* 1.4523 *	* 1.2574 *	* 1.2916 *	* .7101 *
	* 1.3213 *	* 1.3347 *	* 1.1872 *	* 1.4763 *	* 1.1822 *	* 1.3005 *	* 1.3209 *	* 2.3864 *
12	* 1.1192 *	* 1.4480 *	* 1.2948 *	* 1.4501 *	* 1.2274 *	* 1.3388 *	* .8365 *	
	* 1.5259 *	* 1.1833 *	* 1.3220 *	* 1.1840 *	* 1.3930 *	* 1.2777 *	* 2.0350 *	
13	* 1.4416 *	* 1.3355 *	* 1.4469 *	* 1.2563 *	* 1.3366 *	* .9500 *	* .5826 *	
	* 1.1884 *	* 1.2808 *	* 1.1840 *	* 1.3606 *	* 1.2792 *	* 1.7939 *	* 2.9069 *	
14	* 1.1428 *	* 1.3645 *	* 1.1695 *	* 1.2916 *	* .8386 *	* .5826 *		
	* 1.4918 *	* 1.2511 *	* 1.4568 *	* 1.3216 *	* 2.0277 *	* 2.9031 *		
15	* .7069 *	* .8386 *	* 1.0239 *	* .7090 *	F-SUB-Q			
	* 2.3994 *	* 2.0238 *	* 1.6572 *	* 2.3887 *	M-SUB-Q			

AT 100% POWER 200 EFPD, THIS IS LEVEL 1 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* .6683 *	* .8225 *	* .7529 *	* .8879 *	* .7904 *	* 1.0100 *	* .7711 *	* .4862 *
	* 2.4972 *	* 2.0339 *	* 2.2252 *	* 1.8906 *	* 2.1211 *	* 1.6604 *	* 2.1704 *	* 3.4218 *
9	* .8225 *	* .8354 *	* 1.0260 *	* .8761 *	* 1.0485 *	* .9211 *	* .9307 *	* .5676 *
	* 2.0339 *	* 2.0065 *	* 1.6361 *	* 1.9183 *	* 1.6029 *	* 1.8237 *	* 1.7983 *	* 2.9343 *
10	* .7529 *	* 1.0260 *	* .8761 *	* 1.0464 *	* .8889 *	* 1.0357 *	* .8032 *	* .6480 *
	* 2.2252 *	* 1.6373 *	* 1.9183 *	* 1.6066 *	* 1.8904 *	* 1.6215 *	* 2.0846 *	* 2.5711 *
11	* .8879 *	* .8750 *	* 1.0442 *	* .8150 *	* 1.0271 *	* .8536 *	* .8493 *	* .4755 *
	* 1.8906 *	* 1.9199 *	* 1.6090 *	* 2.0620 *	* 1.6349 *	* 1.9652 *	* 1.9685 *	* 3.5025 *
12	* .7904 *	* 1.0464 *	* .8879 *	* 1.0249 *	* .8311 *	* .8975 *	* .5719 *	
	* 2.1211 *	* 1.6053 *	* 1.8934 *	* 1.6384 *	* 2.0189 *	* 1.8647 *	* 2.9227 *	
13	* 1.0100 *	* .9200 *	* 1.0346 *	* .8536 *	* .8975 *	* .6490 *	* .3941 *	
	* 1.6604 *	* 1.8252 *	* 1.6227 *	* 1.9670 *	* 1.8647 *	* 2.5774 *	* 4.2210 *	
14	* .7711 *	* .9296 *	* .8022 *	* .8493 *	* .5730 *	* .3941 *		
	* 2.1704 *	* 1.7997 *	* 2.0849 *	* 1.9685 *	* 2.9154 *	* 4.2201 *		
15	* .4862 *	* .5676 *	* .6480 *	* .4755 *	F-SUB-Q			
	* 3.4218 *	* 2.9378 *	* 2.5741 *	* 3.5025 *	M-SUB-Q			

Table 1 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Normal Operations

AT 100% POWER, 300 EFPD, THIS IS LEVEL 18 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8 *	.6758 *	.8547 *	.8140 *	.9157 *	.8429 *	.9982 *	.8225 *	.5698 *
	* 2.1865 *	* 1.9335 *	* 2.0277 *	* 1.7830 *	* 1.9176 *	* 1.6104 *	* 1.9425 *	* 2.7834 *
9 *	.8547 *	.8911 *	1.0121 *	.9136 *	1.0207 *	.9318 *	.9253 *	.6276 *
	* 1.9335 *	* 1.8860 *	* 1.6301 *	* 1.7975 *	* 1.6023 *	* 1.7511 *	* 1.7361 *	* 2.5470 *
10 *	.8140 *	1.0121 *	.9178 *	1.0207 *	.9221 *	1.0014 *	.8300 *	.6887 *
	* 2.0277 *	* 1.6301 *	* 1.8020 *	* 1.6218 *	* 1.8018 *	* 1.6500 *	* 1.9727 *	* 2.3390 *
11 *	.9157 *	.9136 *	1.0196 *	.8290 *	.9714 *	.8525 *	.8375 *	.5269 *
	* 1.7830 *	* 1.7991 *	* 1.6218 *	* 1.9768 *	* 1.6729 *	* 1.9122 *	* 1.9768 *	* 3.1241 *
12 *	.8429 *	1.0196 *	.9211 *	.9703 *	.7615 *	.8150 *	.5976 *	
	* 1.9176 *	* 1.6036 *	* 1.8034 *	* 1.6743 *	* 1.8985 *	* 1.8377 *	* 2.6832 *	
13 *	.9982 *	.9307 *	1.0014 *	.8525 *	.8150 *	.6265 *	.4466 *	
	* 1.6104 *	* 1.7514 *	* 1.6502 *	* 1.9140 *	* 1.8377 *	* 2.3314 *	* 3.4838 *	
14 *	.8225 *	.9243 *	.8300 *	.8375 *	.5987 *	.4477 *		
	* 1.9425 *	* 1.7376 *	* 1.9727 *	* 1.9768 *	* 2.6796 *	* 3.4778 *		
15 *	.5698 *	.6276 *	.6876 *	.5269 *	F-SUB-Q			
	* 2.7834 *	* 2.5470 *	* 2.3390 *	* 3.1241 *	M-SUB-Q			

AT 100% POWER, 300 EFPD, THIS IS LEVEL 17 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8 *	.9264 *	1.1310 *	1.0442 *	1.2049 *	1.0796 *	1.2798 *	1.1053 *	.7529 *
	* 1.7890 *	* 1.5160 *	* 1.6391 *	* 1.3988 *	* 1.5460 *	* 1.2938 *	* 1.4902 *	* 2.1725 *
9 *	1.1310 *	1.1738 *	1.2916 *	1.2188 *	1.2970 *	1.2284 *	1.2274 *	.8514 *
	* 1.5160 *	* 1.4809 *	* 1.3198 *	* 1.3928 *	* 1.3122 *	* 1.3691 *	* 1.3546 *	* 1.9359 *
10 *	1.0442 *	1.2927 *	1.2263 *	1.2959 *	1.2306 *	1.2906 *	1.1063 *	.9703 *
	* 1.6391 *	* 1.3196 *	* 1.3928 *	* 1.3169 *	* 1.3945 *	* 1.3179 *	* 1.5259 *	* 1.7119 *
11 *	1.2049 *	1.2188 *	1.2948 *	1.0710 *	1.2670 *	1.1567 *	1.1578 *	.7090 *
	* 1.3988 *	* 1.3937 *	* 1.3179 *	* 1.5703 *	* 1.3401 *	* 1.4639 *	* 1.4825 *	* 2.3987 *
12 *	1.0796 *	1.2959 *	1.2295 *	1.2649 *	1.1106 *	1.1599 *	.7979 *	
	* 1.5460 *	* 1.3153 *	* 1.3954 *	* 1.3416 *	* 1.4492 *	* 1.4050 *	* 2.0932 *	
13 *	1.2798 *	1.2274 *	1.2895 *	1.1567 *	1.1588 *	.8921 *	.6105 *	
	* 1.2938 *	* 1.3700 *	* 1.3188 *	* 1.4639 *	* 1.4060 *	* 1.7963 *	* 2.6750 *	
14 *	1.1053 *	1.2263 *	1.1053 *	1.1578 *	.7990 *	.6105 *		
	* 1.4902 *	* 1.3555 *	* 1.5269 *	* 1.4833 *	* 2.0890 *	* 2.6738 *		
15 *	.7529 *	.8514 *	.9703 *	.7079 *	F-SUB-Q			
	* 2.1725 *	* 1.9359 *	* 1.7130 *	* 2.3992 *	M-SUB-Q			

Catawba 1 Cycle 9 Core Operating Limits Report

CNEI-0400-24

Appendix A

Page 29 of 204

Revision 6

Table 1 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Normal Operations

AT 100% POWER, 300 EFPD, THIS IS LEVEL 16 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.0207 *	* 1.2338 *	* 1.1320 *	* 1.3152 *	* 1.1717 *	* 1.4201 *	* 1.2059 *	* .8150 *
	* 1.7418 *	* 1.4460 *	* 1.5663 *	* 1.3222 *	* 1.4685 *	* 1.1998 *	* 1.4061 *	* 2.0654 *
9	* 1.2338 *	* 1.2766 *	* 1.4362 *	* 1.3323 *	* 1.4426 *	* 1.3441 *	* 1.3634 *	* .9318 *
	* 1.4460 *	* 1.4086 *	* 1.2255 *	* 1.3153 *	* 1.2174 *	* 1.2903 *	* 1.2548 *	* 1.8203 *
10	* 1.1320 *	* 1.4362 *	* 1.3398 *	* 1.4426 *	* 1.3484 *	* 1.4362 *	* 1.2102 *	* 1.0871 *
	* 1.5663 *	* 1.2254 *	* 1.3161 *	* 1.2217 *	* 1.3159 *	* 1.2224 *	* 1.4383 *	* 1.5722 *
11	* 1.3152 *	* 1.3313 *	* 1.4416 *	* 1.1877 *	* 1.4244 *	* 1.2798 *	* 1.2991 *	* .7765 *
	* 1.3222 *	* 1.3161 *	* 1.2225 *	* 1.4791 *	* 1.2376 *	* 1.3763 *	* 1.3661 *	* 2.2577 *
12	* 1.1717 *	* 1.4416 *	* 1.3462 *	* 1.4223 *	* 1.2681 *	* 1.3345 *	* .8804 *	
	* 1.4685 *	* 1.2196 *	* 1.3168 *	* 1.2383 *	* 1.3661 *	* 1.2972 *	* 1.9797 *	
13	* 1.4201 *	* 1.3430 *	* 1.4351 *	* 1.2788 *	* 1.3334 *	* 1.0078 *	* .6769 *	
	* 1.1998 *	* 1.2911 *	* 1.2232 *	* 1.3769 *	* 1.2980 *	* 1.6971 *	* 2.5346 *	
14	* 1.2059 *	* 1.3623 *	* 1.2092 *	* 1.2991 *	* .8825 *	* .6769 *		
	* 1.4061 *	* 1.2556 *	* 1.4393 *	* 1.3664 *	* 1.9741 *	* 2.5316 *		
15	* .8150 *	* .9318 *	* 1.0871 *	* .7765 *	F-SUB-Q			
	* 2.0654 *	* 1.8205 *	* 1.5724 *	* 2.2581 *	M-SUB-Q			

AT 100% POWER, 300 EFPD, THIS IS LEVEL 15 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.0346 *	* 1.2616 *	* 1.1578 *	* 1.3505 *	* 1.2038 *	* 1.4801 *	* 1.2370 *	* .8290 *
	* 1.7936 *	* 1.4738 *	* 1.5844 *	* 1.3324 *	* 1.4773 *	* 1.1904 *	* 1.4168 *	* 2.0999 *
9	* 1.2616 *	* 1.3002 *	* 1.4919 *	* 1.3655 *	* 1.5015 *	* 1.3859 *	* 1.4201 *	* .9543 *
	* 1.4738 *	* 1.4293 *	* 1.2203 *	* 1.3269 *	* 1.2047 *	* 1.2939 *	* 1.2459 *	* 1.8360 *
10	* 1.1578 *	* 1.4930 *	* 1.3730 *	* 1.5026 *	* 1.3827 *	* 1.4962 *	* 1.2456 *	* 1.1310 *
	* 1.5844 *	* 1.2203 *	* 1.3296 *	* 1.2145 *	* 1.3269 *	* 1.2137 *	* 1.4449 *	* 1.5625 *
11	* 1.3505 *	* 1.3655 *	* 1.5005 *	* 1.2349 *	* 1.4962 *	* 1.3248 *	* 1.3559 *	* .8000 *
	* 1.3324 *	* 1.3279 *	* 1.2153 *	* 1.4831 *	* 1.2260 *	* 1.3836 *	* 1.3585 *	* 2.2659 *
12	* 1.2038 *	* 1.5005 *	* 1.3816 *	* 1.4951 *	* 1.3120 *	* 1.3998 *	* .9114 *	
	* 1.4773 *	* 1.2074 *	* 1.3284 *	* 1.2274 *	* 1.3809 *	* 1.2929 *	* 1.9965 *	
13	* 1.4801 *	* 1.3859 *	* 1.4951 *	* 1.3238 *	* 1.3998 *	* 1.0432 *	* .6972 *	
	* 1.1904 *	* 1.2947 *	* 1.2145 *	* 1.3839 *	* 1.2937 *	* 1.7210 *	* 2.5822 *	
14	* 1.2370 *	* 1.4191 *	* 1.2445 *	* 1.3559 *	* .9136 *	* .6972 *		
	* 1.4168 *	* 1.2467 *	* 1.4449 *	* 1.3585 *	* 1.9896 *	* 2.5790 *		
15	* .8290 *	* .9543 *	* 1.1310 *	* .8000 *	F-SUB-Q			
	* 2.0999 *	* 1.8376 *	* 1.5637 *	* 2.2683 *	M-SUB-Q			

Catawba 1 Cycle 9 Core Operating Limits Report

CNEI-0400-24

Appendix A

Page 30 of 204

Revision 6

Table 1 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Normal Operations

AT 100% POWER, 300 EFPD, THIS IS LEVEL 14 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.0067 *	* 1.2338 *	* 1.1342 *	* 1.3280 *	* 1.1845 *	* 1.4641 *	* 1.2156 *	* .8075 *
	* 1.9071 *	* 1.5539 *	* 1.6815 *	* 1.4092 *	* 1.5634 *	* 1.2507 *	* 1.4989 *	* 2.2405 *
9	* 1.2338 *	* 1.2713 *	* 1.4748 *	* 1.3420 *	* 1.4855 *	* 1.3687 *	* 1.4041 *	* .9350 *
	* 1.5539 *	* 1.4998 *	* 1.2827 *	* 1.4025 *	* 1.2642 *	* 1.3617 *	* 1.3103 *	* 1.9491 *
10	* 1.1342 *	* 1.4748 *	* 1.3505 *	* 1.4887 *	* 1.3591 *	* 1.4812 *	* 1.2274 *	* 1.1149 *
	* 1.6815 *	* 1.2827 *	* 1.4063 *	* 1.2749 *	* 1.3959 *	* 1.2725 *	* 1.5211 *	* 1.6470 *
11	* 1.3280 *	* 1.3420 *	* 1.4876 *	* 1.2199 *	* 1.4844 *	* 1.3088 *	* 1.3420 *	* .7840 *
	* 1.4092 *	* 1.4043 *	* 1.2764 *	* 1.5576 *	* 1.2805 *	* 1.4512 *	* 1.4133 *	* 2.3977 *
12	* 1.1845 *	* 1.4844 *	* 1.3570 *	* 1.4833 *	* 1.2938 *	* 1.3880 *	* .8943 *	
	* 1.5634 *	* 1.2671 *	* 1.3973 *	* 1.2821 *	* 1.4592 *	* 1.3602 *	* 2.1139 *	
13	* 1.4641 *	* 1.3677 *	* 1.4801 *	* 1.3077 *	* 1.3869 *	* 1.0271 *	* .6822 *	
	* 1.2507 *	* 1.3626 *	* 1.2739 *	* 1.4512 *	* 1.3602 *	* 1.8302 *	* 2.7568 *	
14	* 1.2156 *	* 1.4030 *	* 1.2274 *	* 1.3420 *	* .8975 *	* .6833 *		
	* 1.4989 *	* 1.3111 *	* 1.5221 *	* 1.4133 *	* 2.1057 *	* 2.7534 *		
15	* .8075 *	* .9350 *	* 1.1149 *	* .7829 *	F-SUB-Q			
	* 2.2405 *	* 1.9491 *	* 1.6480 *	* 2.4003 *	M-SUB-Q			

AT 100% POWER, 300 EFPD, THIS IS LEVEL 13 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.0110 *	* 1.2466 *	* 1.1481 *	* 1.3473 *	* 1.2027 *	* 1.4973 *	* 1.2306 *	* .8140 *
	* 1.9603 *	* 1.5823 *	* 1.7175 *	* 1.4490 *	* 1.6087 *	* 1.2781 *	* 1.5481 *	* 2.3246 *
9	* 1.2466 *	* 1.2831 *	* 1.5058 *	* 1.3602 *	* 1.5165 *	* 1.3912 *	* 1.4351 *	* .9446 *
	* 1.5823 *	* 1.5341 *	* 1.3041 *	* 1.4396 *	* 1.2874 *	* 1.3959 *	* 1.3382 *	* 2.0140 *
10	* 1.1481 *	* 1.5058 *	* 1.3687 *	* 1.5240 *	* 1.3773 *	* 1.5144 *	* 1.2445 *	* 1.1374 *
	* 1.7175 *	* 1.3041 *	* 1.4356 *	* 1.2883 *	* 1.4240 *	* 1.2905 *	* 1.5579 *	* 1.6848 *
11	* 1.3473 *	* 1.3591 *	* 1.5219 *	* 1.2445 *	* 1.5208 *	* 1.3280 *	* 1.3720 *	* .7968 *
	* 1.4490 *	* 1.4406 *	* 1.2895 *	* 1.5817 *	* 1.2910 *	* 1.4747 *	* 1.4230 *	* 2.4368 *
12	* 1.2027 *	* 1.5155 *	* 1.3762 *	* 1.5187 *	* 1.3120 *	* 1.4191 *	* .9114 *	
	* 1.6087 *	* 1.2904 *	* 1.4254 *	* 1.2925 *	* 1.4984 *	* 1.3843 *	* 2.1495 *	
13	* 1.4973 *	* 1.3902 *	* 1.5123 *	* 1.3280 *	* 1.4180 *	* 1.0389 *	* .6897 *	
	* 1.2781 *	* 1.3968 *	* 1.2919 *	* 1.4757 *	* 1.3848 *	* 1.8908 *	* 2.8405 *	
14	* 1.2306 *	* 1.4341 *	* 1.2445 *	* 1.3720 *	* .9136 *	* .6908 *		
	* 1.5481 *	* 1.3391 *	* 1.5579 *	* 1.4230 *	* 2.1421 *	* 2.8386 *		
15	* .8140 *	* .9446 *	* 1.1374 *	* .7968 *	F-SUB-Q			
	* 2.3246 *	* 2.0140 *	* 1.6848 *	* 2.4369 *	M-SUB-Q			

Table 1 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Normal Operations

AT 100% POWER, 300 EFPD, THIS IS LEVEL 12 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8 *	.9971 *	1.2381 *	1.1395 *	1.3409 *	1.1963 *	1.4962 *	1.2231 *	.8054 *
	2.0637 *	1.6567 *	1.7955 *	1.5117 *	1.6878 *	1.3351 *	1.6262 *	2.4551 *
9 *	1.2381 *	1.2745 *	1.5037 *	1.3537 *	1.5155 *	1.3869 *	1.4330 *	.9361 *
	1.6567 *	1.6023 *	1.3523 *	1.4986 *	1.3354 *	1.4516 *	1.3942 *	2.1187 *
10 *	1.1395 *	1.5037 *	1.3634 *	1.5240 *	1.3709 *	1.5133 *	1.2391 *	1.1331 *
	1.7955 *	1.3515 *	1.4945 *	1.3353 *	1.4816 *	1.3362 *	1.6191 *	1.7577 *
11 *	1.3409 *	1.3527 *	1.5230 *	1.2391 *	1.5208 *	1.3227 *	1.3698 *	.7904 *
	1.5117 *	1.5006 *	1.3361 *	1.6437 *	1.3364 *	1.5330 *	1.4771 *	2.5350 *
12 *	1.1963 *	1.5144 *	1.3698 *	1.5187 *	1.3066 *	1.4169 *	.9050 *	
	1.6878 *	1.3362 *	1.4826 *	1.3380 *	1.5551 *	1.4316 *	2.2370 *	
13 *	1.4962 *	1.3859 *	1.5112 *	1.3227 *	1.4159 *	1.0314 *	.6822 *	
	1.3351 *	1.4526 *	1.3370 *	1.5340 *	1.4321 *	1.9636 *	2.9612 *	
14 *	1.2231 *	1.4319 *	1.2391 *	1.3698 *	.9071 *	.6833 *		
	1.6262 *	1.3942 *	1.6203 *	1.4771 *	2.2302 *	2.9572 *		
15 *	.8054 *	.9361 *	1.1331 *	.7904 *	F-SUB-Q			
	2.4551 *	2.1187 *	1.7577 *	2.5350 *	M-SUB-Q			

AT 100% POWER, 300 EFPD, THIS IS LEVEL 11 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8 *	.9832 *	1.2274 *	1.1278 *	1.3323 *	1.1867 *	1.4898 *	1.2124 *	.7947 *
	2.1733 *	1.7330 *	1.8849 *	1.5856 *	1.7777 *	1.3998 *	1.7158 *	2.5985 *
9 *	1.2274 *	1.2649 *	1.4973 *	1.3441 *	1.5090 *	1.3794 *	1.4266 *	.9253 *
	1.7330 *	1.6779 *	1.4119 *	1.5710 *	1.3934 *	1.5185 *	1.4577 *	2.2329 *
10 *	1.1278 *	1.4973 *	1.3537 *	1.5187 *	1.3623 *	1.5069 *	1.2306 *	1.1235 *
	1.8849 *	1.4119 *	1.5633 *	1.3898 *	1.5481 *	1.3934 *	1.6964 *	1.8433 *
11 *	1.3323 *	1.3441 *	1.5165 *	1.2306 *	1.5144 *	1.3141 *	1.3623 *	.7808 *
	1.5856 *	1.5722 *	1.3916 *	1.7266 *	1.3952 *	1.6032 *	1.5376 *	2.6599 *
12 *	1.1867 *	1.5080 *	1.3612 *	1.5133 *	1.2970 *	1.4094 *	.8943 *	
	1.7777 *	1.3943 *	1.5502 *	1.3969 *	1.6331 *	1.4990 *	2.3545 *	
13 *	1.4898 *	1.3784 *	1.5058 *	1.3141 *	1.4084 *	1.0217 *	.6726 *	
	1.3998 *	1.5196 *	1.3943 *	1.6043 *	1.4995 *	2.0630 *	3.1252 *	
14 *	1.2124 *	1.4255 *	1.2295 *	1.3623 *	.8975 *	.6737 *		
	1.7158 *	1.4577 *	1.6964 *	1.5376 *	2.3470 *	3.1208 *		
15 *	.7947 *	.9253 *	1.1224 *	.7797 *	F-SUB-Q			
	2.5985 *	2.2329 *	1.8433 *	2.6630 *	M-SUB-Q			

Table 1 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Normal Operations

AT 100% POWER, 300 EFPD, THIS IS LEVEL 10 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* .9917 *	* 1.2445 *	* 1.1428 *	* 1.3548 *	* 1.2049 *	* 1.5219 *	* 1.2284 *	* .8032 *
	* 2.2612 *	* 1.7980 *	* 1.9572 *	* 1.6457 *	* 1.8463 *	* 1.4433 *	* 1.7842 *	* 2.7050 *
9	* 1.2445 *	* 1.2831 *	* 1.5294 *	* 1.3655 *	* 1.5412 *	* 1.4041 *	* 1.4566 *	* .9371 *
	* 1.7980 *	* 1.7429 *	* 1.4563 *	* 1.6301 *	* 1.4348 *	* 1.5724 *	* 1.5022 *	* 2.3182 *
10	* 1.1428 *	* 1.5294 *	* 1.3762 *	* 1.5540 *	* 1.3848 *	* 1.5390 *	* 1.2477 *	* 1.1428 *
	* 1.9572 *	* 1.4563 *	* 1.6205 *	* 1.4282 *	* 1.6042 *	* 1.4348 *	* 1.7574 *	* 1.9002 *
11	* 1.3548 *	* 1.3655 *	* 1.5519 *	* 1.2520 *	* 1.5487 *	* 1.3345 *	* 1.3902 *	* .7925 *
	* 1.6457 *	* 1.6313 *	* 1.4301 *	* 1.7769 *	* 1.4284 *	* 1.6560 *	* 1.5804 *	* 2.7453 *
12	* 1.2049 *	* 1.5401 *	* 1.3827 *	* 1.5476 *	* 1.3163 *	* 1.4384 *	* .9093 *	
	* 1.8463 *	* 1.4357 *	* 1.6053 *	* 1.4293 *	* 1.6850 *	* 1.5365 *	* 2.4155 *	
13	* 1.5219 *	* 1.4030 *	* 1.5380 *	* 1.3345 *	* 1.4373 *	* 1.0346 *	* .6790 *	
	* 1.4433 *	* 1.5735 *	* 1.4357 *	* 1.6560 *	* 1.5375 *	* 2.1315 *	* 3.2207 *	
14	* 1.2284 *	* 1.4566 *	* 1.2477 *	* 1.3902 *	* .9125 *	* .6801 *		
	* 1.7842 *	* 1.5022 *	* 1.7588 *	* 1.5804 *	* 2.4076 *	* 3.2160 *		
15	* .8032 *	* .9361 *	* 1.1428 *	* .7925 *	F-SUB-Q			
	* 2.7050 *	* 2.3182 *	* 1.9010 *	* 2.7453 *	M-SUB-Q			

AT 100% POWER, 300 EFPD, THIS IS LEVEL 9 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* .9746 *	* 1.2284 *	* 1.1256 *	* 1.3409 *	* 1.1888 *	* 1.5101 *	* 1.2145 *	* .7915 *
	* 2.3170 *	* 1.8451 *	* 2.0150 *	* 1.6990 *	* 1.9138 *	* 1.5150 *	* 1.8732 *	* 2.8558 *
9	* 1.2284 *	* 1.2681 *	* 1.5165 *	* 1.3527 *	* 1.5294 *	* 1.3923 *	* 1.4437 *	* .9232 *
	* 1.8451 *	* 1.7956 *	* 1.5088 *	* 1.6899 *	* 1.4986 *	* 1.6434 *	* 1.5845 *	* 2.4506 *
10	* 1.1256 *	* 1.5165 *	* 1.3623 *	* 1.5422 *	* 1.3720 *	* 1.5272 *	* 1.2349 *	* 1.1278 *
	* 2.0150 *	* 1.5088 *	* 1.4784 *	* 1.4875 *	* 1.6682 *	* 1.5006 *	* 1.8466 *	* 2.0113 *
11	* 1.3409 *	* 1.3516 *	* 1.5412 *	* 1.2370 *	* 1.5369 *	* 1.3216 *	* 1.3752 *	* .7786 *
	* 1.6990 *	* 1.6899 *	* 1.4895 *	* 1.8497 *	* 1.4945 *	* 1.7323 *	* 1.6607 *	* 2.9123 *
12	* 1.1888 *	* 1.5272 *	* 1.3698 *	* 1.5358 *	* 1.3023 *	* 1.4234 *	* .8943 *	
	* 1.9138 *	* 1.4996 *	* 1.6708 *	* 1.4955 *	* 1.7585 *	* 1.6087 *	* 2.5466 *	
13	* 1.5101 *	* 1.3912 *	* 1.5262 *	* 1.3205 *	* 1.4234 *	* 1.0217 *	* .6672 *	
	* 1.5150 *	* 1.6447 *	* 1.5016 *	* 1.7323 *	* 1.6099 *	* 2.2350 *	* 3.4006 *	
14	* 1.2145 *	* 1.4426 *	* 1.2338 *	* 1.3752 *	* .8975 *	* .6683 *		
	* 1.8732 *	* 1.5845 *	* 1.8466 *	* 1.6620 *	* 2.5378 *	* 3.3954 *		
15	* .7915 *	* .9232 *	* 1.1278 *	* .7786 *	F-SUB-Q			
	* 2.8558 *	* 2.4506 *	* 2.0113 *	* 2.9123 *	M-SUB-Q			

Table 1 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Normal Operations

AT 100% POWER, 300 EFPD, THIS IS LEVEL 8 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* .9896 *	* 1.2531 *	* 1.1492 *	* 1.3709 *	* 1.2167 *	* 1.5551 *	* 1.2391 *	* .8065 *
	* 2.1866 *	* 1.7352 *	* 1.8956 *	* 1.5968 *	* 1.7993 *	* 1.4196 *	* 1.7677 *	* 2.6935 *
9	* 1.2531 *	* 1.2948 *	* 1.5594 *	* 1.3827 *	* 1.5754 *	* 1.4255 *	* 1.4844 *	* .9425 *
	* 1.7352 *	* 1.6896 *	* 1.4118 *	* 1.5895 *	* 1.4020 *	* 1.5448 *	* 1.4827 *	* 2.3106 *
10	* 1.1492 *	* 1.5594 *	* 1.3923 *	* 1.5904 *	* 1.4030 *	* 1.5712 *	* 1.2606 *	* 1.1578 *
	* 1.8956 *	* 1.4118 *	* 1.5793 *	* 1.3910 *	* 1.5701 *	* 1.4052 *	* 1.7396 *	* 1.8837 *
11	* 1.3709 *	* 1.3816 *	* 1.5894 *	* 1.2681 *	* 1.5851 *	* 1.3505 *	* 1.4137 *	* .7979 *
	* 1.5968 *	* 1.5895 *	* 1.3928 *	* 1.7355 *	* 1.3981 *	* 1.6303 *	* 1.5539 *	* 2.7267 *
12	* 1.2167 *	* 1.5712 *	* 1.4009 *	* 1.5829 *	* 1.3302 *	* 1.4630 *	* .9168 *	
	* 1.7993 *	* 1.4036 *	* 1.5712 *	* 1.3997 *	* 1.6552 *	* 1.5061 *	* 2.3849 *	
13	* 1.5551 *	* 1.4244 *	* 1.5701 *	* 1.3505 *	* 1.4619 *	* 1.0410 *	* .6801 *	
	* 1.4196 *	* 1.5459 *	* 1.4061 *	* 1.6305 *	* 1.5061 *	* 2.1038 *	* 3.1996 *	
14	* 1.2391 *	* 1.4833 *	* 1.2606 *	* 1.4137 *	* .9200 *	* .6812 *		
	* 1.7677 *	* 1.4827 *	* 1.7396 *	* 1.5539 *	* 2.3772 *	* 3.1949 *		
15	* .8065 *	* .9414 *	* 1.1578 *	* .7979 *	F-SUB-Q			
	* 2.6935 *	* 2.3106 *	* 1.8837 *	* 2.7294 *	M-SUB-Q			

AT 100% POWER, 300 EFPD, THIS IS LEVEL 7 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* .9907 *	* 1.2606 *	* 1.1556 *	* 1.3816 *	* 1.2242 *	* 1.5722 *	* 1.2466 *	* .8097 *
	* 2.0859 *	* 1.6467 *	* 1.8011 *	* 1.5126 *	* 1.7069 *	* 1.3371 *	* 1.6767 *	* 2.5631 *
9	* 1.2606 *	* 1.3034 *	* 1.5765 *	* 1.3934 *	* 1.5936 *	* 1.4384 *	* 1.5005 *	* .9468 *
	* 1.6467 *	* 1.6011 *	* 1.3318 *	* 1.5042 *	* 1.3211 *	* 1.4603 *	* 1.3987 *	* 2.1959 *
10	* 1.1556 *	* 1.5765 *	* 1.4041 *	* 1.6097 *	* 1.4148 *	* 1.5894 *	* 1.2702 *	* 1.1685 *
	* 1.8011 *	* 1.3310 *	* 1.4940 *	* 1.3086 *	* 1.4848 *	* 1.3236 *	* 1.6480 *	* 1.7831 *
11	* 1.3816 *	* 1.3934 *	* 1.6086 *	* 1.2777 *	* 1.6033 *	* 1.3612 *	* 1.4287 *	* .8022 *
	* 1.5126 *	* 1.5042 *	* 1.3102 *	* 1.6419 *	* 1.3148 *	* 1.5415 *	* 1.4672 *	* 2.5901 *
12	* 1.2242 *	* 1.5894 *	* 1.4126 *	* 1.6011 *	* 1.3398 *	* 1.4780 *	* .9232 *	
	* 1.7068 *	* 1.3230 *	* 1.4860 *	* 1.3162 *	* 1.5665 *	* 1.4203 *	* 2.2605 *	
13	* 1.5722 *	* 1.4384 *	* 1.5872 *	* 1.3612 *	* 1.4769 *	* 1.0474 *	* .6822 *	
	* 1.3371 *	* 1.4604 *	* 1.3251 *	* 1.5424 *	* 1.4203 *	* 1.9927 *	* 3.0406 *	
14	* 1.2466 *	* 1.4994 *	* 1.2702 *	* 1.4287 *	* .9253 *	* .6833 *		
	* 1.6767 *	* 1.3996 *	* 1.6480 *	* 1.4672 *	* 2.2532 *	* 3.0364 *		
15	* .8097 *	* .9468 *	* 1.1685 *	* .8022 *	F-SUB-Q			
	* 2.5631 *	* 2.1959 *	* 1.7833 *	* 2.5901 *	M-SUB-Q			

Table 1 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Normal Operations

AT 100% POWER, 300 EFPD, THIS IS LEVEL 6 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* .9832 *	* 1.2552 *	* 1.1470 *	* 1.3762 *	* 1.2177 *	* 1.5690 *	* 1.2424 *	* .8043 *
	* 2.0193 *	* 1.5880 *	* 1.7401 *	* 1.4558 *	* 1.6470 *	* 1.2848 *	* 1.6145 *	* 2.4782 *
9	* 1.2552 *	* 1.2991 *	* 1.5722 *	* 1.3891 *	* 1.5904 *	* 1.4362 *	* 1.4962 *	* .9425 *
	* 1.5880 *	* 1.5415 *	* 1.2800 *	* 1.4470 *	* 1.2695 *	* 1.4022 *	* 1.3454 *	* 2.1197 *
10	* 1.1470 *	* 1.5722 *	* 1.3998 *	* 1.6065 *	* 1.4105 *	* 1.5862 *	* 1.2670 *	* 1.1631 *
	* 1.7401 *	* 1.2799 *	* 1.4368 *	* 1.2567 *	* 1.4265 *	* 1.2716 *	* 1.5846 *	* 1.7203 *
11	* 1.3762 *	* 1.3891 *	* 1.6044 *	* 1.2713 *	* 1.6001 *	* 1.3570 *	* 1.4234 *	* .7947 *
	* 1.4558 *	* 1.4470 *	* 1.2580 *	* 1.5814 *	* 1.2622 *	* 1.4816 *	* 1.4119 *	* 2.5086 *
12	* 1.2177 *	* 1.5862 *	* 1.4094 *	* 1.5979 *	* 1.3355 *	* 1.4737 *	* .9157 *	
	* 1.6470 *	* 1.2711 *	* 1.4283 *	* 1.2636 *	* 1.5056 *	* 1.3653 *	* 2.1842 *	
13	* 1.5690 *	* 1.4351 *	* 1.5840 *	* 1.3570 *	* 1.4726 *	* 1.0432 *	* .6758 *	
	* 1.2848 *	* 1.4031 *	* 1.2725 *	* 1.4824 *	* 1.3660 *	* 1.9190 *	* 2.9422 *	
14	* 1.2424 *	* 1.4962 *	* 1.2659 *	* 1.4234 *	* .9189 *	* .6769 *		
	* 1.6145 *	* 1.3454 *	* 1.5846 *	* 1.4119 *	* 2.1778 *	* 2.9383 *		
15	* .8043 *	* .9425 *	* 1.1620 *	* .7947 *	F-SUB-Q			
	* 2.4782 *	* 2.1197 *	* 1.7203 *	* 2.5109 *	M-SUB-Q			

AT 100% POWER, 300 EFPD, THIS IS LEVEL 5 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.0046 *	* 1.2873 *	* 1.1770 *	* 1.4126 *	* 1.2488 *	* 1.6183 *	* 1.2734 *	* .8236 *
	* 1.8919 *	* 1.4817 *	* 1.6230 *	* 1.3568 *	* 1.5358 *	* 1.1927 *	* 1.5107 *	* 2.3281 *
9	* 1.2873 *	* 1.3313 *	* 1.6194 *	* 1.4234 *	* 1.6397 *	* 1.4748 *	* 1.5433 *	* .9650 *
	* 1.4817 *	* 1.4383 *	* 1.1880 *	* 1.3496 *	* 1.1766 *	* 1.3073 *	* 1.2502 *	* 1.9889 *
10	* 1.1770 *	* 1.6204 *	* 1.4341 *	* 1.6558 *	* 1.4469 *	* 1.6343 *	* 1.2991 *	* 1.1974 *
	* 1.6230 *	* 1.1880 *	* 1.3406 *	* 1.1650 *	* 1.3309 *	* 1.1808 *	* 1.4827 *	* 1.6050 *
11	* 1.4126 *	* 1.4234 *	* 1.6547 *	* 1.3066 *	* 1.6504 *	* 1.3923 *	* 1.4683 *	* .8182 *
	* 1.3568 *	* 1.3496 *	* 1.1664 *	* 1.4731 *	* 1.1708 *	* 1.3834 *	* 1.3128 *	* 2.3454 *
12	* 1.2488 *	* 1.6354 *	* 1.4448 *	* 1.6483 *	* 1.3687 *	* 1.5187 *	* .9425 *	
	* 1.5358 *	* 1.1797 *	* 1.3323 *	* 1.1716 *	* 1.4066 *	* 1.2691 *	* 2.0378 *	
13	* 1.6183 *	* 1.4737 *	* 1.6333 *	* 1.3923 *	* 1.5187 *	* 1.0689 *	* .6919 *	
	* 1.1927 *	* 1.3081 *	* 1.1816 *	* 1.3840 *	* 1.2693 *	* 1.7971 *	* 2.7669 *	
14	* 1.2734 *	* 1.5422 *	* 1.2991 *	* 1.4683 *	* .9457 *	* .6929 *		
	* 1.5107 *	* 1.2507 *	* 1.4827 *	* 1.3128 *	* 2.0303 *	* 2.7635 *		
15	* .8236 *	* .9650 *	* 1.1974 *	* .8172 *	F-SUB-Q			
	* 2.3281 *	* 1.9889 *	* 1.6054 *	* 2.3462 *	M-SUB-Q			

Table 1 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Normal Operations

AT 100% POWER, 300 EFPD, THIS IS LEVEL 4 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* .9960 *	* 1.2798 *	* 1.1652 *	* 1.4030 *	* 1.2359 *	* 1.6065 *	* 1.2659 *	* .8150 *
	* 1.8210 *	* 1.4215 *	* 1.5643 *	* 1.3026 *	* 1.4805 *	* 1.1458 *	* 1.4504 *	* 2.2471 *
9	* 1.2798 *	* 1.3216 *	* 1.6054 *	* 1.4126 *	* 1.6247 *	* 1.4662 *	* 1.5315 *	* .9575 *
	* 1.4215 *	* 1.3821 *	* 1.1423 *	* 1.2965 *	* 1.1322 *	* 1.2537 *	* 1.2012 *	* 1.9156 *
10	* 1.1652 *	* 1.6054 *	* 1.4223 *	* 1.6397 *	* 1.4351 *	* 1.6215 *	* 1.2916 *	* 1.1867 *
	* 1.5643 *	* 1.1423 *	* 1.2882 *	* 1.1211 *	* 1.2783 *	* 1.1349 *	* 1.4215 *	* 1.5475 *
11	* 1.4030 *	* 1.4126 *	* 1.6386 *	* 1.2916 *	* 1.6354 *	* 1.3837 *	* 1.4566 *	* .8075 *
	* 1.3026 *	* 1.2965 *	* 1.1222 *	* 1.4203 *	* 1.1256 *	* 1.3277 *	* 1.2625 *	* 2.2702 *
12	* 1.2359 *	* 1.6204 *	* 1.4341 *	* 1.6333 *	* 1.3591 *	* 1.5058 *	* .9318 *	
	* 1.4805 *	* 1.1349 *	* 1.2798 *	* 1.1268 *	* 1.3509 *	* 1.2202 *	* 1.9685 *	
13	* 1.6065 *	* 1.4651 *	* 1.6194 *	* 1.3837 *	* 1.5058 *	* 1.0614 *	* .6833 *	
	* 1.1458 *	* 1.2541 *	* 1.1356 *	* 1.3279 *	* 1.2209 *	* 1.7281 *	* 2.6758 *	
14	* 1.2659 *	* 1.5315 *	* 1.2916 *	* 1.4566 *	* .9350 *	* .6844 *		
	* 1.4504 *	* 1.2019 *	* 1.4224 *	* 1.2625 *	* 1.9615 *	* 2.6725 *		
15	* .8150 *	* .9575 *	* 1.1867 *	* .8075 *	F-SUB-Q			
	* 2.2471 *	* 1.9156 *	* 1.5479 *	* 2.2710 *	M-SUB-Q			

AT 100% POWER, 300 EFPD, THIS IS LEVEL 3 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.0035 *	* 1.2884 *	* 1.1695 *	* 1.4084 *	* 1.2370 *	* 1.6065 *	* 1.2670 *	* .8140 *
	* 1.7464 *	* 1.3630 *	* 1.5038 *	* 1.2519 *	* 1.4268 *	* 1.1033 *	* 1.3974 *	* 2.1737 *
9	* 1.2884 *	* 1.3227 *	* 1.6033 *	* 1.4116 *	* 1.6226 *	* 1.4683 *	* 1.5326 *	* .9564 *
	* 1.3630 *	* 1.3313 *	* 1.1022 *	* 1.2507 *	* 1.0918 *	* 1.2064 *	* 1.1574 *	* 1.8527 *
10	* 1.1695 *	* 1.6044 *	* 1.4191 *	* 1.6354 *	* 1.4330 *	* 1.6204 *	* 1.2948 *	* 1.1856 *
	* 1.5038 *	* 1.1018 *	* 1.2441 *	* 1.0824 *	* 1.2342 *	* 1.0940 *	* 1.3689 *	* 1.4957 *
11	* 1.4084 *	* 1.4116 *	* 1.6343 *	* 1.2916 *	* 1.6322 *	* 1.3859 *	* 1.4576 *	* .8097 *
	* 1.2519 *	* 1.2507 *	* 1.0835 *	* 1.3700 *	* 1.0861 *	* 1.2789 *	* 1.2172 *	* 2.1888 *
12	* 1.2370 *	* 1.6194 *	* 1.4319 *	* 1.6311 *	* 1.3580 *	* 1.5058 *	* .9350 *	
	* 1.4268 *	* 1.0944 *	* 1.2356 *	* 1.0874 *	* 1.3033 *	* 1.1766 *	* 1.8940 *	
13	* 1.6065 *	* 1.4683 *	* 1.6194 *	* 1.3848 *	* 1.5058 *	* 1.0624 *	* .6822 *	
	* 1.1033 *	* 1.2068 *	* 1.0951 *	* 1.2792 *	* 1.1773 *	* 1.6678 *	* 2.5934 *	
14	* 1.2670 *	* 1.5326 *	* 1.2948 *	* 1.4576 *	* .9382 *	* .6833 *		
	* 1.3974 *	* 1.1576 *	* 1.3689 *	* 1.2172 *	* 1.8875 *	* 2.5873 *		
15	* .8140 *	* .9564 *	* 1.1845 *	* .8086 *	F-SUB-Q			
	* 2.1737 *	* 1.8527 *	* 1.4967 *	* 2.1895 *	M-SUB-Q			

Table 1 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Normal Operations

AT 100% POWER, 300 EFPD. THIS IS LEVEL 2 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* .9510 *	* 1.2049 *	* 1.0956 *	* 1.3109 *	* 1.1545 *	* 1.4823 *	* 1.1760 *	* .7551 *
	* 1.8030 *	* 1.4242 *	* 1.5682 *	* 1.3134 *	* 1.4921 *	* 1.1672 *	* 1.4712 *	* 2.2957 *
9	* 1.2049 *	* 1.2316 *	* 1.4705 *	* 1.3088 *	* 1.5015 *	* 1.3655 *	* 1.4094 *	* .8814 *
	* 1.4242 *	* 1.3960 *	* 1.1724 *	* 1.3158 *	* 1.1516 *	* 1.2658 *	* 1.2290 *	* 1.9670 *
10	* 1.0956 *	* 1.4705 *	* 1.3152 *	* 1.5123 *	* 1.3280 *	* 1.4865 *	* 1.2049 *	* 1.0742 *
	* 1.5682 *	* 1.1724 *	* 1.3103 *	* 1.1425 *	* 1.2990 *	* 1.1629 *	* 1.4365 *	* 1.6144 *
11	* 1.3109 *	* 1.3088 *	* 1.5101 *	* 1.2006 *	* 1.5048 *	* 1.2863 *	* 1.3323 *	* .7486 *
	* 1.3134 *	* 1.3160 *	* 1.1437 *	* 1.4378 *	* 1.1498 *	* 1.3448 *	* 1.3003 *	* 2.3157 *
12	* 1.1545 *	* 1.4973 *	* 1.3270 *	* 1.5026 *	* 1.2584 *	* 1.3752 *	* .8697 *	
	* 1.4921 *	* 1.1542 *	* 1.3000 *	* 1.1510 *	* 1.3726 *	* 1.2581 *	* 1.9907 *	
13	* 1.4823 *	* 1.3645 *	* 1.4855 *	* 1.2852 *	* 1.3752 *	* .9832 *	* .6297 *	
	* 1.1672 *	* 1.2661 *	* 1.1641 *	* 1.3451 *	* 1.2589 *	* 1.7618 *	* 2.7539 *	
14	* 1.1760 *	* 1.4084 *	* 1.2049 *	* 1.3323 *	* .8729 *	* .6297 *		
	* 1.4712 *	* 1.2297 *	* 1.4372 *	* 1.3003 *	* 1.9835 *	* 2.7504 *		
15	* .7551 *	* .8804 *	* 1.0731 *	* .7476 *	F-SUB-Q			
	* 2.2957 *	* 1.9688 *	* 1.6156 *	* 2.3181 *	M-SUB-Q			

AT 100% POWER, 300 EFPD. THIS IS LEVEL 1 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* .7101 *	* .8675 *	* .7968 *	* .9350 *	* .8397 *	* 1.0624 *	* .8236 *	* .5376 *
	* 2.3866 *	* 1.9561 *	* 2.1307 *	* 1.8189 *	* 2.0297 *	* 1.6047 *	* 2.0747 *	* 3.1863 *
9	* .8675 *	* .8814 *	* 1.0764 *	* .9264 *	* 1.1010 *	* .9714 *	* .9885 *	* .6190 *
	* 1.9561 *	* 1.9277 *	* 1.5799 *	* 1.8380 *	* 1.5475 *	* 1.7563 *	* 1.7288 *	* 2.7701 *
10	* .7968 *	* 1.0753 *	* .9286 *	* 1.0999 *	* .9403 *	* 1.0903 *	* .8579 *	* .7101 *
	* 2.1307 *	* 1.5806 *	* 1.8334 *	* 1.5475 *	* 1.8114 *	* 1.5653 *	* 1.9949 *	* 2.4144 *
11	* .9350 *	* .9253 *	* 1.0988 *	* .8675 *	* 1.0828 *	* .9061 *	* .9082 *	* .5216 *
	* 1.8189 *	* 1.8395 *	* 1.5489 *	* 1.9659 *	* 1.5739 *	* 1.8855 *	* 1.8834 *	* 3.2890 *
12	* .8397 *	* 1.0999 *	* .9393 *	* 1.0817 *	* .8846 *	* .9564 *	* .6180 *	
	* 2.0297 *	* 1.5496 *	* 1.8134 *	* 1.5761 *	* 1.9299 *	* 1.7880 *	* 2.7701 *	
13	* 1.0624 *	* .9703 *	* 1.0903 *	* .9061 *	* .9564 *	* .7004 *	* .4413 *	
	* 1.6047 *	* 1.7577 *	* 1.5657 *	* 1.8866 *	* 1.7870 *	* 2.4455 *	* 3.8859 *	
14	* .8236 *	* .9885 *	* .8568 *	* .9093 *	* .6201 *	* .4413 *		
	* 2.0747 *	* 1.7298 *	* 1.9949 *	* 1.8834 *	* 2.7632 *	* 3.8859 *		
15	* .5376 *	* .6190 *	* .7101 *	* .5216 *	F-SUB-Q			
	* 3.1863 *	* 2.7701 *	* 2.4144 *	* 3.2906 *	M-SUB-Q			

Table 1 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Normal Operations

AT 100% POWER, 400 EFPD, THIS IS LEVEL 18 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	.7165	.9104	.8707	.9800	.9093	1.0731	.8996	.6394
	2.0712	1.8392	1.9737	1.7347	1.8528	1.5619	1.8555	2.5926
9	.9104	.9478	1.0742	.9778	1.0913	1.0057	1.0067	.7004
	1.8392	1.8073	1.5999	1.7497	1.5600	1.6919	1.6638	2.3845
10	.8707	1.0742	.9800	1.0860	.9885	1.0764	.9071	.7711
	1.9737	1.5999	1.7582	1.5862	1.7438	1.5987	1.8813	2.1793
11	.9800	.9778	1.0849	.8900	1.0389	.9243	.9200	.5923
	1.7347	1.7506	1.5868	1.8637	1.5876	1.7947	1.8326	2.8942
12	.9093	1.0913	.9885	1.0389	.8150	.8857	.6619	
	1.8528	1.5617	1.7446	1.5888	1.7822	1.7155	2.4621	
13	1.0731	1.0046	1.0764	.9243	.8857	.6865	.5098	
	1.5619	1.6919	1.5993	1.7947	1.7162	2.1582	3.1018	
14	.8996	1.0067	.9071	.9200	.6629	.5109		
	1.8555	1.6652	1.8813	1.8326	2.4592	3.1018		
15	.6394	.7004	.7711	.5923	F-SUB-Q			
	2.5926	2.3845	2.1793	2.8942	M-SUB-Q			

AT 100% POWER, 400 EFPD, THIS IS LEVEL 17 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	.9425	1.1460	1.0646	1.2263	1.1117	1.3238	1.1481	.8075
	1.7768	1.5145	1.6571	1.4262	1.5565	1.2999	1.4907	2.1065
9	1.1460	1.1877	1.3141	1.2413	1.3270	1.2627	1.2766	.9071
	1.5145	1.4835	1.3446	1.4158	1.3162	1.3820	1.3502	1.8905
10	1.0646	1.3152	1.2445	1.3270	1.2584	1.3270	1.1513	1.0324
	1.6571	1.3437	1.4194	1.3299	1.4030	1.3291	1.5222	1.6702
11	1.2263	1.2402	1.3259	1.1053	1.3077	1.1931	1.2081	.7593
	1.4262	1.4162	1.3308	1.5417	1.3119	1.4407	1.4432	2.3133
12	1.1117	1.3259	1.2574	1.3066	1.1395	1.2006	.8439	
	1.5565	1.3184	1.4035	1.3127	1.4289	1.3739	2.0071	
13	1.3238	1.2616	1.3270	1.1931	1.2006	.9350	.6651	
	1.2999	1.3829	1.3296	1.4413	1.3739	1.7419	2.4936	
14	1.1481	1.2766	1.1513	1.2081	.8461	.6662		
	1.4907	1.3511	1.5229	1.4432	2.0032	2.4906		
15	.8075	.9061	1.0324	.7593	F-SUB-Q			
	2.1065	1.8905	1.6702	2.3133	M-SUB-Q			

Table 1 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Normal Operations

AT 100% POWER, 400 EFPD, THIS IS LEVEL 16 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.0196 *	* 1.2209 *	* 1.1278 *	* 1.3045 *	* 1.1792 *	* 1.4287 *	* 1.2199 *	* .8536 *
	* 1.7634 *	* 1.4774 *	* 1.6136 *	* 1.3731 *	* 1.5040 *	* 1.2313 *	* 1.4368 *	* 2.0404 *
9	* 1.2209 *	* 1.2616 *	* 1.4234 *	* 1.3238 *	* 1.4426 *	* 1.3473 *	* 1.3837 *	* .9671 *
	* 1.4774 *	* 1.4409 *	* 1.2726 *	* 1.3612 *	* 1.2422 *	* 1.3269 *	* 1.2769 *	* 1.8132 *
10	* 1.1278 *	* 1.4244 *	* 1.3302 *	* 1.4437 *	* 1.3452 *	* 1.4405 *	* 1.2274 *	* 1.1278 *
	* 1.6136 *	* 1.2723 *	* 1.3655 *	* 1.2561 *	* 1.3501 *	* 1.2555 *	* 1.4629 *	* 1.5657 *
11	* 1.3045 *	* 1.3238 *	* 1.4426 *	* 1.1984 *	* 1.4384 *	* 1.2873 *	* 1.3205 *	* .8118 *
	* 1.3731 *	* 1.3617 *	* 1.2568 *	* 1.4833 *	* 1.2395 *	* 1.3859 *	* 1.3616 *	* 2.2272 *
12	* 1.1792 *	* 1.4416 *	* 1.3441 *	* 1.4373 *	* 1.2734 *	* 1.3473 *	* .9093 *	
	* 1.5040 *	* 1.2442 *	* 1.3506 *	* 1.2406 *	* 1.3779 *	* 1.3006 *	* 1.9403 *	
13	* 1.4287 *	* 1.3462 *	* 1.4394 *	* 1.2863 *	* 1.3462 *	* 1.0292 *	* .7186 *	
	* 1.2313 *	* 1.3278 *	* 1.2563 *	* 1.3864 *	* 1.3006 *	* 1.6818 *	* 2.4186 *	
14	* 1.2199 *	* 1.3827 *	* 1.2274 *	* 1.3195 *	* .9114 *	* .7197 *		
	* 1.4368 *	* 1.2772 *	* 1.4629 *	* 1.3616 *	* 1.9350 *	* 2.4145 *		
15	* .8536 *	* .9671 *	* 1.1278 *	* .8107 *	F-SUB-Q			
	* 2.0404 *	* 1.8141 *	* 1.5664 *	* 2.2272 *	M-SUB-Q			

AT 100% POWER, 400 EFPD, THIS IS LEVEL 15 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.0207 *	* 1.2295 *	* 1.1374 *	* 1.3173 *	* 1.1920 *	* 1.4608 *	* 1.2284 *	* .8547 *
	* 1.8334 *	* 1.5230 *	* 1.6442 *	* 1.3957 *	* 1.5264 *	* 1.2365 *	* 1.4626 *	* 2.0904 *
9	* 1.2295 *	* 1.2659 *	* 1.4533 *	* 1.3345 *	* 1.4801 *	* 1.3634 *	* 1.4126 *	* .9735 *
	* 1.5230 *	* 1.4797 *	* 1.2780 *	* 1.3844 *	* 1.2437 *	* 1.3443 *	* 1.2836 *	* 1.8461 *
10	* 1.1374 *	* 1.4533 *	* 1.3430 *	* 1.4812 *	* 1.3559 *	* 1.4716 *	* 1.2402 *	* 1.1513 *
	* 1.6442 *	* 1.2776 *	* 1.3913 *	* 1.2605 *	* 1.3772 *	* 1.2594 *	* 1.4827 *	* 1.5716 *
11	* 1.3173 *	* 1.3334 *	* 1.4812 *	* 1.2263 *	* 1.4812 *	* 1.3088 *	* 1.3527 *	* .8225 *
	* 1.3957 *	* 1.3848 *	* 1.2618 *	* 1.5081 *	* 1.2496 *	* 1.4141 *	* 1.3747 *	* 2.2518 *
12	* 1.1920 *	* 1.4791 *	* 1.3559 *	* 1.4801 *	* 1.2959 *	* 1.3880 *	* .9275 *	
	* 1.5264 *	* 1.2445 *	* 1.3779 *	* 1.2507 *	* 1.4133 *	* 1.3176 *	* 1.9818 *	
13	* 1.4608 *	* 1.3634 *	* 1.4705 *	* 1.3088 *	* 1.3880 *	* 1.0496 *	* .7294 *	
	* 1.2365 *	* 1.3443 *	* 1.2598 *	* 1.4150 *	* 1.3176 *	* 1.7297 *	* 2.4957 *	
14	* 1.2284 *	* 1.4126 *	* 1.2402 *	* 1.3527 *	* .9296 *	* .7304 *		
	* 1.4626 *	* 1.2844 *	* 1.4827 *	* 1.3747 *	* 1.9764 *	* 2.4913 *		
15	* .8547 *	* .9735 *	* 1.1513 *	* .8215 *	F-SUB-Q			
	* 2.0904 *	* 1.8461 *	* 1.5721 *	* 2.2533 *	M-SUB-Q			

Table 1 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Normal Operations

AT 100% POWER, 400 EFPD, THIS IS LEVEL 14 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* .9875 *	* 1.1952 *	* 1.1042 *	* 1.2831 *	* 1.1610 *	* 1.4287 *	* 1.1952 *	* .8257 *
	* 1.9530 *	* 1.6107 *	* 1.7353 *	* 1.4737 *	* 1.6161 *	* 1.3019 *	* 1.5504 *	* 2.2336 *
9	* 1.1952 *	* 1.2274 *	* 1.4223 *	* 1.2991 *	* 1.4501 *	* 1.3313 *	* 1.3816 *	* .9457 *
	* 1.6107 *	* 1.5601 *	* 1.3413 *	* 1.4623 *	* 1.3050 *	* 1.4155 *	* 1.3514 *	* 1.9593 *
10	* 1.1042 *	* 1.4223 *	* 1.3077 *	* 1.4523 *	* 1.3195 *	* 1.4405 *	* 1.2102 *	* 1.1235 *
	* 1.7353 *	* 1.3405 *	* 1.4602 *	* 1.3145 *	* 1.4457 *	* 1.3197 *	* 1.5604 *	* 1.6573 *
11	* 1.2831 *	* 1.2981 *	* 1.4512 *	* 1.1984 *	* 1.4544 *	* 1.2788 *	* 1.3248 *	* .7979 *
	* 1.4737 *	* 1.4623 *	* 1.3153 *	* 1.5946 *	* 1.3144 *	* 1.4930 *	* 1.4409 *	* 2.3715 *
12	* 1.1610 *	* 1.4480 *	* 1.3184 *	* 1.4533 *	* 1.2649 *	* 1.3623 *	* .9018 *	
	* 1.6161 *	* 1.3058 *	* 1.4466 *	* 1.3152 *	* 1.5023 *	* 1.3948 *	* 2.1108 *	
13	* 1.4287 *	* 1.3313 *	* 1.4394 *	* 1.2788 *	* 1.3623 *	* 1.0239 *	* .7090 *	
	* 1.3019 *	* 1.4158 *	* 1.3205 *	* 1.4938 *	* 1.3948 *	* 1.8484 *	* 2.6773 *	
14	* 1.1952 *	* 1.3816 *	* 1.2102 *	* 1.3259 *	* .9050 *	* .7090 *		
	* 1.5504 *	* 1.3518 *	* 1.5609 *	* 1.4409 *	* 2.1047 *	* 2.6740 *		
15	* .8257 *	* .9457 *	* 1.1235 *	* .7979 *	F-SUB-Q			
	* 2.2336 *	* 1.9593 *	* 1.6573 *	* 2.3721 *	M-SUB-Q			

AT 100% POWER, 400 EFPD, THIS IS LEVEL 13 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* .9896 *	* 1.2038 *	* 1.1138 *	* 1.2948 *	* 1.1717 *	* 1.4501 *	* 1.2017 *	* .8268 *
	* 2.0045 *	* 1.6412 *	* 1.7710 *	* 1.5095 *	* 1.6580 *	* 1.3282 *	* 1.5971 *	* 2.3131 *
9	* 1.2038 *	* 1.2327 *	* 1.4416 *	* 1.3066 *	* 1.4726 *	* 1.3430 *	* 1.4019 *	* .9500 *
	* 1.6412 *	* 1.5965 *	* 1.3624 *	* 1.4982 *	* 1.3245 *	* 1.4473 *	* 1.3762 *	* 2.0190 *
10	* 1.1138 *	* 1.4426 *	* 1.3163 *	* 1.4758 *	* 1.3270 *	* 1.4630 *	* 1.2188 *	* 1.1385 *
	* 1.7710 *	* 1.3624 *	* 1.4929 *	* 1.3310 *	* 1.4789 *	* 1.3382 *	* 1.5950 *	* 1.6894 *
11	* 1.2948 *	* 1.3066 *	* 1.4748 *	* 1.2134 *	* 1.4780 *	* 1.2895 *	* 1.3462 *	* .8075 *
	* 1.5095 *	* 1.4992 *	* 1.3318 *	* 1.6238 *	* 1.3309 *	* 1.5222 *	* 1.4540 *	* 2.4174 *
12	* 1.1717 *	* 1.4716 *	* 1.3259 *	* 1.4769 *	* 1.2745 *	* 1.3827 *	* .9146 *	
	* 1.6580 *	* 1.3258 *	* 1.4791 *	* 1.3319 *	* 1.5474 *	* 1.4242 *	* 2.1494 *	
13	* 1.4501 *	* 1.3430 *	* 1.4630 *	* 1.2895 *	* 1.3827 *	* 1.0314 *	* .7133 *	
	* 1.3282 *	* 1.4483 *	* 1.3382 *	* 1.5222 *	* 1.4242 *	* 1.9127 *	* 2.7594 *	
14	* 1.2017 *	* 1.4019 *	* 1.2188 *	* 1.3462 *	* .9168 *	* .7133 *		
	* 1.5971 *	* 1.3762 *	* 1.5950 *	* 1.4540 *	* 2.1427 *	* 2.7559 *		
15	* .8268 *	* .9500 *	* 1.1385 *	* .8075 *	F-SUB-Q			
	* 2.3131 *	* 2.0190 *	* 1.6899 *	* 2.4134 *	M-SUB-Q			

Catawba 1 Cycle 9 Core Operating Limits Report

CNEI-0400-24

Appendix A

Page 40 of 204

Revision 6

Table 1 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Normal Operations

AT 100% POWER, 400 EFPD, THIS IS LEVEL 12 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* .9757 *	* 1.1931 *	* 1.1031 *	* 1.2852 *	* 1.1610 *	* 1.4437 *	* 1.1910 *	* .8161 *
	* 2.1016 *	* 1.7119 *	* 1.8504 *	* 1.5729 *	* 1.7339 *	* 1.3831 *	* 1.6722 *	* 2.4327 *
9	* 1.1931 *	* 1.2220 *	* 1.4351 *	* 1.2970 *	* 1.4673 *	* 1.3345 *	* 1.3955 *	* .9393 *
	* 1.7119 *	* 1.6667 *	* 1.4117 *	* 1.5592 *	* 1.3722 *	* 1.5056 *	* 1.4300 *	* 2.1146 *
10	* 1.1031 *	* 1.4362 *	* 1.3066 *	* 1.4705 *	* 1.3163 *	* 1.4576 *	* 1.2102 *	* 1.1310 *
	* 1.8504 *	* 1.4108 *	* 1.5548 *	* 1.3793 *	* 1.5381 *	* 1.3843 *	* 1.6574 *	* 1.7596 *
11	* 1.2852 *	* 1.2959 *	* 1.4694 *	* 1.2049 *	* 1.4726 *	* 1.2809 *	* 1.3398 *	* .8000 *
	* 1.5729 *	* 1.5603 *	* 1.3801 *	* 1.6862 *	* 1.3767 *	* 1.5804 *	* 1.5076 *	* 2.5060 *
12	* 1.1610 *	* 1.4662 *	* 1.3163 *	* 1.4716 *	* 1.2638 *	* 1.3762 *	* .9061 *	
	* 1.7339 *	* 1.3736 *	* 1.5392 *	* 1.3776 *	* 1.6039 *	* 1.4706 *	* 2.2319 *	
13	* 1.4437 *	* 1.3345 *	* 1.4576 *	* 1.2809 *	* 1.3762 *	* 1.0217 *	* .7036 *	
	* 1.3831 *	* 1.5056 *	* 1.3843 *	* 1.5804 *	* 1.4703 *	* 1.9801 *	* 2.6692 *	
14	* 1.1910 *	* 1.3955 *	* 1.2102 *	* 1.3398 *	* .9082 *	* .7047 *		
	* 1.6722 *	* 1.4300 *	* 1.6574 *	* 1.5076 *	* 2.2252 *	* 2.8655 *		
15	* .8161 *	* .9393 *	* 1.1310 *	* .8000 *	F-SUB-Q			
	* 2.4327 *	* 2.1146 *	* 1.7596 *	* 2.5089 *	M-SUB-Q			

AT 100% POWER, 400 EFPD, THIS IS LEVEL 11 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* .9618 *	* 1.1835 *	* 1.0913 *	* 1.2756 *	* 1.1503 *	* 1.4351 *	* 1.1792 *	* .8054 *
	* 2.2094 *	* 1.7896 *	* 1.9360 *	* 1.6459 *	* 1.8226 *	* 1.4455 *	* 1.7576 *	* 2.5623 *
9	* 1.1835 *	* 1.2113 *	* 1.4276 *	* 1.2863 *	* 1.4587 *	* 1.3248 *	* 1.3869 *	* .9286 *
	* 1.7896 *	* 1.7400 *	* 1.4716 *	* 1.6313 *	* 1.4296 *	* 1.5727 *	* 1.4916 *	* 2.2208 *
10	* 1.0913 *	* 1.4276 *	* 1.2959 *	* 1.4630 *	* 1.3055 *	* 1.4501 *	* 1.1995 *	* 1.1203 *
	* 1.9360 *	* 1.4712 *	* 1.6229 *	* 1.4335 *	* 1.6054 *	* 1.4384 *	* 1.7317 *	* 1.8414 *
11	* 1.2756 *	* 1.2852 *	* 1.4619 *	* 1.1942 *	* 1.4641 *	* 1.2702 *	* 1.3313 *	* .7893 *
	* 1.6459 *	* 1.6320 *	* 1.4345 *	* 1.7681 *	* 1.4356 *	* 1.6515 *	* 1.5676 *	* 2.6231 *
12	* 1.1503 *	* 1.4576 *	* 1.3055 *	* 1.4630 *	* 1.2531 *	* 1.3677 *	* .8943 *	
	* 1.8226 *	* 1.4311 *	* 1.6059 *	* 1.4365 *	* 1.6797 *	* 1.5358 *	* 2.3446 *	
13	* 1.4351 *	* 1.3248 *	* 1.4491 *	* 1.2702 *	* 1.3677 *	* 1.0110 *	* .6940 *	
	* 1.4455 *	* 1.5727 *	* 1.4388 *	* 1.6522 *	* 1.5358 *	* 2.0744 *	* 3.0130 *	
14	* 1.1792 *	* 1.3869 *	* 1.1995 *	* 1.3313 *	* .8975 *	* .6951 *		
	* 1.7576 *	* 1.4920 *	* 1.7317 *	* 1.5676 *	* 2.3371 *	* 3.0089 *		
15	* .8054 *	* .9286 *	* 1.1203 *	* .7893 *	F-SUB-Q			
	* 2.5623 *	* 2.2208 *	* 1.8414 *	* 2.6243 *	M-SUB-Q			

Table 1 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Normal Operations

AT 100% POWER, 400 EFPD, THIS IS LEVEL 10 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* .9703	* 1.1984	* 1.1042	* 1.2938	* 1.1663	* 1.4630	* 1.1931	* .8140
	* 2.2880	* 1.8492	* 2.0053	* 1.7062	* 1.8893	* 1.4901	* 1.8247	* 2.6596
9	* 1.1984	* 1.2263	* 1.4533	* 1.3034	* 1.4887	* 1.3452	* 1.4126	* .9393
	* 1.8492	* 1.8034	* 1.5161	* 1.6913	* 1.4699	* 1.6270	* 1.5360	* 2.3007
10	* 1.1042	* 1.4544	* 1.3130	* 1.4919	* 1.3238	* 1.4801	* 1.2145	* 1.1395
	* 2.0053	* 1.5157	* 1.6810	* 1.4720	* 1.6615	* 1.4765	* 1.7919	* 1.8948
11	* 1.2938	* 1.3023	* 1.4908	* 1.2124	* 1.4930	* 1.2873	* 1.3559	* .8011
	* 1.7062	* 1.6913	* 1.4730	* 1.8187	* 1.4693	* 1.7030	* 1.6087	* 2.6998
12	* 1.1663	* 1.4876	* 1.3227	* 1.4919	* 1.2691	* 1.3923	* .9093	*
	* 1.8893	* 1.4708	* 1.5622	* 1.4703	* 1.7340	* 1.5755	* 2.4002	*
13	* 1.4630	* 1.3452	* 1.4791	* 1.2873	* 1.3923	* 1.0228	* .7004	*
	* 1.4901	* 1.6270	* 1.4765	* 1.7030	* 1.5755	* 2.1403	* 3.1032	*
14	* 1.1931	* 1.4126	* 1.2145	* 1.3559	* .9125	* .7015	*	*
	* 1.8247	* 1.5367	* 1.7919	* 1.6080	* 2.3924	* 3.1015	*	*
15	* .8140	* .9393	* 1.1395	* .8011	* F-SUB-Q			
	* 2.6596	* 2.3007	* 1.8948	* 2.6998	* M-SUB-Q			

AT 100% POWER, 400 EFPD, THIS IS LEVEL 9 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* .9543	* 1.1835	* 1.0881	* 1.2788	* 1.1492	* 1.4491	* 1.1781	* .8011
	* 2.3793	* 1.9254	* 2.0992	* 1.7884	* 1.9914	* 1.5777	* 1.9322	* 2.8194
9	* 1.1835	* 1.2113	* 1.4394	* 1.2884	* 1.4758	* 1.3313	* 1.3987	* .9253
	* 1.9254	* 1.8876	* 1.5937	* 1.7797	* 1.5566	* 1.7228	* 1.6277	* 2.4398
10	* 1.0881	* 1.4405	* 1.2981	* 1.4791	* 1.3088	* 1.4662	* 1.2006	* 1.1245
	* 2.0992	* 1.5937	* 1.7669	* 1.5555	* 1.7529	* 1.5643	* 1.8974	* 2.0095
11	* 1.2788	* 1.2873	* 1.4780	* 1.1963	* 1.4791	* 1.2723	* 1.3398	* .7872
	* 1.7884	* 1.7812	* 1.5566	* 1.9204	* 1.5533	* 1.8015	* 1.7029	* 2.8744
12	* 1.1492	* 1.4737	* 1.3077	* 1.4780	* 1.2541	* 1.3773	* .8932	*
	* 1.9914	* 1.5577	* 1.7543	* 1.5544	* 1.8313	* 1.6645	* 2.5495	*
13	* 1.4491	* 1.3313	* 1.4662	* 1.2723	* 1.3773	* 1.0100	* .6887	*
	* 1.5777	* 1.7228	* 1.5643	* 1.8015	* 1.6645	* 2.2601	* 3.2893	*
14	* 1.1781	* 1.3987	* 1.2006	* 1.3409	* .8964	* .6897	*	*
	* 1.9322	* 1.6277	* 1.8974	* 1.7029	* 2.5407	* 3.2844	*	*
15	* .8011	* .9253	* 1.1245	* .7872	* F-SUB-Q			
	* 2.8194	* 2.4398	* 2.0095	* 2.8744	* M-SUB-Q			

Catawba 1 Cycle 9 Core Operating Limits Report

CNEI-0400-24

Appendix A

Page 42 of 204

Revision 6

Table 1 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Normal Operations

AT 100% POWER, 400 EFPD, THIS IS LEVEL 8 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* .9693 *	* 1.2059 *	* 1.1096 *	* 1.3045 *	* 1.1727 *	* 1.4865 *	* 1.1995 *	* .8161 *
	* 2.2496 *	* 1.8172 *	* 1.9810 *	* 1.6917 *	* 1.8828 *	* 1.4935 *	* 1.8411 *	* 2.6800 *
9	* 1.2059 *	* 1.2349 *	* 1.4769 *	* 1.3130 *	* 1.5165 *	* 1.3591 *	* 1.4341 *	* .9436 *
	* 1.8172 *	* 1.7861 *	* 1.5027 *	* 1.6873 *	* 1.4677 *	* 1.6325 *	* 1.5447 *	* 2.3248 *
10	* 1.1096 *	* 1.4758 *	* 1.3238 *	* 1.5197 *	* 1.3345 *	* 1.5069 *	* 1.2242 *	* 1.1524 *
	* 1.9810 *	* 1.5027 *	* 1.6746 *	* 1.4658 *	* 1.6620 *	* 1.4776 *	* 1.8059 *	* 1.9069 *
11	* 1.3045 *	* 1.3120 *	* 1.5187 *	* 1.2231 *	* 1.5187 *	* 1.2970 *	* 1.3741 *	* .8054 *
	* 1.6917 *	* 1.6886 *	* 1.4668 *	* 1.8148 *	* 1.4677 *	* 1.7108 *	* 1.6111 *	* 2.7196 *
12	* 1.1727 *	* 1.5155 *	* 1.3345 *	* 1.5176 *	* 1.2777 *	* 1.4116 *	* .9157 *	
	* 1.8828 *	* 1.4687 *	* 1.6632 *	* 1.4687 *	* 1.7377 *	* 1.5732 *	* 2.4074 *	
13	* 1.4865 *	* 1.3591 *	* 1.5069 *	* 1.2970 *	* 1.4116 *	* 1.0292 *	* .7015 *	
	* 1.4935 *	* 1.6325 *	* 1.4776 *	* 1.7108 *	* 1.5732 *	* 2.1477 *	* 3.1186 *	
14	* 1.1995 *	* 1.4341 *	* 1.2242 *	* 1.3741 *	* .9189 *	* .7026 *		
	* 1.8411 *	* 1.5447 *	* 1.8059 *	* 1.6111 *	* 2.3995 *	* 3.1142 *		
15	* .8161 *	* .9436 *	* 1.1524 *	* .8054 *	F-SUB-Q			
	* 2.6800 *	* 2.3248 *	* 1.9069 *	* 2.7196 *	M-SUB-Q			

AT 100% POWER, 400 EFPD, THIS IS LEVEL 7 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* .9714 *	* 1.2134 *	* 1.1149 *	* 1.3130 *	* 1.1792 *	* 1.5015 *	* 1.2059 *	* .8204 *
	* 2.1393 *	* 1.7204 *	* 1.8767 *	* 1.5992 *	* 1.7822 *	* 1.4086 *	* 1.7429 *	* 2.5440 *
9	* 1.2134 *	* 1.2424 *	* 1.4908 *	* 1.3216 *	* 1.5326 *	* 1.3687 *	* 1.4480 *	* .9489 *
	* 1.7204 *	* 1.6891 *	* 1.4166 *	* 1.5959 *	* 1.3830 *	* 1.5425 *	* 1.4569 *	* 2.2032 *
10	* 1.1149 *	* 1.4908 *	* 1.3323 *	* 1.5358 *	* 1.3441 *	* 1.5230 *	* 1.2316 *	* 1.1620 *
	* 1.8767 *	* 1.4166 *	* 1.5834 *	* 1.3804 *	* 1.5721 *	* 1.3914 *	* 1.7084 *	* 1.8011 *
11	* 1.3130 *	* 1.3205 *	* 1.5347 *	* 1.2316 *	* 1.5347 *	* 1.3055 *	* 1.3869 *	* .8107 *
	* 1.5992 *	* 1.5959 *	* 1.3813 *	* 1.7137 *	* 1.3822 *	* 1.6165 *	* 1.5189 *	* 2.5766 *
12	* 1.1792 *	* 1.5305 *	* 1.3430 *	* 1.5337 *	* 1.2852 *	* 1.4244 *	* .9211 *	
	* 1.7822 *	* 1.3839 *	* 1.5721 *	* 1.3830 *	* 1.6417 *	* 1.4817 *	* 2.2746 *	
13	* 1.5015 *	* 1.3687 *	* 1.5230 *	* 1.3055 *	* 1.4244 *	* 1.0357 *	* .7047 *	
	* 1.4086 *	* 1.5425 *	* 1.3917 *	* 1.6165 *	* 1.4813 *	* 2.0289 *	* 2.9563 *	
14	* 1.2059 *	* 1.4480 *	* 1.2316 *	* 1.3869 *	* .9243 *	* .7058 *		
	* 1.7429 *	* 1.4569 *	* 1.7079 *	* 1.5185 *	* 2.2678 *	* 2.9500 *		
15	* .8204 *	* .9489 *	* 1.1631 *	* .8107 *	F-SUB-Q			
	* 2.5440 *	* 2.2032 *	* 1.8011 *	* 2.5766 *	M-SUB-Q			

Table 1 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Normal Operations

AT 100% POWER, 400 EFPD, THIS IS LEVEL 6 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* .9650 *	* 1.2102 *	* 1.1085 *	* 1.3109 *	* 1.1738 *	* 1.4994 *	* 1.2038 *	* .8161 *
	* 2.0590 *	* 1.6492 *	* 1.8043 *	* 1.5318 *	* 1.7113 *	* 1.3473 *	* 1.6699 *	* 2.4447 *
9	* 1.2102 *	* 1.2391 *	* 1.4887 *	* 1.3195 *	* 1.5305 *	* 1.3677 *	* 1.4469 *	* .9457 *
	* 1.6492 *	* 1.6186 *	* 1.3559 *	* 1.5277 *	* 1.3218 *	* 1.4751 *	* 1.3938 *	* 2.1133 *
10	* 1.1085 *	* 1.4887 *	* 1.3302 *	* 1.5347 *	* 1.3420 *	* 1.5219 *	* 1.2306 *	* 1.1588 *
	* 1.8043 *	* 1.3551 *	* 1.5156 *	* 1.3187 *	* 1.5038 *	* 1.3299 *	* 1.6346 *	* 1.7276 *
11	* 1.3109 *	* 1.3184 *	* 1.5337 *	* 1.2263 *	* 1.5337 *	* 1.3045 *	* 1.3848 *	* .8054 *
	* 1.5318 *	* 1.5277 *	* 1.3195 *	* 1.6431 *	* 1.3203 *	* 1.5457 *	* 1.4536 *	* 2.4803 *
12	* 1.1738 *	* 1.5294 *	* 1.3420 *	* 1.5326 *	* 1.2831 *	* 1.4223 *	* .9157 *	
	* 1.7113 *	* 1.3226 *	* 1.5038 *	* 1.3211 *	* 1.5698 *	* 1.4171 *	* 2.1882 *	
13	* 1.4994 *	* 1.3677 *	* 1.5219 *	* 1.3045 *	* 1.4223 *	* 1.0324 *	* .7004 *	
	* 1.3473 *	* 1.4751 *	* 1.3299 *	* 1.5457 *	* 1.4171 *	* 1.9418 *	* 2.8426 *	
14	* 1.2038 *	* 1.4469 *	* 1.2306 *	* 1.3859 *	* .9189 *	* .7015 *		
	* 1.6699 *	* 1.3938 *	* 1.6346 *	* 1.4532 *	* 2.1804 *	* 2.8368 *		
15	* .8161 *	* .9457 *	* 1.1599 *	* .8043 *	F-SUB-Q			
	* 2.4447 *	* 2.1133 *	* 1.7268 *	* 2.4803 *	M-SUB-Q			

AT 100% POWER, 400 EFPD, THIS IS LEVEL 5 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* .9907 *	* 1.2456 *	* 1.1417 *	* 1.2495 *	* 1.2102 *	* 1.5508 *	* 1.2381 *	* .8397 *
	* 1.9131 *	* 1.5277 *	* 1.6721 *	* 1.4104 *	* 1.5866 *	* 1.2462 *	* 1.5547 *	* 2.2797 *
9	* 1.2456 *	* 1.2745 *	* 1.5390 *	* 1.3559 *	* 1.5840 *	* 1.4094 *	* 1.4973 *	* .9735 *
	* 1.5277 *	* 1.5022 *	* 1.2521 *	* 1.4185 *	* 1.2209 *	* 1.3695 *	* 1.2904 *	* 1.9712 *
10	* 1.1417 *	* 1.5390 *	* 1.3677 *	* 1.5872 *	* 1.3805 *	* 1.5754 *	* 1.2670 *	* 1.1995 *
	* 1.6721 *	* 1.2521 *	* 1.4077 *	* 1.2182 *	* 1.3965 *	* 1.2285 *	* 1.5213 *	* 1.6020 *
11	* 1.3495 *	* 1.3559 *	* 1.5862 *	* 1.2649 *	* 1.5862 *	* 1.3420 *	* 1.4330 *	* .8322 *
	* 1.4194 *	* 1.4185 *	* 1.2189 *	* 1.5226 *	* 1.2201 *	* 1.4372 *	* 1.3461 *	* 2.3025 *
12	* 1.2102 *	* 1.5829 *	* 1.3794 *	* 1.5851 *	* 1.3205 *	* 1.4705 *	* .9468 *	
	* 1.5866 *	* 1.2216 *	* 1.3970 *	* 1.2209 *	* 1.4596 *	* 1.3115 *	* 2.0277 *	
13	* 1.5508 *	* 1.4094 *	* 1.5754 *	* 1.3420 *	* 1.4705 *	* 1.0635 *	* .7208 *	
	* 1.2462 *	* 1.3695 *	* 1.2285 *	* 1.4372 *	* 1.3115 *	* 1.8080 *	* 2.6519 *	
14	* 1.2381 *	* 1.4973 *	* 1.2670 *	* 1.4330 *	* .9500 *	* .7219 *		
	* 1.5547 *	* 1.2904 *	* 1.5207 *	* 1.3457 *	* 2.0203 *	* 2.6468 *		
15	* .8397 *	* .9735 *	* 1.1995 *	* .8322 *	F-SUB-Q			
	* 2.2797 *	* 1.9712 *	* 1.6020 *	* 2.3025 *	M-SUB-Q			

Table 1 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Normal Operations

AT 100% POWER, 400 EFPD, THIS IS LEVEL 4 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* .9917 *	* 1.2499 *	* 1.1406 *	* 1.3527 *	* 1.2081 *	* 1.5540 *	* 1.2424 *	* .8407 *
	* 1.8104 *	* 1.4420 *	* 1.5835 *	* 1.3400 *	* 1.5034 *	* 1.1766 *	* 1.4662 *	* 2.1597 *
9	* 1.2499 *	* 1.2777 *	* 1.5401 *	* 1.3591 *	* 1.5862 *	* 1.4148 *	* 1.5015 *	* .9757 *
	* 1.4420 *	* 1.4178 *	* 1.1835 *	* 1.3393 *	* 1.1534 *	* 1.2903 *	* 1.2177 *	* 1.8640 *
10	* 1.1406 *	* 1.5401 *	* 1.3698 *	* 1.5894 *	* 1.3837 *	* 1.5776 *	* 1.2723 *	* 1.2006 *
	* 1.5835 *	* 1.1838 *	* 1.3286 *	* 1.1510 *	* 1.3175 *	* 1.1604 *	* 1.4335 *	* 1.5172 *
11	* 1.3527 *	* 1.3591 *	* 1.5883 *	* 1.2638 *	* 1.5883 *	* 1.3473 *	* 1.4362 *	* .8300 *
	* 1.3400 *	* 1.3391 *	* 1.1516 *	* 1.4421 *	* 1.1522 *	* 1.3545 *	* 1.2714 *	* 2.1901 *
12	* 1.2081 *	* 1.5851 *	* 1.3827 *	* 1.5872 *	* 1.3238 *	* 1.4737 *	* .9446 *	
	* 1.5034 *	* 1.1543 *	* 1.3183 *	* 1.1528 *	* 1.3772 *	* 1.2390 *	* 1.9258 *	
13	* 1.5540 *	* 1.4148 *	* 1.5776 *	* 1.3473 *	* 1.4737 *	* 1.0667 *	* .7197 *	
	* 1.1766 *	* 1.2903 *	* 1.1604 *	* 1.3542 *	* 1.2383 *	* 1.7077 *	* 2.5177 *	
14	* 1.2424 *	* 1.5015 *	* 1.2723 *	* 1.4362 *	* .9478 *	* .7208 *		
	* 1.4662 *	* 1.2177 *	* 1.4335 *	* 1.2709 *	* 1.9191 *	* 2.5148 *		
15	* .8407 *	* .9757 *	* 1.2006 *	* .8300 *	F-SUB-Q			
	* 2.1597 *	* 1.8640 *	* 1.5172 *	* 2.1901 *	M-SUB-Q			

AT 100% POWER, 400 EFPD, THIS IS LEVEL 3 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.0121 *	* 1.2766 *	* 1.1620 *	* 1.3773 *	* 1.2284 *	* 1.5797 *	* 1.2649 *	* .8547 *
	* 1.7005 *	* 1.3522 *	* 1.4903 *	* 1.2598 *	* 1.4167 *	* 1.1069 *	* 1.3809 *	* 2.0396 *
9	* 1.2766 *	* 1.2991 *	* 1.5637 *	* 1.3794 *	* 1.6097 *	* 1.4394 *	* 1.5272 *	* .9917 *
	* 1.3522 *	* 1.3357 *	* 1.1153 *	* 1.2637 *	* 1.0868 *	* 1.2143 *	* 1.1457 *	* 1.7600 *
10	* 1.1620 *	* 1.5626 *	* 1.3891 *	* 1.6119 *	* 1.4041 *	* 1.6022 *	* 1.2959 *	* 1.2199 *
	* 1.4903 *	* 1.1156 *	* 1.2547 *	* 1.0847 *	* 1.2437 *	* 1.0929 *	* 1.3488 *	* 1.4328 *
11	* 1.3773 *	* 1.3784 *	* 1.6108 *	* 1.2831 *	* 1.6119 *	* 1.3709 *	* 1.4608 *	* .8461 *
	* 1.2598 *	* 1.2633 *	* 1.0852 *	* 1.3595 *	* 1.0858 *	* 1.2753 *	* 1.1971 *	* 2.0629 *
12	* 1.2284 *	* 1.6086 *	* 1.4041 *	* 1.6108 *	* 1.3452 *	* 1.4994 *	* .9639 *	
	* 1.4167 *	* 1.0877 *	* 1.2441 *	* 1.0863 *	* 1.2984 *	* 1.1665 *	* 1.8105 *	
13	* 1.5797 *	* 1.4394 *	* 1.6022 *	* 1.3709 *	* 1.4994 *	* 1.0849 *	* .7315 *	
	* 1.1069 *	* 1.2140 *	* 1.0929 *	* 1.2748 *	* 1.1665 *	* 1.6096 *	* 2.3825 *	
14	* 1.2649 *	* 1.5272 *	* 1.2959 *	* 1.4619 *	* .9671 *	* .7326 *		
	* 1.3809 *	* 1.1457 *	* 1.3488 *	* 1.1969 *	* 1.8046 *	* 2.3774 *		
15	* .8547 *	* .9917 *	* 1.2199 *	* .8461 *	F-SUB-Q			
	* 2.0396 *	* 1.7600 *	* 1.4323 *	* 2.0629 *	M-SUB-Q			

Table 1 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Normal Operations

AT 100% POWER, 400 EFPD, THIS IS LEVEL 2 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* .9810 *	* 1.2263 *	* 1.1138 *	* 1.3163 *	* 1.1717 *	* 1.4962 *	* 1.2027 *	* .8118 *
	* 1.7077 *	* 1.3704 *	* 1.5109 *	* 1.2821 *	* 1.4418 *	* 1.1358 *	* 1.4102 *	* 2.0920 *
9	* 1.2263 *	* 1.2381 *	* 1.4833 *	* 1.3098 *	* 1.5251 *	* 1.3720 *	* 1.4437 *	* .9371 *
	* 1.3704 *	* 1.3614 *	* 1.1417 *	* 1.2911 *	* 1.1138 *	* 1.2363 *	* 1.1775 *	* 1.8147 *
10	* 1.1138 *	* 1.4833 *	* 1.3173 *	* 1.5251 *	* 1.3334 *	* 1.5187 *	* 1.2370 *	* 1.1374 *
	* 1.5109 *	* 1.1417 *	* 1.2839 *	* 1.1132 *	* 1.2716 *	* 1.1201 *	* 1.3728 *	* 1.4941 *
11	* 1.3163 *	* 1.3098 *	* 1.5240 *	* 1.2199 *	* 1.5240 *	* 1.3045 *	* 1.3720 *	* .8022 *
	* 1.2821 *	* 1.2911 *	* 1.1138 *	* 1.3887 *	* 1.1158 *	* 1.3016 *	* 1.2386 *	* 2.1172 *
12	* 1.1717 *	* 1.5240 *	* 1.3334 *	* 1.5230 *	* 1.2777 *	* 1.4094 *	* .9189 *	
	* 1.4418 *	* 1.1149 *	* 1.2716 *	* 1.1164 *	* 1.3269 *	* 1.2058 *	* 1.8488 *	
13	* 1.4962 *	* 1.3720 *	* 1.5176 *	* 1.3045 *	* 1.4105 *	* 1.0303 *	* .6919 *	
	* 1.1358 *	* 1.2359 *	* 1.1201 *	* 1.3011 *	* 1.2058 *	* 1.6486 *	* 2.4532 *	
14	* 1.2027 *	* 1.4437 *	* 1.2370 *	* 1.3730 *	* .9211 *	* .6929 *		
	* 1.4102 *	* 1.1775 *	* 1.3728 *	* 1.2384 *	* 1.8432 *	* 2.4505 *		
15	* .8118 *	* .9361 *	* 1.1385 *	* .8022 *	F-SUB-Q			
	* 2.0920 *	* 1.8147 *	* 1.4941 *	* 2.1185 *	M-SUB-Q			

AT 100% POWER, 400 EFPD, THIS IS LEVEL 1 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* .7658 *	* .9221 *	* .8461 *	* .9842 *	* .8879 *	* 1.1171 *	* .8868 *	* .6030 *
	* 2.1600 *	* 1.7959 *	* 1.9602 *	* 1.6875 *	* 1.8763 *	* 1.4922 *	* 1.8836 *	* 2.7764 *
9	* .9221 *	* .9307 *	* 1.1213 *	* .9725 *	* 1.1513 *	* 1.0249 *	* 1.0581 *	* .6854 *
	* 1.7959 *	* 1.7834 *	* 1.4824 *	* 1.7116 *	* 1.4482 *	* 1.6285 *	* 1.5796 *	* 2.4416 *
10	* .8461 *	* 1.1203 *	* .9735 *	* 1.1470 *	* .9907 *	* 1.1460 *	* .9232 *	* .7915 *
	* 1.9602 *	* 1.4824 *	* 1.7089 *	* 1.4523 *	* 1.6847 *	* 1.4564 *	* 1.8116 *	* 2.1163 *
11	* .9842 *	* .9714 *	* 1.1460 *	* .9189 *	* 1.1363 *	* .9660 *	* .9853 *	* .5837 *
	* 1.6875 *	* 1.7124 *	* 1.4529 *	* 1.8152 *	* 1.4676 *	* 1.7301 *	* 1.6984 *	* 2.8680 *
12	* .8879 *	* 1.1503 *	* .9896 *	* 1.1353 *	* .9436 *	* 1.0303 *	* .6812 *	
	* 1.8763 *	* 1.4491 *	* 1.6847 *	* 1.4692 *	* 1.7695 *	* 1.6230 *	* 2.4552 *	
13	* 1.1171 *	* 1.0249 *	* 1.1460 *	* .9660 *	* 1.0303 *	* .7690 *	* .5055 *	
	* 1.4922 *	* 1.6285 *	* 1.4564 *	* 1.7296 *	* 1.6230 *	* 2.1768 *	* 3.3082 *	
14	* .8868 *	* 1.0581 *	* .9232 *	* .9853 *	* .6833 *	* .5066 *		
	* 1.8836 *	* 1.5800 *	* 1.8116 *	* 1.6976 *	* 2.4487 *	* 3.3082 *		
15	* .6030 *	* .6854 *	* .7915 *	* .5837 *	F-SUB-Q			
	* 2.7764 *	* 2.4416 *	* 2.1163 *	* 2.8680 *	M-SUB-Q			

Catawba 1 Cycle 9 Core Operating Limits Report

CNEI-0400-24

Appendix A

Page 46 of 204

Revision 6

Table 1 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Normal Operations

AT 75% POWER, 4 EFPD, THIS IS LEVEL 18 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	.6319	.8311	.7915	.9018	.7990	.9500	.7668	.4894
	2.4183	2.1228	2.2249	1.9505	2.1912	1.8373	2.2686	3.5136
9	.8311	.8761	1.0003	.8814	.9800	.8697	.8557	.5526
	2.1228	2.0191	1.7629	1.9977	1.7894	2.0071	2.0298	3.1198
10	.7915	1.0003	.8857	.9842	.8568	.9296	.7604	.5858
	2.2249	1.7629	1.9913	1.7874	2.0451	1.8773	2.2865	2.9440
11	.9018	.8804	.9832	.7411	.8429	.7401	.7144	.4413
	1.9505	1.9977	1.7890	2.3722	2.0487	2.3688	2.4329	3.8975
12	.7990	.9778	.8557	.8418	.6051	.6180	.4734	
	2.1912	1.7929	2.0482	2.0523	2.3715	2.3116	3.4703	
13	.9500	.8686	.9286	.7390	.6180	.4445	.3042	
	1.8373	2.0101	1.8804	2.3716	2.3122	2.9538	4.9065	
14	.7668	.8547	.7593	.7144	.4734	.3042		
	2.2686	2.0328	2.2891	2.4339	3.4689	4.9065		
15	.4894	.5516	.5858	.4413	F-SUB-Q			
	3.5136	3.1234	2.9451	3.9001	M-SUB-Q			

AT 75% POWER, 4 EFPD, THIS IS LEVEL 17 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	.8975	1.2059	1.0999	1.3130	1.1063	1.2627	1.1235	.7122
	1.7727	1.4849	1.6756	1.4013	1.6570	1.4462	1.6173	2.5300
9	1.2059	1.2509	1.3173	1.2756	1.2766	1.2391	1.2284	.8332
	1.4849	1.4802	1.4054	1.4444	1.4383	1.4742	1.4821	2.1657
10	1.0999	1.3173	1.2798	1.3045	1.2252	1.2584	1.0967	.9318
	1.6756	1.4054	1.4434	1.4148	1.4983	1.4546	1.6567	1.9345
11	1.3130	1.2756	1.3055	.9832	1.1492	1.0699	1.0839	.6726
	1.4013	1.4436	1.4126	1.8704	1.6028	1.6874	1.6773	2.6726
12	1.1063	1.2745	1.2231	1.1449	.8375	.9468	.7036	
	1.6570	1.4434	1.5011	1.6091	1.6648	1.6274	2.4387	
13	1.2627	1.2381	1.2563	1.0678	.9468	.6683	.4573	
	1.4462	1.4765	1.4569	1.6885	1.6284	2.0433	3.4229	
14	1.1235	1.2263	1.0956	1.0828	.7047	.4573		
	1.6173	1.4837	1.6587	1.6787	2.4344	3.4187		
15	.7122	.8322	.9318	.6715	F-SUB-Q			
	2.5300	2.1674	1.9359	2.6752	M-SUB-Q			

Catawba 1 Cycle 9 Core Operating Limits Report

CNEI-0400-24

Appendix A

Page 47 of 204

Revision 6

Table 1 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Normal Operations

AT 75% POWER, 4 EFPD, THIS IS LEVEL 16 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	F	D	C	B	A
8	* 1.0132 *	* 1.3741 *	* 1.2349 *	* 1.4919 *	* 1.2359 *	* 1.4459 *	* 1.2863 *	* .8118 *
	* 1.6670 *	* 1.3646 *	* 1.5897 *	* 1.3034 *	* 1.5630 *	* 1.3299 *	* 1.4888 *	* 2.3383 *
9	* 1.3741 *	* 1.4041 *	* 1.4983 *	* 1.4362 *	* 1.4555 *	* 1.4019 *	* 1.4330 *	* .9746 *
	* 1.3646 *	* 1.4008 *	* 1.3107 *	* 1.3561 *	* 1.3313 *	* 1.3731 *	* 1.3365 *	* 1.9463 *
10	* 1.2349 *	* 1.4983 *	* 1.4341 *	* 1.4780 *	* 1.3730 *	* 1.4384 *	* 1.2670 *	* 1.1256 *
	* 1.5897 *	* 1.3103 *	* 1.3669 *	* 1.3236 *	* 1.4153 *	* 1.3429 *	* 1.5092 *	* 1.6828 *
11	* 1.4919 *	* 1.4373 *	* 1.4801 *	* 1.0806 *	* 1.3173 *	* 1.2381 *	* 1.3023 *	* .7968 *
	* 1.3034 *	* 1.3558 *	* 1.3215 *	* 1.7499 *	* 1.4663 *	* 1.5386 *	* 1.4709 *	* 2.3806 *
12	* 1.2359 *	* 1.4480 *	* 1.3698 *	* 1.3152 *	* .9575 *	* 1.1481 *	* .8332 *	
	* 1.5630 *	* 1.3382 *	* 1.4178 *	* 1.4673 *	* 1.5236 *	* 1.4369 *	* 2.1946 *	
13	* 1.4459 *	* 1.3998 *	* 1.4351 *	* 1.2370 *	* 1.1481 *	* .8022 *	* .5441 *	
	* 1.3299 *	* 1.3754 *	* 1.3455 *	* 1.5394 *	* 1.4375 *	* 1.8364 *	* 3.0962 *	
14	* 1.2863 *	* 1.4309 *	* 1.2659 *	* 1.3013 *	* .8343 *	* .5451 *		
	* 1.4888 *	* 1.3384 *	* 1.5112 *	* 1.4717 *	* 2.1906 *	* 3.0893 *		
15	* .8118 *	* .9746 *	* 1.1245 *	* .7958 *	F-SUB-Q			
	* 2.3383 *	* 1.9490 *	* 1.6843 *	* 2.3826 *	M-SUB-Q			

AT 75% POWER, 4 EFPD, THIS IS LEVEL 15 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.0978 *	* 1.4716 *	* 1.3098 *	* 1.5797 *	* 1.3045 *	* 1.5615 *	* 1.3730 *	* .8600 *
	* 1.7127 *	* 1.3826 *	* 1.6247 *	* 1.3178 *	* 1.5788 *	* 1.3061 *	* 1.4789 *	* 2.3396 *
9	* 1.4716 *	* 1.4791 *	* 1.6011 *	* 1.5101 *	* 1.5562 *	* 1.4994 *	* 1.5572 *	* 1.0517 *
	* 1.3826 *	* 1.4383 *	* 1.3184 *	* 1.3813 *	* 1.3218 *	* 1.3653 *	* 1.3045 *	* 1.9119 *
10	* 1.3098 *	* 1.6011 *	* 1.5090 *	* 1.5776 *	* 1.4533 *	* 1.5530 *	* 1.3698 *	* 1.2370 *
	* 1.6247 *	* 1.3182 *	* 1.3968 *	* 1.3313 *	* 1.4271 *	* 1.3267 *	* 1.4836 *	* 1.6220 *
11	* 1.5797 *	* 1.5112 *	* 1.5797 *	* 1.1620 *	* 1.4501 *	* 1.3623 *	* 1.4544 *	* .8718 *
	* 1.3178 *	* 1.3807 *	* 1.3294 *	* 1.7487 *	* 1.4353 *	* 1.5196 *	* 1.4181 *	* 2.3166 *
12	* 1.3045 *	* 1.5530 *	* 1.4501 *	* 1.4480 *	* 1.0764 *	* 1.3152 *	* .9318 *	
	* 1.5788 *	* 1.3273 *	* 1.4298 *	* 1.4361 *	* 1.5151 *	* 1.3989 *	* 2.1568 *	
13	* 1.5615 *	* 1.4973 *	* 1.5497 *	* 1.3612 *	* 1.3152 *	* .9296 *	* .6137 *	
	* 1.3061 *	* 1.3678 *	* 1.3292 *	* 1.5198 *	* 1.3994 *	* 1.8177 *	* 3.0706 *	
14	* 1.3730 *	* 1.5551 *	* 1.3677 *	* 1.4533 *	* .9328 *	* .6148 *		
	* 1.4789 *	* 1.3061 *	* 1.4851 *	* 1.4188 *	* 2.1503 *	* 3.0629 *		
15	* .8600 *	* 1.0507 *	* 1.2359 *	* .8707 *	F-SUB-Q			
	* 2.3396 *	* 1.9141 *	* 1.6239 *	* 2.3184 *	M-SUB-Q			

Table 1 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Normal Operations

AT 75% POWER, 4 EFPD, THIS IS LEVEL 14 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.2027 *	* 1.5315 *	* 1.3291 *	* 1.5894 *	* 1.3077 *	* 1.5883 *	* 1.3891 *	* .8632 *
	* 1.8573 *	* 1.4859 *	* 1.7577 *	* 1.4145 *	* 1.6985 *	* 1.3746 *	* 1.5619 *	* 2.4869 *
9	* 1.5315 *	* 1.4908 *	* 1.6247 *	* 1.5144 *	* 1.5904 *	* 1.5251 *	* 1.5904 *	* 1.0689 *
	* 1.4859 *	* 1.5659 *	* 1.4127 *	* 1.4883 *	* 1.3987 *	* 1.4500 *	* 1.3705 *	* 2.0249 *
10	* 1.3291 *	* 1.6236 *	* 1.5176 *	* 1.5979 *	* 1.4726 *	* 1.5883 *	* 1.4030 *	* 1.2691 *
	* 1.7577 *	* 1.4125 *	* 1.5107 *	* 1.4237 *	* 1.5325 *	* 1.4062 *	* 1.5699 *	* 1.7080 *
11	* 1.5894 *	* 1.5144 *	* 1.6001 *	* 1.2070 *	* 1.5230 *	* 1.4266 *	* 1.5272 *	* .8943 *
	* 1.4145 *	* 1.4880 *	* 1.4223 *	* 1.8514 *	* 1.5025 *	* 1.5953 *	* 1.4942 *	* 2.4648 *
12	* 1.3077 *	* 1.5872 *	* 1.4694 *	* 1.5208 *	* 1.2327 *	* 1.4555 *	* .9885 *	
	* 1.6985 *	* 1.4076 *	* 1.5355 *	* 1.5040 *	* 1.6028 *	* 1.4658 *	* 2.2662 *	
13	* 1.5883 *	* 1.5219 *	* 1.5862 *	* 1.4255 *	* 1.4555 *	* 1.0753 *	* .6619 *	
	* 1.3746 *	* 1.4527 *	* 1.4090 *	* 1.5960 *	* 1.4658 *	* 1.9227 *	* 3.2527 *	
14	* 1.3891 *	* 1.5883 *	* 1.4009 *	* 1.5262 *	* .9907 *	* .6640 *		
	* 1.5619 *	* 1.3722 *	* 1.5722 *	* 1.4958 *	* 2.2609 *	* 3.2453 *		
15	* .8632 *	* 1.0678 *	* 1.2670 *	* .8932 *	F-SUB-Q			
	* 2.4869 *	* 2.0273 *	* 1.7100 *	* 2.4676 *	M-SUB-Q			

AT 75% POWER, 4 EFPD, THIS IS LEVEL 13 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.2991 *	* 1.6472 *	* 1.3859 *	* 1.6451 *	* 1.3505 *	* 1.6568 *	* 1.4362 *	* .8879 *
	* 1.9758 *	* 1.5618 *	* 1.8814 *	* 1.5087 *	* 1.8080 *	* 1.4412 *	* 1.6500 *	* 2.6383 *
9	* 1.6472 *	* 1.5444 *	* 1.6922 *	* 1.5615 *	* 1.6665 *	* 1.5894 *	* 1.6654 *	* 1.1117 *
	* 1.5618 *	* 1.6797 *	* 1.5046 *	* 1.5941 *	* 1.4745 *	* 1.5333 *	* 1.4339 *	* 2.1375 *
10	* 1.3859 *	* 1.6911 *	* 1.5669 *	* 1.6622 *	* 1.5347 *	* 1.6654 *	* 1.4662 *	* 1.3334 *
	* 1.8814 *	* 1.5049 *	* 1.6215 *	* 1.5142 *	* 1.6318 *	* 1.4835 *	* 1.6578 *	* 1.7866 *
11	* 1.6451 *	* 1.5615 *	* 1.6643 *	* 1.3152 *	* 1.6311 *	* 1.5262 *	* 1.6397 *	* .9446 *
	* 1.5087 *	* 1.5941 *	* 1.5127 *	* 1.9171 *	* 1.5513 *	* 1.6502 *	* 1.5343 *	* 2.5883 *
12	* 1.3505 *	* 1.6622 *	* 1.5326 *	* 1.6290 *	* 1.4705 *	* 1.6258 *	* 1.0721 *	
	* 1.8080 *	* 1.4847 *	* 1.6355 *	* 1.5525 *	* 1.6752 *	* 1.5123 *	* 2.3242 *	
13	* 1.6568 *	* 1.5862 *	* 1.6622 *	* 1.5251 *	* 1.6268 *	* 1.2167 *	* .7229 *	
	* 1.4412 *	* 1.5362 *	* 1.4870 *	* 1.6502 *	* 1.5123 *	* 2.0088 *	* 3.3875 *	
14	* 1.4362 *	* 1.6622 *	* 1.4641 *	* 1.6386 *	* 1.0753 *	* .7251 *		
	* 1.6500 *	* 1.4365 *	* 1.6603 *	* 1.5343 *	* 2.3186 *	* 3.3797 *		
15	* .8879 *	* 1.1106 *	* 1.3323 *	* .9436 *	F-SUB-Q			
	* 2.6383 *	* 2.1406 *	* 1.7888 *	* 2.5922 *	M-SUB-Q			

Catawba 1 Cycle 9 Core Operating Limits Report

CNEI-0400-24

Appendix A

Page 49 of 204

Revision 6

Table 1 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Normal Operations

AT 75% POWER, 4 EFPD, THIS IS LEVEL 12 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.3120	* 1.6686	* 1.3880	* 1.6493	* 1.3505	* 1.6697	* 1.4394	* .8868
	* 2.1590	* 1.6966	* 2.0462	* 1.6697	* 1.9993	* 1.5764	* 1.8104	* 2.9027
9	* 1.6686	* 1.5497	* 1.7018	* 1.5615	* 1.6647	* 1.6033	* 1.6815	* 1.1171
	* 1.6966	* 1.8306	* 1.6641	* 1.7680	* 1.6171	* 1.6840	* 1.5663	* 2.3448
10	* 1.3880	* 1.7007	* 1.5690	* 1.6718	* 1.5487	* 1.6858	* 1.4833	* 1.3484
	* 2.0462	* 1.6641	* 1.8012	* 1.6713	* 1.7989	* 1.6261	* 1.8174	* 1.9503
11	* 1.6493	* 1.5615	* 1.6740	* 1.3495	* 1.6708	* 1.5615	* 1.6815	* .9553
	* 1.6697	* 1.7680	* 1.6697	* 2.0519	* 1.6469	* 1.7591	* 1.6297	* 2.8392
12	* 1.3505	* 1.6815	* 1.5455	* 1.6686	* 1.5272	* 1.6933	* 1.1021	*
	* 1.9993	* 1.6279	* 1.8011	* 1.6487	* 1.7867	* 1.6041	* 2.4784	*
13	* 1.6697	* 1.6001	* 1.6825	* 1.5594	* 1.6933	* 1.2670	* .7454	*
	* 1.5764	* 1.6869	* 1.6297	* 1.7591	* 1.6041	* 2.1401	* 3.6157	*
14	* 1.4394	* 1.6793	* 1.4812	* 1.6815	* 1.1053	* .7476	*	*
	* 1.8104	* 1.5686	* 1.8200	* 1.6302	* 2.4710	* 3.6069	*	*
15	* .8868	* 1.1160	* 1.3473	* .9543	* F-SUB-Q			
	* 2.9027	* 2.3485	* 1.9529	* 2.8438	* M-SUB-Q			

AT 75% POWER, 4 EFPD, THIS IS LEVEL 11 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.2938	* 1.6526	* 1.3687	* 1.6311	* 1.3323	* 1.6568	* 1.4244	* .8739
	* 2.3854	* 1.8632	* 2.2468	* 1.8653	* 2.2371	* 1.7477	* 2.0137	* 3.2332
9	* 1.6526	* 1.5294	* 1.6847	* 1.5412	* 1.6783	* 1.5936	* 1.6729	* 1.1063
	* 1.8632	* 2.0097	* 1.8147	* 1.9739	* 1.7870	* 1.8705	* 1.7350	* 2.6074
10	* 1.3687	* 1.6847	* 1.5487	* 1.6568	* 1.5401	* 1.6793	* 1.4791	* 1.3420
	* 2.2468	* 1.8147	* 1.9724	* 1.8341	* 1.9524	* 1.7838	* 2.0047	* 2.1594
11	* 1.6311	* 1.5412	* 1.6590	* 1.3473	* 1.6729	* 1.5626	* 1.6868	* .9478
	* 1.8653	* 1.9751	* 1.8318	* 2.2330	* 1.7806	* 1.9065	* 1.7599	* 3.1055
12	* 1.3323	* 1.6740	* 1.5369	* 1.6708	* 1.5347	* 1.7082	* 1.1031	*
	* 2.2371	* 1.7903	* 1.9550	* 1.7816	* 1.9397	* 1.7346	* 2.6921	*
13	* 1.6568	* 1.5904	* 1.6761	* 1.5626	* 1.7082	* 1.2734	* .7465	*
	* 1.7477	* 1.8741	* 1.7881	* 1.9065	* 1.7341	* 2.3242	* 3.9346	*
14	* 1.4244	* 1.6697	* 1.4780	* 1.6858	* 1.1063	* .7486	*	*
	* 2.0137	* 1.7380	* 2.0062	* 1.7599	* 2.6847	* 3.9241	*	*
15	* .8739	* 1.1042	* 1.3398	* .9468	* F-SUB-Q			
	* 3.2332	* 2.6097	* 2.1626	* 3.1088	* M-SUB-Q			

Catawba 1 Cycle 9 Core Operating Limits Report

CNEI-0400-24

Appendix A

Page 50 of 204

Revision 6

Table 1 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Normal Operations

AT 75% POWER, 4 EFPD, THIS IS LEVEL 10 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.2906 *	* 1.6590 *	* 1.3720 *	* 1.6408 *	* 1.3398 *	* 1.6750 *	* 1.4319 *	* .8761 *
	* 2.4177 *	* 1.8832 *	* 2.2758 *	* 1.9027 *	* 2.3298 *	* 1.8653 *	* 2.1783 *	* 3.5448 *
9	* 1.6590 *	* 1.5294 *	* 1.6954 *	* 1.5465 *	* 1.6975 *	* 1.6086 *	* 1.6943 *	* 1.1138 *
	* 1.8832 *	* 2.0424 *	* 1.8443 *	* 2.0214 *	* 1.8432 *	* 1.9428 *	* 1.8443 *	* 2.8069 *
10	* 1.3720 *	* 1.6954 *	* 1.5519 *	* 1.6697 *	* 1.5540 *	* 1.6997 *	* 1.4962 *	* 1.3602 *
	* 2.2758 *	* 1.8455 *	* 2.0145 *	* 1.8736 *	* 2.0145 *	* 1.8409 *	* 2.0902 *	* 2.2989 *
11	* 1.6408 *	* 1.5455 *	* 1.6718 *	* 1.3634 *	* 1.7007 *	* 1.5840 *	* 1.7179 *	* .9607 *
	* 1.9027 *	* 2.0214 *	* 1.8713 *	* 2.2989 *	* 1.8455 *	* 1.9793 *	* 1.8226 *	* 3.2566 *
12	* 1.3398 *	* 1.6933 *	* 1.5519 *	* 1.6997 *	* 1.5551 *	* 1.7414 *	* 1.1213 *	
	* 2.3298 *	* 1.8466 *	* 2.0173 *	* 1.8466 *	* 2.0173 *	* 1.8015 *	* 2.7962 *	
13	* 1.6750 *	* 1.6065 *	* 1.6954 *	* 1.5829 *	* 1.7425 *	* 1.2906 *	* .7551 *	
	* 1.8653 *	* 1.9466 *	* 1.8443 *	* 1.9807 *	* 1.8015 *	* 2.4337 *	* 4.1627 *	
14	* 1.4319 *	* 1.6911 *	* 1.4951 *	* 1.7179 *	* 1.1245 *	* .7572 *		
	* 2.1783 *	* 1.8478 *	* 2.0932 *	* 1.8226 *	* 2.7883 *	* 4.1510 *		
15	* .8761 *	* 1.1128 *	* 1.3591 *	* .9596 *	F-SUB-Q			
	* 3.5448 *	* 2.8096 *	* 2.3007 *	* 3.2602 *	M-SUB-Q			

AT 75% POWER, 4 EFPD, THIS IS LEVEL 9 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.2434 *	* 1.6044 *	* 1.3216 *	* 1.5904 *	* 1.2948 *	* 1.6290 *	* 1.3902 *	* .8482 *
	* 2.4704 *	* 1.9163 *	* 2.3225 *	* 1.9313 *	* 2.3711 *	* 1.8772 *	* 2.1880 *	* 3.5681 *
9	* 1.6044 *	* 1.4791 *	* 1.6440 *	* 1.4973 *	* 1.6536 *	* 1.5669 *	* 1.6493 *	* 1.0817 *
	* 1.9163 *	* 2.0799 *	* 1.8724 *	* 2.0538 *	* 1.8618 *	* 1.9648 *	* 1.8641 *	* 2.8421 *
10	* 1.3216 *	* 1.6429 *	* 1.5015 *	* 1.6204 *	* 1.5123 *	* 1.6558 *	* 1.4598 *	* 1.3238 *
	* 2.3225 *	* 1.8724 *	* 2.0495 *	* 1.8990 *	* 2.0396 *	* 1.8594 *	* 2.1112 *	* 2.3243 *
11	* 1.5904 *	* 1.4962 *	* 1.6226 *	* 1.3238 *	* 1.6622 *	* 1.5455 *	* 1.6783 *	* .9307 *
	* 1.9313 *	* 2.0552 *	* 1.8978 *	* 2.3335 *	* 1.8630 *	* 2.0008 *	* 1.8409 *	* 3.3078 *
12	* 1.2948 *	* 1.6504 *	* 1.5101 *	* 1.6600 *	* 1.5155 *	* 1.7018 *	* 1.0892 *	
	* 2.3711 *	* 1.8665 *	* 2.0424 *	* 1.8641 *	* 2.0424 *	* 1.8215 *	* 2.8393 *	
13	* 1.6290 *	* 1.5637 *	* 1.6526 *	* 1.5455 *	* 1.7018 *	* 1.2574 *	* .7326 *	
	* 1.8772 *	* 1.9674 *	* 1.8630 *	* 2.0022 *	* 1.8215 *	* 2.4663 *	* 4.2224 *	
14	* 1.3902 *	* 1.6472 *	* 1.4576 *	* 1.6772 *	* 1.0924 *	* .7347 *		
	* 2.1880 *	* 1.8677 *	* 2.1127 *	* 1.8409 *	* 2.8311 *	* 4.2103 *		
15	* .8482 *	* 1.0796 *	* 1.3216 *	* .9296 *	F-SUB-Q			
	* 3.5681 *	* 2.8448 *	* 2.3261 *	* 3.3115 *	M-SUB-Q			

Table 1 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Normal Operations

AT 75% POWER, 4 EFPD, THIS IS LEVEL 8 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	1.2338	1.6001	1.3184	1.5915	1.2948	1.6386	1.3902	.8461
	2.3903	1.8420	2.2060	1.8215	2.2044	1.7367	2.0284	3.2820
9	1.6001	1.4726	1.6451	1.4940	1.6633	1.5712	1.6622	1.0828
	1.8420	1.9820	1.7744	1.9428	1.7481	1.8432	1.7205	2.6151
10	1.3184	1.6451	1.4962	1.6236	1.5155	1.6654	1.4662	1.3345
	2.2060	1.7754	1.9479	1.7938	1.9301	1.7460	1.9847	2.1403
11	1.5915	1.4930	1.6258	1.3280	1.6761	1.5519	1.6965	.9371
	1.8215	1.9428	1.7916	2.2344	1.7712	1.9076	1.7377	3.0668
12	1.2948	1.6590	1.5133	1.6750	1.5197	1.7190	1.0978	
	2.2044	1.7522	1.9339	1.7733	1.9968	1.7553	2.6940	
13	1.6386	1.5690	1.6633	1.5519	1.7190	1.2606	.7326	
	1.7367	1.8466	1.7501	1.9088	1.7543	2.3981	4.0318	
14	1.3902	1.6590	1.4641	1.6965	1.1010	.7347		
	2.0284	1.7235	1.9873	1.7377	2.6866	4.0208		
15	.8461	1.0806	1.3323	.9361	F-SUB-Q			
	3.2820	2.6198	2.1434	3.0700	M-SUB-Q			

AT 75% POWER, 4 EFPD, THIS IS LEVEL 7 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	1.1995	1.5626	1.2841	1.5562	1.2638	1.6086	1.3602	.8257
	2.2044	1.6919	2.0200	1.6502	2.0104	1.5837	1.8571	3.0166
9	1.5626	1.4373	1.6097	1.4598	1.6333	1.5412	1.6333	1.0581
	1.6919	1.8126	1.6158	1.7637	1.5862	1.6708	1.5643	2.3883
10	1.2841	1.6097	1.4598	1.5904	1.4844	1.6365	1.4384	1.3098
	2.0200	1.6167	1.7754	1.6301	1.7606	1.5845	1.8070	1.9415
11	1.5562	1.4587	1.5915	1.3002	1.6483	1.5230	1.6708	.9178
	1.6502	1.7637	1.6283	2.0567	1.6256	1.7522	1.5914	2.7962
12	1.2638	1.6290	1.4823	1.6472	1.4898	1.6911	1.0753	
	2.0104	1.5897	1.7637	1.6283	1.8328	1.6061	2.4787	
13	1.6086	1.5390	1.6343	1.5218	1.6911	1.2338	.7154	
	1.5837	1.6736	1.5888	1.7543	1.6044	2.1994	3.7212	
14	1.3602	1.6301	1.4362	1.6697	1.0796	.7176		
	1.8571	1.5668	1.8103	1.5922	2.4725	3.7072		
15	.8257	1.0571	1.3088	.9168	F-SUB-Q			
	3.0166	2.3903	1.9441	2.7989	M-SUB-Q			

Catawba 1 Cycle 9 Core Operating Limits Report

CNEI-0400-24

Appendix A

Page 52 of 204

Revision 6

Table 1 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Normal Operations

AT 75% POWER, 4 EFPD, THIS IS LEVEL 6 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.1460 *	* 1.4983 *	* 1.2274 *	* 1.4951 *	* 1.2102 *	* 1.5465 *	* 1.3055 *	* .7893 *
	* 2.0228 *	* 1.5504 *	* 1.8748 *	* 1.5398 *	* 1.8892 *	* 1.4877 *	* 1.7491 *	* 2.8558 *
9	* 1.4983 *	* 1.3784 *	* 1.5465 *	* 1.4019 *	* 1.5712 *	* 1.4823 *	* 1.5701 *	* 1.0142 *
	* 1.5504 *	* 1.6784 *	* 1.4991 *	* 1.6465 *	* 1.4773 *	* 1.5602 *	* 1.4670 *	* 2.2464 *
10	* 1.2274 *	* 1.5455 *	* 1.4009 *	* 1.5283 *	* 1.4276 *	* 1.5754 *	* 1.3827 *	* 1.2563 *
	* 1.8748 *	* 1.4999 *	* 1.6520 *	* 1.5176 *	* 1.6364 *	* 1.4758 *	* 1.6803 *	* 1.8215 *
11	* 1.4951 *	* 1.3998 *	* 1.5294 *	* 1.2456 *	* 1.5862 *	* 1.4641 *	* 1.6054 *	* .8761 *
	* 1.5398 *	* 1.6474 *	* 1.5161 *	* 1.8990 *	* 1.4953 *	* 1.6131 *	* 1.4655 *	* 2.6221 *
12	* 1.2102 *	* 1.5679 *	* 1.4255 *	* 1.5851 *	* 1.4319 *	* 1.6258 *	* 1.0282 *	
	* 1.8892 *	* 1.4810 *	* 1.6392 *	* 1.4976 *	* 1.6812 *	* 1.4780 *	* 2.2953 *	
13	* 1.5465 *	* 1.4801 *	* 1.5733 *	* 1.4641 *	* 1.6258 *	* 1.1835 *	* .6833 *	
	* 1.4877 *	* 1.5627 *	* 1.4788 *	* 1.6140 *	* 1.4773 *	* 2.0326 *	* 3.4551 *	
14	* 1.3055 *	* 1.5669 *	* 1.3805 *	* 1.6054 *	* 1.0314 *	* .6854 *		
	* 1.7491 *	* 1.4692 *	* 1.6822 *	* 1.4663 *	* 2.2882 *	* 3.4430 *		
15	* .7893 *	* 1.0132 *	* 1.2552 *	* .8750 *	F-SUB-Q			
	* 2.8558 *	* 2.2498 *	* 1.8238 *	* 2.6244 *	M-SUB-Q			

AT 75% POWER, 4 EFPD, THIS IS LEVEL 5 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.1267 *	* 1.4791 *	* 1.2113 *	* 1.4769 *	* 1.1942 *	* 1.5283 *	* 1.2841 *	* .7743 *
	* 1.8513 *	* 1.4142 *	* 1.7225 *	* 1.4183 *	* 1.7470 *	* 1.3766 *	* 1.6283 *	* 2.6696 *
9	* 1.4791 *	* 1.3570 *	* 1.5283 *	* 1.3805 *	* 1.5530 *	* 1.4630 *	* 1.5519 *	* .9960 *
	* 1.4142 *	* 1.5455 *	* 1.3772 *	* 1.5223 *	* 1.3619 *	* 1.4412 *	* 1.3557 *	* 2.0917 *
10	* 1.2113 *	* 1.5283 *	* 1.3784 *	* 1.5101 *	* 1.4062 *	* 1.5562 *	* 1.3612 *	* 1.2402 *
	* 1.7225 *	* 1.3778 *	* 1.5247 *	* 1.3968 *	* 1.5098 *	* 1.3600 *	* 1.5504 *	* 1.6841 *
11	* 1.4769 *	* 1.3794 *	* 1.5112 *	* 1.2295 *	* 1.5669 *	* 1.4416 *	* 1.5883 *	* .8632 *
	* 1.4183 *	* 1.5223 *	* 1.3955 *	* 1.7306 *	* 1.3670 *	* 1.4795 *	* 1.3390 *	* 2.4197 *
12	* 1.1942 *	* 1.5497 *	* 1.4041 *	* 1.5658 *	* 1.4084 *	* 1.6065 *	* 1.0153 *	
	* 1.7470 *	* 1.3651 *	* 1.5122 *	* 1.3689 *	* 1.5231 *	* 1.3378 *	* 2.0917 *	
13	* 1.5283 *	* 1.4598 *	* 1.5540 *	* 1.4416 *	* 1.6076 *	* 1.1620 *	* .6694 *	
	* 1.3766 *	* 1.4440 *	* 1.3626 *	* 1.4803 *	* 1.3366 *	* 1.8443 *	* 3.1589 *	
14	* 1.2841 *	* 1.5497 *	* 1.3602 *	* 1.5883 *	* 1.0185 *	* .6715 *		
	* 1.6283 *	* 1.3582 *	* 1.5528 *	* 1.3396 *	* 2.0843 *	* 3.1487 *		
15	* .7743 *	* .9950 *	* 1.2391 *	* .8622 *	F-SUB-Q			
	* 2.6696 *	* 2.0947 *	* 1.6861 *	* 2.4237 *	M-SUB-Q			

Catawba 1 Cycle 9 Core Operating Limits Report

CNEI-0400-24

Appendix A

Page 53 of 204

Revision 6

Table 1 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Normal Operations

AT 75% POWER, 4 EFPD, THIS IS LEVEL 4 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.0656	* 1.4030	* 1.1438	* 1.4019	* 1.1288	* 1.4426	* 1.2113	* .7272
	* 1.8070	* 1.3766	* 1.6870	* 1.3843	* 1.7155	* 1.3550	* 1.6044	* 2.6480
9	* 1.4030	* 1.2863	* 1.4480	* 1.3088	* 1.4694	* 1.3848	* 1.4619	* .9339
	* 1.3766	* 1.5091	* 1.3464	* 1.4877	* 1.3348	* 1.4122	* 1.3360	* 2.0726
10	* 1.1438	* 1.4469	* 1.3066	* 1.4309	* 1.3291	* 1.4716	* 1.2831	* 1.1620
	* 1.6870	* 1.3470	* 1.4892	* 1.3657	* 1.4758	* 1.3330	* 1.5239	* 1.6698
11	* 1.4019	* 1.3077	* 1.4319	* 1.1578	* 1.4758	* 1.3591	* 1.4919	* .8054
	* 1.3843	* 1.4877	* 1.3645	* 1.6938	* 1.3378	* 1.4483	* 1.3169	* 2.4059
12	* 1.1288	* 1.4651	* 1.3270	* 1.4748	* 1.3270	* 1.5090	* .9489	*
	* 1.7155	* 1.3378	* 1.4780	* 1.3396	* 1.4847	* 1.3087	* 2.0624	*
13	* 1.4426	* 1.3816	* 1.4683	* 1.3591	* 1.5101	* 1.0903	* .6255	*
	* 1.3550	* 1.4149	* 1.3360	* 1.4490	* 1.3081	* 1.8048	* 3.1089	*
14	* 1.2113	* 1.4598	* 1.2809	* 1.4908	* .9521	* .6276	*	*
	* 1.6044	* 1.3384	* 1.5255	* 1.3175	* 2.0567	* 3.1023	*	*
15	* .7272	* .9328	* 1.1599	* .8043	* F-SUB-Q			
	* 2.6480	* 2.0755	* 1.6727	* 2.4098	* M-SUB-Q			

AT 75% POWER, 4 EFPD, THIS IS LEVEL 3 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.0196	* 1.3420	* 1.0978	* 1.3473	* 1.0860	* 1.3752	* 1.1503	* .6865
	* 1.7819	* 1.3569	* 1.6595	* 1.3588	* 1.6841	* 1.3415	* 1.5957	* 2.6552
9	* 1.3420	* 1.2316	* 1.3859	* 1.2574	* 1.4041	* 1.3259	* 1.3869	* .8771
	* 1.3569	* 1.4855	* 1.3264	* 1.4619	* 1.3163	* 1.3909	* 1.3300	* 2.0873
10	* 1.0978	* 1.3848	* 1.2541	* 1.3720	* 1.2702	* 1.4062	* 1.2124	* 1.0860
	* 1.6595	* 1.3270	* 1.4626	* 1.3427	* 1.4547	* 1.3151	* 1.5192	* 1.6880
11	* 1.3473	* 1.2552	* 1.3730	* 1.1096	* 1.4019	* 1.2873	* 1.4009	* .7551
	* 1.3588	* 1.4626	* 1.3415	* 1.6632	* 1.3228	* 1.4377	* 1.3198	* 2.4237
12	* 1.0860	* 1.4009	* 1.2681	* 1.3998	* 1.2552	* 1.4201	* .8943	*
	* 1.6841	* 1.3198	* 1.4569	* 1.3246	* 1.4743	* 1.3064	* 2.0624	*
13	* 1.3752	* 1.3238	* 1.4030	* 1.2873	* 1.4201	* 1.0239	* .5858	*
	* 1.3415	* 1.3935	* 1.3181	* 1.4384	* 1.3058	* 1.8059	* 3.1287	*
14	* 1.1503	* 1.3837	* 1.2113	* 1.3998	* .8964	* .5880	*	*
	* 1.5957	* 1.3324	* 1.5215	* 1.3204	* 2.0552	* 3.1188	*	*
15	* .6865	* .8761	* 1.0849	* .7551	* F-SUB-Q			
	* 2.6552	* 2.0902	* 1.6899	* 2.4257	* M-SUB-Q			

Table 1 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Normal Operations

AT 75% POWER, 4 EFPD, THIS IS LEVEL 2 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* .9018 *	* 1.1685 *	* .9768 *	* 1.1899 *	* .9789 *	* 1.2316 *	* 1.0100 *	* .5965 *
	* 1.9377 *	* 1.4968 *	* 1.7927 *	* 1.4773 *	* 1.7993 *	* 1.4384 *	* 1.7470 *	* 2.9413 *
9	* 1.1685 *	* 1.0978 *	* 1.2263 *	* 1.1267 *	* 1.2477 *	* 1.1856 *	* 1.2059 *	* .7508 *
	* 1.4968 *	* 1.6009 *	* 1.4391 *	* 1.5652 *	* 1.4217 *	* 1.4923 *	* 1.4677 *	* 2.3484 *
10	* .9768 *	* 1.2252 *	* 1.1245 *	* 1.2231 *	* 1.1374 *	* 1.2488 *	* 1.0539 *	* .9039 *
	* 1.7927 *	* 1.4398 *	* 1.5668 *	* 1.4468 *	* 1.5569 *	* 1.4210 *	* 1.6774 *	* 1.9492 *
11	* 1.1899 *	* 1.1256 *	* 1.2231 *	* 1.0003 *	* 1.2456 *	* 1.1353 *	* 1.1792 *	* .6426 *
	* 1.4773 *	* 1.5668 *	* 1.4454 *	* 1.7701 *	* 1.4286 *	* 1.5635 *	* 1.5029 *	* 2.7442 *
12	* .9789 *	* 1.2445 *	* 1.1353 *	* 1.2434 *	* 1.0999 *	* 1.2092 *	* .7700 *	
	* 1.7993 *	* 1.4252 *	* 1.5594 *	* 1.4307 *	* 1.6140 *	* 1.4692 *	* 2.2989 *	
13	* 1.2316 *	* 1.1835 *	* 1.2456 *	* 1.1342 *	* 1.2092 *	* .8771 *	* .5002 *	
	* 1.4384 *	* 1.4945 *	* 1.4245 *	* 1.5652 *	* 1.4692 *	* 2.0214 *	* 3.5212 *	
14	* 1.0100 *	* 1.2038 *	* 1.0528 *	* 1.1792 *	* .7722 *	* .5012 *		
	* 1.7470 *	* 1.4707 *	* 1.6803 *	* 1.5037 *	* 2.2918 *	* 3.5128 *		
15	* .5965 *	* .7486 *	* .9029 *	* .6415 *	F-SUB-Q			
	* 2.9413 *	* 2.3521 *	* 1.9518 *	* 2.7467 *	M-SUB-Q			

AT 75% POWER, 4 EFPD, THIS IS LEVEL 1 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* .5976 *	* .7358 *	* .6501 *	* .7636 *	* .6608 *	* .8493 *	* .6544 *	* .3898 *
	* 2.8476 *	* 2.3188 *	* 2.6291 *	* 2.2446 *	* 2.5967 *	* 2.0256 *	* 2.6291 *	* 4.3988 *
9	* .7358 *	* .7219 *	* .8707 *	* .7379 *	* .8836 *	* .7808 *	* .7850 *	* .4702 *
	* 2.3188 *	* 2.3711 *	* 1.9714 *	* 2.3280 *	* 1.9492 *	* 2.2060 *	* 2.1945 *	* 3.6521 *
10	* .6501 *	* .8697 *	* .7347 *	* .8750 *	* .7486 *	* .8771 *	* .6822 *	* .5291 *
	* 2.6291 *	* 1.9740 *	* 2.3354 *	* 1.9688 *	* 2.3025 *	* 1.9661 *	* 2.5255 *	* 3.2494 *
11	* .7636 *	* .7368 *	* .8729 *	* .6779 *	* .8686 *	* .7283 *	* .7251 *	* .3952 *
	* 2.2446 *	* 2.3317 *	* 1.9740 *	* 2.5407 *	* 1.9873 *	* 2.3691 *	* 2.3787 *	* 4.3405 *
12	* .6608 *	* .8814 *	* .7465 *	* .8675 *	* .7036 *	* .7679 *	* .4862 *	
	* 2.5967 *	* 1.9557 *	* 2.3079 *	* 1.9914 *	* 2.4540 *	* 2.2498 *	* 3.5423 *	
13	* .8493 *	* .7786 *	* .8761 *	* .7272 *	* .7679 *	* .5537 *	* .3170 *	
	* 2.0256 *	* 2.2110 *	* 1.9701 *	* 2.3730 *	* 2.2498 *	* 3.1188 *	* 5.4177 *	
14	* .6544 *	* .7829 *	* .6812 *	* .7240 *	* .4873 *	* .3170 *		
	* 2.6291 *	* 2.1978 *	* 2.5298 *	* 2.3806 *	* 3.5381 *	* 5.4177 *		
15	* .3898 *	* .4691 *	* .5280 *	* .3952 *	F-SUB-Q			
	* 4.3988 *	* 3.6566 *	* 3.2530 *	* 4.3469 *	M-SUB-Q			

Table 1 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Normal Operations

AT 75% POWER, 100 EFPD, THIS IS LEVEL 18 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	.5869	.7904	.7700	.8825	.7990	.9618	.7711	.5034
	* 2.5979	* 2.2383	* 2.2815	* 1.9908	* 2.1889	* 1.8143	* 2.2525	* 3.4187
9	.7904	.8461	.9821	.8707	.9800	.8771	.8718	.5612
	* 2.2383	* 2.0847	* 1.7890	* 2.0143	* 1.7857	* 1.9872	* 1.9902	* 3.0650
10	.7700	.9821	.8729	.9789	.8589	.9393	.7626	.6051
	* 2.2815	* 1.7890	* 2.0128	* 1.7925	* 2.0352	* 1.8549	* 2.2787	* 2.8493
11	.8825	.8707	.9778	.7454	.8525	.7390	.7294	.4498
	* 1.9908	* 2.0155	* 1.7928	* 2.3481	* 2.0137	* 2.3525	* 2.3712	* 3.8114
12	.7990	.9789	.8579	.8504	.6062	.6265	.4766	
	* 2.1889	* 1.7880	* 2.0367	* 2.0167	* 2.3327	* 2.2652	* 3.4162	
13	.9618	.8761	.9382	.7379	.6265	.4445	.3117	
	* 1.8143	* 1.9902	* 1.8562	* 2.3545	* 2.2652	* 2.9230	* 4.7563	
14	.7711	.8718	.7615	.7294	.4777	.3117		
	* 2.2525	* 1.9928	* 2.2807	* 2.3731	* 3.4118	* 4.7563		
15	.5034	.5612	.6040	.4487	F-SUB-Q			
	* 3.4187	* 3.0678	* 2.8499	* 3.8162	M-SUB-Q			

AT 75% POWER, 100 EFPD, THIS IS LEVEL 17 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	.8032	1.1149	1.0539	1.2541	1.0892	1.2852	1.1203	.7165
	* 1.9632	* 1.6371	* 1.7410	* 1.4601	* 1.6753	* 1.4164	* 1.6181	* 2.5084
9	1.1149	1.1910	1.3013	1.2413	1.2863	1.2359	1.2349	.8215
	* 1.6371	* 1.5452	* 1.4096	* 1.4769	* 1.4217	* 1.4726	* 1.4679	* 2.1868
10	1.0539	1.3013	1.2445	1.3002	1.2177	1.2734	1.0881	.9328
	* 1.7410	* 1.4095	* 1.4747	* 1.4109	* 1.4992	* 1.4305	* 1.6606	* 1.9249
11	1.2541	1.2402	1.3013	.9885	1.1685	1.0592	1.0849	.6608
	* 1.4601	* 1.4777	* 1.4096	* 1.8399	* 1.5644	* 1.6836	* 1.6604	* 2.7006
12	1.0892	1.2841	1.2156	1.1652	.8290	.9328	.6854	
	* 1.6753	* 1.4238	* 1.5015	* 1.5694	* 1.6637	* 1.6248	* 2.4683	
13	1.2852	1.2336	1.2713	1.0581	.9328	.6490	.4530	
	* 1.4164	* 1.4748	* 1.4320	* 1.6856	* 1.6258	* 2.0813	* 3.3977	
14	1.1203	1.2338	1.0871	1.0839	.6865	.4530		
	* 1.6181	* 1.4695	* 1.6616	* 1.6614	* 2.4618	* 3.3938		
15	.7165	.8215	.9318	.6597	F-SUB-Q			
	* 2.5084	* 2.1885	* 1.9263	* 2.7033	M-SUB-Q			

Table 1 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Normal Operations

AT 75% POWER, 100 EFPD, THIS IS LEVEL 16 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* .8879 *	* 1.2488 *	* 1.1685 *	* 1.4126 *	* 1.2102 *	* 1.4705 *	* 1.2702 *	* .8065 *
	* 1.8721 *	* 1.5247 *	* 1.6552 *	* 1.3637 *	* 1.5827 *	* 1.2989 *	* 1.4984 *	* 2.3398 *
9	* 1.2488 *	* 1.3280 *	* 1.4813 *	* 1.3902 *	* 1.4641 *	* 1.3912 *	* 1.4276 *	* .9403 *
	* 1.5247 *	* 1.4615 *	* 1.3054 *	* 1.3896 *	* 1.3084 *	* 1.3712 *	* 1.3307 *	* 2.0018 *
10	* 1.1685 *	* 1.4823 *	* 1.3923 *	* 1.4801 *	* 1.3645 *	* 1.4544 *	* 1.2391 *	* 1.1010 *
	* 1.6552 *	* 1.3052 *	* 1.3897 *	* 1.3065 *	* 1.4080 *	* 1.3135 *	* 1.5272 *	* 1.7051 *
11	* 1.4126 *	* 1.3891 *	* 1.4812 *	* 1.0924 *	* 1.3355 *	* 1.2070 *	* 1.2691 *	* .7615 *
	* 1.3637 *	* 1.3903 *	* 1.3054 *	* 1.7182 *	* 1.4352 *	* 1.5498 *	* 1.4906 *	* 2.4581 *
12	* 1.2102 *	* 1.4619 *	* 1.3612 *	* 1.3313 *	* .9371 *	* 1.1010 *	* .7872 *	
	* 1.5827 *	* 1.3129 *	* 1.4101 *	* 1.4366 *	* 1.5350 *	* 1.4543 *	* 2.2635 *	
13	* 1.4705 *	* 1.3891 *	* 1.4523 *	* 1.2059 *	* 1.1010 *	* .7561 *	* .5237 *	
	* 1.2989 *	* 1.3732 *	* 1.3154 *	* 1.5507 *	* 1.4550 *	* 1.9041 *	* 3.1168 *	
14	* 1.2702 *	* 1.4266 *	* 1.2381 *	* 1.2681 *	* .7883 *	* .5248 *		
	* 1.4984 *	* 1.3326 *	* 1.5287 *	* 1.4914 *	* 2.2581 *	* 3.1134 *		
15	* .8065 *	* .9393 *	* 1.0999 *	* .7604 *	F-SUB-Q			
	* 2.3398 *	* 2.0033 *	* 1.7061 *	* 2.4621 *	M-SUB-Q			

AT 75% POWER, 100 EFPD, THIS IS LEVEL 15 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* .9296 *	* 1.3141 *	* 1.2242 *	* 1.4865 *	* 1.2723 *	* 1.5787 *	* 1.3441 *	* .8461 *
	* 1.9341 *	* 1.5515 *	* 1.6889 *	* 1.3803 *	* 1.5966 *	* 1.2785 *	* 1.4967 *	* 2.3574 *
9	* 1.3141 *	* 1.3880 *	* 1.5787 *	* 1.4598 *	* 1.5658 *	* 1.4780 *	* 1.5358 *	* .9992 *
	* 1.5515 *	* 1.4969 *	* 1.3072 *	* 1.4097 *	* 1.2947 *	* 1.3668 *	* 1.3076 *	* 1.9898 *
10	* 1.2242 *	* 1.5787 *	* 1.4608 *	* 1.5776 *	* 1.4373 *	* 1.5615 *	* 1.3216 *	* 1.1888 *
	* 1.6889 *	* 1.3072 *	* 1.4138 *	* 1.3078 *	* 1.4201 *	* 1.2976 *	* 1.5146 *	* 1.6664 *
11	* 1.4865 *	* 1.4598 *	* 1.5787 *	* 1.1588 *	* 1.4426 *	* 1.3002 *	* 1.3816 *	* .8161 *
	* 1.3803 *	* 1.4104 *	* 1.3072 *	* 1.7182 *	* 1.4123 *	* 1.5436 *	* 1.4572 *	* 2.4300 *
12	* 1.2723 *	* 1.5626 *	* 1.4341 *	* 1.4373 *	* 1.0142 *	* 1.2177 *	* .8557 *	
	* 1.5966 *	* 1.2977 *	* 1.4223 *	* 1.4137 *	* 1.5408 *	* 1.4327 *	* 2.2549 *	
13	* 1.5787 *	* 1.4758 *	* 1.5594 *	* 1.2991 *	* 1.2177 *	* .8322 *	* .5719 *	
	* 1.2785 *	* 1.3689 *	* 1.2996 *	* 1.5445 *	* 1.4327 *	* 1.9075 *	* 3.1312 *	
14	* 1.3441 *	* 1.5337 *	* 1.3205 *	* 1.3805 *	* .8579 *	* .5730 *		
	* 1.4967 *	* 1.3089 *	* 1.5162 *	* 1.4587 *	* 2.2479 *	* 3.1277 *		
15	* .8461 *	* .9982 *	* 1.1877 *	* .8150 *	F-SUB-Q			
	* 2.3574 *	* 1.9912 *	* 1.6676 *	* 2.4339 *	M-SUB-Q			

Catawba 1 Cycle 9 Core Operating Limits Report

CNEI-0400-24

Appendix A

Page 57 of 204

Revision 6

Table 1 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Normal Operations

AT 75% POWER, 100 EFPD, THIS IS LEVEL 14 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* .9832 *	* 1.3377 *	* 1.2242 *	* 1.4908 *	* 1.2745 *	* 1.5979 *	* 1.3495 *	* .8429 *
	* 2.0928 *	* 1.6653 *	* 1.8230 *	* 1.4791 *	* 1.7132 *	* 1.3487 *	* 1.5878 *	* 2.5176 *
9	* 1.3377 *	* 1.3923 *	* 1.5958 *	* 1.4651 *	* 1.5926 *	* 1.4951 *	* 1.5562 *	* 1.0057 *
	* 1.6653 *	* 1.6241 *	* 1.3941 *	* 1.5132 *	* 1.3718 *	* 1.4538 *	* 1.3798 *	* 2.1214 *
10	* 1.2242 *	* 1.5958 *	* 1.4662 *	* 1.5947 *	* 1.4491 *	* 1.5894 *	* 1.3409 *	* 1.2059 *
	* 1.8230 *	* 1.3941 *	* 1.5206 *	* 1.3948 *	* 1.5247 *	* 1.3777 *	* 1.6123 *	* 1.7697 *
11	* 1.4908 *	* 1.4641 *	* 1.5947 *	* 1.1899 *	* 1.4898 *	* 1.3495 *	* 1.4234 *	* .8268 *
	* 1.4791 *	* 1.5141 *	* 1.3941 *	* 1.8225 *	* 1.4849 *	* 1.6280 *	* 1.5500 *	* 2.6083 *
12	* 1.2745 *	* 1.5894 *	* 1.4459 *	* 1.4876 *	* 1.1096 *	* 1.3055 *	* .8932 *	
	* 1.7132 *	* 1.3777 *	* 1.5272 *	* 1.4865 *	* 1.6402 *	* 1.5142 *	* 2.3928 *	
13	* 1.5979 *	* 1.4930 *	* 1.5862 *	* 1.3484 *	* 1.3055 *	* .9146 *	* .6062 *	
	* 1.3487 *	* 1.4560 *	* 1.3804 *	* 1.6289 *	* 1.5142 *	* 2.0364 *	* 3.3490 *	
14	* 1.3495 *	* 1.5540 *	* 1.3398 *	* 1.4223 *	* .8954 *	* .6073 *		
	* 1.5878 *	* 1.3818 *	* 1.6142 *	* 1.5510 *	* 2.3862 *	* 3.3437 *		
15	* .8429 *	* 1.0046 *	* 1.2049 *	* .8257 *	F-SUB-Q			
	* 2.5176 *	* 2.1230 *	* 1.7709 *	* 2.6130 *	M-SUB-Q			

AT 75% POWER, 100 EFPD, THIS IS LEVEL 13 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.0956 *	* 1.4137 *	* 1.2734 *	* 1.5412 *	* 1.3163 *	* 1.6633 *	* 1.3902 *	* .8632 *
	* 2.2115 *	* 1.7421 *	* 1.9511 *	* 1.5759 *	* 1.8222 *	* 1.4142 *	* 1.6822 *	* 2.6799 *
9	* 1.4137 *	* 1.4448 *	* 1.6633 *	* 1.5144 *	* 1.6675 *	* 1.5551 *	* 1.6236 *	* 1.0378 *
	* 1.7421 *	* 1.7425 *	* 1.4770 *	* 1.6157 *	* 1.4457 *	* 1.5393 *	* 1.4485 *	* 2.2527 *
10	* 1.2734 *	* 1.6633 *	* 1.5165 *	* 1.6611 *	* 1.5069 *	* 1.6654 *	* 1.3944 *	* 1.2595 *
	* 1.9511 *	* 1.4770 *	* 1.6259 *	* 1.4777 *	* 1.6247 *	* 1.4536 *	* 1.7110 *	* 1.8623 *
11	* 1.5412 *	* 1.5133 *	* 1.6622 *	* 1.2734 *	* 1.5979 *	* 1.4437 *	* 1.5155 *	* .8664 *
	* 1.5759 *	* 1.6168 *	* 1.4776 *	* 1.8885 *	* 1.5284 *	* 1.6844 *	* 1.6113 *	* 2.7594 *
12	* 1.3163 *	* 1.6643 *	* 1.5037 *	* 1.5958 *	* 1.3420 *	* 1.4833 *	* .9682 *	
	* 1.8222 *	* 1.4536 *	* 1.6283 *	* 1.5300 *	* 1.7182 *	* 1.5718 *	* 2.4712 *	
13	* 1.6633 *	* 1.5519 *	* 1.6622 *	* 1.4426 *	* 1.4844 *	* 1.0678 *	* .6651 *	
	* 1.4142 *	* 1.5418 *	* 1.4565 *	* 1.6854 *	* 1.5718 *	* 2.1410 *	* 3.5062 *	
14	* 1.3902 *	* 1.6215 *	* 1.3934 *	* 1.5144 *	* .9703 *	* .6662 *		
	* 1.6822 *	* 1.4507 *	* 1.7130 *	* 1.6122 *	* 2.4648 *	* 3.5020 *		
15	* .8632 *	* 1.0378 *	* 1.2584 *	* .8654 *	F-SUB-Q			
	* 2.6799 *	* 2.2544 *	* 1.8637 *	* 2.7642 *	M-SUB-Q			

Table 1 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Normal Operations

AT 75% POWER, 100 EFPD, THIS IS LEVEL 12 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.1385	* 1.4544	* 1.2831	* 1.5487	* 1.3184	* 1.6772	* 1.3923	* .8611
	* 2.4048	* 1.8856	* 2.1533	* 1.7385	* 2.0089	* 1.5463	* 1.8475	* 2.9516
9	* 1.4544	* 1.4555	* 1.6804	* 1.5230	* 1.6900	* 1.5690	* 1.6386	* 1.0421
	* 1.8856	* 1.8941	* 1.6246	* 1.7842	* 1.5837	* 1.6903	* 1.5841	* 2.4737
10	* 1.2831	* 1.6804	* 1.5251	* 1.6793	* 1.5240	* 1.6890	* 1.4084	* 1.2713
	* 2.1533	* 1.6247	* 1.7974	* 1.6235	* 1.7867	* 1.5929	* 1.8783	* 2.0379
11	* 1.5487	* 1.5219	* 1.6793	* 1.3270	* 1.6472	* 1.4865	* 1.5551	* .8761
	* 1.7385	* 1.7853	* 1.6255	* 2.0209	* 1.6272	* 1.8009	* 1.7173	* 3.0372
12	* 1.3184	* 1.6868	* 1.5208	* 1.6451	* 1.4405	* 1.5765	* 1.0025	*
	* 2.0089	* 1.5922	* 1.7899	* 1.6290	* 1.8359	* 1.6694	* 2.6402	*
13	* 1.6772	* 1.5669	* 1.6858	* 1.4844	* 1.5733	* 1.1428	* .6951	*
	* 1.5463	* 1.6933	* 1.5957	* 1.8020	* 1.6694	* 2.2843	* 3.7459	*
14	* 1.3923	* 1.6365	* 1.4062	* 1.5540	* 1.0046	* .6961	*	*
	* 1.8475	* 1.5860	* 1.8807	* 1.7173	* 2.6307	* 3.7409	*	*
15	* .8611	* 1.0410	* 1.2702	* .8750	* F-SUB-Q			
	* 2.9516	* 2.4778	* 2.0395	* 3.0403	* M-SUB-Q			

AT 75% POWER, 100 EFPD, THIS IS LEVEL 11 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.1353	* 1.4523	* 1.2723	* 1.5390	* 1.3066	* 1.6697	* 1.3805	* .8504
	* 2.6416	* 2.0583	* 2.3475	* 1.9300	* 2.2407	* 1.7138	* 2.0523	* 3.2878
9	* 1.4523	* 1.4459	* 1.6750	* 1.5133	* 1.6890	* 1.5637	* 1.6322	* 1.0335
	* 2.0583	* 2.0628	* 1.7729	* 1.9615	* 1.7382	* 1.8752	* 1.7548	* 2.7492
10	* 1.2723	* 1.6750	* 1.5155	* 1.6729	* 1.5238	* 1.6890	* 1.4041	* 1.2659
	* 2.3475	* 1.7739	* 1.9621	* 1.7667	* 1.9354	* 1.7382	* 2.0709	* 2.2581
11	* 1.5390	* 1.5123	* 1.6740	* 1.3366	* 1.6590	* 1.4951	* 1.5637	* .8718
	* 1.9300	* 1.9634	* 1.7709	* 2.1991	* 1.7626	* 1.9534	* 1.8561	* 3.3106
12	* 1.3066	* 1.6858	* 1.5176	* 1.6579	* 1.4608	* 1.6022	* 1.0100	*
	* 2.2407	* 1.7418	* 1.9386	* 1.7647	* 1.9944	* 1.8077	* 2.8694	*
13	* 1.6697	* 1.5615	* 1.6858	* 1.4940	* 1.5990	* 1.1620	* .7026	*
	* 1.7138	* 1.8782	* 1.7413	* 1.9560	* 1.8076	* 2.4799	* 4.0787	*
14	* 1.3805	* 1.6301	* 1.4019	* 1.5637	* 1.0132	* .7036	*	*
	* 2.0523	* 1.7570	* 2.0731	* 1.8567	* 2.8610	* 4.0730	*	*
15	* .8504	* 1.0324	* 1.2649	* .8707	* F-SUB-Q			
	* 3.2878	* 2.7518	* 2.2598	* 3.3143	* M-SUB-Q			

Table 1 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Normal Operations

AT 75% POWER, 100 EFPD, THIS IS LEVEL 10 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.1417 *	* 1.4683 *	* 1.2841 *	* 1.5562 *	* 1.3195 *	* 1.6965 *	* 1.3923 *	* .8557 *
	* 2.7391 *	* 2.1310 *	* 2.4377 *	* 2.0118 *	* 2.3711 *	* 1.8466 *	* 2.2465 *	* 3.5978 *
9	* 1.4683 *	* 1.4587 *	* 1.6997 *	* 1.5283 *	* 1.7179 *	* 1.5851 *	* 1.6590 *	* 1.0442 *
	* 2.1310 *	* 2.1481 *	* 1.8443 *	* 2.0495 *	* 1.8249 *	* 1.9767 *	* 1.8880 *	* 2.9921 *
10	* 1.2841 *	* 1.6986 *	* 1.5294 *	* 1.6986 *	* 1.5390 *	* 1.7179 *	* 1.4212 *	* 1.2873 *
	* 2.4377 *	* 1.8443 *	* 2.0495 *	* 1.8443 *	* 2.0354 *	* 1.8249 *	* 2.2044 *	* 2.4197 *
11	* 1.5562 *	* 1.5262 *	* 1.6986 *	* 1.3612 *	* 1.6965 *	* 1.5208 *	* 1.5979 *	* .8857 *
	* 2.0118 *	* 2.0524 *	* 1.8455 *	* 2.3043 *	* 1.8501 *	* 2.0624 *	* 1.9596 *	* 3.5212 *
12	* 1.3195 *	* 1.7147 *	* 1.5369 *	* 1.6943 *	* 1.4876 *	* 1.6418 *	* 1.0314 *	
	* 2.3711 *	* 1.8283 *	* 2.0396 *	* 1.8524 *	* 2.1097 *	* 1.9113 *	* 3.0384 *	
13	* 1.6965 *	* 1.5829 *	* 1.7136 *	* 1.5187 *	* 1.6386 *	* 1.1845 *	* .7154 *	
	* 1.8466 *	* 1.9793 *	* 1.8283 *	* 2.0639 *	* 1.9150 *	* 2.6480 *	* 4.3598 *	
14	* 1.3923 *	* 1.6568 *	* 1.4201 *	* 1.5979 *	* 1.0346 *	* .7165 *		
	* 2.2465 *	* 1.8917 *	* 2.2060 *	* 1.9596 *	* 3.0290 *	* 4.3534 *		
15	* .8557 *	* 1.0432 *	* 1.2863 *	* .8846 *	F-SUB-Q			
	* 3.5978 *	* 2.9951 *	* 2.4217 *	* 3.5254 *	M-SUB-Q			

AT 75% POWER, 100 EFPD, THIS IS LEVEL 9 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.1085 *	* 1.4319 *	* 1.2477 *	* 1.5197 *	* 1.2852 *	* 1.6590 *	* 1.3602 *	* .8332 *
	* 2.7857 *	* 2.1607 *	* 2.4787 *	* 2.0382 *	* 2.4079 *	* 1.8653 *	* 2.2636 *	* 3.6748 *
9	* 1.4319 *	* 1.4223 *	* 1.6611 *	* 1.4919 *	* 1.6836 *	* 1.5530 *	* 1.6236 *	* 1.0207 *
	* 2.1607 *	* 2.1767 *	* 1.8677 *	* 2.0770 *	* 1.8443 *	* 1.9981 *	* 1.9101 *	* 3.0384 *
10	* 1.2477 *	* 1.6611 *	* 1.4930 *	* 1.6633 *	* 1.5069 *	* 1.6836 *	* 1.3923 *	* 1.2595 *
	* 2.4787 *	* 1.8677 *	* 2.0770 *	* 1.8665 *	* 2.0596 *	* 1.8455 *	* 2.2277 *	* 2.4642 *
11	* 1.5197 *	* 1.4908 *	* 1.6600 *	* 1.3302 *	* 1.6643 *	* 1.4919 *	* 1.5690 *	* .8632 *
	* 2.0382 *	* 2.0799 *	* 1.8689 *	* 2.3372 *	* 1.8724 *	* 2.0873 *	* 1.9833 *	* 3.5942 *
12	* 1.2852 *	* 1.6793 *	* 1.5048 *	* 1.6622 *	* 1.4598 *	* 1.6129 *	* 1.0089 *	
	* 2.4079 *	* 1.8489 *	* 2.0639 *	* 1.8736 *	* 2.1357 *	* 1.9339 *	* 3.0893 *	
13	* 1.6590 *	* 1.5497 *	* 1.6793 *	* 1.4908 *	* 1.6097 *	* 1.1631 *	* .6994 *	
	* 1.8653 *	* 2.0008 *	* 1.8489 *	* 2.0887 *	* 1.9377 *	* 2.6842 *	* 4.4587 *	
14	* 1.3602 *	* 1.6215 *	* 1.3912 *	* 1.5690 *	* 1.0121 *	* .7004 *		
	* 2.2636 *	* 1.9125 *	* 2.2311 *	* 1.9847 *	* 3.0796 *	* 4.4520 *		
15	* .8332 *	* 1.0196 *	* 1.2584 *	* .8632 *	F-SUB-Q			
	* 3.6748 *	* 3.0415 *	* 2.4663 *	* 3.5986 *	M-SUB-Q			

Catawba 1 Cycle 9 Core Operating Limits Report

CNEI-0400-24

Appendix A

Page 60 of 204

Revision 6

Table 1 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Normal Operations

AT 75% POWER, 100 EFPD, THIS IS LEVEL 8 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.1085 *	* 1.4405 *	* 1.2541 *	* 1.5315 *	* 1.2948 *	* 1.6825 *	* 1.3698 *	.8375 *
	* 2.6891 *	* 2.0668 *	* 2.3503 *	* 1.9225 *	* 2.2464 *	* 1.7316 *	* 2.1052 *	* 3.3837 *
9	* 1.4405 *	* 1.4287 *	* 1.6804 *	* 1.5015 *	* 1.7061 *	* 1.5679 *	* 1.6472 *	* 1.0282 *
	* 2.0668 *	* 2.0740 *	* 1.7680 *	* 1.9740 *	* 1.7408 *	* 1.8844 *	* 1.7722 *	* 2.8069 *
10	* 1.2541 *	* 1.6793 *	* 1.5005 *	* 1.6825 *	* 1.5197 *	* 1.7061 *	* 1.4052 *	* 1.2777 *
	* 2.3503 *	* 1.7690 *	* 1.9780 *	* 1.7669 *	* 1.9583 *	* 1.7419 *	* 2.0977 *	* 2.2758 *
11	* 1.5315 *	* 1.5005 *	* 1.6793 *	* 1.3452 *	* 1.6900 *	* 1.5058 *	* 1.5958 *	.8750 *
	* 1.9225 *	* 1.9753 *	* 1.7701 *	* 2.2498 *	* 1.7862 *	* 2.0022 *	* 1.8784 *	* 3.3453 *
12	* 1.2948 *	* 1.7029 *	* 1.5165 *	* 1.6879 *	* 1.4716 *	* 1.6386 *	* 1.0228 *	
	* 2.2464 *	* 1.7449 *	* 1.9622 *	* 1.7884 *	* 2.0843 *	* 1.8736 *	* 2.9413 *	
13	* 1.6825 *	* 1.5658 *	* 1.7029 *	* 1.5048 *	* 1.6365 *	* 1.1738 *	.7047 *	
	* 1.7316 *	* 1.8880 *	* 1.7449 *	* 2.0035 *	* 1.8736 *	* 2.6151 *	* 4.2590 *	
14	* 1.3698 *	* 1.6451 *	* 1.4030 *	* 1.5947 *	* 1.0260 *	.7058 *		
	* 2.1052 *	* 1.7754 *	* 2.1007 *	* 1.8784 *	* 2.9326 *	* 4.2528 *		
15	.8375 *	* 1.0271 *	* 1.2766 *	.8739 *	F-SUB-Q			
	* 3.3837 *	* 2.8122 *	* 2.2776 *	* 3.3491 *	M-SUB-Q			

AT 75% POWER, 100 EFPD, THIS IS LEVEL 7 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.0871 *	* 1.4191 *	* 1.2349 *	* 1.5112 *	* 1.2766 *	* 1.6665 *	* 1.3516 *	.8247 *
	* 2.4684 *	* 1.8868 *	* 2.1295 *	* 1.7316 *	* 2.0354 *	* 1.5660 *	* 1.9125 *	* 3.0893 *
9	* 1.4191 *	* 1.4084 *	* 1.6622 *	* 1.4812 *	* 1.6900 *	* 1.5508 *	* 1.6333 *	* 1.0142 *
	* 1.8868 *	* 1.8796 *	* 1.5940 *	* 1.7808 *	* 1.5677 *	* 1.6967 *	* 1.5991 *	* 2.5451 *
10	* 1.2349 *	* 1.6611 *	* 1.4791 *	* 1.6654 *	* 1.5015 *	* 1.6900 *	* 1.3891 *	* 1.2659 *
	* 2.1295 *	* 1.5940 *	* 1.7884 *	* 1.5940 *	* 1.7712 *	* 1.5693 *	* 1.8917 *	* 2.0495 *
11	* 1.5112 *	* 1.4801 *	* 1.6611 *	* 1.3291 *	* 1.6750 *	* 1.4898 *	* 1.5829 *	.8643 *
	* 1.7316 *	* 1.7819 *	* 1.5957 *	* 2.0596 *	* 1.6301 *	* 1.8306 *	* 1.7066 *	* 3.0259 *
12	* 1.2766 *	* 1.6868 *	* 1.4994 *	* 1.6729 *	* 1.4544 *	* 1.6258 *	* 1.0110 *	
	* 2.0354 *	* 1.5710 *	* 1.7744 *	* 1.6319 *	* 1.9138 *	* 1.7056 *	* 2.6915 *	
13	* 1.6665 *	* 1.5487 *	* 1.6868 *	* 1.4876 *	* 1.6236 *	* 1.1599 *	.6940 *	
	* 1.5660 *	* 1.6997 *	* 1.5719 *	* 1.8317 *	* 1.7046 *	* 2.3864 *	* 3.9036 *	
14	* 1.3516 *	* 1.6301 *	* 1.3869 *	* 1.5829 *	* 1.0142 *	.6951 *		
	* 1.9125 *	* 1.6018 *	* 1.8941 *	* 1.7066 *	* 2.6817 *	* 3.8984 *		
15	.8247 *	* 1.0132 *	* 1.2649 *	.8632 *	F-SUB-Q			
	* 3.0893 *	* 2.5473 *	* 2.0524 *	* 3.0290 *	M-SUB-Q			

Catawba 1 Cycle 9 Core Operating Limits Report

CNEI-0400-24

Appendix A

Page 61 of 204

Revision 6

Table 1 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Normal Operations

AT 75% POWER, 100 EFPD, THIS IS LEVEL 6 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.0517 *	* 1.3773 *	* 1.1931 *	* 1.4673 *	* 1.2359 *	* 1.6183 *	* 1.3120 *	* .7979 *
	* 2.2395 *	* 1.7155 *	* 1.9674 *	* 1.6035 *	* 1.8965 *	* 1.4569 *	* 1.7819 *	* 2.8923 *
9	* 1.3773 *	* 1.3666 *	* 1.6129 *	* 1.4373 *	* 1.6429 *	* 1.5069 *	* 1.5862 *	* .9842 *
	* 1.7155 *	* 1.7296 *	* 1.4721 *	* 1.6474 *	* 1.4483 *	* 1.5710 *	* 1.4855 *	* 2.3672 *
10	* 1.1931 *	* 1.6129 *	* 1.4351 *	* 1.6172 *	* 1.4587 *	* 1.6429 *	* 1.3495 *	* 1.2274 *
	* 1.9674 *	* 1.4729 *	* 1.6511 *	* 1.4714 *	* 1.6328 *	* 1.4490 *	* 1.7491 *	* 1.9039 *
11	* 1.4673 *	* 1.4362 *	* 1.6129 *	* 1.2863 *	* 1.6268 *	* 1.4480 *	* 1.5390 *	* .8343 *
	* 1.6035 *	* 1.6483 *	* 1.4743 *	* 1.8796 *	* 1.4847 *	* 1.6660 *	* 1.5586 *	* 2.8069 *
12	* 1.2359 *	* 1.6397 *	* 1.4586 *	* 1.6247 *	* 1.4126 *	* 1.5797 *	* .9789 *	
	* 1.8965 *	* 1.4511 *	* 1.6346 *	* 1.4862 *	* 1.7337 *	* 1.5512 *	* 2.4601 *	
13	* 1.6183 *	* 1.5048 *	* 1.6397 *	* 1.4469 *	* 1.5776 *	* 1.1256 *	* .6715 *	
	* 1.4569 *	* 1.5735 *	* 1.4518 *	* 1.6670 *	* 1.5520 *	* 2.1767 *	* 3.5811 *	
14	* 1.3120 *	* 1.5840 *	* 1.3484 *	* 1.5390 *	* .9821 *	* .6726 *		
	* 1.7819 *	* 1.4877 *	* 1.7512 *	* 1.5594 *	* 2.4519 *	* 3.5767 *		
15	* .7979 *	* .9832 *	* 1.2263 *	* .8343 *	F-SUB-Q			
	* 2.8923 *	* 2.3691 *	* 1.9051 *	* 2.8096 *	M-SUB-Q			

AT 75% POWER, 100 EFPD, THIS IS LEVEL 5 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.0442 *	* 1.3741 *	* 1.1888 *	* 1.4641 *	* 1.2316 *	* 1.6183 *	* 1.3055 *	* .7915 *
	* 2.0340 *	* 1.5553 *	* 1.7971 *	* 1.4663 *	* 1.7398 *	* 1.3336 *	* 1.6419 *	* 2.6744 *
9	* 1.3741 *	* 1.3591 *	* 1.6119 *	* 1.4298 *	* 1.6418 *	* 1.5026 *	* 1.5872 *	* .9789 *
	* 1.5553 *	* 1.5811 *	* 1.3427 *	* 1.5091 *	* 1.3210 *	* 1.4384 *	* 1.3575 *	* 2.1799 *
10	* 1.1888 *	* 1.6108 *	* 1.4266 *	* 1.6151 *	* 1.4523 *	* 1.6418 *	* 1.3441 *	* 1.2284 *
	* 1.7971 *	* 1.3433 *	* 1.5129 *	* 1.3421 *	* 1.4930 *	* 1.3210 *	* 1.6026 *	* 1.7398 *
11	* 1.4641 *	* 1.4287 *	* 1.6119 *	* 1.2831 *	* 1.6268 *	* 1.4416 *	* 1.5422 *	* .8343 *
	* 1.4663 *	* 1.5106 *	* 1.3451 *	* 1.6987 *	* 1.3439 *	* 1.5122 *	* 1.4095 *	* 2.5628 *
12	* 1.2316 *	* 1.6386 *	* 1.4501 *	* 1.6247 *	* 1.4052 *	* 1.5808 *	* .9778 *	
	* 1.7398 *	* 1.3240 *	* 1.4953 *	* 1.3451 *	* 1.5586 *	* 1.3889 *	* 2.2176 *	
13	* 1.6183 *	* 1.5005 *	* 1.6386 *	* 1.4405 *	* 1.5797 *	* 1.1192 *	* .6662 *	
	* 1.3336 *	* 1.4405 *	* 1.3240 *	* 1.5137 *	* 1.3895 *	* 1.9544 *	* 3.2387 *	
14	* 1.3055 *	* 1.5851 *	* 1.3420 *	* 1.5412 *	* .9810 *	* .6683 *		
	* 1.6419 *	* 1.3594 *	* 1.6044 *	* 1.4102 *	* 2.2110 *	* 3.2316 *		
15	* .7915 *	* .9778 *	* 1.2263 *	* .8332 *	F-SUB-Q			
	* 2.6744 *	* 2.1815 *	* 1.7419 *	* 2.5650 *	M-SUB-Q			

Table 1 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Normal Operations

AT 75% POWER, 100 EFPD, THIS IS LEVEL 4 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.0014 *	* 1.2205 *	* 1.1363 *	* 1.4052 *	* 1.1760 *	* 1.5444 *	* 1.2477 *	* .7540 *
	* 1.9648 *	* 1.4999 *	* 1.7449 *	* 1.4190 *	* 1.6938 *	* 1.2995 *	* 1.5974 *	* 2.6174 *
9	* 1.3205 *	* 1.3023 *	* 1.5401 *	* 1.3698 *	* 1.5690 *	* 1.4394 *	* 1.5155 *	* .9339 *
	* 1.4999 *	* 1.5302 *	* 1.3029 *	* 1.4619 *	* 1.2825 *	* 1.3948 *	* 1.3222 *	* 2.1249 *
10	* 1.1363 *	* 1.5401 *	* 1.3666 *	* 1.5433 *	* 1.3902 *	* 1.5690 *	* 1.2852 *	* 1.1685 *
	* 1.7449 *	* 1.3035 *	* 1.4655 *	* 1.3029 *	* 1.4461 *	* 1.2831 *	* 1.5553 *	* 1.6997 *
11	* 1.4052 *	* 1.3677 *	* 1.5390 *	* 1.2220 *	* 1.5519 *	* 1.3794 *	* 1.4716 *	* .7915 *
	* 1.4190 *	* 1.4634 *	* 1.3052 *	* 1.6456 *	* 1.3012 *	* 1.4605 *	* 1.3657 *	* 2.5061 *
12	* 1.1760 *	* 1.5647 *	* 1.3880 *	* 1.5508 *	* 1.3441 *	* 1.5080 *	* .9296 *	
	* 1.6938 *	* 1.2853 *	* 1.4483 *	* 1.3029 *	* 1.5006 *	* 1.3403 *	* 2.1528 *	
13	* 1.5444 *	* 1.4362 *	* 1.5658 *	* 1.3784 *	* 1.5069 *	* 1.0689 *	* .6340 *	
	* 1.2995 *	* 1.3968 *	* 1.2853 *	* 1.4619 *	* 1.3409 *	* 1.8820 *	* 3.1387 *	
14	* 1.2477 *	* 1.5133 *	* 1.2841 *	* 1.4716 *	* .9328 *	* .6351 *		
	* 1.5974 *	* 1.3240 *	* 1.5569 *	* 1.3664 *	* 2.1466 *	* 3.1353 *		
15	* .7540 *	* .9328 *	* 1.1674 *	* .7904 *	F-SUB-Q			
	* 2.6174 *	* 2.1280 *	* 1.7016 *	* 2.5083 *	M-SUB-Q			

AT 75% POWER, 100 EFPD, THIS IS LEVEL 3 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* .9703 *	* 1.2798 *	* 1.0999 *	* 1.3612 *	* 1.1374 *	* 1.4844 *	* 1.1984 *	* .7219 *
	* 1.9175 *	* 1.4619 *	* 1.7036 *	* 1.3837 *	* 1.6548 *	* 1.2770 *	* 1.5735 *	* 2.5921 *
9	* 1.2798 *	* 1.2574 *	* 1.4855 *	* 1.3216 *	* 1.5101 *	* 1.3880 *	* 1.4533 *	* .8921 *
	* 1.4619 *	* 1.4968 *	* 1.2759 *	* 1.4300 *	* 1.2579 *	* 1.3645 *	* 1.3024 *	* 2.1067 *
10	* 1.0999 *	* 1.4844 *	* 1.3195 *	* 1.4876 *	* 1.3398 *	* 1.5101 *	* 1.2338 *	* 1.1117 *
	* 1.7036 *	* 1.2759 *	* 1.4321 *	* 1.2759 *	* 1.4156 *	* 1.2584 *	* 1.5302 *	* 1.6890 *
11	* 1.3612 *	* 1.3205 *	* 1.4833 *	* 1.1802 *	* 1.4908 *	* 1.3259 *	* 1.4073 *	* .7572 *
	* 1.3837 *	* 1.4307 *	* 1.2781 *	* 1.6061 *	* 1.2764 *	* 1.4314 *	* 1.3464 *	* 2.4787 *
12	* 1.1374 *	* 1.5058 *	* 1.3377 *	* 1.4898 *	* 1.2916 *	* 1.4437 *	* .8921 *	
	* 1.6548 *	* 1.2606 *	* 1.4176 *	* 1.2781 *	* 1.4699 *	* 1.3175 *	* 2.1173 *	
13	* 1.4844 *	* 1.3859 *	* 1.5069 *	* 1.3248 *	* 1.4405 *	* 1.0217 *	* .6040 *	
	* 1.2770 *	* 1.3670 *	* 1.2606 *	* 1.4328 *	* 1.3193 *	* 1.8524 *	* 3.1056 *	
14	* 1.1984 *	* 1.4512 *	* 1.2327 *	* 1.4062 *	* .8954 *	* .6051 *		
	* 1.5735 *	* 1.3041 *	* 1.5318 *	* 1.3464 *	* 2.1097 *	* 3.1023 *		
15	* .7219 *	* .8911 *	* 1.1106 *	* .7561 *	F-SUB-Q			
	* 2.5921 *	* 2.1082 *	* 1.6909 *	* 2.4808 *	M-SUB-Q			

Table 1 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Normal Operations

AT 75% POWER, 100 EFPD, THIS IS LEVEL 2 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	.8750	1.1363	.9939	1.2145	1.0303	1.3248	1.0614	.6372
	2.0481	1.5837	1.8159	1.4915	1.7585	1.3740	1.7085	2.8311
9	1.1363	1.1267	1.3173	1.1856	1.3388	1.2456	1.2734	.7775
	1.5837	1.6052	1.3811	1.5310	1.3619	1.4612	1.4279	2.3261
10	.9939	1.3173	1.1856	1.3216	1.2017	1.3377	1.0935	.9457
	1.8159	1.3817	1.5318	1.3785	1.5145	1.3626	1.6595	1.9113
11	1.2145	1.1845	1.3184	1.0656	1.3345	1.1781	1.2134	.6597
	1.4915	1.5326	1.3817	1.7075	1.3689	1.5455	1.4991	2.7391
12	1.0303	1.3355	1.1995	1.3323	1.1470	1.2520	.7850	
	1.7585	1.3645	1.5168	1.3708	1.5871	1.4569	2.3115	
13	1.3248	1.2434	1.3355	1.1770	1.2499	.8943	.5259	
	1.3740	1.4634	1.3651	1.5471	1.4590	2.0326	3.4310	
14	1.0614	1.2713	1.0924	1.2124	.7872	.5269		
	1.7085	1.4300	1.6613	1.4999	2.3043	3.4270		
15	.6372	.7765	.9446	.6587	F-SUB-Q			
	2.8311	2.3280	1.9138	2.7416	M-SUB-Q			

AT 75% POWER, 100 EFPD, THIS IS LEVEL 1 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	.6019	.7443	.6747	.7990	.7058	.9104	.6951	.4230
	2.9065	2.3616	2.6082	2.2077	2.5040	1.9428	2.5451	4.1569
9	.7443	.7518	.9243	.7840	.9457	.8311	.8375	.5023
	2.3616	2.3428	1.9125	2.2532	1.8724	2.1326	2.1112	3.5086
10	.6747	.9243	.7829	.9403	.7990	.9371	.7219	.5698
	2.6082	1.9138	2.2567	1.8856	2.2176	1.8929	2.4499	3.0926
11	.7990	.7840	.9382	.7283	.9264	.7711	.7658	.4209
	2.2077	2.2550	1.8892	2.4337	1.9150	2.2989	2.3097	4.1864
12	.7058	.9436	.7979	.9253	.7476	.8118	.5130	
	2.5040	1.8784	2.2210	1.9175	2.3711	2.1831	3.6511	
13	.9104	.8290	.9350	.7700	.8118	.5826	.3416	
	1.9428	2.1357	1.8953	2.3007	2.1831	3.0352	5.1525	
14	.6951	.8365	.7208	.7658	.5141	.3416		
	2.5451	2.1142	2.4519	2.3115	3.4430	5.1525		
15	.4230	.5023	.5687	.4209	F-SUB-Q			
	4.1569	3.5128	3.0958	4.1923	M-SUB-Q			

Table 1 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Normal Operations

AT 75% POWER, 200 EFPD, THIS IS LEVEL 18 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* .5794 *	* .7979 *	* .7904 *	* .9050 *	* .8311 *	* 1.0003 *	* .8140 *	* .5409 *
	* 2.6077 *	* 2.2482 *	* 2.2643 *	* 1.9765 *	* 2.1455 *	* 1.7815 *	* 2.1839 *	* 3.2596 *
9	* .7979 *	* .8589 *	* 1.0003 *	* .8964 *	* 1.0100 *	* .9157 *	* .9157 *	* .5976 *
	* 2.2482 *	* 2.0850 *	* 1.7874 *	* 1.9919 *	* 1.7643 *	* 1.9447 *	* 1.9391 *	* 2.9471 *
10	* .7904 *	* 1.0003 *	* .8975 *	* 1.0025 *	* .8921 *	* .9735 *	* .7968 *	* .6501 *
	* 2.2643 *	* 1.7874 *	* 1.9925 *	* 1.7801 *	* 1.9984 *	* 1.8238 *	* 2.2209 *	* 2.7093 *
11	* .9050 *	* .8964 *	* 1.0025 *	* .7765 *	* .8814 *	* .7700 *	* .7700 *	* .4787 *
	* 1.9765 *	* 1.9934 *	* 1.7813 *	* 2.2939 *	* 1.9657 *	* 2.2753 *	* 2.2908 *	* 3.6567 *
12	* .8311 *	* 1.0089 *	* .8911 *	* .8793 *	* .6212 *	* .6501 *	* .5012 *	
	* 2.1455 *	* 1.7666 *	* 1.9999 *	* 1.9686 *	* 2.2589 *	* 2.1943 *	* 3.2856 *	
13	* 1.0003 *	* .9146 *	* .9735 *	* .7700 *	* .6501 *	* .4595 *	* .3342 *	
	* 1.7815 *	* 1.9461 *	* 1.8250 *	* 2.2772 *	* 2.1943 *	* 2.8282 *	* 4.4736 *	
14	* .8140 *	* .9146 *	* .7968 *	* .7700 *	* .5012 *	* .3342 *		
	* 2.1839 *	* 1.9405 *	* 2.2227 *	* 2.2922 *	* 3.2816 *	* 4.4736 *		
15	* .5409 *	* .5976 *	* .6501 *	* .4787 *	F-SUB-Q			
	* 3.2596 *	* 2.9484 *	* 2.7109 *	* 3.6604 *	M-SUB-Q			

AT 75% POWER, 200 EFPD, THIS IS LEVEL 17 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* .7690 *	* 1.0892 *	* 1.0517 *	* 1.2466 *	* 1.1085 *	* 1.3259 *	* 1.1460 *	* .7465 *
	* 2.0434 *	* 1.7063 *	* 1.7667 *	* 1.4896 *	* 1.6731 *	* 1.3969 *	* 1.6112 *	* 2.4569 *
9	* 1.0892 *	* 1.1792 *	* 1.3163 *	* 1.2488 *	* 1.3130 *	* 1.2584 *	* 1.2638 *	* .8472 *
	* 1.7063 *	* 1.5782 *	* 1.4121 *	* 1.4872 *	* 1.4129 *	* 1.4689 *	* 1.4595 *	* 2.1617 *
10	* 1.0517 *	* 1.3163 *	* 1.2509 *	* 1.3163 *	* 1.2381 *	* 1.3034 *	* 1.1106 *	* .9607 *
	* 1.7667 *	* 1.4121 *	* 1.4851 *	* 1.4114 *	* 1.4964 *	* 1.4194 *	* 1.6550 *	* 1.9025 *
11	* 1.2466 *	* 1.2488 *	* 1.3173 *	* 1.0164 *	* 1.1984 *	* 1.0753 *	* 1.1106 *	* .6747 *
	* 1.4896 *	* 1.4875 *	* 1.4110 *	* 1.8081 *	* 1.5396 *	* 1.6705 *	* 1.6468 *	* 2.6890 *
12	* 1.1085 *	* 1.3109 *	* 1.2359 *	* 1.1952 *	* .8375 *	* .9403 *	* .6919 *	
	* 1.6731 *	* 1.4151 *	* 1.4981 *	* 1.5409 *	* 1.6530 *	* 1.6107 *	* 2.4570 *	
13	* 1.3259 *	* 1.2574 *	* 1.3013 *	* 1.0742 *	* .9403 *	* .6565 *	* .4680 *	
	* 1.3969 *	* 1.4702 *	* 1.4209 *	* 1.6716 *	* 1.6126 *	* 2.0852 *	* 3.3016 *	
14	* 1.1460 *	* 1.2627 *	* 1.1096 *	* 1.1096 *	* .6929 *	* .4691 *		
	* 1.6112 *	* 1.4611 *	* 1.6560 *	* 1.6475 *	* 2.4527 *	* 3.2977 *		
15	* .7465 *	* .8461 *	* .9596 *	* .6747 *	F-SUB-Q			
	* 2.4569 *	* 2.1634 *	* 1.9038 *	* 2.6917 *	M-SUB-Q			

Catawba 1 Cycle 9 Core Operating Limits Report

CNEI-0400-24

Appendix A

Page 65 of 204

Revision 6

Table 1 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Normal Operations

AT 75% POWER, 200 EFPD, THIS IS LEVEL 16 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* .8354	* 1.1974	* 1.1503	* 1.3816	* 1.2177	* 1.4983	* 1.2745	* .8225
	* 1.9798	* 1.6148	* 1.6902	* 1.4037	* 1.5877	* 1.2886	* 1.5119	* 2.3264
9	* 1.1974	* 1.2970	* 1.4833	* 1.3827	* 1.4801	* 1.3977	* 1.4319	* .9457
	* 1.6148	* 1.5011	* 1.3110	* 1.4049	* 1.3068	* 1.3766	* 1.3417	* 2.0178
10	* 1.1505	* 1.4844	* 1.3837	* 1.4833	* 1.3698	* 1.4705	* 1.2370	* 1.1010
	* 1.6902	* 1.3108	* 1.4051	* 1.3104	* 1.4098	* 1.3096	* 1.5449	* 1.7251
11	* 1.3816	* 1.3816	* 1.4844	* 1.1138	* 1.3537	* 1.2006	* 1.2681	* .7551
	* 1.4037	* 1.4056	* 1.3098	* 1.6975	* 1.4128	* 1.5565	* 1.5012	* 2.5003
12	* 1.2177	* 1.4780	* 1.3677	* 1.3505	* .9328	* 1.0764	* .7711	*
	* 1.5877	* 1.3090	* 1.4119	* 1.4142	* 1.5458	* 1.4700	* 2.3007	*
13	* 1.4983	* 1.3966	* 1.4683	* 1.1995	* 1.0764	* .7401	* .5248	*
	* 1.2886	* 1.3779	* 1.3113	* 1.5574	* 1.4720	* 1.9466	* 3.0915	*
14	* 1.2745	* 1.4309	* 1.2359	* 1.2670	* .7733	* .5248	*	*
	* 1.5119	* 1.3425	* 1.5460	* 1.5012	* 2.2950	* 3.0881	*	*
15	* .8225	* .9446	* 1.1010	* .7540	* F-SUB-Q			
	* 2.3264	* 2.0189	* 1.7259	* 2.5025	* M-SUB-Q			

AT 75% POWER, 200 EFPD, THIS IS LEVEL 15 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* .8536	* 1.2359	* 1.1888	* 1.4341	* 1.2659	* 1.5851	* 1.3248	* .8482
	* 2.0603	* 1.6559	* 1.7295	* 1.4265	* 1.6056	* 1.2770	* 1.5249	* 2.3668
9	* 1.2359	* 1.3366	* 1.5615	* 1.4341	* 1.5604	* 1.4630	* 1.5123	* .9821
	* 1.6559	* 1.5420	* 1.3155	* 1.4286	* 1.2984	* 1.3805	* 1.3312	* 2.0339
10	* 1.1888	* 1.5615	* 1.4330	* 1.5615	* 1.4223	* 1.5551	* 1.2927	* 1.1620
	* 1.7295	* 1.3155	* 1.4329	* 1.3099	* 1.4292	* 1.3002	* 1.5485	* 1.7099
11	* 1.4341	* 1.4330	* 1.5626	* 1.1620	* 1.4341	* 1.2616	* 1.3473	* .7904
	* 1.4265	* 1.4300	* 1.3118	* 1.7082	* 1.4019	* 1.5680	* 1.4856	* 2.5087
12	* 1.2659	* 1.5572	* 1.4201	* 1.4309	* .9789	* 1.1481	* .8129	*
	* 1.6056	* 1.3002	* 1.4307	* 1.4032	* 1.5676	* 1.4668	* 2.3248	*
13	* 1.5851	* 1.4608	* 1.5530	* 1.2606	* 1.1481	* .7818	* .5526	*
	* 1.2770	* 1.3819	* 1.3026	* 1.5689	* 1.4683	* 1.9806	* 3.1520	*
14	* 1.3248	* 1.5112	* 1.2916	* 1.3462	* .8140	* .5526	*	*
	* 1.5249	* 1.3325	* 1.5493	* 1.4864	* 2.3191	* 3.1485	*	*
15	* .8482	* .9810	* 1.1610	* .7893	* F-SUB-Q			
	* 2.3668	* 2.0353	* 1.7110	* 2.5110	* M-SUB-Q			

Catawba 1 Cycle 9 Core Operating Limits Report

CNEI-0400-24

Appendix A

Page 66 of 204

Revision 6

Table 1 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Normal Operations

AT 75% POWER, 200 EFPD, THIS IS LEVEL 14 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* .8536 *	* 1.2316 *	* 1.1770 *	* 1.4244 *	* 1.2563 *	* 1.5851 *	* 1.3141 *	* .8343 *
	* 2.2309 *	* 1.7811 *	* 1.8657 *	* 1.5291 *	* 1.7241 *	* 1.3520 *	* 1.6245 *	* 2.5397 *
9	* 1.2316 *	* 1.3238 *	* 1.5626 *	* 1.4255 *	* 1.5647 *	* 1.4619 *	* 1.5123 *	* .9725 *
	* 1.7811 *	* 1.6713 *	* 1.4028 *	* 1.5331 *	* 1.3816 *	* 1.4726 *	* 1.4125 *	* 2.1791 *
10	* 1.1770 *	* 1.5626 *	* 1.4244 *	* 1.5626 *	* 1.4169 *	* 1.5615 *	* 1.2906 *	* 1.1588 *
	* 1.8657 *	* 1.4028 *	* 1.5398 *	* 1.3959 *	* 1.5371 *	* 1.3849 *	* 1.6593 *	* 1.8295 *
11	* 1.4244 *	* 1.4244 *	* 1.5637 *	* 1.1674 *	* 1.4533 *	* 1.2766 *	* 1.3602 *	* .7861 *
	* 1.5291 *	* 1.5340 *	* 1.3979 *	* 1.8198 *	* 1.4822 *	* 1.6661 *	* 1.5914 *	* 2.7113 *
12	* 1.2563 *	* 1.5626 *	* 1.4148 *	* 1.4491 *	* 1.0025 *	* 1.1813 *	* .8236 *	
	* 1.7241 *	* 1.3843 *	* 1.5389 *	* 1.4837 *	* 1.6800 *	* 1.5616 *	* 2.4911 *	
13	* 1.5851 *	* 1.4598 *	* 1.5594 *	* 1.2756 *	* 1.1813 *	* .8075 *	* .5644 *	
	* 1.3520 *	* 1.4741 *	* 1.3870 *	* 1.6671 *	* 1.5633 *	* 2.1341 *	* 3.4040 *	
14	* 1.3141 *	* 1.5101 *	* 1.2906 *	* 1.3591 *	* .8257 *	* .5655 *		
	* 1.6245 *	* 1.4139 *	* 1.6604 *	* 1.5922 *	* 2.4847 *	* 3.4000 *		
15	* .8343 *	* .9714 *	* 1.1578 *	* .7850 *	F-SUB-Q			
	* 2.5397 *	* 2.1808 *	* 1.8307 *	* 2.7138 *	M-SUB-Q			

AT 75% POWER, 200 EFPD, THIS IS LEVEL 13 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* .9371 *	* 1.2863 *	* 1.2092 *	* 1.4641 *	* 1.2884 *	* 1.6376 *	* 1.3409 *	* .8472 *
	* 2.3504 *	* 1.8593 *	* 1.9926 *	* 1.6279 *	* 1.8321 *	* 1.4191 *	* 1.7259 *	* 2.7089 *
9	* 1.2863 *	* 1.3634 *	* 1.6194 *	* 1.4651 *	* 1.6258 *	* 1.5069 *	* 1.5626 *	* .9917 *
	* 1.8593 *	* 1.7880 *	* 1.4826 *	* 1.6342 *	* 1.4563 *	* 1.5624 *	* 1.4869 *	* 2.3197 *
10	* 1.2092 *	* 1.6194 *	* 1.4651 *	* 1.6215 *	* 1.4630 *	* 1.6226 *	* 1.3280 *	* 1.1963 *
	* 1.9926 *	* 1.4826 *	* 1.6417 *	* 1.4749 *	* 1.6395 *	* 1.4614 *	* 1.7657 *	* 1.9334 *
11	* 1.4641 *	* 1.4641 *	* 1.6204 *	* 1.2274 *	* 1.5369 *	* 1.3473 *	* 1.4266 *	* .8140 *
	* 1.6279 *	* 1.6352 *	* 1.4779 *	* 1.8890 *	* 1.5267 *	* 1.7307 *	* 1.6759 *	* 2.8810 *
12	* 1.2884 *	* 1.6226 *	* 1.4608 *	* 1.5326 *	* 1.1278 *	* 1.3013 *	* .8793 *	
	* 1.8321 *	* 1.4606 *	* 1.6414 *	* 1.5291 *	* 1.7641 *	* 1.6248 *	* 2.5885 *	
13	* 1.6376 *	* 1.5048 *	* 1.6204 *	* 1.3462 *	* 1.3013 *	* .9007 *	* .6105 *	
	* 1.4191 *	* 1.5642 *	* 1.4643 *	* 1.7317 *	* 1.6262 *	* 2.2557 *	* 3.5808 *	
14	* 1.3409 *	* 1.5604 *	* 1.3270 *	* 1.4266 *	* .8825 *	* .6115 *		
	* 1.7259 *	* 1.4884 *	* 1.7678 *	* 1.6764 *	* 2.5804 *	* 3.5765 *		
15	* .8472 *	* .9917 *	* 1.1963 *	* .8140 *	F-SUB-Q			
	* 2.7089 *	* 2.3216 *	* 1.9347 *	* 2.8839 *	M-SUB-Q			

Table 1 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Normal Operations

AT 75% POWER, 200 EFPD, THIS IS LEVEL 12 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.0142	* 1.3216	* 1.2156	* 1.4705	* 1.2895	* 1.6472	* 1.3377	* .8418
	* 2.5472	* 2.0066	* 2.1992	* 1.7897	* 2.0154	* 1.5500	* 1.8947	* 2.9806
9	* 1.3216	* 1.3784	* 1.6376	* 1.4737	* 1.6461	* 1.5176	* 1.5712	* .9896
	* 2.0066	* 1.9407	* 1.6245	* 1.7983	* 1.5932	* 1.7135	* 1.6249	* 2.5488
10	* 1.2156	* 1.6376	* 1.4758	* 1.6418	* 1.4791	* 1.6440	* 1.3366	* 1.2027
	* 2.1992	* 1.6254	* 1.8073	* 1.6162	* 1.7980	* 1.5992	* 1.9385	* 2.1167
11	* 1.4705	* 1.4726	* 1.6386	* 1.2670	* 1.5883	* 1.3934	* 1.4587	* .8204
	* 1.7897	* 1.7995	* 1.6189	* 2.0199	* 1.6265	* 1.8518	* 1.7903	* 3.1706
12	* 1.2895	* 1.6429	* 1.4758	* 1.5840	* 1.3098	* 1.4351	* .9168	*
	* 2.0154	* 1.5983	* 1.8012	* 1.6282	* 1.8844	* 1.7292	* 2.7678	*
13	* 1.6472	* 1.5155	* 1.6408	* 1.3923	* 1.4341	* 1.0121	* .6469	*
	* 1.5500	* 1.7155	* 1.6018	* 1.8535	* 1.7306	* 2.4073	* 3.8319	*
14	* 1.3377	* 1.5701	* 1.3355	* 1.4576	* .9200	* .6480	*	*
	* 1.8947	* 1.6267	* 1.9410	* 1.7908	* 2.7600	* 3.8269	*	*
15	* .8418	* .9896	* 1.2027	* .8204	* F-SUB-Q			
	* 2.9806	* 2.5510	* 2.1182	* 3.1740	* M-SUB-Q			

AT 75% POWER, 200 EFPD, THIS IS LEVEL 11 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.0442	* 1.3334	* 1.2145	* 1.4651	* 1.2809	* 1.6408	* 1.3270	* .8322
	* 2.7783	* 2.1764	* 2.3941	* 1.9802	* 2.2408	* 1.7138	* 2.1019	* 3.3120
9	* 1.3334	* 1.3805	* 1.6397	* 1.4705	* 1.6493	* 1.5155	* 1.5658	* .9821
	* 2.1764	* 2.1048	* 1.7673	* 1.9707	* 1.7409	* 1.8944	* 1.7966	* 2.8265
10	* 1.2145	* 1.6397	* 1.4737	* 1.6461	* 1.4812	* 1.6483	* 1.3355	* 1.1995
	* 2.3941	* 1.7683	* 1.9669	* 1.7535	* 1.9445	* 1.7419	* 2.1345	* 2.3413
11	* 1.4651	* 1.4694	* 1.6429	* 1.2991	* 1.6172	* 1.4159	* 1.4716	* .8173
	* 1.9802	* 1.9721	* 1.7566	* 2.1944	* 1.7600	* 2.0080	* 1.9301	* 3.4543
12	* 1.2809	* 1.6472	* 1.4791	* 1.6151	* 1.3762	* 1.5005	* .9361	*
	* 2.2408	* 1.7439	* 1.9471	* 1.7621	* 2.0456	* 1.8718	* 3.0078	*
13	* 1.6408	* 1.5133	* 1.6451	* 1.4148	* 1.4994	* 1.0646	* .6672	*
	* 1.7138	* 1.8968	* 1.7440	* 2.0093	* 1.8729	* 2.6127	* 4.1683	*
14	* 1.3270	* 1.5637	* 1.3345	* 1.4705	* .9393	* .6683	*	*
	* 2.1019	* 1.7988	* 2.1360	* 1.9301	* 2.9986	* 4.1624	*	*
15	* .8322	* .9810	* 1.1984	* .8182	* F-SUB-Q			
	* 3.3120	* 2.8292	* 2.3431	* 3.4545	* M-SUB-Q			

Table 1 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Normal Operations

AT 75% POWER, 200 EFPD, THIS IS LEVEL 10 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.0624 *	* 1.3591 *	* 1.2338 *	* 1.4876 *	* 1.2981 *	* 1.6708 *	* 1.3409 *	* .8397 *
	* 2.9326 *	* 2.2953 *	* 2.5298 *	* 2.1007 *	* 2.4079 *	* 1.8605 *	* 2.2970 *	* 3.6201 *
9	* 1.4019 *	* 1.6729 *	* 1.4919 *	* 1.6847 *	* 1.5401 *	* 1.5947 *	* .9928 *	
	* 2.2294 *	* 1.8677 *	* 2.0932 *	* 1.8501 *	* 2.0228 *	* 1.9479 *	* 3.0821 *	
10	* 1.2338 *	* 1.6729 *	* 1.4962 *	* 1.6815 *	* 1.5058 *	* 1.6836 *	* 1.3559 *	* 1.2220 *
	* 2.5298 *	* 1.8689 *	* 2.0887 *	* 1.8583 *	* 2.0740 *	* 1.8513 *	* 2.2864 *	* 2.5168 *
11	* 1.4876 *	* 1.4908 *	* 1.6783 *	* 1.3366 *	* 1.6675 *	* 1.4501 *	* 1.5090 *	* .8354 *
	* 2.1007 *	* 2.0947 *	* 1.8618 *	* 2.3280 *	* 1.8630 *	* 2.1388 *	* 2.0495 *	* 3.6840 *
12	* 1.2981 *	* 1.6825 *	* 1.6654 *	* 1.4201 *	* 1.5551 *	* .9650 *		
	* 2.4079 *	* 1.8524 *	* 1.8653 *	* 2.1831 *	* 1.9887 *	* 3.1966 *		
13	* 1.6708 *	* 1.5380 *	* 1.4491 *	* 1.5540 *	* 1.1010 *	* .6876 *		
	* 1.8605 *	* 2.0256 *	* 1.8536 *	* 2.1403 *	* 1.9900 *	* 2.7989 *	* 4.4520 *	
14	* 1.3409 *	* 1.5926 *	* 1.3548 *	* 1.5080 *	* .9671 *	* .6887 *		
	* 2.2970 *	* 1.9505 *	* 2.2882 *	* 2.0510 *	* 3.1862 *	* 4.4453 *		
15	* .8397 *	* .9917 *	* 1.2220 *	* .8343 *	F-SUB-Q			
	* 3.6201 *	* 3.0853 *	* 2.5168 *	* 3.6840 *	M-SUB-Q			

AT 75% POWER, 200 EFPD, THIS IS LEVEL 9 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.0410 *	* 1.3355 *	* 1.2092 *	* 1.4608 *	* 1.2713 *	* 1.6418 *	* 1.3152 *	* .8215 *
	* 2.9891 *	* 2.3317 *	* 2.5785 *	* 2.1341 *	* 2.4519 *	* 1.9039 *	* 2.3634 *	* 3.7640 *
9	* 1.3355 *	* 1.3773 *	* 1.6461 *	* 1.4673 *	* 1.6600 *	* 1.5155 *	* 1.5679 *	* .9735 *
	* 2.3317 *	* 2.2653 *	* 1.8978 *	* 2.1280 *	* 1.8844 *	* 2.0610 *	* 1.9941 *	* 3.2070 *
10	* 1.2092 *	* 1.6461 *	* 1.4716 *	* 1.6558 *	* 1.4823 *	* 1.6579 *	* 1.3345 *	* 1.2036 *
	* 2.5785 *	* 1.8978 *	* 2.1234 *	* 1.8880 *	* 2.1082 *	* 1.8856 *	* 2.3428 *	* 2.6036 *
11	* 1.4608 *	* 1.4662 *	* 1.6526 *	* 1.3173 *	* 1.6483 *	* 1.4319 *	* 1.4887 *	* .8182 *
	* 2.1341 *	* 2.1295 *	* 1.8917 *	* 2.3749 *	* 1.9002 *	* 2.1864 *	* 2.1037 *	* 3.8226 *
12	* 1.2713 *	* 1.6568 *	* 1.4801 *	* 1.6461 *	* 1.4052 *	* 1.5401 *	* .9500 *	
	* 2.4519 *	* 1.8868 *	* 2.1112 *	* 1.9039 *	* 2.2294 *	* 2.0354 *	* 3.2967 *	
13	* 1.6418 *	* 1.5144 *	* 1.6558 *	* 1.4309 *	* 1.5390 *	* 1.0903 *	* .6790 *	
	* 1.9039 *	* 2.0639 *	* 1.8892 *	* 2.1880 *	* 2.0368 *	* 2.8753 *	* 4.6195 *	
14	* 1.3152 *	* 1.5658 *	* 1.3334 *	* 1.4876 *	* .9532 *	* .6790 *		
	* 2.3634 *	* 1.9968 *	* 2.3446 *	* 2.1037 *	* 3.2856 *	* 4.6122 *		
15	* .8215 *	* .9725 *	* 1.2006 *	* .8182 *	F-SUB-Q			
	* 3.7640 *	* 3.2105 *	* 2.6059 *	* 3.8276 *	M-SUB-Q			

Table 1 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Normal Operations

AT 75% POWER, 200 EFPD, THIS IS LEVEL 8 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.0485 *	* 1.3516 *	* 1.2231 *	* 1.4801 *	* 1.2884 *	* 1.6740 *	* 1.3302 *	* .8290 *
	* 2.8894 *	* 2.2327 *	* 2.4540 *	* 2.0214 *	* 2.3007 *	* 1.7744 *	* 2.2077 *	* 3.4837 *
9	* 1.3516 *	* 1.3934 *	* 1.6761 *	* 1.4855 *	* 1.6922 *	* 1.5380 *	* 1.5969 *	* .9842 *
	* 2.2327 *	* 2.1655 *	* 1.8070 *	* 2.0340 *	* 1.7905 *	* 1.9557 *	* 1.8606 *	* 2.9650 *
10	* 1.2231 *	* 1.6761 *	* 1.4887 *	* 1.6868 *	* 1.5026 *	* 1.6900 *	* 1.3516 *	* 1.2231 *
	* 2.4540 *	* 1.8070 *	* 2.0326 *	* 1.7993 *	* 2.0186 *	* 1.7927 *	* 2.2219 *	* 2.4138 *
11	* 1.4801 *	* 1.4844 *	* 1.6836 *	* 1.3409 *	* 1.6847 *	* 1.4533 *	* 1.5197 *	* .8332 *
	* 2.0214 *	* 2.0354 *	* 1.8026 *	* 2.2989 *	* 1.8351 *	* 2.1082 *	* 1.9981 *	* 3.5767 *
12	* 1.2884 *	* 1.6890 *	* 1.4994 *	* 1.6815 *	* 1.4255 *	* 1.5733 *	* .9682 *	
	* 2.3007 *	* 1.7927 *	* 2.0228 *	* 1.8374 *	* 2.1815 *	* 1.9793 *	* 3.1555 *	
13	* 1.6740 *	* 1.5369 *	* 1.6879 *	* 1.4533 *	* 1.5722 *	* 1.1063 *	* .6887 *	
	* 1.7744 *	* 1.9583 *	* 1.7949 *	* 2.1097 *	* 1.9807 *	* 2.8122 *	* 4.4319 *	
14	* 1.3302 *	* 1.5958 *	* 1.3505 *	* 1.5187 *	* .9714 *	* .6897 *		
	* 2.2077 *	* 1.8630 *	* 2.2210 *	* 1.9995 *	* 3.1454 *	* 4.4253 *		
15	* .8290 *	* .9842 *	* 1.2231 *	* .8322 *	F-SUB-Q			
	* 3.4837 *	* 2.9650 *	* 2.4158 *	* 3.5811 *	M-SUB-Q			

AT 75% POWER, 200 EFPD, THIS IS LEVEL 7 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.0367 *	* 1.3420 *	* 1.2134 *	* 1.4716 *	* 1.2798 *	* 1.6697 *	* 1.3216 *	* .8225 *
	* 2.6575 *	* 2.0340 *	* 2.2243 *	* 1.8249 *	* 2.0873 *	* 1.6070 *	* 2.0090 *	* 3.1827 *
9	* 1.3420 *	* 1.3837 *	* 1.6718 *	* 1.4769 *	* 1.6879 *	* 1.5315 *	* 1.5926 *	* .9778 *
	* 2.0340 *	* 1.9622 *	* 1.6283 *	* 1.8351 *	* 1.6123 *	* 1.7648 *	* 1.6832 *	* 2.6964 *
10	* 1.2134 *	* 1.6708 *	* 1.4791 *	* 1.6815 *	* 1.4951 *	* 1.6868 *	* 1.3452 *	* 1.2199 *
	* 2.2243 *	* 1.6283 *	* 1.8363 *	* 1.6220 *	* 1.8272 *	* 1.6158 *	* 2.0035 *	* 2.1815 *
11	* 1.4716 *	* 1.4758 *	* 1.6783 *	* 1.3345 *	* 1.6815 *	* 1.4480 *	* 1.5165 *	* .8279 *
	* 1.8249 *	* 1.8363 *	* 1.6256 *	* 2.1112 *	* 1.6774 *	* 1.9339 *	* 1.8148 *	* 3.2387 *
12	* 1.2798 *	* 1.6858 *	* 1.4919 *	* 1.6793 *	* 1.4191 *	* 1.5712 *	* .9639 *	
	* 2.0873 *	* 1.6149 *	* 1.8306 *	* 1.6812 *	* 2.0159 *	* 1.8114 *	* 2.9008 *	
13	* 1.6697 *	* 1.5305 *	* 1.6836 *	* 1.4469 *	* 1.5701 *	* 1.1010 *	* .6833 *	
	* 1.6070 *	* 1.7669 *	* 1.6176 *	* 1.9351 *	* 1.8126 *	* 2.5785 *	* 4.0764 *	
14	* 1.3216 *	* 1.5915 *	* 1.3441 *	* 1.5165 *	* .9671 *	* .6844 *		
	* 2.0090 *	* 1.6841 *	* 2.0049 *	* 1.8148 *	* 2.8894 *	* 4.0707 *		
15	* .8225 *	* .9778 *	* 1.2188 *	* .8268 *	F-SUB-Q			
	* 3.1827 *	* 2.6989 *	* 2.1831 *	* 3.2387 *	M-SUB-Q			

Table 1 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Normal Operations

AT 75% POWER, 200 EFPD, THIS IS LEVEL 6 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.0110 *	* 1.3141 *	* 1.1845 *	* 1.4416 *	* 1.2499 *	* 1.6354 *	* 1.2938 *	* .8032 *
	* 2.4039 *	* 1.8548 *	* 2.0510 *	* 1.6880 *	* 1.9402 *	* 1.4923 *	* 1.8689 *	* 2.9710 *
9	* 1.3141 *	* 1.3548 *	* 1.6376 *	* 1.4469 *	* 1.6558 *	* 1.5026 *	* 1.5615 *	* .9575 *
	* 1.8548 *	* 1.8026 *	* 1.5014 *	* 1.6938 *	* 1.4870 *	* 1.6301 *	* 1.5602 *	* 2.5083 *
10	* 1.1845 *	* 1.6376 *	* 1.4491 *	* 1.6483 *	* 1.4651 *	* 1.6536 *	* 1.3195 *	* 1.1942 *
	* 2.0510 *	* 1.5022 *	* 1.6928 *	* 1.4953 *	* 1.6812 *	* 1.4892 *	* 1.8489 *	* 2.0214 *
11	* 1.4416 *	* 1.4459 *	* 1.6451 *	* 1.3045 *	* 1.6483 *	* 1.4201 *	* 1.4876 *	* .8075 *
	* 1.6880 *	* 1.6948 *	* 1.4976 *	* 1.9163 *	* 1.5239 *	* 1.7533 *	* 1.6604 *	* 2.9982 *
12	* 1.2499 *	* 1.6526 *	* 1.4619 *	* 1.6461 *	* 1.3912 *	* 1.5412 *	* .9414 *	
	* 1.9402 *	* 1.4892 *	* 1.6841 *	* 1.5263 *	* 1.8181 *	* 1.6392 *	* 2.6362 *	
13	* 1.6354 *	* 1.5005 *	* 1.6515 *	* 1.4191 *	* 1.5401 *	* 1.0796 *	* .6672 *	
	* 1.4923 *	* 1.6319 *	* 1.4915 *	* 1.7541 *	* 1.6410 *	* 2.3409 *	* 3.7212 *	
14	* 1.2938 *	* 1.5604 *	* 1.3184 *	* 1.4865 *	* .9446 *	* .6683 *		
	* 1.8689 *	* 1.5610 *	* 1.8501 *	* 1.6613 *	* 2.6291 *	* 3.7119 *		
15	* .8032 *	* .9575 *	* 1.1931 *	* .8065 *	F-SUB-Q			
	* 2.9710 *	* 2.5104 *	* 2.0228 *	* 3.0012 *	M-SUB-Q			

AT 75% POWER, 200 EFPD, THIS IS LEVEL 5 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.0142 *	* 1.3238 *	* 1.1910 *	* 1.4523 *	* 1.2584 *	* 1.6536 *	* 1.3002 *	* .8065 *
	* 2.1767 *	* 1.6784 *	* 1.8665 *	* 1.5390 *	* 1.7733 *	* 1.3588 *	* 1.7135 *	* 2.7314 *
9	* 1.3238 *	* 1.3612 *	* 1.6526 *	* 1.4533 *	* 1.6718 *	* 1.5133 *	* 1.5787 *	* .9628 *
	* 1.6784 *	* 1.6428 *	* 1.3638 *	* 1.5455 *	* 1.3501 *	* 1.4862 *	* 1.4190 *	* 2.3007 *
10	* 1.1910 *	* 1.6526 *	* 1.4555 *	* 1.6633 *	* 1.4716 *	* 1.6708 *	* 1.3270 *	* 1.2070 *
	* 1.8665 *	* 1.3638 *	* 1.5447 *	* 1.3575 *	* 1.5318 *	* 1.3519 *	* 1.6870 *	* 1.8397 *
11	* 1.4523 *	* 1.4523 *	* 1.6600 *	* 1.3141 *	* 1.6654 *	* 1.4276 *	* 1.5037 *	* .8150 *
	* 1.5390 *	* 1.5463 *	* 1.3600 *	* 1.7245 *	* 1.3695 *	* 1.5854 *	* 1.4991 *	* 2.7239 *
12	* 1.2584 *	* 1.6697 *	* 1.4694 *	* 1.6633 *	* 1.3977 *	* 1.5583 *	* .9510 *	
	* 1.7733 *	* 1.3526 *	* 1.5342 *	* 1.3714 *	* 1.6274 *	* 1.4626 *	* 2.3672 *	
13	* 1.6536 *	* 1.5112 *	* 1.6675 *	* 1.4266 *	* 1.5572 *	* 1.0849 *	* .6704 *	
	* 1.3588 *	* 1.4877 *	* 1.3538 *	* 1.5871 *	* 1.4634 *	* 2.0932 *	* 3.3415 *	
14	* 1.3002 *	* 1.5776 *	* 1.3259 *	* 1.5037 *	* .9543 *	* .6715 *		
	* 1.7135 *	* 1.4203 *	* 1.6880 *	* 1.4999 *	* 2.3597 *	* 3.3377 *		
15	* .8065 *	* .9618 *	* 1.2059 *	* .8150 *	F-SUB-Q			
	* 2.7314 *	* 2.3025 *	* 1.8397 *	* 2.7239 *	M-SUB-Q			

Catawba 1 Cycle 9 Core Operating Limits Report

CNEI-0400-24

Appendix A

Page 71 of 204

Revision 6

Table 1 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Normal Operations

AT 75% POWER, 200 EFPD, THIS IS LEVEL 4 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* .9842 *	* 1.2873 *	* 1.1524 *	* 1.4094 *	* 1.2156 *	* 1.5990 *	* 1.2616 *	* .7797 *
	* 2.0887 *	* 1.6070 *	* 1.7993 *	* 1.4795 *	* 1.7145 *	* 1.3122 *	* 1.6520 *	* 2.6456 *
9	* 1.2873 *	* 1.3205 *	* 1.5990 *	* 1.4084 *	* 1.6183 *	* 1.4673 *	* 1.5294 *	* .9328 *
	* 1.6070 *	* 1.5786 *	* 1.3145 *	* 1.4870 *	* 1.3006 *	* 1.4293 *	* 1.3689 *	* 2.2210 *
10	* 1.1524 *	* 1.5979 *	* 1.4105 *	* 1.6086 *	* 1.4266 *	* 1.6161 *	* 1.2884 *	* 1.1674 *
	* 1.7993 *	* 1.3145 *	* 1.4855 *	* 1.3081 *	* 1.4729 *	* 1.3018 *	* 1.6211 *	* 1.7765 *
11	* 1.4094 *	* 1.4073 *	* 1.6054 *	* 1.2681 *	* 1.6086 *	* 1.3848 *	* 1.4566 *	* .7861 *
	* 1.4795 *	* 1.4877 *	* 1.3110 *	* 1.6585 *	* 1.3151 *	* 1.5184 *	* 1.4412 *	* 2.6338 *
12	* 1.2156 *	* 1.6151 *	* 1.4244 *	* 1.6065 *	* 1.3548 *	* 1.5080 *	* .9178 *	
	* 1.7145 *	* 1.3029 *	* 1.4743 *	* 1.3169 *	* 1.5544 *	* 1.3988 *	* 2.2758 *	
13	* 1.5990 *	* 1.4662 *	* 1.6140 *	* 1.3837 *	* 1.5069 *	* 1.0517 *	* .6469 *	
	* 1.3122 *	* 1.4307 *	* 1.3041 *	* 1.5192 *	* 1.4001 *	* 1.9954 *	* 3.2070 *	
14	* 1.2616 *	* 1.5272 *	* 1.2873 *	* 1.4555 *	* .9211 *	* .6480 *		
	* 1.6520 *	* 1.3702 *	* 1.6229 *	* 1.4412 *	* 2.2671 *	* 3.2035 *		
15	* .7797 *	* .9328 *	* 1.1663 *	* .7861 *	F-SUB-Q			
	* 2.6456 *	* 2.2226 *	* 1.7776 *	* 2.6362 *	M-SUB-Q			

AT 75% POWER, 200 EFPD, THIS IS LEVEL 3 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* .9671 *	* 1.2638 *	* 1.1288 *	* 1.3794 *	* 1.1867 *	* 1.5572 *	* 1.2295 *	* .7593 *
	* 2.0159 *	* 1.5520 *	* 1.7439 *	* 1.4328 *	* 1.6651 *	* 1.2781 *	* 1.6087 *	* 2.5853 *
9	* 1.2638 *	* 1.2895 *	* 1.5572 *	* 1.3730 *	* 1.5754 *	* 1.4330 *	* 1.4887 *	* .9082 *
	* 1.5520 *	* 1.5326 *	* 1.2786 *	* 1.4461 *	* 1.2660 *	* 1.3876 *	* 1.3330 *	* 2.1687 *
10	* 1.1288 *	* 1.5562 *	* 1.3741 *	* 1.5658 *	* 1.3891 *	* 1.5744 *	* 1.2563 *	* 1.1511 *
	* 1.7439 *	* 1.2792 *	* 1.4447 *	* 1.2731 *	* 1.4321 *	* 1.2665 *	* 1.5761 *	* 1.7377 *
11	* 1.3794 *	* 1.3720 *	* 1.5626 *	* 1.2359 *	* 1.5637 *	* 1.3505 *	* 1.4169 *	* .7668 *
	* 1.4328 *	* 1.4468 *	* 1.2759 *	* 1.6087 *	* 1.2786 *	* 1.4736 *	* 1.4021 *	* 2.5650 *
12	* 1.1867 *	* 1.5722 *	* 1.3869 *	* 1.5626 *	* 1.3195 *	* 1.4673 *	* .8964 *	
	* 1.6651 *	* 1.2676 *	* 1.4342 *	* 1.2803 *	* 1.5091 *	* 1.3582 *	* 2.2060 *	
13	* 1.5572 *	* 1.4309 *	* 1.5712 *	* 1.3495 *	* 1.4662 *	* 1.0239 *	* .6287 *	
	* 1.2781 *	* 1.3889 *	* 1.2687 *	* 1.4743 *	* 1.3594 *	* 1.9364 *	* 3.1254 *	
14	* 1.2295 *	* 1.4876 *	* 1.2552 *	* 1.4169 *	* .8996 *	* .6297 *		
	* 1.6087 *	* 1.3342 *	* 1.5777 *	* 1.4021 *	* 2.1978 *	* 3.1221 *		
15	* .7593 *	* .9071 *	* 1.1320 *	* .7658 *	F-SUB-Q			
	* 2.5853 *	* 2.1703 *	* 1.7388 *	* 2.5673 *	M-SUB-Q			

Catawba 1 Cycle 9 Core Operating Limits Report

CNEI-0400-24

Appendix A

Page 72 of 204

Revision 6

Table 1 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Normal Operations

AT 75% POWER, 200 EFPD, THIS IS LEVEL 2 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* .8911 *	* 1.1470 *	* 1.0292 *	* 1.2488 *	* 1.0817 *	* 1.3977 *	* 1.1063 *	* .6822 *
	* 2.1157 *	* 1.6502 *	* 1.8432 *	* 1.5263 *	* 1.7627 *	* 1.3708 *	* 1.7235 *	* 2.7804 *
9	* 1.1470 *	* 1.1685 *	* 1.3902 *	* 1.2413 *	* 1.4073 *	* 1.2970 *	* 1.3248 *	* .8118 *
	* 1.6502 *	* 1.6301 *	* 1.3778 *	* 1.5398 *	* 1.3632 *	* 1.4766 *	* 1.4433 *	* 2.3428 *
10	* 1.0292 *	* 1.3902 *	* 1.2424 *	* 1.4062 *	* 1.2574 *	* 1.4062 *	* 1.1342 *	* .9907 *
	* 1.8432 *	* 1.3785 *	* 1.5382 *	* 1.3670 *	* 1.5239 *	* 1.3645 *	* 1.6832 *	* 1.9175 *
11	* 1.2488 *	* 1.2402 *	* 1.4041 *	* 1.1224 *	* 1.4084 *	* 1.2188 *	* 1.2531 *	* .6854 *
	* 1.5263 *	* 1.5406 *	* 1.3689 *	* 1.7056 *	* 1.3645 *	* 1.5719 *	* 1.5271 *	* 2.7673 *
12	* 1.0817 *	* 1.4052 *	* 1.2552 *	* 1.4062 *	* 1.1888 *	* 1.2970 *	* .8086 *	
	* 1.7627 *	* 1.3651 *	* 1.5255 *	* 1.3664 *	* 1.6105 *	* 1.4773 *	* 2.3578 *	
13	* 1.3977 *	* 1.2948 *	* 1.4061 *	* 1.2177 *	* 1.2959 *	* .9178 *	* .5612 *	
	* 1.3708 *	* 1.4780 *	* 1.3664 *	* 1.5727 *	* 1.4788 *	* 2.0799 *	* 3.3798 *	
14	* 1.1063 *	* 1.3227 *	* 1.1331 *	* 1.2520 *	* .8107 *	* .5623 *		
	* 1.7235 *	* 1.4447 *	* 1.6841 *	* 1.5278 *	* 2.3503 *	* 3.3760 *		
15	* .6822 *	* .8107 *	* .9896 *	* .6854 *	F-SUB-Q			
	* 2.7804 *	* 2.3428 *	* 1.9188 *	* 2.7699 *	M-SUB-Q			

AT 75% POWER, 200 EFPD, THIS IS LEVEL 1 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* .6362 *	* .7850 *	* .7186 *	* .8493 *	* .7583 *	* .9703 *	* .7401 *	* .4659 *
	* 2.8980 *	* 2.3578 *	* 2.5785 *	* 2.1896 *	* 2.4560 *	* 1.9213 *	* 2.5147 *	* 3.9720 *
9	* .7850 *	* .7990 *	* .9842 *	* .8397 *	* 1.0078 *	* .8846 *	* .8943 *	* .5451 *
	* 2.3578 *	* 2.3243 *	* 1.8929 *	* 2.2193 *	* 1.8536 *	* 2.1097 *	* 2.0828 *	* 3.4072 *
10	* .7186 *	* .9842 *	* .8397 *	* 1.0046 *	* .8536 *	* .9960 *	* .7711 *	* .6212 *
	* 2.5785 *	* 1.8941 *	* 2.2193 *	* 1.8583 *	* 2.1880 *	* 1.8748 *	* 2.4138 *	* 2.9830 *
11	* .8493 *	* .8386 *	* 1.0035 *	* .7818 *	* .9875 *	* .8193 *	* .8161 *	* .4562 *
	* 2.1896 *	* 2.2226 *	* 1.8618 *	* 2.3864 *	* 1.8929 *	* 2.2758 *	* 2.2829 *	* 4.0651 *
12	* .7583 *	* 1.0057 *	* .8525 *	* .9853 *	* .7968 *	* .8622 *	* .5484 *	
	* 2.4560 *	* 1.8571 *	* 2.1893 *	* 1.8953 *	* 2.3391 *	* 2.1623 *	* 3.3954 *	
13	* .9703 *	* .8836 *	* .9950 *	* .8193 *	* .8622 *	* .6223 *	* .3770 *	
	* 1.9213 *	* 2.1127 *	* 1.8772 *	* 2.2776 *	* 2.1623 *	* 2.9921 *	* 4.9202 *	
14	* .7401 *	* .8932 *	* .7711 *	* .8161 *	* .5494 *	* .3770 *		
	* 2.5147 *	* 2.0843 *	* 2.4158 *	* 2.2829 *	* 3.3876 *	* 4.9120 *		
15	* .4659 *	* .5441 *	* .6212 *	* .4552 *	F-SUB-Q			
	* 3.9720 *	* 3.4072 *	* 2.9860 *	* 4.0707 *	M-SUB-Q			

Catawba 1 Cycle 9 Core Operating Limits Report

CNEI-0400-24

Appendix A

Page 73 of 204

Revision 6

Table 1 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Normal Operations

AT 75% POWER, 300 EFPD, THIS IS LEVEL 18 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* .6008 *	* .8461 *	* .8472 *	* .9714 *	* .9061 *	* 1.0849 *	* .8954 *	* .6094 *
	* 2.5537 *	* 2.2011 *	* 2.2004 *	* 1.9220 *	* 2.0598 *	* 1.7196 *	* 2.0815 *	* 3.0397 *
9	* .8461 *	* .9136 *	* 1.0656 *	* .9660 *	* 1.0881 *	* .9960 *	* 1.0035 *	* .6694 *
	* 2.2011 *	* 2.0423 *	* 1.7505 *	* 1.9302 *	* 1.7106 *	* 1.8704 *	* 1.8540 *	* 2.7623 *
10	* .8472 *	* 1.0656 *	* .9628 *	* 1.0721 *	* .9628 *	* 1.0539 *	* .8761 *	* .7315 *
	* 2.2004 *	* 1.7505 *	* 1.9371 *	* 1.7374 *	* 1.9307 *	* 1.7618 *	* 2.1140 *	* 2.5289 *
11	* .9714 *	* .9650 *	* 1.0710 *	* .8397 *	* .9468 *	* .8375 *	* .8482 *	* .5376 *
	* 1.9220 *	* 1.9313 *	* 1.7386 *	* 2.2104 *	* 1.8989 *	* 2.1769 *	* 2.1742 *	* 3.4199 *
12	* .9061 *	* 1.0871 *	* .9618 *	* .9457 *	* .6587 *	* .7047 *	* .5516 *	
	* 2.0598 *	* 1.7127 *	* 1.9332 *	* 1.9006 *	* 2.1644 *	* 2.0954 *	* 3.1047 *	
13	* 1.0849 *	* .9950 *	* 1.0539 *	* .8365 *	* .7047 *	* .4959 *	* .3770 *	
	* 1.7196 *	* 1.8717 *	* 1.7620 *	* 2.1774 *	* 2.0954 *	* 2.6883 *	* 4.1226 *	
14	* .8954 *	* 1.0035 *	* .8761 *	* .8482 *	* .5526 *	* .3770 *		
	* 2.0815 *	* 1.8552 *	* 2.1157 *	* 2.1742 *	* 3.1011 *	* 4.1226 *		
15	* .6094 *	* .6694 *	* .7315 *	* .5366 *	F-SUB-Q			
	* 3.0397 *	* 2.7623 *	* 2.5289 *	* 3.4221 *	M-SUB-Q			

AT 75% POWER, 300 EFPD, THIS IS LEVEL 17 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* .7647 *	* 1.1096 *	* 1.0892 *	* 1.2863 *	* 1.1652 *	* 1.4062 *	* 1.2124 *	* .8097 *
	* 2.0785 *	* 1.7400 *	* 1.7714 *	* 1.5001 *	* 1.6557 *	* 1.3724 *	* 1.5894 *	* 2.3663 *
9	* 1.1096 *	* 1.2102 *	* 1.3687 *	* 1.2981 *	* 1.3827 *	* 1.3238 *	* 1.3366 *	* .9125 *
	* 1.7400 *	* 1.5945 *	* 1.4104 *	* 1.4861 *	* 1.3950 *	* 1.4548 *	* 1.4397 *	* 2.0978 *
10	* 1.0892 *	* 1.3687 *	* 1.2948 *	* 1.3730 *	* 1.2948 *	* 1.3730 *	* 1.1749 *	* 1.0367 *
	* 1.7714 *	* 1.4103 *	* 1.4893 *	* 1.4042 *	* 1.4864 *	* 1.4016 *	* 1.6305 *	* 1.8457 *
11	* 1.2863 *	* 1.2970 *	* 1.3709 *	* 1.0721 *	* 1.2584 *	* 1.1288 *	* 1.1770 *	* .7251 *
	* 1.5001 *	* 1.4869 *	* 1.4056 *	* 1.7762 *	* 1.5054 *	* 1.6503 *	* 1.6172 *	* 2.6117 *
12	* 1.1652 *	* 1.3805 *	* 1.2927 *	* 1.2552 *	* .8622 *	* .9800 *	* .7315 *	
	* 1.6557 *	* 1.3977 *	* 1.4880 *	* 1.5065 *	* 1.6381 *	* 1.5887 *	* 2.4056 *	
13	* 1.4062 *	* 1.3227 *	* 1.3720 *	* 1.1288 *	* .9800 *	* .6908 *	* .5077 *	
	* 1.3724 *	* 1.4562 *	* 1.4029 *	* 1.6513 *	* 1.5896 *	* 2.0555 *	* 3.1512 *	
14	* 1.2124 *	* 1.3355 *	* 1.1749 *	* 1.1760 *	* .7326 *	* .5087 *		
	* 1.5894 *	* 1.4404 *	* 1.6307 *	* 1.6182 *	* 2.3998 *	* 3.1476 *		
15	* .8097 *	* .9114 *	* 1.0357 *	* .7251 *	F-SUB-Q			
	* 2.3663 *	* 2.0978 *	* 1.8459 *	* 2.6140 *	M-SUB-Q			

Catawba 1 Cycle 9 Core Operating Limits Report

CNEI-0400-24

Appendix A

Page 74 of 204

Revision 6

Table 1 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Normal Operations

AT 75% POWER, 300 EFPD, THIS IS LEVEL 16 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* .8215 *	* 1.1942 *	* 1.1674 *	* 1.3944 *	* 1.2563 *	* 1.5540 *	* 1.3141 *	* .8707 *
	* 2.0480 *	* 1.6767 *	* 1.7183 *	* 1.4363 *	* 1.5905 *	* 1.2866 *	* 1.5196 *	* 2.2842 *
9	* 1.1942 *	* 1.3034 *	* 1.5112 *	* 1.4073 *	* 1.5294 *	* 1.4373 *	* 1.4769 *	* .9907 *
	* 1.6767 *	* 1.5387 *	* 1.3264 *	* 1.4212 *	* 1.3052 *	* 1.3848 *	* 1.3490 *	* 1.9995 *
10	* 1.1674 *	* 1.5112 *	* 1.4041 *	* 1.5176 *	* 1.4052 *	* 1.5165 *	* 1.2745 *	* 1.1545 *
	* 1.7183 *	* 1.3264 *	* 1.4263 *	* 1.3169 *	* 1.4184 *	* 1.3120 *	* 1.5522 *	* 1.7147 *
11	* 1.3944 *	* 1.4062 *	* 1.5155 *	* 1.1567 *	* 1.3934 *	* 1.2316 *	* 1.3066 *	* .7883 *
	* 1.4363 *	* 1.4226 *	* 1.3181 *	* 1.6867 *	* 1.3991 *	* 1.5652 *	* 1.5039 *	* 2.4801 *
12	* 1.2563 *	* 1.5262 *	* 1.4030 *	* 1.3912 *	* .9500 *	* 1.0924 *	* .7947 *	
	* 1.5905 *	* 1.3076 *	* 1.4199 *	* 1.4005 *	* 1.5576 *	* 1.4793 *	* 2.2969 *	
13	* 1.5540 *	* 1.4362 *	* 1.5155 *	* 1.2306 *	* 1.0924 *	* .7583 *	* .5526 *	
	* 1.2866 *	* 1.3855 *	* 1.3132 *	* 1.5654 *	* 1.4795 *	* 1.9621 *	* 3.0122 *	
14	* 1.3141 *	* 1.4769 *	* 1.2745 *	* 1.3055 *	* .7958 *	* .5537 *		
	* 1.5196 *	* 1.3496 *	* 1.5530 *	* 1.5041 *	* 2.2912 *	* 3.0089 *		
15	* .8707 *	* .9907 *	* 1.1535 *	* .7883 *	F-SUB-Q			
	* 2.2842 *	* 2.0010 *	* 1.7147 *	* 2.4823 *	M-SUB-Q			

AT 75% POWER, 300 EFPD, THIS IS LEVEL 15 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* .8279 *	* 1.2113 *	* 1.1845 *	* 1.4201 *	* 1.2609 *	* 1.6076 *	* 1.3366 *	* .8793 *
	* 2.1485 *	* 1.7329 *	* 1.7734 *	* 1.4726 *	* 1.6235 *	* 1.2916 *	* 1.5540 *	* 2.3549 *
9	* 1.2113 *	* 1.3173 *	* 1.5594 *	* 1.4319 *	* 1.5883 *	* 1.4716 *	* 1.5262 *	* 1.0067 *
	* 1.7329 *	* 1.5953 *	* 1.3440 *	* 1.4563 *	* 1.3079 *	* 1.4049 *	* 1.3564 *	* 2.0423 *
10	* 1.1845 *	* 1.5594 *	* 1.4276 *	* 1.5679 *	* 1.4298 *	* 1.5690 *	* 1.3013 *	* 1.1888 *
	* 1.7734 *	* 1.3433 *	* 1.4675 *	* 1.3276 *	* 1.4501 *	* 1.3174 *	* 1.5762 *	* 1.7255 *
11	* 1.4201 *	* 1.4309 *	* 1.5658 *	* 1.1835 *	* 1.4437 *	* 1.2638 *	* 1.3516 *	* .8054 *
	* 1.4726 *	* 1.4578 *	* 1.3291 *	* 1.7156 *	* 1.4048 *	* 1.5967 *	* 1.5106 *	* 2.5202 *
12	* 1.2809 *	* 1.5840 *	* 1.4287 *	* 1.4416 *	* .9757 *	* 1.1331 *	* .8150 *	
	* 1.6235 *	* 1.3105 *	* 1.4516 *	* 1.4068 *	* 1.5990 *	* 1.4964 *	* 2.3532 *	
13	* 1.6076 *	* 1.4705 *	* 1.5669 *	* 1.2627 *	* 1.1331 *	* .7775 *	* .5655 *	
	* 1.2916 *	* 1.4058 *	* 1.3186 *	* 1.5976 *	* 1.4972 *	* 2.0230 *	* 3.1144 *	
14	* 1.3366 *	* 1.5251 *	* 1.3013 *	* 1.3516 *	* .8172 *	* .5655 *		
	* 1.5540 *	* 1.3574 *	* 1.5764 *	* 1.5114 *	* 2.3464 *	* 3.1109 *		
15	* .8793 *	* 1.0057 *	* 1.1888 *	* .8054 *	F-SUB-Q			
	* 2.3549 *	* 2.0438 *	* 1.7255 *	* 2.5224 *	M-SUB-Q			

Catawba 1 Cycle 9 Core Operating Limits Report

CNEI-0400-24

Appendix A

Page 75 of 204

Revision 6

Table 1 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Normal Operations

AT 75% POWER, 300 EFPD, THIS IS LEVEL 14 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* .8043 *	* 1.1824 *	* 1.1535 *	* 1.3891 *	* 1.2520 *	* 1.5808 *	* 1.3045 *	* .8504 *
	* 2.3293 *	* 1.8636 *	* 1.9184 *	* 1.5842 *	* 1.7512 *	* 1.3760 *	* 1.6650 *	* 2.5400 *
9	* 1.1824 *	* 1.2820 *	* 1.5337 *	* 1.4009 *	* 1.5647 *	* 1.4437 *	* 1.4973 *	* .9789 *
	* 1.8636 *	* 1.7329 *	* 1.4384 *	* 1.5682 *	* 1.3967 *	* 1.5073 *	* 1.4469 *	* 2.2021 *
10	* 1.1535 *	* 1.5347 *	* 1.3955 *	* 1.5444 *	* 1.3987 *	* 1.5455 *	* 1.2756 *	* 1.1631 *
	* 1.9184 *	* 1.4377 *	* 1.5819 *	* 1.4212 *	* 1.5668 *	* 1.4113 *	* 1.6994 *	* 1.8552 *
11	* 1.3891 *	* 1.3987 *	* 1.5422 *	* 1.1620 *	* 1.4276 *	* 1.2456 *	* 1.3334 *	* .7850 *
	* 1.5842 *	* 1.5699 *	* 1.4226 *	* 1.8378 *	* 1.4928 *	* 1.7077 *	* 1.6309 *	* 2.7438 *
12	* 1.2520 *	* 1.5615 *	* 1.3966 *	* 1.4255 *	* .9639 *	* 1.1245 *	* .8011 *	
	* 1.7512 *	* 1.4001 *	* 1.5685 *	* 1.4943 *	* 1.7228 *	* 1.6044 *	* 2.5415 *	
13	* 1.5808 *	* 1.4426 *	* 1.5444 *	* 1.2445 *	* 1.1245 *	* .7700 *	* .5580 *	
	* 1.3760 *	* 1.5089 *	* 1.4129 *	* 1.7082 *	* 1.6048 *	* 2.1948 *	* 3.3851 *	
14	* 1.3045 *	* 1.4962 *	* 1.2745 *	* 1.3334 *	* .8032 *	* .5580 *		
	* 1.6650 *	* 1.4476 *	* 1.7004 *	* 1.6309 *	* 2.5336 *	* 3.3829 *		
15	* .8504 *	* .9789 *	* 1.1620 *	* .7850 *	F-SUB-Q			
	* 2.5400 *	* 2.2026 *	* 1.8552 *	* 2.7464 *	M-SUB-Q			

AT 75% POWER, 300 EFPD, THIS IS LEVEL 13 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* .8215 *	* 1.2017 *	* 1.1685 *	* 1.4084 *	* 1.2681 *	* 1.6108 *	* 1.3130 *	* .8536 *
	* 2.4486 *	* 1.9464 *	* 2.0480 *	* 1.6882 *	* 1.8636 *	* 1.4492 *	* 1.7745 *	* 2.7123 *
9	* 1.2017 *	* 1.2981 *	* 1.5679 *	* 1.4201 *	* 1.6011 *	* 1.4673 *	* 1.5240 *	* .9864 *
	* 1.9464 *	* 1.8541 *	* 1.5214 *	* 1.6744 *	* 1.4725 *	* 1.6039 *	* 1.5270 *	* 2.3499 *
10	* 1.1685 *	* 1.5679 *	* 1.4159 *	* 1.5797 *	* 1.4212 *	* 1.5819 *	* 1.2916 *	* 1.1824 *
	* 2.0480 *	* 1.5214 *	* 1.6879 *	* 1.5040 *	* 1.6748 *	* 1.4933 *	* 1.8152 *	* 1.9649 *
11	* 1.4084 *	* 1.4180 *	* 1.5776 *	* 1.1888 *	* 1.4737 *	* 1.2788 *	* 1.3709 *	* .8011 *
	* 1.6882 *	* 1.6763 *	* 1.5063 *	* 1.9120 *	* 1.5403 *	* 1.7794 *	* 1.7238 *	* 2.9236 *
12	* 1.2681 *	* 1.5969 *	* 1.4191 *	* 1.4716 *	* .9992 *	* 1.1770 *	* .8300 *	
	* 1.8636 *	* 1.4765 *	* 1.6767 *	* 1.5427 *	* 1.8136 *	* 1.6744 *	* 2.6481 *	
13	* 1.6108 *	* 1.4662 *	* 1.5797 *	* 1.2777 *	* 1.1781 *	* .8075 *	* .5805 *	
	* 1.4492 *	* 1.6048 *	* 1.4948 *	* 1.7805 *	* 1.6753 *	* 2.3239 *	* 3.5739 *	
14	* 1.3130 *	* 1.5230 *	* 1.2916 *	* 1.3709 *	* .8332 *	* .5816 *		
	* 1.7745 *	* 1.5278 *	* 1.8152 *	* 1.7238 *	* 2.6385 *	* 3.5696 *		
15	* .8536 *	* .9853 *	* 1.1824 *	* .8000 *	F-SUB-Q			
	* 2.7123 *	* 2.3518 *	* 1.9658 *	* 2.9266 *	M-SUB-Q			

Catawba 1 Cycle 9 Core Operating Limits Report

CNEI-0400-24

Appendix A

Page 76 of 204

Revision 6

Table 1 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Normal Operations

AT 75% POWER, 300 EFPD, THIS IS LEVEL 12 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	.8825	1.2177	1.1652	1.4030	1.2584	1.6065	1.2991	.8418
	2.6428	2.0944	2.2541	1.8539	2.0464	1.5819	1.9470	2.9825
9	1.2177	1.3023	1.5733	1.4169	1.6044	1.4641	1.5197	.9768
	2.0944	2.0089	1.6647	1.8393	1.6080	1.7584	1.6683	2.5795
10	1.1652	1.5733	1.4148	1.5894	1.4244	1.5883	1.2884	1.1770
	2.2541	1.6644	1.8548	1.6389	1.8348	1.6332	1.9918	2.1504
11	1.4030	1.4159	1.5872	1.2092	1.5069	1.3045	1.3869	.8000
	1.8539	1.8416	1.6407	2.0435	1.6407	1.9035	1.8405	3.2167
12	1.2584	1.6001	1.4223	1.5037	1.0935	1.2541	.8557	
	2.0464	1.6126	1.8371	1.6425	1.9348	1.7805	2.8306	
13	1.6065	1.4630	1.5862	1.3034	1.2541	.8739	.6083	
	1.5819	1.7594	1.6350	1.9048	1.7805	2.4783	3.8169	
14	1.2991	1.5197	1.2884	1.3869	.8589	.6094		
	1.9470	1.6695	1.9931	1.8417	2.8198	3.8120		
15	.8418	.9757	1.1760	.8000	F-SUB-Q			
	2.9825	2.5817	2.1515	3.2167	M-SUB-Q			

AT 75% POWER, 300 EFPD, THIS IS LEVEL 11 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	.9543	1.2424	1.1610	1.3955	1.2466	1.5936	1.2820	.8290
	2.8750	2.2634	2.4576	2.0463	2.2677	1.7454	2.1547	3.3058
9	1.2424	1.3066	1.5733	1.4116	1.6001	1.4576	1.5101	.9650
	2.2634	2.1711	1.8066	2.0143	1.7733	1.9419	1.8410	2.8547
10	1.1610	1.5733	1.4126	1.5969	1.4244	1.5883	1.2831	1.1674
	2.4576	1.8066	2.0047	1.7663	1.9814	1.7766	2.1907	2.3745
11	1.3955	1.4094	1.5947	1.2349	1.5455	1.3345	1.3998	.7968
	2.0463	2.0165	1.7684	2.2141	1.7721	2.0608	1.9846	3.5034
12	1.2466	1.5958	1.4234	1.5444	1.2531	1.3730	.8825	
	2.2677	1.7771	1.9840	1.7742	2.0945	1.9223	3.0697	
13	1.5936	1.4566	1.5862	1.3334	1.3730	.9671	.6394	
	1.7454	1.9432	1.7781	2.0623	1.9236	2.6815	4.1389	
14	1.2820	1.5090	1.2831	1.3998	.8846	.6405		
	2.1547	1.8421	2.1916	1.9846	3.0602	4.1331		
15	.8290	.9639	1.1663	.7968	F-SUB-Q			
	3.3058	2.8547	2.3745	3.5057	M-SUB-Q			

Table 1 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Normal Operations

AT 75% POWER, 300 EFPD, THIS IS LEVEL 10 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.0025 *	* 1.2777 *	* 1.1802 *	* 1.4159 *	* 1.2627 *	* 1.6194 *	* 1.2927 *	* .8354 *
	* 3.0605 *	* 2.4118 *	* 2.6198 *	* 2.1847 *	* 2.4499 *	* 1.8918 *	* 2.3517 *	* 3.6019 *
9	* 1.2777 *	* 1.3323 *	* 1.6076 *	* 1.4330 *	* 1.6322 *	* 1.4801 *	* 1.5369 *	* .9746 *
	* 2.4118 *	* 2.3170 *	* 1.9188 *	* 2.1528 *	* 1.8844 *	* 2.0755 *	* 1.9927 *	* 3.1071 *
10	* 1.1802 *	* 1.6076 *	* 1.4394 *	* 1.6397 *	* 1.4512 *	* 1.6236 *	* 1.3034 *	* 1.1877 *
	* 2.6198 *	* 1.9188 *	* 2.1388 *	* 1.8724 *	* 2.1157 *	* 1.8892 *	* 2.3446 *	* 2.5665 *
11	* 1.4159 *	* 1.4309 *	* 1.6376 *	* 1.2884 *	* 1.6151 *	* 1.3794 *	* 1.4416 *	* .8150 *
	* 2.1847 *	* 2.1544 *	* 1.8748 *	* 2.3559 *	* 1.8784 *	* 2.1978 *	* 2.1067 *	* 3.7312 *
12	* 1.2627 *	* 1.6290 *	* 1.4501 *	* 1.6129 *	* 1.3420 *	* 1.4673 *	* .9221 *	
	* 2.4499 *	* 1.8892 *	* 2.1188 *	* 1.8808 *	* 2.2395 *	* 2.0438 *	* 3.2638 *	
13	* 1.6194 *	* 1.4791 *	* 1.6215 *	* 1.3784 *	* 1.4662 *	* 1.0378 *	* .6737 *	
	* 1.8918 *	* 2.0770 *	* 1.8905 *	* 2.1978 *	* 2.0453 *	* 2.8725 *	* 4.4223 *	
14	* 1.2927 *	* 1.5358 *	* 1.3023 *	* 1.4416 *	* .9243 *	* .6737 *		
	* 2.3517 *	* 1.9941 *	* 2.3465 *	* 2.1067 *	* 3.2530 *	* 4.4157 *		
15	* .8354 *	* .9735 *	* 1.1867 *	* .8140 *	F-SUB-Q			
	* 3.6019 *	* 3.1071 *	* 2.5665 *	* 3.7312 *	M-SUB-Q			

AT 75% POWER, 300 EFPD, THIS IS LEVEL 9 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* .9928 *	* 1.2649 *	* 1.1620 *	* 1.3944 *	* 1.2381 *	* 1.5915 *	* 1.2691 *	* .8182 *
	* 3.1387 *	* 2.4725 *	* 2.6915 *	* 2.2464 *	* 2.5298 *	* 1.9727 *	* 2.4642 *	* 3.8078 *
9	* 1.2649 *	* 1.3152 *	* 1.5862 *	* 1.4116 *	* 1.6086 *	* 1.4587 *	* 1.5123 *	* .9564 *
	* 2.4725 *	* 2.3787 *	* 1.9740 *	* 2.2176 *	* 1.9492 *	* 2.1481 *	* 2.0755 *	* 3.2820 *
10	* 1.1620 *	* 1.5862 *	* 1.4212 *	* 1.6204 *	* 1.4330 *	* 1.6022 *	* 1.2852 *	* 1.1685 *
	* 2.6915 *	* 1.9740 *	* 2.2027 *	* 1.9339 *	* 2.1847 *	* 1.9570 *	* 2.4398 *	* 2.6866 *
11	* 1.3944 *	* 1.4105 *	* 1.6194 *	* 1.2809 *	* 1.6065 *	* 1.3709 *	* 1.4287 *	* .8011 *
	* 2.2464 *	* 2.2210 *	* 1.9351 *	* 2.4398 *	* 1.9466 *	* 2.2811 *	* 2.1929 *	* 3.9192 *
12	* 1.2381 *	* 1.6044 *	* 1.4319 *	* 1.6054 *	* 1.3441 *	* 1.4705 *	* .9168 *	
	* 2.5298 *	* 1.9544 *	* 2.1880 *	* 1.9492 *	* 2.3225 *	* 2.1249 *	* 3.4151 *	
13	* 1.5915 *	* 1.4576 *	* 1.6011 *	* 1.3709 *	* 1.4694 *	* 1.0432 *	* .6737 *	
	* 1.9727 *	* 2.1497 *	* 1.9583 *	* 2.2829 *	* 2.1264 *	* 2.9921 *	* 4.6413 *	
14	* 1.2691 *	* 1.5123 *	* 1.2852 *	* 1.4287 *	* .9189 *	* .6747 *		
	* 2.4642 *	* 2.0770 *	* 2.4398 *	* 2.1929 *	* 3.4033 *	* 4.6340 *		
15	* .8182 *	* .9564 *	* 1.1685 *	* .8000 *	F-SUB-Q			
	* 3.8078 *	* 3.2856 *	* 2.6891 *	* 3.9192 *	M-SUB-Q			

Catawba 1 Cycle 9 Core Operating Limits Report

CNEI-0400-24

Appendix A

Page 78 of 204

Revision 6

Table 1 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Normal Operations

AT 75% POWER, 300 EFPD, THIS IS LEVEL 8 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.0035 *	* 1.2809 *	* 1.1781 *	* 1.4137 *	* 1.2563 *	* 1.6204 *	* 1.2820 *	* .8268 *
	* 2.9037 *	* 2.2900 *	* 2.4934 *	* 2.0887 *	* 2.3431 *	* 1.8284 *	* 2.2884 *	* 3.5052 *
9	* 1.2809 *	* 1.3334 *	* 1.6183 *	* 1.4309 *	* 1.6418 *	* 1.4812 *	* 1.5422 *	* .9682 *
	* 2.2900 *	* 2.2143 *	* 1.8386 *	* 2.0740 *	* 1.8193 *	* 2.0104 *	* 1.9278 *	* 3.0173 *
10	* 1.1781 *	* 1.6183 *	* 1.4416 *	* 1.6568 *	* 1.4544 *	* 1.6343 *	* 1.3034 *	* 1.1920 *
	* 2.4934 *	* 1.8374 *	* 2.0610 *	* 1.8048 *	* 2.0467 *	* 1.8260 *	* 2.2776 *	* 2.4730 *
11	* 1.4137 *	* 1.4298 *	* 1.6547 *	* 1.3088 *	* 1.6472 *	* 1.3955 *	* 1.4608 *	* .8172 *
	* 2.0887 *	* 2.0740 *	* 1.8070 *	* 2.2776 *	* 1.8204 *	* 2.1372 *	* 2.0382 *	* 3.6074 *
12	* 1.2563 *	* 1.6376 *	* 1.4533 *	* 1.6451 *	* 1.3709 *	* 1.5090 *	* .9382 *	
	* 2.3431 *	* 1.8238 *	* 2.0495 *	* 1.8226 *	* 2.1751 *	* 1.9780 *	* 3.1623 *	
13	* 1.6204 *	* 1.4801 *	* 1.6333 *	* 1.3955 *	* 1.5080 *	* 1.0656 *	* .6876 *	
	* 1.8284 *	* 2.0118 *	* 1.8272 *	* 2.1372 *	* 1.9793 *	* 2.7857 *	* 4.2775 *	
14	* 1.2820 *	* 1.5412 *	* 1.3034 *	* 1.4608 *	* .9414 *	* .6887 *		
	* 2.2884 *	* 1.9290 *	* 2.2776 *	* 2.0382 *	* 3.1521 *	* 4.2713 *		
15	* .8268 *	* .9682 *	* 1.1910 *	* .8161 *	F-SUB-Q			
	* 3.5052 *	* 3.0203 *	* 2.4750 *	* 3.6118 *	M-SUB-Q			

AT 75% POWER, 300 EFPD, THIS IS LEVEL 7 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* .9960 *	* 1.2756 *	* 1.1717 *	* 1.4084 *	* 1.2499 *	* 1.6194 *	* 1.2766 *	* .8215 *
	* 2.6385 *	* 2.0643 *	* 2.2330 *	* 1.8563 *	* 2.0890 *	* 1.6260 *	* 2.0455 *	* 3.1416 *
9	* 1.2756 *	* 1.3280 *	* 1.6172 *	* 1.4266 *	* 1.6429 *	* 1.4769 *	* 1.5412 *	* .9639 *
	* 2.0643 *	* 1.9823 *	* 1.6359 *	* 1.8481 *	* 1.6144 *	* 1.7887 *	* 1.7119 *	* 2.6964 *
10	* 1.1717 *	* 1.6172 *	* 1.4373 *	* 1.6579 *	* 1.4512 *	* 1.6354 *	* 1.2991 *	* 1.1899 *
	* 2.2330 *	* 1.6359 *	* 1.8435 *	* 1.6118 *	* 1.8309 *	* 1.6269 *	* 2.0315 *	* 2.1998 *
11	* 1.4084 *	* 1.4255 *	* 1.6568 *	* 1.3066 *	* 1.6504 *	* 1.3934 *	* 1.4619 *	* .8140 *
	* 1.8563 *	* 1.8493 *	* 1.6136 *	* 2.0653 *	* 1.6456 *	* 1.9364 *	* 1.8311 *	* 3.2276 *
12	* 1.2499 *	* 1.6386 *	* 1.4491 *	* 1.6483 *	* 1.3698 *	* 1.5123 *	* .9371 *	
	* 2.0890 *	* 1.6188 *	* 1.8332 *	* 1.6483 *	* 1.9740 *	* 1.7905 *	* 2.8697 *	
13	* 1.6194 *	* 1.4769 *	* 1.6333 *	* 1.3934 *	* 1.5123 *	* 1.0656 *	* .6865 *	
	* 1.6260 *	* 1.7898 *	* 1.6278 *	* 1.9377 *	* 1.7916 *	* 2.5298 *	* 3.8984 *	
14	* 1.2766 *	* 1.5401 *	* 1.2991 *	* 1.4619 *	* .9403 *	* .6876 *		
	* 2.0455 *	* 1.7119 *	* 2.0315 *	* 1.8322 *	* 2.8614 *	* 3.8933 *		
15	* .8215 *	* .9628 *	* 1.1899 *	* .8140 *	F-SUB-Q			
	* 3.1416 *	* 2.6989 *	* 2.2014 *	* 3.2311 *	M-SUB-Q			

Table 1 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Normal Operations

AT 75% POWER, 300 EFPD, THIS IS LEVEL 6 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* .9768 *	* 1.2552 *	* 1.1503 *	* 1.3859 *	* 1.2274 *	* 1.5947 *	* 1.2552 *	* .8065 *
	* 2.3728 *	* 1.8564 *	* 2.0258 *	* 1.6875 *	* 1.9078 *	* 1.4823 *	* 1.8680 *	* 2.8825 *
9	* 1.2552 *	* 1.3066 *	* 1.5926 *	* 1.4041 *	* 1.6172 *	* 1.4555 *	* 1.5176 *	* .9478 *
	* 1.8564 *	* 1.7931 *	* 1.4838 *	* 1.6779 *	* 1.4676 *	* 1.6243 *	* 1.5583 *	* 2.4659 *
10	* 1.1503 *	* 1.5926 *	* 1.4148 *	* 1.6333 *	* 1.4287 *	* 1.6108 *	* 1.2798 *	* 1.1706 *
	* 2.0258 *	* 1.4831 *	* 1.6693 *	* 1.4582 *	* 1.6572 *	* 1.4742 *	* 1.8436 *	* 2.0065 *
11	* 1.3859 *	* 1.4030 *	* 1.6311 *	* 1.2841 *	* 1.6258 *	* 1.3730 *	* 1.4405 *	* .7979 *
	* 1.6875 *	* 1.6779 *	* 1.4596 *	* 1.8586 *	* 1.4779 *	* 1.7382 *	* 1.6517 *	* 2.9430 *
12	* 1.2274 *	* 1.6129 *	* 1.4276 *	* 1.6247 *	* 1.3495 *	* 1.4908 *	* .9200 *	
	* 1.9078 *	* 1.4712 *	* 1.6590 *	* 1.4794 *	* 1.7813 *	* 1.6155 *	* 2.5892 *	
13	* 1.5947 *	* 1.4555 *	* 1.6086 *	* 1.3730 *	* 1.4898 *	* 1.0496 *	* .6747 *	
	* 1.4823 *	* 1.6252 *	* 1.4757 *	* 1.7382 *	* 1.6164 *	* 2.2918 *	* 3.5353 *	
14	* 1.2552 *	* 1.5165 *	* 1.2798 *	* 1.4405 *	* .9232 *	* .6758 *		
	* 1.8680 *	* 1.5591 *	* 1.8447 *	* 1.6517 *	* 2.5802 *	* 3.5269 *		
15	* .8065 *	* .9468 *	* 1.1706 *	* .7979 *	F-SUB-Q			
	* 2.8825 *	* 2.4679 *	* 2.0066 *	* 2.9458 *	M-SUB-Q			

AT 75% POWER, 300 EFPD, THIS IS LEVEL 5 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* .9853 *	* 1.2702 *	* 1.1642 *	* 1.4041 *	* 1.2424 *	* 1.6215 *	* 1.2702 *	* .8161 *
	* 2.4261 *	* 1.6609 *	* 1.8172 *	* 1.5151 *	* 1.7138 *	* 1.3265 *	* 1.6835 *	* 2.6019 *
9	* 1.2702 *	* 1.3216 *	* 1.6183 *	* 1.4191 *	* 1.6451 *	* 1.4748 *	* 1.5433 *	* .9585 *
	* 1.6609 *	* 1.6083 *	* 1.3253 *	* 1.5066 *	* 1.3106 *	* 1.4575 *	* 1.3935 *	* 2.2237 *
10	* 1.1642 *	* 1.6183 *	* 1.4309 *	* 1.6611 *	* 1.4448 *	* 1.6376 *	* 1.2948 *	* 1.1910 *
	* 1.8172 *	* 1.3253 *	* 1.4981 *	* 1.2996 *	* 1.4868 *	* 1.3170 *	* 1.6562 *	* 1.7952 *
11	* 1.4041 *	* 1.4191 *	* 1.6590 *	* 1.3023 *	* 1.6547 *	* 1.3902 *	* 1.4662 *	* .8107 *
	* 1.5151 *	* 1.5066 *	* 1.3008 *	* 1.6525 *	* 1.3106 *	* 1.5509 *	* 1.4699 *	* 2.6321 *
12	* 1.2424 *	* 1.6397 *	* 1.4437 *	* 1.6526 *	* 1.3655 *	* 1.5165 *	* .9361 *	
	* 1.7138 *	* 1.3141 *	* 1.4883 *	* 1.3118 *	* 1.5816 *	* 1.4272 *	* 2.2964 *	
13	* 1.6215 *	* 1.4737 *	* 1.6354 *	* 1.3902 *	* 1.5165 *	* 1.0624 *	* .6822 *	
	* 1.3265 *	* 1.4582 *	* 1.3176 *	* 1.5517 *	* 1.4279 *	* 2.0311 *	* 3.1386 *	
14	* 1.2702 *	* 1.5433 *	* 1.2948 *	* 1.4662 *	* .9393 *	* .6833 *		
	* 1.6835 *	* 1.3942 *	* 1.6571 *	* 1.4699 *	* 2.2893 *	* 3.1351 *		
15	* .8161 *	* .9585 *	* 1.1910 *	* .8107 *	F-SUB-Q			
	* 2.6019 *	* 2.2237 *	* 1.7963 *	* 2.6344 *	M-SUB-Q			

Table 1 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Normal Operations

AT 75% POWER, 300 EFPD, THIS IS LEVEL 4 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* .9671 *	* 1.2477 *	* 1.1385 *	* 1.3762 *	* 1.2134 *	* 1.5872 *	* 1.2456 *	* .7979 *
	* 2.0084 *	* 1.5655 *	* 1.7215 *	* 1.4312 *	* 1.6267 *	* 1.2554 *	* 1.5917 *	* 2.4722 *
9	* 1.2477 *	* 1.2959 *	* 1.5829 *	* 1.3902 *	* 1.6076 *	* 1.4469 *	* 1.5123 *	* .9393 *
	* 1.5655 *	* 1.5188 *	* 1.2538 *	* 1.4236 *	* 1.2412 *	* 1.3752 *	* 1.3176 *	* 2.1072 *
10	* 1.1385 *	* 1.5829 *	* 1.4009 *	* 1.6215 *	* 1.4159 *	* 1.6022 *	* 1.2723 *	* 1.1652 *
	* 1.7215 *	* 1.2538 *	* 1.4148 *	* 1.2298 *	* 1.4033 *	* 1.2448 *	* 1.5622 *	* 1.7027 *
11	* 1.3762 *	* 1.3902 *	* 1.6204 *	* 1.2713 *	* 1.6172 *	* 1.3645 *	* 1.4362 *	* .7915 *
	* 1.4312 *	* 1.4236 *	* 1.2313 *	* 1.5630 *	* 1.2370 *	* 1.4601 *	* 1.3882 *	* 2.5015 *
12	* 1.2134 *	* 1.6033 *	* 1.4137 *	* 1.6161 *	* 1.3388 *	* 1.4855 *	* .9146 *	
	* 1.6267 *	* 1.2443 *	* 1.4053 *	* 1.2380 *	* 1.4882 *	* 1.3440 *	* 2.1722 *	
13	* 1.5872 *	* 1.4459 *	* 1.6011 *	* 1.3645 *	* 1.4844 *	* 1.0421 *	* .6672 *	
	* 1.2554 *	* 1.3759 *	* 1.2459 *	* 1.4610 *	* 1.3446 *	* 1.9084 *	* 2.9663 *	
14	* 1.2456 *	* 1.5112 *	* 1.2723 *	* 1.4362 *	* .9178 *	* .6683 *		
	* 1.5917 *	* 1.3182 *	* 1.5622 *	* 1.3882 *	* 2.1643 *	* 2.9632 *		
15	* .7979 *	* .9393 *	* 1.1652 *	* .7915 *	F-SUB-Q			
	* 2.4722 *	* 2.1072 *	* 1.7027 *	* 2.5036 *	M-SUB-Q			

AT 75% POWER, 300 EFPD, THIS IS LEVEL 3 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* .9639 *	* 1.2424 *	* 1.1299 *	* 1.3655 *	* 1.2006 *	* 1.5690 *	* 1.2327 *	* .7893 *
	* 1.9053 *	* 1.4849 *	* 1.6380 *	* 1.3624 *	* 1.5520 *	* 1.1978 *	* 1.5193 *	* 2.3679 *
9	* 1.2424 *	* 1.2820 *	* 1.5626 *	* 1.3720 *	* 1.5862 *	* 1.4319 *	* 1.4951 *	* .9286 *
	* 1.4849 *	* 1.4485 *	* 1.1978 *	* 1.3598 *	* 1.1857 *	* 1.3110 *	* 1.2574 *	* 2.0172 *
10	* 1.1299 *	* 1.5626 *	* 1.3816 *	* 1.5990 *	* 1.3966 *	* 1.5819 *	* 1.2606 *	* 1.1513 *
	* 1.6380 *	* 1.1978 *	* 1.3530 *	* 1.1754 *	* 1.3419 *	* 1.1886 *	* 1.4887 *	* 1.6299 *
11	* 1.3655 *	* 1.3720 *	* 1.5969 *	* 1.2563 *	* 1.5958 *	* 1.3495 *	* 1.4201 *	* .7850 *
	* 1.3624 *	* 1.3604 *	* 1.1768 *	* 1.4916 *	* 1.1810 *	* 1.3919 *	* 1.3245 *	* 2.3870 *
12	* 1.2006 *	* 1.5819 *	* 1.3944 *	* 1.5936 *	* 1.3216 *	* 1.4683 *	* .9071 *	
	* 1.5520 *	* 1.1886 *	* 1.3431 *	* 1.1819 *	* 1.4193 *	* 1.2814 *	* 2.0665 *	
13	* 1.5690 *	* 1.4309 *	* 1.5808 *	* 1.3495 *	* 1.4673 *	* 1.0314 *	* .6597 *	
	* 1.1978 *	* 1.3115 *	* 1.1896 *	* 1.3919 *	* 1.2820 *	* 1.8196 *	* 2.8361 *	
14	* 1.2327 *	* 1.4951 *	* 1.2595 *	* 1.4201 *	* .9104 *	* .6608 *		
	* 1.5193 *	* 1.2580 *	* 1.4894 *	* 1.3245 *	* 2.0593 *	* 2.8333 *		
15	* .7893 *	* .9275 *	* 1.1513 *	* .7840 *	F-SUB-Q			
	* 2.3679 *	* 2.0185 *	* 1.6299 *	* 2.3871 *	M-SUB-Q			

Catawba 1 Cycle 9 Core Operating Limits Report

CNEI-0400-24

Appendix A

Page 81 of 204

Revision 6

Table 1 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Normal Operations

AT 75% POWER, 300 EFPD, THIS IS LEVEL 2 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* .9061 *	* 1.1524 *	* 1.0496 *	* 1.2584 *	* 1.1106 *	* 1.4319 *	* 1.1331 *	* .7251 *
	* 1.9574 *	* 1.5442 *	* 1.6996 *	* 1.4223 *	* 1.6159 *	* 1.2625 *	* 1.5925 *	* 2.4900 *
9	* 1.1524 *	* 1.1824 *	* 1.4180 *	* 1.2606 *	* 1.4501 *	* 1.3184 *	* 1.3602 *	* .8482 *
	* 1.5442 *	* 1.5126 *	* 1.2685 *	* 1.4244 *	* 1.2450 *	* 1.3690 *	* 1.3301 *	* 2.1326 *
10	* 1.0496 *	* 1.4180 *	* 1.2670 *	* 1.4598 *	* 1.2820 *	* 1.4373 *	* 1.1620 *	* 1.0335 *
	* 1.6996 *	* 1.2685 *	* 1.4182 *	* 1.2356 *	* 1.4061 *	* 1.2577 *	* 1.5556 *	* 1.7510 *
11	* 1.2584 *	* 1.2606 *	* 1.4587 *	* 1.1567 *	* 1.4544 *	* 1.2402 *	* 1.2852 *	* .7197 *
	* 1.4223 *	* 1.4244 *	* 1.2371 *	* 1.5580 *	* 1.2439 *	* 1.4567 *	* 1.4088 *	* 2.5155 *
12	* 1.1106 *	* 1.4469 *	* 1.2798 *	* 1.4523 *	* 1.2134 *	* 1.3280 *	* .8375 *	
	* 1.6159 *	* 1.2481 *	* 1.4074 *	* 1.2455 *	* 1.4875 *	* 1.3633 *	* 2.1605 *	
13	* 1.4319 *	* 1.3173 *	* 1.4362 *	* 1.2402 *	* 1.3270 *	* .9468 *	* .6030 *	
	* 1.2625 *	* 1.3696 *	* 1.2587 *	* 1.4567 *	* 1.3639 *	* 1.9118 *	* 2.9977 *	
14	* 1.1331 *	* 1.3602 *	* 1.1610 *	* 1.2852 *	* .8397 *	* .6040 *		
	* 1.5925 *	* 1.3307 *	* 1.5564 *	* 1.4088 *	* 2.1528 *	* 2.9917 *		
15	* .7251 *	* .8472 *	* 1.0335 *	* .7186 *	F-SUB-Q			
	* 2.4900 *	* 2.1340 *	* 1.7520 *	* 2.5155 *	M-SUB-Q			

AT 75% POWER, 300 EFPD, THIS IS LEVEL 1 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* .6726 *	* .8236 *	* .7572 *	* .8900 *	* .8000 *	* 1.0164 *	* .7872 *	* .5119 *
	* 2.5885 *	* 2.1190 *	* 2.3076 *	* 1.9693 *	* 2.1961 *	* 1.7357 *	* 2.2445 *	* 3.4572 *
9	* .8236 *	* .8386 *	* 1.0260 *	* .8836 *	* 1.0528 *	* .9286 *	* .9457 *	* .5912 *
	* 2.1190 *	* 2.0861 *	* 1.7096 *	* 1.9879 *	* 1.6738 *	* 1.8997 *	* 1.8709 *	* 3.0010 *
10	* .7572 *	* 1.0260 *	* .8857 *	* 1.0517 *	* .8986 *	* 1.0432 *	* .8193 *	* .6779 *
	* 2.3076 *	* 1.7097 *	* 1.9838 *	* 1.6738 *	* 1.9602 *	* 1.6930 *	* 2.1593 *	* 2.6159 *
11	* .8900 *	* .8825 *	* 1.0507 *	* .8279 *	* 1.0357 *	* .8654 *	* .8686 *	* .4969 *
	* 1.9693 *	* 1.9905 *	* 1.6748 *	* 2.1281 *	* 1.7027 *	* 2.0414 *	* 2.0401 *	* 3.5701 *
12	* .8000 *	* 1.0517 *	* .8975 *	* 1.0346 *	* .8439 *	* .9136 *	* .5901 *	
	* 2.1961 *	* 1.6757 *	* 1.9615 *	* 1.7057 *	* 2.0905 *	* 1.9371 *	* 3.0041 *	
13	* 1.0164 *	* .9275 *	* 1.0421 *	* .8654 *	* .9136 *	* .6683 *	* .4198 *	
	* 1.7357 *	* 1.9010 *	* 1.6940 *	* 2.0414 *	* 1.9371 *	* 2.6535 *	* 4.2289 *	
14	* .7872 *	* .9446 *	* .8193 *	* .8686 *	* .5912 *	* .4198 *		
	* 2.2445 *	* 1.8721 *	* 2.1608 *	* 2.0400 *	* 2.9980 *	* 4.2229 *		
15	* .5119 *	* .5901 *	* .6779 *	* .4969 *	F-SUB-Q			
	* 3.4572 *	* 3.0041 *	* 2.6182 *	* 3.5701 *	M-SUB-Q			

Table 1 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Normal Operations

AT 75% POWER, 400 EFPD, THIS IS LEVEL 18 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	.6597	.9382	.9457	1.0860	1.0207	1.2188	1.0217	.7154
	2.5266	2.1044	2.0967	1.8267	1.9458	1.6306	1.9434	2.7632
9	.9382	1.0121	1.1781	1.0785	1.2177	1.1213	1.1417	.7818
	2.1044	1.9563	1.6816	1.8379	1.6295	1.7674	1.7372	2.5268
10	.9457	1.1781	1.0699	1.1877	1.0764	1.1824	1.0003	.8568
	2.0967	1.6816	1.8505	1.6657	1.8360	1.6704	1.9728	2.3027
11	1.0860	1.0774	1.1877	.9382	1.0571	.9468	.9714	.6308
	1.8267	1.8391	1.6660	2.1015	1.8548	2.0684	2.0197	3.1062
12	1.0207	1.2156	1.0764	1.0560	.7326	.8022	.6383	
	1.9458	1.6307	1.8372	1.8573	2.1507	2.0732	3.0005	
13	1.2188	1.1203	1.1813	.9457	.8022	.5741	.4477	
	1.6306	1.7685	1.6714	2.0700	2.0732	2.6478	3.9124	
14	1.0217	1.1406	1.0003	.9714	.6383	.4487		
	1.9434	1.7384	1.9728	2.0197	2.9938	3.9067		
15	.7154	.7818	.8568	.6308	F-SUB-Q			
	2.7632	2.5268	2.3027	3.1071	M-SUB-Q			

AT 75% POWER, 400 EFPD, THIS IS LEVEL 17 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	.7904	1.1642	1.1578	1.3623	1.2520	1.5155	1.3130	.9082
	2.1489	1.7446	1.7606	1.4973	1.6309	1.3484	1.5547	2.2414
9	1.1642	1.2734	1.4491	1.3773	1.4919	1.4169	1.4533	1.0153
	1.7446	1.5991	1.4067	1.4793	1.3673	1.4371	1.4029	2.0020
10	1.1578	1.4501	1.3666	1.4619	1.3773	1.4716	1.2756	1.1524
	1.7606	1.4061	1.4897	1.3923	1.4760	1.3829	1.5912	1.7609
11	1.3623	1.3773	1.4608	1.1492	1.3420	1.2113	1.2777	.8107
	1.4973	1.4801	1.3938	1.7636	1.5070	1.6572	1.5740	2.4787
12	1.2520	1.4898	1.3762	1.3398	.9039	1.0517	.8043	
	1.6309	1.3694	1.4770	1.5095	1.7047	1.6416	2.4261	
13	1.5155	1.4169	1.4705	1.2113	1.0517	.7508	.5730	
	1.3484	1.4379	1.3843	1.6576	1.6425	2.1191	3.1173	
14	1.3130	1.4523	1.2745	1.2777	.8054	.5741		
	1.5547	1.4036	1.5912	1.5740	2.4197	3.1138		
15	.9082	1.0142	1.1524	.8107	F-SUB-Q			
	2.2414	2.0024	1.7609	2.4787	M-SUB-Q			

Catawba 1 Cycle 9 Core Operating Limits Report

CNEI-0400-24

Appendix A

Page 83 of 204

Revision 6

Table 1 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Normal Operations

AT 75% POWER, 400 EFPD, THIS IS LEVEL 16 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* .8193	* 1.2199	* 1.2081	* 1.4330	* 1.3130	* 1.6236	* 1.3805	* .9500
	* 2.1555	* 1.7226	* 1.7413	* 1.4669	* 1.5998	* 1.2952	* 1.5225	* 2.2114
9	* 1.2199	* 1.3313	* 1.5519	* 1.4523	* 1.6033	* 1.4951	* 1.5572	* 1.0699
	* 1.7226	* 1.5775	* 1.3537	* 1.4456	* 1.3077	* 1.3990	* 1.3473	* 1.9546
10	* 1.2081	* 1.5530	* 1.4405	* 1.5690	* 1.4523	* 1.5776	* 1.3420	* 1.2445
	* 1.7413	* 1.3530	* 1.4572	* 1.3357	* 1.4375	* 1.3239	* 1.5502	* 1.6770
11	* 1.4330	* 1.4512	* 1.5679	* 1.2081	* 1.4416	* 1.2798	* 1.3752	* .8557
	* 1.4669	* 1.4464	* 1.3370	* 1.7314	* 1.4430	* 1.6125	* 1.5027	* 2.4154
12	* 1.3130	* 1.6001	* 1.4512	* 1.4394	* .9585	* 1.1310	* .8450	
	* 1.5998	* 1.3098	* 1.4385	* 1.4453	* 1.6544	* 1.5635	* 2.3458	
13	* 1.6236	* 1.4940	* 1.5765	* 1.2798	* 1.1310	* .7925	* .6030	
	* 1.2952	* 1.3997	* 1.3248	* 1.6131	* 1.5635	* 2.0631	* 3.0484	
14	* 1.3805	* 1.5572	* 1.3420	* 1.3752	* .8472	* .6030		
	* 1.5225	* 1.3479	* 1.5505	* 1.5032	* 2.3395	* 3.0417		
15	* .9500	* 1.0699	* 1.2434	* .8547	* F-SUB-Q			
	* 2.2114	* 1.9552	* 1.6774	* 2.4154	* M-SUB-Q			

AT 75% POWER, 400 EFPD, THIS IS LEVEL 15 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* .8150	* 1.2102	* 1.1984	* 1.4255	* 1.3088	* 1.6365	* 1.3709	* .9371
	* 2.2042	* 1.7943	* 1.8208	* 1.5250	* 1.6614	* 1.3251	* 1.5818	* 2.3113
9	* 1.2102	* 1.3152	* 1.5615	* 1.4416	* 1.6204	* 1.4908	* 1.5669	* 1.0614
	* 1.7943	* 1.6569	* 1.3923	* 1.5042	* 1.3376	* 1.4495	* 1.3809	* 2.0352
10	* 1.1984	* 1.5615	* 1.4298	* 1.5829	* 1.4426	* 1.5883	* 1.3355	* 1.2509
	* 1.8208	* 1.3921	* 1.5196	* 1.3691	* 1.4987	* 1.3605	* 1.6133	* 1.7255
11	* 1.4255	* 1.4405	* 1.5819	* 1.2059	* 1.4544	* 1.2798	* 1.3859	* .8525
	* 1.5250	* 1.5058	* 1.3702	* 1.7582	* 1.4393	* 1.6405	* 1.5498	* 2.5173
12	* 1.3088	* 1.6172	* 1.4416	* 1.4523	* .9671	* 1.1438	* .8461	
	* 1.6614	* 1.3398	* 1.4995	* 1.4407	* 1.6614	* 1.5491	* 2.3620	
13	* 1.6365	* 1.4908	* 1.5883	* 1.2788	* 1.1438	* .7936	* .5998	
	* 1.3251	* 1.4502	* 1.3614	* 1.6407	* 1.5491	* 2.0770	* 3.0716	
14	* 1.3709	* 1.5658	* 1.3355	* 1.3848	* .8482	* .6008		
	* 1.5818	* 1.3816	* 1.6133	* 1.5498	* 2.3542	* 3.0656		
15	* .9371	* 1.0614	* 1.2499	* .8525	* F-SUB-Q			
	* 2.3113	* 2.0352	* 1.7255	* 2.5195	* M-SUB-Q			

Catawba 1 Cycle 9 Core Operating Limits Report

CNEI-0400-24

Appendix A

Page 84 of 204

Revision 6

Table 1 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Normal Operations

AT 75% POWER, 400 EFPD, THIS IS LEVEL 14 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* .7850 *	* 1.1599 *	* 1.1449 *	* 1.3677 *	* 1.2531 *	* 1.5776 *	* 1.3120 *	* .8911 *
	* 2.3926 *	* 1.9365 *	* 2.0070 *	* 1.6740 *	* 1.8240 *	* 1.4424 *	* 1.7355 *	* 2.5533 *
9	* 1.1599 *	* 1.2552 *	* 1.5048 *	* 1.3816 *	* 1.5637 *	* 1.4341 *	* 1.5080 *	* 1.0142 *
	* 1.9365 *	* 1.8298 *	* 1.5205 *	* 1.6541 *	* 1.4568 *	* 1.5866 *	* 1.5058 *	* 2.2389 *
10	* 1.1449 *	* 1.5058 *	* 1.3698 *	* 1.5272 *	* 1.3816 *	* 1.5315 *	* 1.2820 *	* 1.1995 *
	* 2.0070 *	* 1.5200 *	* 1.6710 *	* 1.4933 *	* 1.6502 *	* 1.4853 *	* 1.7716 *	* 1.8918 *
11	* 1.3677 *	* 1.3805 *	* 1.5262 *	* 1.1578 *	* 1.4041 *	* 1.2316 *	* 1.3355 *	* .8140 *
	* 1.6740 *	* 1.6551 *	* 1.4949 *	* 1.8831 *	* 1.5326 *	* 1.7591 *	* 1.6986 *	* 2.7815 *
12	* 1.2531 *	* 1.5604 *	* 1.3805 *	* 1.4019 *	* .9403 *	* 1.1085 *	* .8107 *	
	* 1.8240 *	* 1.4597 *	* 1.6511 *	* 1.5336 *	* 1.7784 *	* 1.6490 *	* 2.5445 *	
13	* 1.5776 *	* 1.4330 *	* 1.5305 *	* 1.2316 *	* 1.1085 *	* .7668 *	* .5762 *	
	* 1.4424 *	* 1.5870 *	* 1.4861 *	* 1.7591 *	* 1.6490 *	* 2.2232 *	* 3.3044 *	
14	* 1.3120 *	* 1.5069 *	* 1.2820 *	* 1.3355 *	* .8140 *	* .5773 *		
	* 1.7355 *	* 1.5065 *	* 1.7716 *	* 1.6990 *	* 2.5355 *	* 3.3006 *		
15	* .8911 *	* 1.0132 *	* 1.1995 *	* .8140 *	* F-SUB-Q			
	* 2.5533 *	* 2.2400 *	* 1.8918 *	* 2.7842 *	* M-SUB-Q			

AT 75% POWER, 400 EFPD, THIS IS LEVEL 13 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* .7786 *	* 1.1524 *	* 1.1374 *	* 1.3612 *	* 1.2477 *	* 1.5797 *	* 1.3002 *	* .8804 *
	* 2.5081 *	* 2.0215 *	* 2.1640 *	* 1.8039 *	* 1.9599 *	* 1.5378 *	* 1.8705 *	* 2.7584 *
9	* 1.1524 *	* 1.2445 *	* 1.5069 *	* 1.3720 *	* 1.5679 *	* 1.4276 *	* 1.5080 *	* 1.0046 *
	* 2.0215 *	* 1.9436 *	* 1.6279 *	* 1.7852 *	* 1.5543 *	* 1.7064 *	* 1.6093 *	* 2.4150 *
10	* 1.1374 *	* 1.5069 *	* 1.3602 *	* 1.5326 *	* 1.3720 *	* 1.5337 *	* 1.2734 *	* 1.1984 *
	* 2.1640 *	* 1.6273 *	* 1.7967 *	* 1.5839 *	* 1.7741 *	* 1.5890 *	* 1.9096 *	* 2.0236 *
11	* 1.3612 *	* 1.3709 *	* 1.5315 *	* 1.1545 *	* 1.4084 *	* 1.2274 *	* 1.3388 *	* .8140 *
	* 1.8039 *	* 1.7870 *	* 1.5856 *	* 1.9636 *	* 1.5875 *	* 1.8372 *	* 1.7623 *	* 2.9876 *
12	* 1.2477 *	* 1.5647 *	* 1.3709 *	* 1.4062 *	* .9382 *	* 1.1138 *	* .8140 *	
	* 1.9599 *	* 1.5573 *	* 1.7752 *	* 1.5892 *	* 1.8745 *	* 1.7252 *	* 2.6519 *	
13	* 1.5797 *	* 1.4276 *	* 1.5326 *	* 1.2274 *	* 1.1149 *	* .7679 *	* .5773 *	
	* 1.5378 *	* 1.7070 *	* 1.5902 *	* 1.8372 *	* 1.7252 *	* 2.3559 *	* 3.4856 *	
14	* 1.3002 *	* 1.5069 *	* 1.2734 *	* 1.3388 *	* .8161 *	* .5773 *		
	* 1.8705 *	* 1.6102 *	* 1.9101 *	* 1.7623 *	* 2.6432 *	* 3.4815 *		
15	* .8804 *	* 1.0046 *	* 1.1984 *	* .8129 *	* F-SUB-Q			
	* 2.7584 *	* 2.4150 *	* 2.0236 *	* 2.9876 *	* M-SUB-Q			

Table 1 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Normal Operations

AT 75% POWER, 400 EFPD, THIS IS LEVEL 12 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* .7647 *	* 1.1320 *	* 1.1149 *	* 1.3355 *	* 1.2209 *	* 1.5540 *	* 1.2702 *	* .8579 *
	* 2.6962 *	* 2.1699 *	* 2.3310 *	* 1.9648 *	* 2.1562 *	* 1.6838 *	* 2.0579 *	* 3.0407 *
9	* 1.1320 *	* 1.2220 *	* 1.4855 *	* 1.3462 *	* 1.5455 *	* 1.4019 *	* 1.4812 *	* .9821 *
	* 2.1699 *	* 2.0860 *	* 1.7450 *	* 1.9329 *	* 1.6830 *	* 1.8593 *	* 1.7627 *	* 2.6550 *
10	* 1.1149 *	* 1.4855 *	* 1.3355 *	* 1.5133 *	* 1.3473 *	* 1.5112 *	* 1.2488 *	* 1.1770 *
	* 2.3310 *	* 1.7450 *	* 1.9279 *	* 1.6910 *	* 1.9032 *	* 1.6995 *	* 2.0714 *	* 2.2179 *
11	* 1.3355 *	* 1.3452 *	* 1.5123 *	* 1.1353 *	* 1.3934 *	* 1.2102 *	* 1.3227 *	* .7990 *
	* 1.9648 *	* 1.9342 *	* 1.6923 *	* 2.0952 *	* 1.6893 *	* 1.9637 *	* 1.8810 *	* 3.2049 *
12	* 1.2209 *	* 1.5422 *	* 1.3462 *	* 1.3912 *	* .9275 *	* 1.1074 *	* .8054 *	
	* 2.1562 *	* 1.6849 *	* 1.9045 *	* 1.6906 *	* 1.9974 *	* 1.8317 *	* 2.8301 *	
13	* 1.5540 *	* 1.4009 *	* 1.5101 *	* 1.2102 *	* 1.1085 *	* .7647 *	* .5730 *	
	* 1.6838 *	* 1.8594 *	* 1.7005 *	* 1.9637 *	* 1.8310 *	* 2.5044 *	* 3.7139 *	
14	* 1.2702 *	* 1.4801 *	* 1.2488 *	* 1.3227 *	* .8086 *	* .5741 *		
	* 2.0579 *	* 1.7637 *	* 2.0714 *	* 1.8810 *	* 2.8202 *	* 3.7092 *		
15	* .8579 *	* .9821 *	* 1.1770 *	* .7990 *	F-SUB-Q			
	* 3.0407 *	* 2.6559 *	* 2.2179 *	* 3.2049 *	M-SUB-Q			

AT 75% POWER, 400 EFPD, THIS IS LEVEL 11 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* .7679 *	* 1.1235 *	* 1.0978 *	* 1.3152 *	* 1.1974 *	* 1.5283 *	* 1.2434 *	* .8386 *
	* 2.9116 *	* 2.3309 *	* 2.5154 *	* 2.1189 *	* 2.3424 *	* 1.8356 *	* 2.2610 *	* 3.3528 *
9	* 1.1235 *	* 1.2081 *	* 1.4683 *	* 1.3259 *	* 1.5251 *	* 1.3805 *	* 1.4555 *	* .9628 *
	* 2.3309 *	* 2.2460 *	* 1.8769 *	* 2.0848 *	* 1.8107 *	* 2.0048 *	* 1.9081 *	* 2.9055 *
10	* 1.0978 *	* 1.4683 *	* 1.3173 *	* 1.4983 *	* 1.3302 *	* 1.4930 *	* 1.2306 *	* 1.1578 *
	* 2.5154 *	* 1.8769 *	* 2.0745 *	* 1.0150 *	* 2.0475 *	* 1.8243 *	* 2.2321 *	* 2.4010 *
11	* 1.3152 *	* 1.3248 *	* 1.4973 *	* 1.1256 *	* 1.3912 *	* 1.2081 *	* 1.3141 *	* .7872 *
	* 2.1189 *	* 2.0863 *	* 1.8161 *	* 2.2651 *	* 1.8211 *	* 2.1183 *	* 2.0189 *	* 3.4517 *
12	* 1.1974 *	* 1.5230 *	* 1.3291 *	* 1.3891 *	* .9414 *	* 1.1267 *	* .8086 *	
	* 2.3424 *	* 1.8129 *	* 2.0489 *	* 1.8223 *	* 2.1557 *	* 1.9729 *	* 3.0630 *	
13	* 1.5283 *	* 1.3794 *	* 1.4930 *	* 1.2081 *	* 1.1267 *	* .7872 *	* .5837 *	
	* 1.8356 *	* 2.0048 *	* 1.8243 *	* 2.1198 *	* 1.9721 *	* 2.7033 *	* 4.0137 *	
14	* 1.2434 *	* 1.4555 *	* 1.2306 *	* 1.3141 *	* .8118 *	* .5837 *		
	* 2.2610 *	* 1.9081 *	* 2.2321 *	* 2.0188 *	* 3.0514 *	* 4.0082 *		
15	* .8386 *	* .9628 *	* 1.1578 *	* .7872 *	F-SUB-Q			
	* 3.3528 *	* 2.9055 *	* 2.4010 *	* 3.4517 *	M-SUB-Q			

Table 1 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Normal Operations

AT 75% POWER, 400 EFPD, THIS IS LEVEL 10 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* .8547 *	* 1.1599 *	* 1.1138 *	* 1.3291 *	* 1.2081 *	* 1.5433 *	* 1.2477 *	* .8418 *
	* 3.1023 *	* 2.4872 *	* 2.6843 *	* 2.2657 *	* 2.5047 *	* 1.9557 *	* 2.4197 *	* 3.5681 *
9	* 1.1599 *	* 1.2327 *	* 1.4951 *	* 1.3398 *	* 1.5497 *	* 1.3944 *	* 1.4737 *	* .9693 *
	* 2.4872 *	* 2.3984 *	* 1.9933 *	* 2.2300 *	* 1.9236 *	* 2.1416 *	* 2.0302 *	* 3.1056 *
10	* 1.1138 *	* 1.4951 *	* 1.3366 *	* 1.5305 *	* 1.3505 *	* 1.5230 *	* 1.2445 *	* 1.1727 *
	* 2.6843 *	* 1.9947 *	* 2.2165 *	* 1.9259 *	* 2.1873 *	* 1.9352 *	* 2.3827 *	* 2.5500 *
11	* 1.3291 *	* 1.3398 *	* 1.5294 *	* 1.1642 *	* 1.4480 *	* 1.2520 *	* 1.3527 *	* .8032 *
	* 2.2657 *	* 2.2301 *	* 1.9271 *	* 2.4050 *	* 1.9262 *	* 2.2531 *	* 2.1375 *	* 3.6607 *
12	* 1.2081 *	* 1.5487 *	* 1.3495 *	* 1.4459 *	* 1.0603 *	* 1.2274 *	* .8525 *	
	* 2.5047 *	* 1.9261 *	* 2.1889 *	* 1.9275 *	* 2.2968 *	* 2.0888 *	* 3.2346 *	
13	* 1.5433 *	* 1.3944 *	* 1.5230 *	* 1.2509 *	* 1.2274 *	* .8707 *	* .6244 *	
	* 1.9557 *	* 2.1416 *	* 1.9352 *	* 2.2531 *	* 2.0888 *	* 2.8779 *	* 4.2573 *	
14	* 1.2477 *	* 1.4737 *	* 1.2445 *	* 1.3527 *	* .8557 *	* .6255 *		
	* 2.4197 *	* 2.0302 *	* 2.3827 *	* 2.1375 *	* 3.2240 *	* 4.2512 *		
15	* .8418 *	* .9682 *	* 1.1727 *	* .8032 *	* F-SUB-Q			
	* 3.5681 *	* 3.1056 *	* 2.5500 *	* 3.6607 *	* M-SUB-Q			

AT 75% POWER, 400 EFPD, THIS IS LEVEL 9 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* .9189 *	* 1.1781 *	* 1.1010 *	* 1.3130 *	* 1.1856 *	* 1.5165 *	* 1.2252 *	* .8257 *
	* 3.2210 *	* 2.5785 *	* 2.7936 *	* 2.3597 *	* 2.6221 *	* 2.0581 *	* 2.5451 *	* 3.7640 *
9	* 1.1781 *	* 1.2295 *	* 1.4823 *	* 1.3259 *	* 1.5315 *	* 1.3773 *	* 1.4523 *	* .9521 *
	* 2.5785 *	* 2.4955 *	* 2.0828 *	* 2.3317 *	* 2.0214 *	* 2.2498 *	* 2.1419 *	* 3.2820 *
10	* 1.1010 *	* 1.4812 *	* 1.3280 *	* 1.5230 *	* 1.3420 *	* 1.5123 *	* 1.2327 *	* 1.1567 *
	* 2.7936 *	* 2.0828 *	* 2.3152 *	* 2.0173 *	* 2.2918 *	* 2.0368 *	* 2.5104 *	* 2.6964 *
11	* 1.3130 *	* 1.3248 *	* 1.5219 *	* 1.1802 *	* 1.4812 *	* 1.2713 *	* 1.3548 *	* .7947 *
	* 2.3597 *	* 2.3317 *	* 2.0186 *	* 2.5255 *	* 2.0256 *	* 2.3711 *	* 2.2532 *	* 3.8830 *
12	* 1.1856 *	* 1.5294 *	* 1.3409 *	* 1.4801 *	* 1.2006 *	* 1.3270 *	* .8718 *	
	* 2.6221 *	* 2.0228 *	* 2.2936 *	* 2.0270 *	* 2.4138 *	* 2.1978 *	* 3.4230 *	
13	* 1.5165 *	* 1.3773 *	* 1.5112 *	* 1.2713 *	* 1.3270 *	* .9500 *	* .6512 *	
	* 2.0581 *	* 2.2498 *	* 2.0368 *	* 2.3711 *	* 2.1978 *	* 3.0290 *	* 4.5065 *	
14	* 1.2252 *	* 1.4523 *	* 1.2327 *	* 1.3548 *	* .8750 *	* .6522 *		
	* 2.5451 *	* 2.1434 *	* 2.5104 *	* 2.2532 *	* 3.4111 *	* 4.4996 *		
15	* .8257 *	* .9521 *	* 1.1567 *	* .7947 *	* F-SUB-Q			
	* 3.7640 *	* 3.2820 *	* 2.6964 *	* 3.8830 *	* M-SUB-Q			

Table 1 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Normal Operations

AT 75% POWER, 400 EFPD, THIS IS LEVEL 8 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8 *	.9660 *	1.2145 *	1.1256 *	1.3366 *	1.2059 *	1.5455 *	1.2391 *	.8365 *
	2.9982 *	2.4118 *	2.6198 *	2.2277 *	2.4746 *	1.9479 *	2.4094 *	3.5254 *
9 *	1.2145 *	1.2584 *	1.5208 *	1.3495 *	1.5701 *	1.4030 *	1.4844 *	.9671 *
	2.4118 *	2.3559 *	1.9714 *	2.2176 *	1.9213 *	2.1419 *	2.0256 *	3.0687 *
10 *	1.1256 *	1.5197 *	1.3570 *	1.5669 *	1.3709 *	1.5551 *	1.2563 *	1.1824 *
	2.6198 *	1.9714 *	2.2027 *	1.9200 *	2.1847 *	1.9351 *	2.3768 *	2.5147 *
11 *	1.3366 *	1.3495 *	1.5658 *	1.2359 *	1.5487 *	1.3163 *	1.4009 *	.8172 *
	2.2277 *	2.2176 *	1.9213 *	2.3922 *	1.9263 *	2.2550 *	2.1249 *	3.6074 *
12 *	1.2059 *	1.5679 *	1.3698 *	1.5476 *	1.2809 *	1.4159 *	.9157 *	
	2.4746 *	1.9225 *	2.1847 *	1.9275 *	2.2918 *	2.0740 *	3.1931 *	
13 *	1.5455 *	1.4030 *	1.5551 *	1.3163 *	1.4159 *	1.0185 *	.6887 *	
	1.9479 *	2.1419 *	1.9364 *	2.2550 *	2.0726 *	2.8448 *	4.1686 *	
14 *	1.2391 *	1.4844 *	1.2563 *	1.4019 *	.9189 *	.6897 *		
	2.4094 *	2.0270 *	2.3768 *	2.1234 *	3.1827 *	4.1627 *		
15 *	.8365 *	.9671 *	1.1824 *	.8172 *	F-SUB-Q			
	3.5254 *	3.0687 *	2.5147 *	3.6074 *	M-SUB-Q			

AT 75% POWER, 400 EFPD, THIS IS LEVEL 7 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8 *	.9735 *	1.2231 *	1.1288 *	1.3388 *	1.2049 *	1.5487 *	1.2370 *	.8343 *
	2.6766 *	2.1469 *	2.3353 *	1.9820 *	2.2011 *	1.7294 *	2.1453 *	3.1441 *
9 *	1.2231 *	1.2638 *	1.5294 *	1.3527 *	1.5776 *	1.4062 *	1.4898 *	.9671 *
	2.1469 *	2.0978 *	1.7516 *	1.9756 *	1.7060 *	1.9076 *	1.7986 *	2.7305 *
10 *	1.1288 *	1.5283 *	1.3623 *	1.5787 *	1.3762 *	1.5669 *	1.2595 *	1.1867 *
	2.3353 *	1.7516 *	1.9611 *	1.7050 *	1.9456 *	1.7199 *	2.1190 *	2.2351 *
11 *	1.3388 *	1.3516 *	1.5776 *	1.2509 *	1.5701 *	1.3302 *	1.4148 *	.8215 *
	1.9820 *	1.9769 *	1.7060 *	2.1295 *	1.7105 *	2.0090 *	1.8880 *	3.2194 *
12 *	1.2049 *	1.5765 *	1.3752 *	1.5690 *	1.3034 *	1.4448 *	.9286 *	
	2.2011 *	1.7079 *	1.9469 *	1.7125 *	2.0424 *	1.8443 *	2.8448 *	
13 *	1.5487 *	1.4062 *	1.5658 *	1.3302 *	1.4448 *	1.0410 *	.7015 *	
	1.7294 *	1.9076 *	1.7199 *	2.0076 *	1.8432 *	2.5363 *	3.7212 *	
14 *	1.2370 *	1.4887 *	1.2595 *	1.4159 *	.9328 *	.7026 *		
	2.1453 *	1.7986 *	2.1190 *	1.8880 *	2.8339 *	3.7165 *		
15 *	.8343 *	.9671 *	1.1867 *	.8215 *	F-SUB-Q			
	3.1441 *	2.7305 *	2.2351 *	3.2194 *	M-SUB-Q			

Catawba 1 Cycle 9 Core Operating Limits Report

CNEI-0400-24

Appendix A

Page 88 of 204

Revision 6

Table 1 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Normal Operations

AT 75% POWER, 400 EFPD, THIS IS LEVEL 6 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* .9628 *	* 1.2134 *	* 1.1160 *	* 1.3248 *	* 1.1899 *	* 1.5315 *	* 1.2231 *	* .8236 *
	* 2.4284 *	* 1.9400 *	* 2.1146 *	* 1.7873 *	* 1.9933 *	* 1.5644 *	* 1.9431 *	* 2.8592 *
9	* 1.2134 *	* 1.2520 *	* 1.5144 *	* 1.3398 *	* 1.5626 *	* 1.3923 *	* 1.4748 *	* .9564 *
	* 1.9400 *	* 1.8941 *	* 1.5803 *	* 1.7817 *	* 1.5387 *	* 1.7191 *	* 1.6242 *	* 2.4751 *
10	* 1.1160 *	* 1.5144 *	* 1.3495 *	* 1.5647 *	* 1.3634 *	* 1.5530 *	* 1.2488 *	* 1.1738 *
	* 2.1146 *	* 1.5807 *	* 1.7716 *	* 1.5395 *	* 1.7568 *	* 1.5530 *	* 1.9126 *	* 2.0240 *
11	* 1.3248 *	* 1.3388 *	* 1.5637 *	* 1.2413 *	* 1.5604 *	* 1.3227 *	* 1.4052 *	* .8107 *
	* 1.7873 *	* 1.7828 *	* 1.5403 *	* 1.9297 *	* 1.5459 *	* 1.8147 *	* 1.7078 *	* 2.9274 *
12	* 1.1899 *	* 1.5615 *	* 1.3634 *	* 1.5594 *	* 1.2981 *	* 1.4394 *	* .9211 *	
	* 1.9933 *	* 1.5403 *	* 1.7579 *	* 1.5467 *	* 1.8465 *	* 1.6664 *	* 2.5852 *	
13	* 1.5315 *	* 1.3934 *	* 1.5530 *	* 1.3227 *	* 1.4394 *	* 1.0389 *	* .6983 *	
	* 1.5644 *	* 1.7191 *	* 1.5533 *	* 1.8147 *	* 1.6664 *	* 2.2941 *	* 3.3813 *	
14	* 1.2231 *	* 1.4748 *	* 1.2488 *	* 1.4052 *	* .9243 *	* .6994 *		
	* 1.9431 *	* 1.6242 *	* 1.9126 *	* 1.7078 *	* 2.5762 *	* 3.3737 *		
15	* .8236 *	* .9564 *	* 1.1738 *	* .8107 *	F-SUB-Q			
	* 2.8592 *	* 2.4751 *	* 2.0240 *	* 2.9274 *	M-SUB-Q			

AT 75% POWER, 400 EFPD, THIS IS LEVEL 5 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* .9800 *	* 1.2370 *	* 1.1374 *	* 1.3505 *	* 1.2124 *	* 1.5658 *	* 1.2445 *	* .8397 *
	* 2.1564 *	* 1.7186 *	* 1.8744 *	* 1.5873 *	* 1.7719 *	* 1.3857 *	* 1.7333 *	* 2.5509 *
9	* 1.2370 *	* 1.2745 *	* 1.5487 *	* 1.3623 *	* 1.6001 *	* 1.4191 *	* 1.5090 *	* .9746 *
	* 1.7186 *	* 1.6817 *	* 1.3964 *	* 1.5837 *	* 1.3593 *	* 1.5268 *	* 1.4380 *	* 2.2054 *
10	* 1.1374 *	* 1.5487 *	* 1.3730 *	* 1.6022 *	* 1.3880 *	* 1.5915 *	* 1.2723 *	* 1.2027 *
	* 1.8744 *	* 1.3964 *	* 1.5724 *	* 1.3581 *	* 1.5596 *	* 1.3694 *	* 1.6997 *	* 1.7923 *
11	* 1.3505 *	* 1.3623 *	* 1.6011 *	* 1.2691 *	* 1.5990 *	* 1.3484 *	* 1.4405 *	* .8311 *
	* 1.5873 *	* 1.5842 *	* 1.3587 *	* 1.7082 *	* 1.3648 *	* 1.6111 *	* 1.5071 *	* 2.5876 *
12	* 1.2124 *	* 1.5990 *	* 1.3880 *	* 1.5979 *	* 1.3238 *	* 1.4769 *	* .9457 *	
	* 1.7719 *	* 1.3606 *	* 1.5601 *	* 1.3654 *	* 1.6414 *	* 1.4748 *	* 2.2869 *	
13	* 1.5658 *	* 1.4191 *	* 1.5915 *	* 1.3484 *	* 1.4769 *	* 1.0624 *	* .7154 *	
	* 1.3857 *	* 1.5265 *	* 1.3694 *	* 1.6102 *	* 1.4742 *	* 2.0411 *	* 3.0073 *	
14	* 1.2445 *	* 1.5090 *	* 1.2723 *	* 1.4405 *	* .9500 *	* .7165 *		
	* 1.7333 *	* 1.4380 *	* 1.6997 *	* 1.5067 *	* 2.2780 *	* 3.0042 *		
15	* .8397 *	* .9746 *	* 1.2027 *	* .8311 *	F-SUB-Q			
	* 2.5509 *	* 2.2054 *	* 1.7923 *	* 2.5876 *	M-SUB-Q			

Catawba 1 Cycle 9 Core Operating Limits Report

CNEI-0400-24

Appendix A

Page 89 of 204

Revision 6

Table 1 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Normal Operations

AT 75% POWER, 400 EFPD, THIS IS LEVEL 4 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* .9703	* 1.2284	* 1.1245	* 1.3388	* 1.1974	* 1.5497	* 1.2349	* .8311
	* 2.0058	* 1.5933	* 1.7475	* 1.4757	* 1.6536	* 1.2895	* 1.6109	* 2.3815
9	* 1.2284	* 1.2638	* 1.5315	* 1.3495	* 1.5829	* 1.4084	* 1.4951	* .9660
	* 1.5933	* 1.5621	* 1.2993	* 1.4719	* 1.2645	* 1.4170	* 1.3367	* 2.0545
10	* 1.1245	* 1.5315	* 1.3602	* 1.5840	* 1.3762	* 1.5744	* 1.2638	* 1.1899
	* 1.7475	* 1.2999	* 1.4607	* 1.2626	* 1.4483	* 1.2727	* 1.5768	* 1.6720
11	* 1.3388	* 1.3495	* 1.5829	* 1.2541	* 1.5840	* 1.3388	* 1.4276	* .8204
	* 1.4757	* 1.4726	* 1.2631	* 1.5883	* 1.2659	* 1.4910	* 1.3994	* 2.4194
12	* 1.1974	* 1.5808	* 1.3752	* 1.5829	* 1.3141	* 1.4651	* .9350	*
	* 1.6536	* 1.2656	* 1.4486	* 1.2667	* 1.5180	* 1.3653	* 2.1287	*
13	* 1.5497	* 1.4084	* 1.5744	* 1.3398	* 1.4651	* 1.0560	* .7090	*
	* 1.2895	* 1.4166	* 1.2727	* 1.4910	* 1.3653	* 1.8884	* 2.7985	*
14	* 1.2349	* 1.4951	* 1.2638	* 1.4287	* .9382	* .7101	*	*
	* 1.6109	* 1.3367	* 1.5768	* 1.3987	* 2.1210	* 2.7932	*	*
15	* .8311	* .9660	* 1.1910	* .8204	* F-SUB-Q			
	* 2.3815	* 2.0545	* 1.6716	* 2.4194	* M-SUB-Q			

AT 75% POWER, 400 EFPD, THIS IS LEVEL 3 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* .9821	* 1.2434	* 1.1331	* 1.3484	* 1.2038	* 1.5583	* 1.2424	* .8365
	* 1.8661	* 1.4812	* 1.6296	* 1.3760	* 1.5459	* 1.2044	* 1.5051	* 2.2295
9	* 1.2434	* 1.2713	* 1.5380	* 1.3537	* 1.5883	* 1.4159	* 1.5048	* .9725
	* 1.4812	* 1.4585	* 1.2146	* 1.3778	* 1.1822	* 1.3223	* 1.2477	* 1.9231
10	* 1.1331	* 1.5380	* 1.3634	* 1.5894	* 1.3805	* 1.5819	* 1.2734	* 1.1974
	* 1.6296	* 1.2151	* 1.3677	* 1.1802	* 1.3552	* 1.1890	* 1.4710	* 1.5649
11	* 1.3484	* 1.3537	* 1.5883	* 1.2595	* 1.5904	* 1.3473	* 1.4373	* .8290
	* 1.3760	* 1.3778	* 1.1806	* 1.4839	* 1.1822	* 1.3909	* 1.3058	* 2.2568
12	* 1.2038	* 1.5872	* 1.3805	* 1.5894	* 1.3205	* 1.4737	* .9446	*
	* 1.5459	* 1.1833	* 1.3559	* 1.1829	* 1.4174	* 1.2730	* 1.9813	*
13	* 1.5583	* 1.4169	* 1.5819	* 1.3473	* 1.4748	* 1.0635	* .7133	*
	* 1.2044	* 1.3223	* 1.1890	* 1.3905	* 1.2728	* 1.7607	* 2.6162	*
14	* 1.2424	* 1.5048	* 1.2734	* 1.4373	* .9478	* .7144	*	*
	* 1.5051	* 1.2480	* 1.4710	* 1.3052	* 1.9741	* 2.6129	*	*
15	* .8365	* .9725	* 1.1974	* .8290	* F-SUB-Q			
	* 2.2295	* 1.9239	* 1.5649	* 2.2568	* M-SUB-Q			

Catawba 1 Cycle 9 Core Operating Limits Report

CNEI-0400-24

Appendix A

Page 90 of 204

Revision 6

Table 1 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Normal Operations

AT 75% POWER, 400 EFPD, THIS IS LEVEL 2 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* .9446 *	* 1.1835 *	* 1.0774 *	* 1.2756 *	* 1.1374 *	* 1.4587 *	* 1.1706 *	* .7872 *
	* 1.8673 *	* 1.4957 *	* 1.6475 *	* 1.3961 *	* 1.5686 *	* 1.2326 *	* 1.5330 *	* 2.2802 *
9	* 1.1835 *	* 1.1995 *	* 1.4426 *	* 1.2734 *	* 1.4876 *	* 1.3366 *	* 1.4073 *	* .9104 *
	* 1.4957 *	* 1.4824 *	* 1.2401 *	* 1.4035 *	* 1.2085 *	* 1.3426 *	* 1.2790 *	* 1.9760 *
10	* 1.0774 *	* 1.4426 *	* 1.2809 *	* 1.4855 *	* 1.2981 *	* 1.4823 *	* 1.2049 *	* 1.1063 *
	* 1.6475 *	* 1.2404 *	* 1.3965 *	* 1.2079 *	* 1.3811 *	* 1.2150 *	* 1.4928 *	* 1.6275 *
11	* 1.2756 *	* 1.2734 *	* 1.4844 *	* 1.1867 *	* 1.4855 *	* 1.2702 *	* 1.3377 *	* .7786 *
	* 1.3961 *	* 1.4042 *	* 1.2089 *	* 1.5102 *	* 1.2110 *	* 1.4148 *	* 1.3466 *	* 2.3095 *
12	* 1.1374 *	* 1.4865 *	* 1.2981 *	* 1.4844 *	* 1.2434 *	* 1.3730 *	* .8921 *	
	* 1.5686 *	* 1.2095 *	* 1.3815 *	* 1.2120 *	* 1.4435 *	* 1.3113 *	* 2.0146 *	
13	* 1.4587 *	* 1.3366 *	* 1.4812 *	* 1.2702 *	* 1.3730 *	* 1.0014 *	* .6694 *	
	* 1.2326 *	* 1.3424 *	* 1.2155 *	* 1.4148 *	* 1.3113 *	* 1.7963 *	* 2.6833 *	
14	* 1.1706 *	* 1.4073 *	* 1.2049 *	* 1.3377 *	* .8954 *	* .6704 *		
	* 1.5330 *	* 1.2790 *	* 1.4928 *	* 1.3463 *	* 2.0086 *	* 2.6809 *		
15	* .7872 *	* .9104 *	* 1.1063 *	* .7786 *	F-SUB-Q			
	* 2.2802 *	* 1.9760 *	* 1.6275 *	* 2.3095 *	M-SUB-Q			

AT 75% POWER, 400 EFPD, THIS IS LEVEL 1 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* .7294 *	* .8825 *	* .8097 *	* .9446 *	* .8536 *	* 1.0774 *	* .8547 *	* .5794 *
	* 2.3651 *	* 1.9631 *	* 2.1411 *	* 1.8412 *	* 2.0442 *	* 1.6244 *	* 2.0516 *	* 3.0323 *
9	* .8825 *	* .8921 *	* 1.0785 *	* .9350 *	* 1.1106 *	* .9875 *	* 1.0207 *	* .6608 *
	* 1.9631 *	* 1.9462 *	* 1.6154 *	* 1.8652 *	* 1.5760 *	* 1.7730 *	* 1.7202 *	* 2.6654 *
10	* .8097 *	* 1.0785 *	* .9361 *	* 1.1053 *	* .9532 *	* 1.1053 *	* .8900 *	* .7626 *
	* 2.1411 *	* 1.6159 *	* 1.8661 *	* 1.5812 *	* 1.8345 *	* 1.5853 *	* 1.9744 *	* 2.3109 *
11	* .9446 *	* .9350 *	* 1.1042 *	* .8836 *	* 1.0956 *	* .9307 *	* .9489 *	* .5623 *
	* 1.8412 *	* 1.8659 *	* 1.5821 *	* 1.9786 *	* 1.5978 *	* 1.8845 *	* 1.8521 *	* 3.1322 *
12	* .8536 *	* 1.1096 *	* .9532 *	* 1.0946 *	* .9082 *	* .9928 *	* .6555 *	
	* 2.0442 *	* 1.5771 *	* 1.8345 *	* 1.5996 *	* 1.9289 *	* 1.7702 *	* 2.6809 *	
13	* 1.0774 *	* .9875 *	* 1.1053 *	* .9307 *	* .9928 *	* .7401 *	* .4852 *	
	* 1.6244 *	* 1.7736 *	* 1.5853 *	* 1.8845 *	* 1.7691 *	* 2.3769 *	* 3.6271 *	
14	* .8547 *	* 1.0207 *	* .8900 *	* .9500 *	* .6576 *	* .4862 *		
	* 2.0516 *	* 1.7202 *	* 1.9744 *	* 1.8509 *	* 2.6751 *	* 3.6226 *		
15	* .5794 *	* .6608 *	* .7626 *	* .5623 *	F-SUB-Q			
	* 3.0323 *	* 2.6654 *	* 2.3109 *	* 3.1342 *	M-SUB-Q			

Catawba 1 Cycle 9 Core Operating Limits Report

CNEI-0400-24

Appendix A

Page 91 of 204

Revision 6

Table 1 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Normal Operations

AT 50% POWER, 4 EFPD, THIS IS LEVEL 18 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* .6501 *	* .8857 *	* .8472 *	* .9768 *	* .8611 *	* 1.0389 *	* .8332 *	* .5205 *
	* 2.6995 *	* 2.3421 *	* 2.5995 *	* 2.2516 *	* 2.5488 *	* 2.1077 *	* 2.6247 *	* 4.1677 *
9	* .8857 *	* .9425 *	* 1.0849 *	* .9532 *	* 1.0656 *	* .9478 *	* .9361 *	* .5901 *
	* 2.3421 *	* 2.3400 *	* 2.0306 *	* 2.3080 *	* 2.0595 *	* 2.3067 *	* 2.3319 *	* 3.6731 *
10	* .8472 *	* 1.0849 *	* .9564 *	* 1.0656 *	* .9264 *	* 1.0110 *	* .8236 *	* .6276 *
	* 2.5995 *	* 2.0306 *	* 2.3028 *	* 2.0616 *	* 2.3645 *	* 2.1581 *	* 2.6452 *	* 3.4512 *
11	* .9768 *	* .9532 *	* 1.0646 *	* .7915 *	* .9018 *	* .7915 *	* .7700 *	* .4659 *
	* 2.2516 *	* 2.3093 *	* 2.0637 *	* 2.7138 *	* 2.2268 *	* 2.6004 *	* 2.7495 *	* 4.6239 *
12	* .8611 *	* 1.0635 *	* .9253 *	* .8996 *	* .6233 *	* .6426 *	* .4927 *	
	* 2.5488 *	* 2.0637 *	* 2.3687 *	* 2.2317 *	* 2.5717 *	* 2.4878 *	* 3.8202 *	
13	* 1.0389 *	* .9457 *	* 1.0100 *	* .7904 *	* .6426 *	* .4455 *	* .3052 *	
	* 2.1077 *	* 2.3106 *	* 2.1616 *	* 2.6032 *	* 2.4888 *	* 3.2242 *	* 5.4749 *	
14	* .8332 *		* .8225 *	* .7690 *	* .4927 *	* .3052 *		
	* 2.6247 *		* 2.6487 *	* 2.7513 *	* 3.8166 *	* 5.4725 *		
15	* .5205 *	* .5811 *	* .6265 *	* .4648 *	F-SUB-Q			
	* 4.1677 *	* 3.6765 *	* 3.4541 *	* 4.6345 *	M-SUB-Q			

AT 50% POWER, 4 EFPD, THIS IS LEVEL 17 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* .9328 *	* 1.2884 *	* 1.1781 *	* 1.4266 *	* 1.1931 *	* 1.3848 *	* 1.2231 *	* .7583 *
	* 1.9877 *	* 1.6464 *	* 1.9561 *	* 1.6142 *	* 1.9277 *	* 1.6578 *	* 1.8708 *	* 2.9960 *
9	* 1.2884 *	* 1.3473 *	* 1.4255 *	* 1.3816 *	* 1.3848 *	* 1.3527 *	* 1.3452 *	* .8921 *
	* 1.6464 *	* 1.7150 *	* 1.6225 *	* 1.6692 *	* 1.6624 *	* 1.6932 *	* 1.7002 *	* 2.5460 *
10	* 1.1781 *	* 1.4244 *	* 1.3837 *	* 1.4126 *	* 1.3270 *	* 1.3698 *	* 1.1888 *	* .9992 *
	* 1.9561 *	* 1.6231 *	* 1.6685 *	* 1.6334 *	* 1.7316 *	* 1.6739 *	* 1.9178 *	* 2.2672 *
11	* 1.4266 *	* 1.3816 *	* 1.4148 *	* 1.0496 *	* 1.2306 *	* 1.1460 *	* 1.1685 *	* .7111 *
	* 1.6142 *	* 1.6685 *	* 1.6321 *	* 2.0635 *	* 1.7590 *	* 1.8435 *	* 1.8860 *	* 3.1786 *
12	* 1.1931 *	* 1.3827 *	* 1.3238 *	* 1.2252 *	* .8697 *	* .9950 *	* .7336 *	
	* 1.9277 *	* 1.6658 *	* 1.7353 *	* 1.7610 *	* 1.8133 *	* 1.7594 *	* 2.6944 *	
13	* 1.3848 *	* 1.3505 *	* 1.3677 *	* 1.1438 *	* .9950 *	* .6769 *	* .4595 *	
	* 1.6578 *	* 1.6967 *	* 1.6773 *	* 1.8451 *	* 1.7599 *	* 2.2399 *	* 3.8363 *	
14	* 1.2231 *	* 1.3430 *	* 1.1867 *	* 1.1674 *	* .7347 *	* .4595 *		
	* 1.8708 *	* 1.7023 *	* 1.9205 *	* 1.8869 *	* 2.6908 *	* 3.8316 *		
15	* .7583 *	* .8911 *	* .9982 *	* .7101 *	F-SUB-Q			
	* 2.9960 *	* 2.5492 *	* 2.2697 *	* 3.1835 *	M-SUB-Q			

Table 1 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Normal Operations

AT 50% POWER, 4 EFPD, THIS IS LEVEL 16 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.0442 *	* 1.4405 *	* 1.2938 *	* 1.5947 *	* 1.3130 *	* 1.5658 *	* 1.3827 *	* .8557 *
	* 1.9165 *	* 1.5517 *	* 1.8889 *	* 1.5297 *	* 1.8562 *	* 1.5548 *	* 1.7535 *	* 2.8155 *
9	* 1.4405 *	* 1.4844 *	* 1.5926 *	* 1.5315 *	* 1.5551 *	* 1.5069 *	* 1.5497 *	* 1.0314 *
	* 1.5517 *	* 1.6357 *	* 1.5405 *	* 1.5963 *	* 1.5705 *	* 1.6123 *	* 1.5641 *	* 2.3347 *
10	* 1.2938 *	* 1.5926 *	* 1.5230 *	* 1.5744 *	* 1.4608 *	* 1.5412 *	* 1.3516 *	* 1.1910 *
	* 1.8889 *	* 1.5410 *	* 1.6079 *	* 1.5553 *	* 1.6695 *	* 1.5794 *	* 1.7864 *	* 2.0144 *
11	* 1.5947 *	* 1.5315 *	* 1.5765 *	* 1.1310 *	* 1.3880 *	* 1.3023 *	* 1.3762 *	* .8300 *
	* 1.5297 *	* 1.5957 *	* 1.5536 *	* 1.9788 *	* 1.6286 *	* 1.7157 *	* 1.6857 *	* 2.8894 *
12	* 1.3130 *	* 1.5455 *	* 1.4576 *	* 1.3859 *	* .9810 *	* 1.1813 *	* .8504 *	
	* 1.8562 *	* 1.5788 *	* 1.6735 *	* 1.6306 *	* 1.6947 *	* 1.5889 *	* 2.4804 *	
13	* 1.5658 *	* 1.5037 *	* 1.5380 *	* 1.3013 *	* 1.1802 *	* .7968 *	* .5334 *	
	* 1.5548 *	* 1.6154 *	* 1.5830 *	* 1.7164 *	* 1.5889 *	* 2.0566 *	* 3.5389 *	
14	* 1.3827 *	* 1.5476 *	* 1.3495 *	* 1.3752 *	* .8514 *	* .5344 *		
	* 1.7535 *	* 1.5664 *	* 1.7887 *	* 1.6864 *	* 2.4750 *	* 3.5309 *		
15	* .8557 *	* 1.0303 *	* 1.1899 *	* .8290 *	F-SUB-Q			
	* 2.8155 *	* 2.3374 *	* 2.0163 *	* 2.8934 *	M-SUB-Q			

AT 50% POWER, 4 EFPD, THIS IS LEVEL 15 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.0699 *	* 1.4855 *	* 1.3334 *	* 1.6526 *	* 1.3602 *	* 1.6633 *	* 1.4523 *	* .8954 *
	* 2.0409 *	* 1.6314 *	* 1.9899 *	* 1.5996 *	* 1.9409 *	* 1.5800 *	* 1.8010 *	* 2.9040 *
9	* 1.4855 *	* 1.5197 *	* 1.6579 *	* 1.5754 *	* 1.6333 *	* 1.5808 *	* 1.6547 *	* 1.0956 *
	* 1.6314 *	* 1.7391 *	* 1.6026 *	* 1.6813 *	* 1.6111 *	* 1.6622 *	* 1.5806 *	* 2.3708 *
10	* 1.3334 *	* 1.6579 *	* 1.5647 *	* 1.6429 *	* 1.5101 *	* 1.6279 *	* 1.4319 *	* 1.2873 *
	* 1.9899 *	* 1.6032 *	* 1.6967 *	* 1.6160 *	* 1.7455 *	* 1.6173 *	* 1.8203 *	* 2.0088 *
11	* 1.6526 *	* 1.5754 *	* 1.6451 *	* 1.1685 *	* 1.4769 *	* 1.3891 *	* 1.4930 *	* .8911 *
	* 1.5996 *	* 1.6806 *	* 1.6142 *	* 2.0474 *	* 1.6510 *	* 1.7551 *	* 1.6862 *	* 2.9060 *
12	* 1.3602 *	* 1.6279 *	* 1.5069 *	* 1.4748 *	* 1.0346 *	* 1.2831 *	* .9146 *	
	* 1.9409 *	* 1.6179 *	* 1.7498 *	* 1.6523 *	* 1.7447 *	* 1.6019 *	* 2.5199 *	
13	* 1.6633 *	* 1.5776 *	* 1.6236 *	* 1.3869 *	* 1.2831 *	* .8589 *	* .5730 *	
	* 1.5800 *	* 1.6654 *	* 1.6210 *	* 1.7559 *	* 1.6019 *	* 2.1048 *	* 3.6242 *	
14	* 1.4523 *	* 1.6515 *	* 1.4298 *	* 1.4919 *	* .9168 *	* .5741 *		
	* 1.8010 *	* 1.5829 *	* 1.8226 *	* 1.6868 *	* 2.5124 *	* 3.6159 *		
15	* .8954 *	* 1.0935 *	* 1.2852 *	* .8900 *	F-SUB-Q			
	* 2.9040 *	* 2.3735 *	* 2.0116 *	* 2.9099 *	M-SUB-Q			

Catawba 1 Cycle 9 Core Operating Limits Report

CNEI-0400-24

Appendix A

Page 93 of 204

Revision 6

Table 1 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Normal Operations

AT 50% POWER, 4 EFPD, THIS IS LEVEL 14 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.0464 *	* 1.4576 *	* 1.3066 *	* 1.6258 *	* 1.3388 *	* 1.6622 *	* 1.4448 *	.8857 *
	* 2.3146 *	* 1.8371 *	* 2.2183 *	* 1.8035 *	* 2.1827 *	* 1.7437 *	* 1.9951 *	* 3.2341 *
9	* 1.4576 *	* 1.4823 *	* 1.6354 *	* 1.5444 *	* 1.6311 *	* 1.5744 *	* 1.6590 *	* 1.0956 *
	* 1.8371 *	* 1.9674 *	* 1.8035 *	* 1.9020 *	* 1.7848 *	* 1.8459 *	* 1.7395 *	* 2.6198 *
10	* 1.3066 *	* 1.6354 *	* 1.5337 *	* 1.6247 *	* 1.4940 *	* 1.6279 *	* 1.4351 *	* 1.2970 *
	* 2.2183 *	* 1.8035 *	* 1.9266 *	* 1.8141 *	* 1.9571 *	* 1.7907 *	* 2.0100 *	* 2.2039 *
11	* 1.6258 *	* 1.5455 *	* 1.6268 *	* 1.1620 *	* 1.4876 *	* 1.4019 *	* 1.5155 *	.8954 *
	* 1.8035 *	* 1.9020 *	* 1.8125 *	* 2.2662 *	* 1.8119 *	* 1.9303 *	* 1.8295 *	* 3.2100 *
12	* 1.3388 *	* 1.6268 *	* 1.4908 *	* 1.4855 *	* 1.0410 *	* 1.3109 *	.9264 *	
	* 2.1827 *	* 1.7930 *	* 1.9616 *	* 1.8134 *	* 1.9355 *	* 1.7601 *	* 2.7703 *	
13	* 1.6622 *	* 1.5712 *	* 1.6247 *	* 1.3998 *	* 1.3109 *	.8771 *	.5826 *	
	* 1.7437 *	* 1.8498 *	* 1.7952 *	* 1.9312 *	* 1.7601 *	* 2.3338 *	* 4.0138 *	
14	* 1.4448 *	* 1.6558 *	* 1.4330 *	* 1.5144 *	.9286 *	.5848 *		
	* 1.9951 *	* 1.7423 *	* 2.0128 *	* 1.8303 *	* 2.7614 *	* 4.0026 *		
15	.8857 *	* 1.0935 *	* 1.2959 *	.8943 *	F-SUB-Q			
	* 3.2341 *	* 2.6230 *	* 2.2062 *	* 3.2148 *	M-SUB-Q			

AT 50% POWER, 4 EFPD, THIS IS LEVEL 13 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.0710 *	* 1.4898 *	* 1.3313 *	* 1.6568 *	* 1.3645 *	* 1.7104 *	* 1.4769 *	.9018 *
	* 2.5780 *	* 2.0195 *	* 2.4450 *	* 2.0112 *	* 2.4194 *	* 1.9022 *	* 2.1888 *	* 3.5517 *
9	* 1.4898 *	* 1.5048 *	* 1.6729 *	* 1.5679 *	* 1.6825 *	* 1.6161 *	* 1.7136 *	* 1.1256 *
	* 2.0195 *	* 2.1770 *	* 1.9820 *	* 2.1293 *	* 1.9565 *	* 2.0298 *	* 1.8923 *	* 2.8613 *
10	* 1.3313 *	* 1.6718 *	* 1.5562 *	* 1.6633 *	* 1.5315 *	* 1.6804 *	* 1.4801 *	* 1.3473 *
	* 2.4450 *	* 1.9829 *	* 2.1397 *	* 2.0039 *	* 2.1434 *	* 1.9644 *	* 2.1998 *	* 2.3839 *
11	* 1.6568 *	* 1.5679 *	* 1.6654 *	* 1.2027 *	* 1.5572 *	* 1.4641 *	* 1.5958 *	.9328 *
	* 2.0112 *	* 2.1293 *	* 2.0020 *	* 2.4636 *	* 1.9722 *	* 2.1011 *	* 1.9479 *	* 3.4718 *
12	* 1.3645 *	* 1.6783 *	* 1.5272 *	* 1.5540 *	* 1.1021 *	* 1.4030 *	.9821 *	
	* 2.4194 *	* 1.9670 *	* 2.1465 *	* 1.9740 *	* 2.1357 *	* 1.9196 *	* 2.9900 *	
13	* 1.7104 *	* 1.6129 *	* 1.6761 *	* 1.4630 *	* 1.4030 *	.9446 *	.6212 *	
	* 1.9022 *	* 2.0345 *	* 1.9688 *	* 2.1021 *	* 1.9193 *	* 2.5754 *	* 4.4127 *	
14	* 1.4769 *	* 1.7104 *	* 1.4780 *	* 1.5947 *	.9842 *	.6233 *		
	* 2.1888 *	* 1.8956 *	* 2.2031 *	* 1.9488 *	* 2.9806 *	* 4.4012 *		
15	.9018 *	* 1.1235 *	* 1.3462 *	.9318 *	F-SUB-Q			
	* 3.5517 *	* 2.8651 *	* 2.3865 *	* 3.4773 *	M-SUB-Q			

Table 1 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Normal Operations

AT 50% POWER, 4 EFPD, THIS IS LEVEL 12 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.1428 *	* 1.5155 *	* 1.3355 *	* 1.6493 *	* 1.3548 *	* 1.7082 *	* 1.4683 *	* .8943 *
	* 2.9995 *	* 2.3348 *	* 2.8185 *	* 2.2858 *	* 2.7340 *	* 2.1213 *	* 2.4451 *	* 3.9613 *
9	* 1.5155 *	* 1.5069 *	* 1.6761 *	* 1.5583 *	* 1.6922 *	* 1.6183 *	* 1.7157 *	* 1.1245 *
	* 2.3348 *	* 2.5069 *	* 2.2620 *	* 2.4250 *	* 2.1885 *	* 2.2729 *	* 2.1042 *	* 3.1782 *
10	* 1.3355 *	* 1.6761 *	* 1.5519 *	* 1.6643 *	* 1.5380 *	* 1.6911 *	* 1.4865 *	* 1.3559 *
	* 2.8185 *	* 2.2632 *	* 2.4527 *	* 2.2842 *	* 2.4338 *	* 2.1950 *	* 2.4506 *	* 2.6346 *
11	* 1.6493 *	* 1.5583 *	* 1.6665 *	* 1.2316 *	* 1.6033 *	* 1.5015 *	* 1.6365 *	* .9414 *
	* 2.2858 *	* 2.4250 *	* 2.2830 *	* 2.7958 *	* 2.2195 *	* 2.3747 *	* 2.1935 *	* 3.8610 *
12	* 1.3548 *	* 1.6879 *	* 1.5347 *	* 1.6011 *	* 1.2220 *	* 1.4994 *	* 1.0228 *	
	* 2.7340 *	* 2.2016 *	* 2.4392 *	* 2.2213 *	* 2.4152 *	* 2.1575 *	* 3.3736 *	
13	* 1.7082 *	* 1.6151 *	* 1.6879 *	* 1.4994 *	* 1.5005 *	* 1.0528 *	* .6587 *	
	* 2.1213 *	* 2.2776 *	* 2.1983 *	* 2.3752 *	* 2.1569 *	* 2.9057 *	* 4.9761 *	
14	* 1.4683 *	* 1.7136 *	* 1.4844 *	* 1.6354 *	* 1.0260 *	* .6597 *		
	* 2.4451 *	* 2.1082 *	* 2.4547 *	* 2.1946 *	* 3.3643 *	* 4.9649 *		
15	* .8943 *	* 1.1224 *	* 1.3537 *	* .9403 *	F-SUB-Q			
	* 3.9613 *	* 3.1827 *	* 2.6393 *	* 3.8677 *	M-SUB-Q			

AT 50% POWER, 4 EFPD, THIS IS LEVEL 11 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.2199 *	* 1.5787 *	* 1.3355 *	* 1.6322 *	* 1.3355 *	* 1.6900 *	* 1.4480 *	* .8793 *
	* 3.5398 *	* 2.7393 *	* 3.3019 *	* 2.6020 *	* 3.0915 *	* 2.3781 *	* 2.7442 *	* 4.4386 *
9	* 1.5787 *	* 1.5037 *	* 1.6708 *	* 1.5401 *	* 1.6890 *	* 1.6086 *	* 1.7018 *	* 1.1128 *
	* 2.7393 *	* 2.9358 *	* 2.5959 *	* 2.7613 *	* 2.4547 *	* 2.5510 *	* 2.3515 *	* 3.5452 *
10	* 1.3355 *	* 1.6708 *	* 1.5380 *	* 1.6547 *	* 1.5358 *	* 1.6890 *	* 1.4812 *	* 1.3484 *
	* 3.3019 *	* 2.5974 *	* 2.8375 *	* 2.5808 *	* 2.7510 *	* 2.4479 *	* 2.7357 *	* 2.9258 *
11	* 1.6322 *	* 1.5390 *	* 1.6558 *	* 1.2852 *	* 1.6418 *	* 1.5283 *	* 1.6654 *	* .9393 *
	* 2.6020 *	* 2.7647 *	* 2.5868 *	* 3.2607 *	* 2.5732 *	* 2.7599 *	* 2.5294 *	* 4.2962 *
12	* 1.3355 *	* 1.6847 *	* 1.5326 *	* 1.6397 *	* 1.4212 *	* 1.6183 *	* 1.0571 *	
	* 3.0915 *	* 2.4670 *	* 2.7561 *	* 2.5747 *	* 2.8108 *	* 2.5016 *	* 3.9261 *	
13	* 1.6900 *	* 1.6054 *	* 1.6858 *	* 1.5272 *	* 1.6183 *	* 1.1738 *	* .6929 *	
	* 2.3781 *	* 2.5554 *	* 2.4519 *	* 2.7599 *	* 2.5010 *	* 3.3803 *	* 5.7864 *	
14	* 1.4480 *	* 1.6997 *	* 1.4791 *	* 1.6654 *	* 1.0603 *	* .6951 *		
	* 2.7442 *	* 2.3553 *	* 2.7391 *	* 2.5308 *	* 3.9136 *	* 5.7713 *		
15	* .8793 *	* 1.1106 *	* 1.3462 *	* .9382 *	F-SUB-Q			
	* 4.4386 *	* 3.5509 *	* 2.9296 *	* 4.3046 *	M-SUB-Q			

Table 1 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Normal Operations

AT 50% POWER, 4 EFPD, THIS IS LEVEL 10 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.2638	* 1.6343	* 1.3570	* 1.6472	* 1.3441	* 1.7061	* 1.4544	* .8814
	* 3.6326	* 2.8122	* 3.4085	* 2.7699	* 3.2129	* 2.5853	* 3.0053	* 4.8527
9	* 1.6343	* 1.5219	* 1.6965	* 1.5504	* 1.7157	* 1.6290	* 1.7243	* 1.1213
	* 2.8122	* 3.0446	* 2.7391	* 2.9531	* 2.6567	* 2.7752	* 2.5628	* 3.8745
10	* 1.3570	* 1.6954	* 1.5519	* 1.6761	* 1.5604	* 1.7179	* 1.5048	* 1.3709
	* 3.4085	* 2.7391	* 2.9951	* 2.7769	* 2.9750	* 2.6696	* 2.9972	* 3.1782
11	* 1.6472	* 1.5497	* 1.6783	* 1.3452	* 1.6986	* 1.5754	* 1.7222	* .9585
	* 2.7699	* 2.9531	* 2.7752	* 3.4085	* 2.7172	* 2.9200	* 2.6909	* 4.6831
12	* 1.3441	* 1.7115	* 1.5572	* 1.6965	* 1.5272	* 1.7190	* 1.1042	*
	* 3.3189	* 2.6777	* 2.9790	* 2.7188	* 2.9790	* 2.6520	* 4.1549	*
13	* 1.7061	* 1.6258	* 1.7136	* 1.5733	* 1.7200	* 1.2574	* .7283	*
	* 2.5853	* 2.7821	* 2.6744	* 2.9200	* 2.6520	* 3.6118	* 6.2529	*
14	* 1.4544	* 1.7211	* 1.5037	* 1.7211	* 1.1074	* .7304	*	*
	* 3.0053	* 2.5673	* 2.9992	* 2.6825	* 4.1432	* 6.2353	*	*
15	* .8814	* 1.1203	* 1.3687	* .9575	* F-SUB-Q			
	* 4.8527	* 3.8779	* 3.1805	* 4.6880	* M-SUB-Q			

AT 50% POWER, 4 EFPD, THIS IS LEVEL 9 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.2316	* 1.5969	* 1.3163	* 1.5990	* 1.3002	* 1.6579	* 1.4094	* .8525
	* 3.7785	* 2.9142	* 3.4350	* 2.6940	* 3.2411	* 2.5161	* 2.9335	* 4.8105
9	* 1.5969	* 1.4801	* 1.6515	* 1.5069	* 1.6761	* 1.5883	* 1.6783	* 1.0903
	* 2.9142	* 3.0786	* 2.6874	* 2.8763	* 2.5853	* 2.7022	* 2.5061	* 3.8543
10	* 1.3163	* 1.6504	* 1.5080	* 1.6322	* 1.5251	* 1.6783	* 1.4748	* 1.3355
	* 3.4350	* 2.6874	* 2.9453	* 2.7006	* 2.9161	* 2.6036	* 2.9472	* 3.1805
11	* 1.5990	* 1.5048	* 1.6333	* 1.3238	* 1.6729	* 1.5519	* 1.6954	* .9328
	* 2.6940	* 2.8763	* 2.6989	* 3.5226	* 2.7927	* 3.0033	* 2.7578	* 4.7030
12	* 1.3002	* 1.6718	* 1.5230	* 1.6708	* 1.5176	* 1.7072	* 1.0871	*
	* 3.2411	* 2.6051	* 2.9238	* 2.7945	* 3.0700	* 2.7289	* 4.2921	*
13	* 1.6579	* 1.5851	* 1.6750	* 1.5519	* 1.7082	* 1.2520	* .7219	*
	* 2.5161	* 2.7088	* 2.6112	* 3.0053	* 2.7289	* 3.7244	* 6.4538	*
14	* 1.4094	* 1.6750	* 1.4726	* 1.6943	* 1.0903	* .7240	*	*
	* 2.9335	* 2.5104	* 2.9531	* 2.7578	* 4.2796	* 6.4350	*	*
15	* .8525	* 1.0881	* 1.3334	* .9318	* F-SUB-Q			
	* 4.8105	* 3.8610	* 3.1873	* 4.7130	* M-SUB-Q			

Table 1 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Normal Operations

AT 50% POWER, 4 EFPD, THIS IS LEVEL 8 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.2263 *	* 1.5969 *	* 1.3141 *	* 1.5990 *	* 1.2991 *	* 1.6643 *	* 1.4062 *	* .8493 *
	* 3.6236 *	* 2.7786 *	* 3.2482 *	* 2.5436 *	* 3.0510 *	* 2.3565 *	* 2.7544 *	* 4.4882 *
9	* 1.5969 *	* 1.4758 *	* 1.6536 *	* 1.5037 *	* 1.6847 *	* 1.5915 *	* 1.6879 *	* 1.0903 *
	* 2.7786 *	* 2.9123 *	* 2.5334 *	* 2.7222 *	* 2.4250 *	* 2.5451 *	* 2.3453 *	* 3.6059 *
10	* 1.3141 *	* 1.6536 *	* 1.5026 *	* 1.6365 *	* 1.5305 *	* 1.6079 *	* 1.4812 *	* 1.3462 *
	* 3.2482 *	* 2.5334 *	* 2.7909 *	* 2.5451 *	* 2.7578 *	* 2.4506 *	* 2.7734 *	* 2.9571 *
11	* 1.5990 *	* 1.5015 *	* 1.6376 *	* 1.3345 *	* 1.6933 *	* 1.5658 *	* 1.7179 *	* .9414 *
	* 2.5436 *	* 2.7222 *	* 2.5451 *	* 3.3466 *	* 2.6314 *	* 2.8375 *	* 2.5792 *	* 4.3814 *
12	* 1.2991 *	* 1.6804 *	* 1.5283 *	* 1.6911 *	* 1.5315 *	* 1.7361 *	* 1.1021 *	
	* 3.0510 *	* 2.4438 *	* 2.7647 *	* 2.6362 *	* 2.9810 *	* 2.6082 *	* 4.0447 *	
13	* 1.6643 *	* 1.5883 *	* 1.6836 *	* 1.5658 *	* 1.7361 *	* 1.2649 *	* .7283 *	
	* 2.3565 *	* 2.5510 *	* 2.4547 *	* 2.8412 *	* 2.6066 *	* 3.5942 *	* 6.1230 *	
14	* 1.4062 *	* 1.6847 *	* 1.4801 *	* 1.7168 *	* 1.1053 *	* .7304 *		
	* 2.7544 *	* 2.3490 *	* 2.7786 *	* 2.5808 *	* 4.0299 *	* 6.1061 *		
15	* .8493 *	* 1.0892 *	* 1.3441 *	* .9403 *	F-SUB-Q			
	* 4.4882 *	* 3.6118 *	* 2.9630 *	* 4.3901 *	M-SUB-Q			

AT 50% POWER, 4 EFPD, THIS IS LEVEL 7 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.1910 *	* 1.5562 *	* 1.2777 *	* 1.5594 *	* 1.2659 *	* 1.6268 *	* 1.3709 *	* .8257 *
	* 3.3517 *	* 2.5598 *	* 2.9453 *	* 2.3013 *	* 2.7717 *	* 2.1398 *	* 2.5104 *	* 4.1048 *
9	* 1.5562 *	* 1.4373 *	* 1.6151 *	* 1.4662 *	* 1.6493 *	* 1.5562 *	* 1.6515 *	* 1.0635 *
	* 2.5598 *	* 2.6362 *	* 2.2894 *	* 2.4670 *	* 2.2005 *	* 2.3085 *	* 2.1274 *	* 3.2844 *
10	* 1.2777 *	* 1.6151 *	* 1.4630 *	* 1.6011 *	* 1.4973 *	* 1.6536 *	* 1.4501 *	* 1.3173 *
	* 2.9453 *	* 2.2906 *	* 2.5276 *	* 2.3001 *	* 2.4976 *	* 2.2160 *	* 2.5161 *	* 2.6842 *
11	* 1.5594 *	* 1.4641 *	* 1.6001 *	* 1.3055 *	* 1.6643 *	* 1.5358 *	* 1.6879 *	* .9189 *
	* 2.3013 *	* 2.4670 *	* 2.2989 *	* 3.0958 *	* 2.4264 *	* 2.6143 *	* 2.3378 *	* 3.9791 *
12	* 1.2659 *	* 1.6451 *	* 1.4951 *	* 1.6622 *	* 1.5005 *	* 1.7072 *	* 1.0796 *	
	* 2.7717 *	* 2.2182 *	* 2.5033 *	* 2.4304 *	* 2.7493 *	* 2.4000 *	* 3.7401 *	
13	* 1.6268 *	* 1.5530 *	* 1.6515 *	* 1.5347 *	* 1.7072 *	* 1.2391 *	* .7111 *	
	* 2.1398 *	* 2.3134 *	* 2.2215 *	* 2.6174 *	* 2.3987 *	* 3.3140 *	* 5.6750 *	
14	* 1.3709 *	* 1.6483 *	* 1.4480 *	* 1.6868 *	* 1.0828 *	* .7133 *		
	* 2.5104 *	* 2.1315 *	* 2.5219 *	* 2.3403 *	* 3.7275 *	* 5.6605 *		
15	* .8257 *	* 1.0614 *	* 1.3163 *	* .9178 *	F-SUB-Q			
	* 4.1048 *	* 3.2893 *	* 2.6891 *	* 3.9863 *	M-SUB-Q			

Table 1 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Normal Operations

AT 50% POWER, 4 EFPD, THIS IS LEVEL 6 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.1342 *	* 1.4865 *	* 1.2177 *	* 1.4919 *	* 1.2070 *	* 1.5562 *	* 1.3088 *	* .7872 *
	* 3.0786 *	* 2.3490 *	* 2.7442 *	* 2.1398 *	* 2.5944 *	* 2.0031 *	* 2.3553 *	* 3.8644 *
9	* 1.4865 *	* 1.3730 *	* 1.5455 *	* 1.4019 *	* 1.5808 *	* 1.4898 *	* 1.5797 *	* 1.0142 *
	* 2.3490 *	* 2.4424 *	* 2.1264 *	* 2.2953 *	* 2.0552 *	* 2.1523 *	* 1.9896 *	* 3.0829 *
10	* 1.2177 *	* 1.5444 *	* 1.3987 *	* 1.5337 *	* 1.4330 *	* 1.5851 *	* 1.3880 *	* 1.2584 *
	* 2.7442 *	* 2.1274 *	* 2.3478 *	* 2.1367 *	* 2.3219 *	* 2.0620 *	* 2.3478 *	* 2.5147 *
11	* 1.4919 *	* 1.3998 *	* 1.5315 *	* 1.2466 *	* 1.5947 *	* 1.4705 *	* 1.6151 *	* .8739 *
	* 2.1398 *	* 2.2965 *	* 2.1357 *	* 2.8595 *	* 2.2327 *	* 2.4013 *	* 2.1692 *	* 3.7307 *
12	* 1.2070 *	* 1.5765 *	* 1.4309 *	* 1.5936 *	* 1.4362 *	* 1.6343 *	* 1.0282 *	
	* 2.5944 *	* 2.0658 *	* 2.3280 *	* 2.2361 *	* 2.5247 *	* 2.2137 *	* 3.4673 *	
13	* 1.5562 *	* 1.4876 *	* 1.5829 *	* 1.4705 *	* 1.6343 *	* 1.1845 *	* .6790 *	
	* 2.0031 *	* 2.1565 *	* 2.0668 *	* 2.4039 *	* 2.2126 *	* 3.0679 *	* 5.2755 *	
14	* 1.3088 *	* 1.5765 *	* 1.3859 *	* 1.6140 *	* 1.0324 *	* .6801 *		
	* 2.3553 *	* 1.9932 *	* 2.3515 *	* 2.1724 *	* 3.4565 *	* 5.2566 *		
15	* .7872 *	* 1.0132 *	* 1.2563 *	* .8729 *	F-SUB-Q			
	* 3.8644 *	* 3.0872 *	* 2.5190 *	* 3.7370 *	M-SUB-Q			

AT 50% POWER, 4 EFPD, THIS IS LEVEL 5 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.1096 *	* 1.4598 *	* 1.1952 *	* 1.4662 *	* 1.1845 *	* 1.5294 *	* 1.2798 *	* .7668 *
	* 2.7442 *	* 2.0853 *	* 2.5047 *	* 1.9535 *	* 2.3793 *	* 1.8412 *	* 2.1788 *	* 3.5913 *
9	* 1.4598 *	* 1.3452 *	* 1.5197 *	* 1.3730 *	* 1.5530 *	* 1.4608 *	* 1.5519 *	* .9907 *
	* 2.0853 *	* 2.2226 *	* 1.9373 *	* 2.1022 *	* 1.8836 *	* 1.9745 *	* 1.8268 *	* 2.8503 *
10	* 1.1952 *	* 1.5187 *	* 1.3698 *	* 1.5069 *	* 1.4041 *	* 1.5572 *	* 1.3580 *	* 1.2349 *
	* 2.5047 *	* 1.9381 *	* 2.1429 *	* 1.9475 *	* 2.1244 *	* 1.8844 *	* 2.1586 *	* 2.3109 *
11	* 1.4662 *	* 1.3720 *	* 1.5058 *	* 1.2242 *	* 1.5669 *	* 1.4405 *	* 1.5883 *	* .8579 *
	* 1.9535 *	* 2.1022 *	* 1.9458 *	* 2.5598 *	* 1.9941 *	* 2.1586 *	* 1.9509 *	* 3.4164 *
12	* 1.1845 *	* 1.5487 *	* 1.4019 *	* 1.5658 *	* 1.4052 *	* 1.6065 *	* 1.0100 *	
	* 2.3793 *	* 1.8884 *	* 2.1295 *	* 1.9968 *	* 2.2776 *	* 1.9860 *	* 3.1002 *	
13	* 1.5294 *	* 1.4587 *	* 1.5551 *	* 1.4394 *	* 1.6076 *	* 1.1567 *	* .6619 *	
	* 1.8412 *	* 1.9789 *	* 1.8892 *	* 2.1607 *	* 1.9842 *	* 2.7786 *	* 4.7741 *	
14	* 1.2798 *	* 1.5497 *	* 1.3570 *	* 1.5872 *	* 1.0132 *	* .6640 *		
	* 2.1788 *	* 1.8306 *	* 2.1618 *	* 1.9527 *	* 3.0915 *	* 4.7638 *		
15	* .7668 *	* .9885 *	* 1.2327 *	* .8568 *	F-SUB-Q			
	* 3.5913 *	* 2.8558 *	* 2.3134 *	* 3.4217 *	M-SUB-Q			

Catawba 1 Cycle 9 Core Operating Limits Report

CNEI-0400-24

Appendix A

Page 98 of 204

Revision 6

Table 1 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Normal Operations

AT 50% POWER, 4 EFPD, THIS IS LEVEL 4 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.0442 *	* 1.3762 *	* 1.1224 *	* 1.3827 *	* 1.1128 *	* 1.4330 *	* 1.1995 *	* .7165 *
	* 2.6236 *	* 1.9932 *	* 2.3819 *	* 1.8820 *	* 2.3109 *	* 1.7993 *	* 2.1315 *	* 3.5338 *
9	* 1.3762 *	* 1.2681 *	* 1.4298 *	* 1.2938 *	* 1.4587 *	* 1.3741 *	* 1.4523 *	* .9232 *
	* 1.9932 *	* 2.1183 *	* 1.8653 *	* 2.0260 *	* 1.8215 *	* 1.9121 *	* 1.7855 *	* 2.7980 *
10	* 1.1224 *	* 1.4298 *	* 1.2906 *	* 1.4180 *	* 1.3184 *	* 1.4619 *	* 1.2713 *	* 1.1492 *
	* 2.3819 *	* 1.8661 *	* 2.0572 *	* 1.8748 *	* 2.0448 *	* 1.8223 *	* 2.0972 *	* 2.2671 *
11	* 1.3827 *	* 1.2927 *	* 1.4169 *	* 1.1460 *	* 1.4651 *	* 1.3484 *	* 1.4801 *	* .7947 *
	* 1.8820 *	* 2.0260 *	* 1.8732 *	* 2.4547 *	* 1.9146 *	* 2.0687 *	* 1.8748 *	* 3.3466 *
12	* 1.1128 *	* 1.4555 *	* 1.3163 *	* 1.4641 *	* 1.3152 *	* 1.4983 *	* .9382 *	
	* 2.3109 *	* 1.8268 *	* 2.0495 *	* 1.9179 *	* 2.1597 *	* 1.8990 *	* 3.0033 *	
13	* 1.4330 *	* 1.3739 *	* 1.4587 *	* 1.3484 *	* 1.4994 *	* 1.0796 *	* .6158 *	
	* 1.7993 *	* 1.9163 *	* 1.8268 *	* 2.0706 *	* 1.8974 *	* 2.6409 *	* 4.5859 *	
14	* 1.1995 *	* 1.4491 *	* 1.2702 *	* 1.4801 *	* .9414 *	* .6169 *		
	* 2.1315 *	* 1.7891 *	* 2.1012 *	* 1.8756 *	* 2.9931 *	* 4.5717 *		
15	* .7165 *	* .9221 *	* 1.1470 *	* .7936 *	F-SUB-Q			
	* 3.5338 *	* 2.8015 *	* 2.2706 *	* 3.3517 *	M-SUB-Q			

AT 50% POWER, 4 EFPD, THIS IS LEVEL 3 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* .9939 *	* 1.3088 *	* 1.0710 *	* 1.3205 *	* 1.0646 *	* 1.3570 *	* 1.1320 *	* .6726 *
	* 2.4822 *	* 1.8844 *	* 2.2823 *	* 1.8208 *	* 2.2441 *	* 1.7690 *	* 2.1052 *	* 3.5198 *
9	* 1.3088 *	* 1.2070 *	* 1.3602 *	* 1.2349 *	* 1.3859 *	* 1.3066 *	* 1.3677 *	* .8611 *
	* 1.8844 *	* 2.0335 *	* 1.8022 *	* 1.9639 *	* 1.7705 *	* 1.8606 *	* 1.7627 *	* 2.7909 *
10	* 1.0710 *	* 1.3602 *	* 1.2316 *	* 1.3505 *	* 1.2520 *	* 1.3880 *	* 1.1942 *	* 1.0667 *
	* 2.2823 *	* 1.8029 *	* 1.9824 *	* 1.8126 *	* 1.9753 *	* 1.7705 *	* 2.0620 *	* 2.2671 *
11	* 1.3205 *	* 1.2338 *	* 1.3505 *	* 1.0913 *	* 1.3837 *	* 1.2681 *	* 1.3805 *	* .7411 *
	* 1.8208 *	* 1.9639 *	* 1.8111 *	* 2.3354 *	* 1.8344 *	* 2.0004 *	* 1.8317 *	* 3.3165 *
12	* 1.0646 *	* 1.3816 *	* 1.2499 *	* 1.3816 *	* 1.2359 *	* 1.3998 *	* .8782 *	
	* 2.2441 *	* 1.7754 *	* 1.9798 *	* 1.8367 *	* 2.1052 *	* 1.8567 *	* 2.9161 *	
13	* 1.3570 *	* 1.3045 *	* 1.3837 *	* 1.2681 *	* 1.4009 *	* 1.0067 *	* .5730 *	
	* 1.7690 *	* 1.8645 *	* 1.7754 *	* 2.0022 *	* 1.8559 *	* 2.6066 *	* 4.5249 *	
14	* 1.1320 *	* 1.3645 *	* 1.1920 *	* 1.3805 *	* .8814 *	* .5741 *		
	* 2.1052 *	* 1.7669 *	* 2.0658 *	* 1.8328 *	* 2.9765 *	* 4.5111 *		
15	* .6726 *	* .8600 *	* 1.0656 *	* .7401 *	F-SUB-Q			
	* 3.5198 *	* 2.7962 *	* 2.2706 *	* 3.3214 *	M-SUB-Q			

Catawba 1 Cycle 9 Core Operating Limits Report

CNEI-0400-24

Appendix A

Page 99 of 204

Revision 6

Table 1 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Normal Operations

AT 50% POWER, 4 EFPD, THIS IS LEVEL 2 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	.8750	1.1331	.9489	1.1599	.9543	1.2059	.9875	.5816
	2.6440	2.0391	2.4131	1.9613	2.3781	1.8876	2.2942	3.8779
9	1.1731	1.0699	1.1984	1.1010	1.2231	1.1610	1.1813	.7326
	2.0391	2.1492	1.9229	2.0863	1.8917	1.9780	1.9356	3.1199
10	.9489	1.1984	1.0967	1.1974	1.1138	1.2242	1.0314	.8825
	2.4131	1.9238	2.0952	1.9297	2.0843	1.8925	2.2384	2.6005
11	1.1599	1.0988	1.1952	.9778	1.2209	1.1117	1.1545	.6255
	1.9613	2.0883	1.9288	2.4304	1.9587	2.1408	2.0572	3.7087
12	.9543	1.2199	1.1106	1.2199	1.0753	1.1835	.7518	
	2.3781	1.8965	2.0892	1.9622	2.2305	2.0354	3.1827	
13	1.2059	1.1588	1.2209	1.1096	1.1835	.8568	.4862	
	1.8876	1.9824	1.8974	2.1440	2.0354	2.8248	4.9450	
14	.9875	1.1792	1.0292	1.1535	.7540	.4873		
	2.2942	1.9390	2.2429	2.0581	3.1736	4.9340		
15	.5816	.7315	.8814	.6255	F-SUB-Q			
	3.8779	3.1243	2.6036	3.7150	M-SUB-Q			

AT 50% POWER, 4 EFPD, THIS IS LEVEL 1 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	.5741	.7090	.6276	.7390	.6405	.8257	.6362	.3770
	3.8375	3.1155	3.5058	2.9730	3.4243	2.6599	3.4538	5.7864
9	.7090	.6983	.8439	.7144	.8589	.7583	.7626	.4552
	3.1155	3.1623	2.6190	3.0915	2.5792	2.9200	2.8989	4.8421
10	.6276	.8439	.7122	.8493	.7272	.8536	.6629	.5119
	3.5058	2.6221	3.1067	2.6205	3.0679	2.6174	3.3517	4.3257
11	.7390	.7144	.8472	.6576	.8450	.7079	.7036	.3823
	2.9730	3.0958	2.6268	3.4619	2.6956	3.2175	3.2222	5.8399
12	.6405	.8568	.7251	.8439	.6833	.7454	.4712	
	3.4243	2.5883	3.0743	2.6989	3.3644	3.0980	4.8741	
13	.8257	.7561	.8514	.7069	.7454	.5366	.3063	
	2.6599	2.9258	2.6221	3.2222	3.0958	4.3172	7.5312	
14	.6362	.7604	.6619	.7026	.4723	.3063		
	3.4538	2.9046	3.3593	3.2245	4.8688	7.5312		
15	.3770	.4552	.5109	.3823	F-SUB-Q			
	5.7864	4.8527	4.3299	5.8554	M-SUB-Q			

Catawba 1 Cycle 9 Core Operating Limits Report

CNEI-0400-24

Appendix A

Page 100 of 204

Revision 6

Table 1 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Normal Operations

AT 50% POWER, 100 EFPD, THIS IS LEVEL 18 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* .6105 *	* .8547 *	* .8397 *	* .9789 *	* .8879 *	* 1.0753 *	* .8365 *	* .5259 *
	* 2.9356 *	* 2.5316 *	* 2.5918 *	* 2.2343 *	* 2.4691 *	* 2.0160 *	* 2.5302 *	* 3.9360 *
9	* .8547 *	* .9104 *	* 1.0603 *	* .9618 *	* 1.1010 *	* .9864 *	* .9660 *	* .6126 *
	* 2.5316 *	* 2.3526 *	* 1.9974 *	* 2.2580 *	* 1.9862 *	* 2.2130 *	* 2.2179 *	* 3.5089 *
10	* .8397 *	* 1.0603 *	* .9007 *	* 1.0742 *	* .9575 *	* 1.0571 *	* .8493 *	* .6629 *
	* 2.5918 *	* 1.9974 *	* 2.2580 *	* 1.9989 *	* 2.2772 *	* 2.0623 *	* 2.5567 *	* 3.2494 *
11	* .9789 *	* .9607 *	* 1.0731 *	* .7990 *	* .9393 *	* .8182 *	* .8118 *	* .4905 *
	* 2.2343 *	* 2.2587 *	* 2.0009 *	* 2.6618 *	* 2.1898 *	* 2.5659 *	* 2.6752 *	* 4.4059 *
12	* .8879 *	* 1.0988 *	* .9553 *	* .9371 *	* .6415 *	* .6704 *	* .5130 *	
	* 2.4691 *	* 1.9901 *	* 2.2810 *	* 2.1933 *	* 2.5390 *	* 2.4539 *	* 3.7830 *	
13	* 1.0753 *	* .9842 *	* 1.0560 *	* .8172 *	* .6694 *	* .4562 *	* .3213 *	
	* 2.0160 *	* 2.2166 *	* 2.0654 *	* 2.5691 *	* 2.4539 *	* 3.2175 *	* 5.3459 *	
14	* .8365 *	* .9650 *	* .8482 *	* .8107 *	* .5130 *	* .3213 *		
	* 2.5302 *	* 2.2203 *	* 2.5583 *	* 2.6788 *	* 3.7795 *	* 5.3459 *		
15	* .5259 *	* .6126 *	* .6619 *	* .4894 *	F-SUB-Q			
	* 3.9360 *	* 3.5120 *	* 3.2521 *	* 4.4107 *	M-SUB-Q			

AT 50% POWER, 100 EFPD, THIS IS LEVEL 17 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* .8397 *	* 1.2145 *	* 1.1578 *	* 1.4030 *	* 1.2167 *	* 1.4544 *	* 1.2434 *	* .7765 *
	* 2.2319 *	* 1.8388 *	* 1.9802 *	* 1.6390 *	* 1.8917 *	* 1.5726 *	* 1.8173 *	* 2.8908 *
9	* 1.2145 *	* 1.3077 *	* 1.4426 *	* 1.3805 *	* 1.4437 *	* 1.3966 *	* 1.3923 *	* .9061 *
	* 1.8388 *	* 1.7438 *	* 1.5780 *	* 1.6556 *	* 1.5890 *	* 1.6411 *	* 1.6359 *	* 2.5031 *
10	* 1.1578 *	* 1.4426 *	* 1.3677 *	* 1.4405 *	* 1.3655 *	* 1.4384 *	* 1.2188 *	* 1.0314 *
	* 1.9802 *	* 1.5774 *	* 1.6543 *	* 1.5789 *	* 1.6783 *	* 1.5946 *	* 1.8699 *	* 2.1983 *
11	* 1.4030 *	* 1.3794 *	* 1.4416 *	* 1.0796 *	* 1.2916 *	* 1.1749 *	* 1.2092 *	* .7219 *
	* 1.6390 *	* 1.6566 *	* 1.5780 *	* 2.0319 *	* 1.7149 *	* 1.8469 *	* 1.8779 *	* 3.1315 *
12	* 1.2167 *	* 1.4416 *	* 1.3623 *	* 1.2873 *	* .8771 *	* 1.0057 *	* .7368 *	
	* 1.8917 *	* 1.5918 *	* 1.6817 *	* 1.7164 *	* 1.8187 *	* 1.7690 *	* 2.7464 *	
13	* 1.4544 *	* 1.3944 *	* 1.4362 *	* 1.1738 *	* 1.0057 *	* .6683 *	* .4670 *	
	* 1.5726 *	* 1.6437 *	* 1.5971 *	* 1.8485 *	* 1.7705 *	* 2.2991 *	* 3.8376 *	
14	* 1.2434 *	* 1.3902 *	* 1.2167 *	* 1.2081 *	* .7379 *	* .4680 *		
	* 1.8173 *	* 1.6375 *	* 1.8716 *	* 1.8801 *	* 2.7425 *	* 3.8340 *		
15	* .7765 *	* .9050 *	* 1.0303 *	* .7219 *	F-SUB-Q			
	* 2.8908 *	* 2.5062 *	* 2.2006 *	* 3.1349 *	M-SUB-Q			

Table 1 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Normal Operations

AT 50% POWER, 100 EFPD, THIS IS LEVEL 16 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* .9168 *	* 1.3430 *	* 1.2702 *	* 1.5615 *	* 1.3355 *	* 1.6536 *	* 1.4126 *	* .8793 *
	* 2.1791 *	* 1.7557 *	* 1.9204 *	* 1.5636 *	* 1.8286 *	* 1.4744 *	* 1.7183 *	* 2.7457 *
9	* 1.3430 *	* 1.4480 *	* 1.6376 *	* 1.5347 *	* 1.6301 *	* 1.5540 *	* 1.5990 *	* 1.0292 *
	* 1.7557 *	* 1.6822 *	* 1.4904 *	* 1.5895 *	* 1.4946 *	* 1.5630 *	* 1.5165 *	* 2.3373 *
10	* 1.2702 *	* 1.6376 *	* 1.5315 *	* 1.6354 *	* 1.5080 *	* 1.6204 *	* 1.3698 *	* 1.2049 *
	* 1.9204 *	* 1.4906 *	* 1.5910 *	* 1.4920 *	* 1.6132 *	* 1.4981 *	* 1.7579 *	* 1.9875 *
11	* 1.5615 *	* 1.5337 *	* 1.6354 *	* 1.1813 *	* 1.4555 *	* 1.3120 *	* 1.3923 *	* .8215 *
	* 1.5636 *	* 1.5904 *	* 1.4909 *	* 1.9448 *	* 1.6034 *	* 1.7417 *	* 1.7186 *	* 2.8994 *
12	* 1.3355 *	* 1.6226 *	* 1.5048 *	* 1.4501 *	* .9725 *	* 1.1610 *	* .8300 *	
	* 1.8286 *	* 1.4978 *	* 1.6167 *	* 1.6052 *	* 1.7196 *	* 1.6208 *	* 2.5765 *	
13	* 1.6536 *	* 1.5508 *	* 1.6172 *	* 1.3098 *	* 1.1610 *	* .7604 *	* .5280 *	
	* 1.4744 *	* 1.5657 *	* 1.5008 *	* 1.7432 *	* 1.6215 *	* 2.1490 *	* 3.5937 *	
14	* 1.4126 *	* 1.5969 *	* 1.3677 *	* 1.3902 *	* .8311 *	* .5291 *		
	* 1.7183 *	* 1.5185 *	* 1.7602 *	* 1.7200 *	* 2.5701 *	* 3.5880 *		
15	* .8793 *	* 1.0282 *	* 1.2038 *	* .8204 *	F-SUB-Q			
	* 2.7457 *	* 2.3399 *	* 1.9899 *	* 2.9031 *	M-SUB-Q			

AT 50% POWER, 100 EFPD, THIS IS LEVEL 15 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* .9318 *	* 1.3752 *	* 1.3023 *	* 1.6086 *	* 1.3762 *	* 1.7447 *	* 1.4705 *	* .9093 *
	* 2.3267 *	* 1.8483 *	* 2.0201 *	* 1.6327 *	* 1.8978 *	* 1.4927 *	* 1.7676 *	* 2.8418 *
9	* 1.3752 *	* 1.4791 *	* 1.7082 *	* 1.5787 *	* 1.7115 *	* 1.6151 *	* 1.6879 *	* 1.0742 *
	* 1.8483 *	* 1.7788 *	* 1.5402 *	* 1.6648 *	* 1.5193 *	* 1.6023 *	* 1.5309 *	* 2.3832 *
10	* 1.3023 *	* 1.7082 *	* 1.5733 *	* 1.7061 *	* 1.5497 *	* 1.7007 *	* 1.4287 *	* 1.2766 *
	* 2.0201 *	* 1.5405 *	* 1.6711 *	* 1.5413 *	* 1.6720 *	* 1.5219 *	* 1.7915 *	* 1.9916 *
11	* 1.6086 *	* 1.5776 *	* 1.7072 *	* 1.2177 *	* 1.5251 *	* 1.3677 *	* 1.4737 *	* .8611 *
	* 1.6327 *	* 1.6661 *	* 1.5408 *	* 2.0153 *	* 1.6341 *	* 1.7982 *	* 1.7233 *	* 2.9322 *
12	* 1.3762 *	* 1.7018 *	* 1.5465 *	* 1.5197 *	* 1.0132 *	* 1.2316 *	* .8697 *	
	* 1.8978 *	* 1.5224 *	* 1.6752 *	* 1.6360 *	* 1.7878 *	* 1.6529 *	* 2.6519 *	
13	* 1.7447 *	* 1.6129 *	* 1.6965 *	* 1.3666 *	* 1.2316 *	* .7979 *	* .5526 *	
	* 1.4927 *	* 1.6052 *	* 1.5251 *	* 1.7997 *	* 1.6529 *	* 2.2252 *	* 3.7219 *	
14	* 1.4705 *	* 1.6858 *	* 1.4266 *	* 1.4716 *	* .8718 *	* .5537 *		
	* 1.7676 *	* 1.5330 *	* 1.7938 *	* 1.7252 *	* 2.6450 *	* 3.7154 *		
15	* .9093 *	* 1.0731 *	* 1.2756 *	* .8600 *	F-SUB-Q			
	* 2.8418 *	* 2.3857 *	* 1.9935 *	* 2.9359 *	M-SUB-Q			

Table 1 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Normal Operations

AT 50% POWER, 100 EFPD, THIS IS LEVEL 14 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* .9136 *	* 1.3377 *	* 1.2649 *	* 1.5690 *	* 1.3441 *	* 1.7232 *	* 1.4437 *	* .8889 *
	* 2.6279 *	* 2.0763 *	* 2.2580 *	* 1.8139 *	* 2.1066 *	* 1.6322 *	* 1.9393 *	* 3.1331 *
9	* 1.3377 *	* 1.4319 *	* 1.6761 *	* 1.5380 *	* 1.6879 *	* 1.5894 *	* 1.6686 *	* 1.0560 *
	* 2.0763 *	* 2.0006 *	* 1.7036 *	* 1.8526 *	* 1.6705 *	* 1.7663 *	* 1.6743 *	* 2.6239 *
10	* 1.2649 *	* 1.6750 *	* 1.5315 *	* 1.6729 *	* 1.5133 *	* 1.6783 *	* 1.4084 *	* 1.2627 *
	* 2.2580 *	* 1.7043 *	* 1.8644 *	* 1.7035 *	* 1.8596 *	* 1.6744 *	* 1.9732 *	* 2.1841 *
11	* 1.5690 *	* 1.5369 *	* 1.6740 *	* 1.1931 *	* 1.5069 *	* 1.3505 *	* 1.4608 *	* .8472 *
	* 1.8139 *	* 1.8541 *	* 1.7043 *	* 2.2319 *	* 1.7973 *	* 1.9811 *	* 1.8961 *	* 3.2438 *
12	* 1.3441 *	* 1.6793 *	* 1.5101 *	* 1.5037 *	* 1.0121 *	* 1.2295 *	* .8589 *	
	* 2.1066 *	* 1.6749 *	* 1.8635 *	* 1.7996 *	* 1.9909 *	* 1.8298 *	* 2.9369 *	
13	* 1.7232 *	* 1.5862 *	* 1.6750 *	* 1.3495 *	* 1.2295 *	* .7968 *	* .5473 *	
	* 1.6322 *	* 1.7700 *	* 1.6782 *	* 1.9829 *	* 1.8294 *	* 2.4853 *	* 4.1528 *	
14	* 1.4437 *	* 1.6654 *	* 1.4062 *	* 1.4598 *	* .8611 *	* .5473 *		
	* 1.9393 *	* 1.6768 *	* 1.9759 *	* 1.8984 *	* 2.9290 *	* 4.1488 *		
15	* .8889 *	* 1.0549 *	* 1.2606 *	* .8461 *	* F-SUB-Q			
	* 3.1331 *	* 2.6271 *	* 2.1861 *	* 3.2487 *	* M-SUB-Q			

AT 50% POWER, 100 EFPD, THIS IS LEVEL 13 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* .9178 *	* 1.3398 *	* 1.2670 *	* 1.5754 *	* 1.3527 *	* 1.7511 *	* 1.4533 *	* .8911 *
	* 2.9252 *	* 2.2852 *	* 2.5123 *	* 2.0048 *	* 2.3098 *	* 1.7659 *	* 2.1160 *	* 3.4189 *
9	* 1.3398 *	* 1.4309 *	* 1.6922 *	* 1.5412 *	* 1.7104 *	* 1.6044 *	* 1.6954 *	* 1.0646 *
	* 2.2852 *	* 2.2410 *	* 1.8793 *	* 2.0507 *	* 1.8133 *	* 1.9239 *	* 1.8073 *	* 2.8428 *
10	* 1.2670 *	* 1.6922 *	* 1.5337 *	* 1.6900 *	* 1.5219 *	* 1.7029 *	* 1.4223 *	* 1.2841 *
	* 2.5123 *	* 1.8802 *	* 2.0769 *	* 1.8642 *	* 2.0383 *	* 1.8163 *	* 2.1387 *	* 2.3407 *
11	* 1.5754 *	* 1.5401 *	* 1.6900 *	* 1.2059 *	* 1.5347 *	* 1.3687 *	* 1.4908 *	* .8611 *
	* 2.0048 *	* 2.0545 *	* 1.8681 *	* 2.4392 *	* 1.9541 *	* 2.1599 *	* 2.0373 *	* 3.4840 *
12	* 1.3527 *	* 1.7040 *	* 1.5187 *	* 1.5326 *	* 1.0335 *	* 1.2638 *	* .8771 *	
	* 2.3098 *	* 1.8171 *	* 2.0430 *	* 1.9567 *	* 2.2065 *	* 2.0097 *	* 3.1987 *	
13	* 1.7511 *	* 1.6011 *	* 1.6997 *	* 1.3666 *	* 1.2638 *	* .8150 *	* .5569 *	
	* 1.7659 *	* 1.9272 *	* 1.8201 *	* 2.1620 *	* 2.0089 *	* 2.7574 *	* 4.5910 *	
14	* 1.4533 *	* 1.6922 *	* 1.4201 *	* 1.4887 *	* .8793 *	* .5580 *		
	* 2.1160 *	* 1.8103 *	* 2.1418 *	* 2.0402 *	* 3.1895 *	* 4.5859 *		
15	* .8911 *	* 1.0635 *	* 1.2831 *	* .8589 *	* F-SUB-Q			
	* 3.4189 *	* 2.8465 *	* 2.3432 *	* 3.4896 *	* M-SUB-Q			

Table 1 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Normal Operations

AT 50% POWER, 100 EFPD, THIS IS LEVEL 12 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* .8986 *	* 1.3130 *	* 1.2391 *	* 1.5455 *	* 1.3270 *	* 1.7275 *	* 1.4266 *	* .8718 *
	* 3.3834 *	* 2.6305 *	* 2.8503 *	* 2.2683 *	* 2.6143 *	* 1.9807 *	* 2.3781 *	* 3.8475 *
9	* 1.3130 *	* 1.3998 *	* 1.6665 *	* 1.5123 *	* 1.6868 *	* 1.5808 *	* 1.6729 *	* 1.0464 *
	* 2.6305 *	* 2.5422 *	* 2.1162 *	* 2.3219 *	* 2.0391 *	* 2.1713 *	* 2.0279 *	* 3.2035 *
10	* 1.2391 *	* 1.6654 *	* 1.5026 *	* 1.6633 *	* 1.4973 *	* 1.6825 *	* 1.4009 *	* 1.2691 *
	* 2.8503 *	* 2.1173 *	* 2.3478 *	* 2.1032 *	* 2.3109 *	* 2.0476 *	* 2.4158 *	* 2.6314 *
11	* 1.5455 *	* 1.5101 *	* 1.6643 *	* 1.1888 *	* 1.5219 *	* 1.3537 *	* 1.4780 *	* .8493 *
	* 2.2683 *	* 2.3268 *	* 2.1082 *	* 2.7733 *	* 2.2109 *	* 2.4531 *	* 2.3037 *	* 3.9436 *
12	* 1.3270 *	* 1.6825 *	* 1.4940 *	* 1.5197 *	* 1.0249 *	* 1.2606 *	* .8707 *	
	* 2.6143 *	* 2.0486 *	* 2.3158 *	* 2.2131 *	* 2.5044 *	* 2.2668 *	* 3.6242 *	
13	* 1.7275 *	* 1.5776 *	* 1.6783 *	* 1.3516 *	* 1.2606 *	* .8129 *	* .5537 *	
	* 1.9807 *	* 2.1756 *	* 2.0524 *	* 2.4558 *	* 2.2668 *	* 3.1263 *	* 5.1954 *	
14	* 1.4266 *	* 1.6697 *	* 1.3998 *	* 1.4769 *	* .8729 *	* .5548 *		
	* 2.3781 *	* 2.0316 *	* 2.4197 *	* 2.3061 *	* 3.6123 *	* 5.1893 *		
15	* .8718 *	* 1.0453 *	* 1.2670 *	* .8472 *	F-SUB-Q			
	* 3.8475 *	* 3.2081 *	* 2.6346 *	* 3.9472 *	M-SUB-Q			

AT 50% POWER, 100 EFPD, THIS IS LEVEL 11 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* .8804 *	* 1.2873 *	* 1.2113 *	* 1.5144 *	* 1.2970 *	* 1.6933 *	* 1.3955 *	* .8504 *
	* 3.9684 *	* 3.0664 *	* 3.3165 *	* 2.6221 *	* 3.0074 *	* 2.2625 *	* 2.7188 *	* 4.3857 *
9	* 1.2873 *	* 1.3709 *	* 1.6354 *	* 1.4801 *	* 1.6600 *	* 1.5519 *	* 1.6418 *	* 1.0249 *
	* 3.0664 *	* 2.9630 *	* 2.4506 *	* 2.6809 *	* 2.3317 *	* 2.4822 *	* 2.3097 *	* 3.6385 *
10	* 1.2113 *	* 1.6354 *	* 1.4716 *	* 1.6333 *	* 1.4716 *	* 1.6558 *	* 1.3773 *	* 1.2466 *
	* 3.3165 *	* 2.4519 *	* 2.7306 *	* 2.4184 *	* 2.6504 *	* 2.3391 *	* 2.7476 *	* 2.9750 *
11	* 1.5144 *	* 1.4791 *	* 1.6333 *	* 1.1717 *	* 1.5069 *	* 1.3388 *	* 1.4619 *	* .8332 *
	* 2.6221 *	* 2.6858 *	* 2.4250 *	* 3.2326 *	* 2.5684 *	* 2.8553 *	* 2.6143 *	* 4.4700 *
12	* 1.2970 *	* 1.6558 *	* 1.4683 *	* 1.5048 *	* 1.0174 *	* 1.2574 *	* .8643 *	
	* 3.0074 *	* 2.3403 *	* 2.6567 *	* 2.5714 *	* 2.9174 *	* 2.6317 *	* 4.2174 *	
13	* 1.6933 *	* 1.5487 *	* 1.6526 *	* 1.3377 *	* 1.2574 *	* .8140 *	* .5537 *	
	* 2.2625 *	* 2.4864 *	* 2.3440 *	* 2.8571 *	* 2.6316 *	* 3.6382 *	* 6.0451 *	
14	* 1.3955 *	* 1.6397 *	* 1.3752 *	* 1.4608 *	* .8664 *	* .5537 *		
	* 2.7188 *	* 2.3134 *	* 2.7510 *	* 2.6174 *	* 4.2053 *	* 6.0368 *		
15	* .8504 *	* 1.0239 *	* 1.2456 *	* .8322 *	F-SUB-Q			
	* 4.3857 *	* 3.6415 *	* 2.9790 *	* 4.4745 *	M-SUB-Q			

Table 1 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Normal Operations

AT 50% POWER, 100 EFDP, THIS IS LEVEL 10 OF 18
(LEVEL 18 = TOP OF CO.'E, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* .9029 *	* 1.3098 *	* 1.2188 *	* 1.5251 *	* 1.3035 *	* 1.7082 *	* 1.3977 *	* .8514 *
	* 4.1316 *	* 3.1896 *	* 3.6475 *	* 2.9219 *	* 3.3798 *	* 2.5320 *	* 3.0552 *	* 4.9230 *
9	* 1.3098 *	* 1.3837 *	* 1.6558 *	* 1.4898 *	* 1.6825 *	* 1.5658 *	* 1.6590 *	* 1.0303 *
	* 3.1896 *	* 3.1966 *	* 2.7272 *	* 3.0156 *	* 2.6190 *	* 2.7998 *	* 2.5883 *	* 4.0858 *
10	* 1.2188 *	* 1.6547 *	* 1.4823 *	* 1.6536 *	* 1.4876 *	* 1.6793 *	* 1.3902 *	* 1.2638 *
	* 3.6475 *	* 2.7289 *	* 3.0384 *	* 2.7205 *	* 3.0012 *	* 2.6314 *	* 3.0958 *	* 3.3214 *
11	* 1.5251 *	* 1.4887 *	* 1.6536 *	* 1.1963 *	* 1.5497 *	* 1.3730 *	* 1.4973 *	* .8472 *
	* 2.9219 *	* 3.0197 *	* 2.7272 *	* 3.4190 *	* 2.7239 *	* 3.0467 *	* 2.8989 *	* 5.0066 *
12	* 1.3034 *	* 1.6793 *	* 1.4844 *	* 1.5476 *	* 1.0614 *	* 1.3205 *	* .8964 *	
	* 3.3798 *	* 2.6330 *	* 3.0074 *	* 2.7289 *	* 3.1221 *	* 2.8248 *	* 4.5388 *	
13	* 1.7082 *	* 1.5626 *	* 1.6761 *	* 1.3720 *	* 1.3205 *	* .8622 *	* .5794 *	
	* 2.5320 *	* 2.8051 *	* 2.6377 *	* 3.0510 *	* 2.8284 *	* 3.9507 *	* 6.6279 *	
14	* 1.3977 *	* 1.6568 *	* 1.3880 *	* 1.4951 *	* .8986 *	* .5794 *		
	* 3.0552 *	* 2.5913 *	* 3.1002 *	* 2.8989 *	* 4.5249 *	* 6.6180 *		
15	* .8514 *	* 1.0292 *	* 1.2616 *	* .8461 *	F-SUB-Q			
	* 4.9230 *	* 4.0896 *	* 3.3239 *	* 5.0123 *	M-SUB-Q			

AT 50% POWER, 100 EFDP, THIS IS LEVEL 9 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* .9660 *	* 1.3184 *	* 1.1963 *	* 1.4962 *	* 1.2734 *	* 1.6708 *	* 1.3655 *	* .8290 *
	* 4.3046 *	* 3.3115 *	* 3.5681 *	* 2.8321 *	* 3.2918 *	* 2.5061 *	* 3.0446 *	* 4.9728 *
9	* 1.3184 *	* 1.3698 *	* 1.6301 *	* 1.4651 *	* 1.6600 *	* 1.5401 *	* 1.6268 *	* 1.0100 *
	* 3.3115 *	* 3.1827 *	* 2.6425 *	* 2.9238 *	* 2.5673 *	* 2.7578 *	* 2.5838 *	* 4.1510 *
10	* 1.1963 *	* 1.6301 *	* 1.4587 *	* 1.6311 *	* 1.4705 *	* 1.6579 *	* 1.3698 *	* 1.2413 *
	* 3.5681 *	* 2.6440 *	* 2.9531 *	* 2.6425 *	* 2.9413 *	* 2.5913 *	* 3.1089 *	* 3.3980 *
11	* 1.4962 *	* 1.4630 *	* 1.6279 *	* 1.2038 *	* 1.5647 *	* 1.3902 *	* 1.4940 *	* .8343 *
	* 2.8321 *	* 2.9277 *	* 2.6472 *	* 3.5480 *	* 2.8212 *	* 3.1555 *	* 2.9591 *	* 5.1525 *
12	* 1.2734 *	* 1.6568 *	* 1.4683 *	* 1.5626 *	* 1.1631 *	* 1.3923 *	* .9136 *	
	* 3.2918 *	* 2.5853 *	* 2.9472 *	* 2.8248 *	* 3.2340 *	* 2.9238 *	* 4.7181 *	
13	* 1.6708 *	* 1.5369 *	* 1.6547 *	* 1.3891 *	* 1.3934 *	* .9532 *	* .6030 *	
	* 2.5061 *	* 2.7630 *	* 2.5974 *	* 3.1577 *	* 2.9277 *	* 4.0934 *	* 6.8860 *	
14	* 1.3655 *	* 1.6236 *	* 1.3687 *	* 1.4930 *	* .9168 *	* .6040 *		
	* 3.0446 *	* 2.5883 *	* 3.1133 *	* 2.9630 *	* 4.7030 *	* 6.8753 *		
15	* .8290 *	* 1.0089 *	* 1.2402 *	* .8332 *	F-SUB-Q			
	* 4.9728 *	* 4.1549 *	* 3.4033 *	* 5.1585 *	M-SUB-Q			

Table 1 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Normal Operations

AT 50% POWER, 100 EFPD, THIS IS LEVEL 8 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.0496	* 1.3784	* 1.2263	* 1.5219	* 1.2916	* 1.7007	* 1.3794	* .8365
	* 4.1239	* 3.1465	* 3.3644	* 2.6664	* 3.1023	* 2.3515	* 2.8651	* 4.6437
9	* 1.3784	* 1.4030	* 1.6686	* 1.4898	* 1.7018	* 1.5690	* 1.6590	* 1.0249
	* 3.1465	* 2.9951	* 2.4780	* 2.7578	* 2.4131	* 2.5974	* 2.4224	* 3.8847
10	* 1.2263	* 1.6675	* 1.4855	* 1.6718	* 1.5048	* 1.7007	* 1.3977	* 1.2702
	* 3.3644	* 2.4794	* 2.7874	* 2.4808	* 2.7734	* 2.4317	* 2.9296	* 3.1623
11	* 1.5219	* 1.4887	* 1.6675	* 1.2798	* 1.6429	* 1.4566	* 1.5583	* .8579
	* 2.6664	* 2.7613	* 2.4836	* 3.3954	* 2.6760	* 3.0053	* 2.7717	* 4.8000
12	* 1.2916	* 1.6975	* 1.5015	* 1.6408	* 1.3698	* 1.5380	* .9714	*
	* 3.1023	* 2.4290	* 2.7804	* 2.6793	* 3.1555	* 2.8140	* 4.4610	*
13	* 1.7007	* 1.5658	* 1.6965	* 1.4555	* 1.5380	* 1.0774	* .6490	*
	* 2.3515	* 2.6020	* 2.4384	* 3.0094	* 2.8140	* 3.9649	* 6.5397	*
14	* 1.3794	* 1.6558	* 1.3955	* 1.5572	* .9746	* .6501	*	*
	* 2.8651	* 2.4264	* 2.9355	* 2.7734	* 4.4475	* 6.5300	*	*
15	* .8365	* 1.0239	* 1.2691	* .8568	* F-SUB-Q			
	* 4.6437	* 3.8882	* 3.1668	* 4.8052	* M-SUB-Q			

AT 50% POWER, 100 EFPD, THIS IS LEVEL 7 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.0667	* 1.4009	* 1.2252	* 1.5155	* 1.2820	* 1.6922	* 1.3666	* .8279
	* 3.8078	* 2.8781	* 3.0446	* 2.4118	* 2.8069	* 2.1234	* 2.5959	* 4.2224
9	* 1.4009	* 1.4041	* 1.6686	* 1.4855	* 1.7029	* 1.5647	* 1.6536	* 1.0185
	* 2.8781	* 2.7122	* 2.2429	* 2.5005	* 2.1788	* 2.3490	* 2.1853	* 3.5198
10	* 1.2252	* 1.6675	* 1.4812	* 1.6740	* 1.5058	* 1.7029	* 1.3955	* 1.2691
	* 3.0446	* 2.2429	* 2.5276	* 2.2441	* 2.5118	* 2.1983	* 2.6456	* 2.8540
11	* 1.5155	* 1.4833	* 1.6697	* 1.3098	* 1.6675	* 1.4780	* 1.5765	* .8589
	* 2.4118	* 2.5019	* 2.2475	* 3.1398	* 2.4574	* 2.7717	* 2.4962	* 4.3341
12	* 1.2820	* 1.6997	* 1.5037	* 1.6654	* 1.4266	* 1.5979	* .9917	*
	* 2.8069	* 2.1929	* 2.5176	* 2.4601	* 2.9142	* 2.5929	* 4.1278	*
13	* 1.6922	* 1.5615	* 1.6986	* 1.4769	* 1.5947	* 1.1267	* .6694	*
	* 2.1234	* 2.3540	* 2.2038	* 2.7734	* 2.5913	* 3.6566	* 6.0642	*
14	* 1.3666	* 1.6504	* 1.3934	* 1.5765	* .9950	* .6704	*	*
	* 2.5959	* 2.1885	* 2.6488	* 2.4991	* 4.1162	* 6.0559	*	*
15	* .8279	* 1.0174	* 1.2681	* .8579	* F-SUB-Q			
	* 4.2224	* 3.5226	* 2.8577	* 4.3384	* M-SUB-Q			

Table 1 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Normal Operations

AT 50% POWER, 100 EFPD, THIS IS LEVEL 6 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.0453 *	* 1.3762 *	* 1.1963 *	* 1.4801 *	* 1.2466 *	* 1.6472 *	* 1.3313 *	* .8043 *
	* 3.4755 *	* 2.6393 *	* 2.8194 *	* 2.2294 *	* 2.6082 *	* 1.9727 *	* 2.4144 *	* 3.9401 *
9	* 1.3762 *	* 1.3741 *	* 1.6311 *	* 1.4512 *	* 1.6665 *	* 1.5294 *	* 1.6129 *	* .9939 *
	* 2.6393 *	* 2.5005 *	* 2.0706 *	* 2.3097 *	* 2.0205 *	* 2.1745 *	* 2.0270 *	* 3.2698 *
10	* 1.1963 *	* 1.6301 *	* 1.4480 *	* 1.6376 *	* 1.4758 *	* 1.6665 *	* 1.3655 *	* 1.2391 *
	* 2.8194 *	* 2.0716 *	* 2.3329 *	* 2.0736 *	* 2.3194 *	* 2.0316 *	* 2.4479 *	* 2.6488 *
11	* 1.4801 *	* 1.4501 *	* 1.6333 *	* 1.2906 *	* 1.6418 *	* 1.4576 *	* 1.5519 *	* .8375 *
	* 2.2294 *	* 2.3121 *	* 2.0755 *	* 2.8763 *	* 2.2361 *	* 2.5247 *	* 2.2977 *	* 4.0263 *
12	* 1.2466 *	* 1.6622 *	* 1.4726 *	* 1.6397 *	* 1.4159 *	* 1.5851 *	* .9778 *	
	* 2.6082 *	* 2.0316 *	* 2.3243 *	* 2.2384 *	* 2.6504 *	* 2.3666 *	* 3.7882 *	
13	* 1.6472 *	* 1.5262 *	* 1.6622 *	* 1.4555 *	* 1.5819 *	* 1.1213 *	* .6629 *	
	* 1.9727 *	* 2.1777 *	* 2.0363 *	* 2.5276 *	* 2.3679 *	* 3.3491 *	* 5.5819 *	
14	* 1.3313 *	* 1.6097 *	* 1.3634 *	* 1.5508 *	* .9810 *	* .6640 *		
	* 2.4144 *	* 2.0307 *	* 2.4506 *	* 2.3001 *	* 3.7753 *	* 5.5678 *		
15	* .8043 *	* .9928 *	* 1.2370 *	* .8365 *	F-SUB-Q			
	* 3.9401 *	* 3.2747 *	* 2.6520 *	* 4.0299 *	M-SUB-Q			

AT 50% POWER, 100 EFPD, THIS IS LEVEL 5 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.0453 *	* 1.3805 *	* 1.1963 *	* 1.4812 *	* 1.2456 *	* 1.6493 *	* 1.3259 *	* .8000 *
	* 3.0594 *	* 2.3182 *	* 2.5613 *	* 2.0242 *	* 2.3781 *	* 1.7971 *	* 2.2137 *	* 3.6266 *
9	* 1.3805 *	* 1.3720 *	* 1.6354 *	* 1.4480 *	* 1.6708 *	* 1.5283 *	* 1.6161 *	* .9907 *
	* 2.3182 *	* 2.2636 *	* 1.8748 *	* 2.1012 *	* 1.8374 *	* 1.9798 *	* 1.8443 *	* 2.9931 *
10	* 1.1963 *	* 1.6343 *	* 1.4448 *	* 1.6408 *	* 1.4737 *	* 1.6708 *	* 1.3634 *	* 1.2424 *
	* 2.5613 *	* 1.8748 *	* 2.1213 *	* 1.8780 *	* 2.1072 *	* 1.8412 *	* 2.2294 *	* 2.4079 *
11	* 1.4812 *	* 1.4469 *	* 1.6365 *	* 1.2959 *	* 1.6515 *	* 1.4598 *	* 1.5626 *	* .8407 *
	* 2.0242 *	* 2.1032 *	* 1.8788 *	* 2.5392 *	* 1.9842 *	* 2.2429 *	* 2.0668 *	* 3.6475 *
12	* 1.2456 *	* 1.6665 *	* 1.4716 *	* 1.6493 *	* 1.4201 *	* 1.5990 *	* .9853 *	
	* 2.3781 *	* 1.8420 *	* 2.1112 *	* 1.9869 *	* 2.3540 *	* 2.0932 *	* 3.3365 *	
13	* 1.6493 *	* 1.5251 *	* 1.6665 *	* 1.4587 *	* 1.5969 *	* 1.1267 *	* .6662 *	
	* 1.7971 *	* 1.9833 *	* 1.8459 *	* 2.2452 *	* 2.0922 *	* 2.9870 *	* 4.9672 *	
14	* 1.3259 *	* 1.6140 *	* 1.3612 *	* 1.5615 *	* .9885 *	* .6672 *		
	* 2.2137 *	* 1.8474 *	* 2.2327 *	* 2.0687 *	* 3.3264 *	* 4.9616 *		
15	* .8000 *	* .9896 *	* 1.2413 *	* .8397 *	F-SUB-Q			
	* 3.6266 *	* 2.9972 *	* 2.4105 *	* 3.6506 *	M-SUB-Q			

Catawba 1 Cycle 9 Core Operating Limits Report

CNEI-0400-24

Appendix A

Page 107 of 204

Revision 6

Table 1 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Normal Operations

AT 50% POWER, 100 EFPD, THIS IS LEVEL 4 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.0035	* 1.3280	* 1.1438	* 1.4201	* 1.1888	* 1.5722	* 1.2659	* .7615
	* 2.9027	* 2.1961	* 2.4506	* 1.9381	* 2.2953	* 1.7412	* 2.1419	* 3.5254
9	* 1.3280	* 1.3163	* 1.5626	* 1.3869	* 1.5947	* 1.4619	* 1.5412	* .9446
	* 2.1961	* 2.1492	* 1.7956	* 2.0104	* 1.7641	* 1.9014	* 1.7840	* 2.8970
10	* 1.1438	* 1.5626	* 1.3837	* 1.5669	* 1.4105	* 1.5958	* 1.3034	* 1.1824
	* 2.4506	* 1.7964	* 2.0260	* 1.8000	* 2.0122	* 1.7676	* 2.1408	* 2.3317
11	* 1.4201	* 1.3859	* 1.5637	* 1.2370	* 1.5776	* 1.3987	* 1.4919	* .7993
	* 1.9381	* 2.0122	* 1.8007	* 2.4197	* 1.8780	* 2.1223	* 1.9613	* 3.5170
12	* 1.1888	* 1.5915	* 1.4084	* 1.5754	* 1.3612	* 1.5283	* .9393	
	* 2.2953	* 1.7683	* 2.0159	* 1.8804	* 2.2148	* 1.9771	* 3.1896	
13	* 1.5722	* 1.4598	* 1.5915	* 1.3977	* 1.5262	* 1.0796	* .6362	
	* 1.7412	* 1.9047	* 1.7712	* 2.1244	* 1.9789	* 2.8015	* 4.7080	
14	* 1.2659	* 1.5380	* 1.3023	* 1.4919	* .9425	* .6372		
	* 2.1419	* 1.7869	* 2.1440	* 1.9622	* 3.1782	* 4.7030		
15	* .7615	* .9436	* 1.1813	* .7979	* F-SUB-Q			
	* 3.5254	* 2.8989	* 2.3341	* 3.5226	* M-SUB-Q			

AT 50% POWER, 100 EFPD, THIS IS LEVEL 3 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* .9725	* 1.2852	* 1.1063	* 1.3730	* 1.1481	* 1.5069	* 1.2124	* .7272
	* 2.7006	* 2.0457	* 2.3415	* 1.8677	* 2.2238	* 1.7016	* 2.0982	* 3.4700
9	* 1.2852	* 1.2681	* 1.5037	* 1.3366	* 1.5315	* 1.4073	* 1.4737	* .9007
	* 2.0457	* 2.0552	* 1.7337	* 1.9407	* 1.7082	* 1.8420	* 1.7453	* 2.8466
10	* 1.1063	* 1.5026	* 1.3334	* 1.5069	* 1.3570	* 1.5315	* 1.2488	* 1.1224
	* 2.3415	* 1.7343	* 1.9518	* 1.7377	* 1.9381	* 1.7108	* 2.0833	* 2.2953
11	* 1.3730	* 1.3355	* 1.5037	* 1.1920	* 1.5123	* 1.3420	* 1.4244	* .7626
	* 1.8677	* 1.9424	* 1.7384	* 2.2788	* 1.7891	* 2.0168	* 1.8909	* 3.4270
12	* 1.1481	* 1.5272	* 1.3548	* 1.5101	* 1.3055	* 1.4608	* .8996	
	* 2.2238	* 1.7122	* 1.9415	* 1.7920	* 2.1122	* 1.8933	* 3.0300	
13	* 1.5069	* 1.4052	* 1.5283	* 1.3409	* 1.4587	* 1.0314	* .6062	
	* 1.7016	* 1.8451	* 1.7142	* 2.0186	* 1.8949	* 2.7055	* 4.5435	
14	* 1.2124	* 1.4716	* 1.2466	* 1.4234	* .9029	* .6073		
	* 2.0982	* 1.7481	* 2.0853	* 1.8917	* 3.0197	* 4.5388		
15	* .7272	* .8996	* 1.1213	* .7626	* F-SUB-Q			
	* 3.4700	* 2.8503	* 2.2977	* 3.4323	* M-SUB-Q			

Table 1 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Normal Operations

AT 50% POWER, 100 EFPD, THIS IS LEVEL 2 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* .8739 *	* 1.1385 *	* .9960 *	* 1.2209 *	* 1.0367 *	* 1.3388 *	* 1.0710 *	* .6394 *
	* 2.8194 *	* 2.1681 *	* 2.4560 *	* 1.9977 *	* 2.3478 *	* 1.8253 *	* 2.2706 *	* 3.7785 *
9	* 1.1385 *	* 1.1331 *	* 1.3291 *	* 1.1952 *	* 1.3527 *	* 1.2574 *	* 1.2852 *	* .7829 *
	* 2.1681 *	* 2.1703 *	* 1.8591 *	* 2.0600 *	* 1.8328 *	* 1.9587 *	* 1.9064 *	* 3.1265 *
10	* .9960 *	* 1.3280 *	* 1.1942 *	* 1.3345 *	* 1.2134 *	* 1.3527 *	* 1.1031 *	* .9510 *
	* 2.4560 *	* 1.8598 *	* 2.0658 *	* 1.8583 *	* 2.0486 *	* 1.8351 *	* 2.2407 *	* 2.5808 *
11	* 1.2209 *	* 1.1942 *	* 1.3313 *	* 1.0731 *	* 1.3484 *	* 1.1888 *	* 1.2231 *	* .6629 *
	* 1.9977 *	* 2.0620 *	* 1.8630 *	* 2.3742 *	* 1.9006 *	* 2.1440 *	* 2.0697 *	* 3.7465 *
12	* 1.0367 *	* 1.3495 *	* 1.2113 *	* 1.3462 *	* 1.1567 *	* 1.2627 *	* .7893 *	
	* 2.3478 *	* 1.8374 *	* 2.0524 *	* 1.9039 *	* 2.2226 *	* 2.0410 *	* 3.2458 *	
13	* 1.3388 *	* 1.2552 *	* 1.3495 *	* 1.1877 *	* 1.2616 *	* .8996 *	* .5269 *	
	* 1.8253 *	* 1.9622 *	* 1.8397 *	* 2.1460 *	* 2.0448 *	* 2.8781 *	* 4.8849 *	
14	* 1.0710 *	* 1.2831 *	* 1.1010 *	* 1.2231 *	* .7915 *	* .5280 *		
	* 2.2706 *	* 1.9096 *	* 2.2441 *	* 2.0706 *	* 3.2363 *	* 4.8795 *		
15	* .6394 *	* .7818 *	* .9500 *	* .6619 *	F-SUB-Q			
	* 3.7785 *	* 3.1309 *	* 2.5838 *	* 3.7528 *	M-FJB-Q			

AT 50% POWER, 100 EFPD, THIS IS LEVEL 1 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* .5987 *	* .7422 *	* .6737 *	* .8000 *	* .7069 *	* .9146 *	* .6972 *	* .4230 *
	* 3.9472 *	* 3.1873 *	* 3.5058 *	* 2.9531 *	* 3.3390 *	* 2.5853 *	* 3.3876 *	* 5.5468 *
9	* .7422 *	* .7518 *	* .9264 *	* .7861 *	* .9500 *	* .8332 *	* .8407 *	* .5034 *
	* 3.1873 *	* 3.1510 *	* 2.5658 *	* 3.0238 *	* 2.5090 *	* 2.8558 *	* 2.8248 *	* 4.7080 *
10	* .6737 *	* .9253 *	* .7850 *	* .9436 *	* .8011 *	* .9414 *	* .7240 *	* .5698 *
	* 3.5058 *	* 2.5673 *	* 3.0342 *	* 2.5392 *	* 2.9891 *	* 2.5510 *	* 3.3016 *	* 4.1706 *
11	* .8000 *	* .7850 *	* .9414 *	* .7294 *	* .9307 *	* .7733 *	* .7679 *	* .4209 *
	* 2.9531 *	* 3.0280 *	* 2.5436 *	* 3.3491 *	* 2.6236 *	* 3.1577 *	* 3.1668 *	* 5.7043 *
12	* .7069 *	* .9478 *	* .8000 *	* .9286 *	* .7497 *	* .8129 *	* .5130 *	
	* 3.3390 *	* 2.5161 *	* 2.9951 *	* 2.6299 *	* 3.2967 *	* 3.0510 *	* 4.8105 *	
13	* .9146 *	* .8322 *	* .9393 *	* .7722 *	* .8129 *	* .5826 *	* .3406 *	
	* 2.5853 *	* 2.8614 *	* 2.5554 *	* 3.1600 *	* 3.0488 *	* 4.2631 *	* 7.2711 *	
14	* .6972 *	* .8386 *	* .7229 *	* .7668 *	* .5141 *	* .3406 *		
	* 3.3876 *	* 2.8302 *	* 3.3065 *	* 3.1691 *	* 4.8000 *	* 7.2592 *		
15	* .4230 *	* .5023 *	* .5687 *	* .4198 *	F-SUB-Q			
	* 5.5468 *	* 4.7181 *	* 4.1745 *	* 5.7117 *	M-SUB-Q			

Table 1 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Normal Operations

AT 50% POWER, 200 EFPD, THIS IS LEVEL 18 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* .5398 *	* .7593 *	* .7593 *	* .9082 *	* .8439 *	* .9917 *	* .6929 *	* .4252 *
	* 2.9768 *	* 2.5443 *	* 2.5542 *	* 2.2038 *	* 2.3941 *	* 1.9615 *	* 2.4349 *	* 3.7307 *
9	* .7593 *	* .7679 *	* .9221 *	* .8879 *	* 1.0485 *	* .9436 *	* .8975 *	* .5816 *
	* 2.5443 *	* 2.3365 *	* 1.9768 *	* 2.2100 *	* 1.9399 *	* 2.1462 *	* 2.1435 *	* 3.3517 *
10	* .7593 *	* .9221 *	* .7154 *	* .9746 *	* .9211 *	* 1.0228 *	* .8193 *	* .6512 *
	* 2.5542 *	* 1.9768 *	* 2.2136 *	* 1.9640 *	* 2.2139 *	* 2.0077 *	* 2.4793 *	* 3.0730 *
11	* .9082 *	* .8868 *	* .9735 *	* .7401 *	* .9146 *	* .8161 *	* .8182 *	* .4959 *
	* 2.2038 *	* 2.2115 *	* 1.9659 *	* 2.5727 *	* 2.1446 *	* 2.4711 *	* 2.4385 *	* 4.0310 *
12	* .8439 *	* 1.0474 *	* .9200 *	* .9136 *	* .6265 *	* .6854 *	* .5269 *	
	* 2.3941 *	* 1.9429 *	* 2.2165 *	* 2.1474 *	* 2.4775 *	* 2.4003 *	* 3.6665 *	
13	* .9917 *	* .9425 *	* 1.0217 *	* .8150 *	* .6854 *	* .4723 *	* .3438 *	
	* 1.9615 *	* 2.1487 *	* 2.0099 *	* 2.4742 *	* 2.4011 *	* 3.1443 *	* 5.0900 *	
14	* .6929 *	* .8975 *	* .8193 *	* .8182 *	* .5280 *	* .3438 *		
	* 2.4349 *	* 2.1457 *	* 2.4811 *	* 2.4385 *	* 3.6632 *	* 5.0864 *		
15	* .4252 *	* .5816 *	* .6512 *	* .4959 *	F-SUB-Q			
	* 3.7307 *	* 3.3544 *	* 3.0753 *	* 4.0350 *	M-SUB-Q			

AT 50% POWER, 200 EFPD, THIS IS LEVEL 17 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* .7315 *	* 1.0689 *	* 1.0453 *	* 1.2734 *	* 1.1524 *	* 1.3645 *	* 1.0078 *	* .6308 *
	* 2.3419 *	* 1.9319 *	* 1.9979 *	* 1.6632 *	* 1.8748 *	* 1.5383 *	* 1.7992 *	* 2.8163 *
9	* 1.0689 *	* 1.1021 *	* 1.2702 *	* 1.2723 *	* 1.3902 *	* 1.3291 *	* 1.2852 *	* .8461 *
	* 1.9319 *	* 1.7703 *	* 1.5668 *	* 1.6534 *	* 1.5640 *	* 1.6235 *	* 1.6166 *	* 2.4688 *
10	* 1.0453 *	* 1.2702 *	* 1.0303 *	* 1.3505 *	* 1.3066 *	* 1.3880 *	* 1.1663 *	* .9917 *
	* 1.9979 *	* 1.5668 *	* 1.6521 *	* 1.5650 *	* 1.6598 *	* 1.5684 *	* 1.8536 *	* 2.1656 *
11	* 1.2734 *	* 1.2713 *	* 1.3484 *	* 1.0078 *	* 1.2574 *	* 1.1545 *	* 1.1963 *	* .7101 *
	* 1.6632 *	* 1.6542 *	* 1.5649 *	* 2.0025 *	* 1.6824 *	* 1.8428 *	* 1.7779 *	* 2.9808 *
12	* 1.1524 *	* 1.3880 *	* 1.3045 *	* 1.2563 *	* .8525 *	* 1.0014 *	* .7347 *	
	* 1.8748 *	* 1.5663 *	* 1.6625 *	* 1.6845 *	* 1.8192 *	* 1.7722 *	* 2.7607 *	
13	* 1.3645 *	* 1.3280 *	* 1.3859 *	* 1.1535 *	* 1.0014 *	* .6779 *	* .4841 *	
	* 1.5383 *	* 1.6260 *	* 1.5709 *	* 1.8440 *	* 1.7741 *	* 2.3266 *	* 3.7713 *	
14	* 1.0078 *	* 1.2841 *	* 1.1652 *	* 1.1952 *	* .7358 *	* .4852 *		
	* 1.7992 *	* 1.6185 *	* 1.8552 *	* 1.7787 *	* 2.7551 *	* 3.7678 *		
15	* .6308 *	* .8450 *	* .9917 *	* .7090 *	F-SUB-Q			
	* 2.8163 *	* 2.4703 *	* 2.1667 *	* 2.9830 *	M-SUB-Q			

Table 1 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Normal Operations

AT 50% POWER, 200 EFPD, THIS IS LEVEL 16 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* .8118 *	* 1.2081 *	* 1.1760 *	* 1.4448 *	* 1.2873 *	* 1.5840 *	* 1.2391 *	* .8000 *
	* 2.3223 *	* 1.8740 *	* 1.9544 *	* 1.6054 *	* 1.8239 *	* 1.4536 *	* 1.7276 *	* 2.7208 *
9	* 1.2081 *	* 1.2970 *	* 1.4908 *	* 1.4491 *	* 1.5915 *	* 1.5026 *	* 1.5048 *	* .9757 *
	* 1.8740 *	* 1.7223 *	* 1.4875 *	* 1.5984 *	* 1.4804 *	* 1.5606 *	* 1.5230 *	* 2.3542 *
10	* 1.1760 *	* 1.4908 *	* 1.3066 *	* 1.5637 *	* 1.4651 *	* 1.5883 *	* 1.3205 *	* 1.1599 *
	* 1.9544 *	* 1.4875 *	* 1.5990 *	* 1.4863 *	* 1.6040 *	* 1.4832 *	* 1.7727 *	* 2.0075 *
11	* 1.4448 *	* 1.4459 *	* 1.5615 *	* 1.1438 *	* 1.4319 *	* 1.2906 *	* 1.3698 *	* .7990 *
	* 1.6054 *	* 1.5992 *	* 1.4863 *	* 1.9265 *	* 1.5822 *	* 1.7598 *	* 1.6557 *	* 2.8269 *
12	* 1.2873 *	* 1.5883 *	* 1.4630 *	* 1.4298 *	* .9532 *	* 1.1374 *	* .8150 *	
	* 1.8239 *	* 1.4827 *	* 1.6071 *	* 1.5840 *	* 1.7427 *	* 1.6563 *	* 2.6417 *	
13	* 1.5840 *	* 1.5005 *	* 1.5862 *	* 1.2895 *	* 1.1374 *	* .7561 *	* .5376 *	
	* 1.4536 *	* 1.5624 *	* 1.4858 *	* 1.7613 *	* 1.6582 *	* 2.2190 *	* 3.6013 *	
14	* 1.2391 *	* 1.5037 *	* 1.3195 *	* 1.3687 *	* .8161 *	* .5376 *		
	* 1.7276 *	* 1.5242 *	* 1.7742 *	* 1.6563 *	* 2.6360 *	* 3.5982 *		
15	* .8000 *	* .9746 *	* 1.1588 *	* .7990 *	F-SUB-Q			
	* 2.7208 *	* 2.3565 *	* 2.0087 *	* 2.8288 *	M-SUB-Q			

AT 50% POWER, 200 EFPD, THIS IS LEVEL 15 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* .8418 *	* 1.2745 *	* 1.2413 *	* 1.5251 *	* 1.3537 *	* 1.7232 *	* 1.4137 *	* .8857 *
	* 2.4960 *	* 1.9864 *	* 2.0676 *	* 1.6862 *	* 1.9023 *	* 1.4853 *	* 1.7988 *	* 2.8525 *
9	* 1.2745 *	* 1.3902 *	* 1.6547 *	* 1.5294 *	* 1.6933 *	* 1.5883 *	* 1.6365 *	* 1.0389 *
	* 1.9864 *	* 1.8324 *	* 1.5453 *	* 1.6803 *	* 1.5160 *	* 1.6135 *	* 1.5570 *	* 2.4399 *
10	* 1.2413 *	* 1.6547 *	* 1.5069 *	* 1.6750 *	* 1.5294 *	* 1.6890 *	* 1.3912 *	* 1.2391 *
	* 2.0676 *	* 1.5453 *	* 1.6891 *	* 1.5338 *	* 1.6761 *	* 1.5189 *	* 1.8307 *	* 2.0455 *
11	* 1.5251 *	* 1.5262 *	* 1.6718 *	* 1.2156 *	* 1.5230 *	* 1.3473 *	* 1.4480 *	* .8375 *
	* 1.6862 *	* 1.6830 *	* 1.5368 *	* 2.0078 *	* 1.6262 *	* 1.8281 *	* 1.6947 *	* 2.9240 *
12	* 1.3537 *	* 1.6900 *	* 1.5272 *	* 1.5187 *	* .9960 *	* 1.1942 *	* .8461 *	
	* 1.9023 *	* 1.5186 *	* 1.6787 *	* 1.6280 *	* 1.8307 *	* 1.7104 *	* 2.7597 *	
13	* 1.7232 *	* 1.5862 *	* 1.6868 *	* 1.3462 *	* 1.1942 *	* .7797 *	* .5537 *	
	* 1.4853 *	* 1.6156 *	* 1.5214 *	* 1.8297 *	* 1.7125 *	* 2.3331 *	* 3.7858 *	
14	* 1.4137 *	* 1.6343 *	* 1.3902 *	* 1.4469 *	* .8482 *	* .5548 *		
	* 1.7988 *	* 1.5587 *	* 1.8323 *	* 1.6953 *	* 2.7525 *	* 3.7805 *		
15	* .8857 *	* 1.0378 *	* 1.2381 *	* .8365 *	F-SUB-Q			
	* 2.8525 *	* 2.4421 *	* 2.0469 *	* 2.9260 *	M-SUB-Q			

Catawba 1 Cycle 9 Core Operating Limits Report

CNEI-0400-74

Appendix A

Page 111 of 204

Revision 6

Table 1 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Normal Operations

AT 50% POWER, 200 EFPD, THIS IS LEVEL 14 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* .8311	* 1.2670	* 1.2327	* 1.5155	* 1.3420	* 1.7307	* 1.4169	* .8857
	* 2.8181	* 2.2242	* 2.3145	* 1.8689	* 2.0898	* 1.6195	* 1.9823	* 3.1621
9	* 1.2670	* 1.3816	* 1.6643	* 1.5176	* 1.6879	* 1.5797	* 1.6397	* 1.0346
	* 2.2242	* 2.0633	* 1.7138	* 1.8576	* 1.6436	* 1.7551	* 1.6944	* 2.6666
10	* 1.2327	* 1.6643	* 1.5080	* 1.6729	* 1.5123	* 1.6836	* 1.3805	* 1.2327
	* 2.3145	* 1.7142	* 1.8881	* 1.6803	* 1.8344	* 1.6460	* 1.9822	* 2.2057
11	* 1.5155	* 1.5155	* 1.6697	* 1.2145	* 1.5208	* 1.3323	* 1.4362	* .8236
	* 1.8689	* 1.8606	* 1.6836	* 2.2319	* 1.7962	* 2.0308	* 1.8715	* 3.2462
12	* 1.3420	* 1.6847	* 1.5090	* 1.5155	* .9864	* 1.1807	* .8300	*
	* 2.0898	* 1.6466	* 1.8374	* 1.7984	* 2.0488	* 1.9025	* 3.0797	*
13	* 1.7307	* 1.5776	* 1.6804	* 1.3313	* 1.1802	* .7647	* .5419	*
	* 1.6195	* 1.7578	* 1.6485	* 2.0327	* 1.9042	* 2.6239	* 4.2608	*
14	* 1.4169	* 1.6376	* 1.3794	* 1.4351	* .8322	* .5430	*	*
	* 1.9823	* 1.6968	* 1.9840	* 1.8731	* 3.0710	* 4.2525	*	*
15	* .8857	* 1.0335	* 1.2316	* .8236	* F-SUB-Q			
	* 3.1621	* 2.6699	* 2.2068	* 3.2487	* M-SUB-Q			

AT 50% POWER, 200 EFPD, THIS IS LEVEL 13 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* .8418	* 1.2841	* 1.2477	* 1.5369	* 1.3623	* 1.7704	* 1.4362	* .8954
	* 3.1232	* 2.4466	* 2.5085	* 2.0244	* 2.2665	* 1.7287	* 2.1223	* 3.3816
9	* 1.2841	* 1.3977	* 1.7007	* 1.5358	* 1.7222	* 1.6022	* 1.6740	* 1.0464
	* 2.4466	* 2.2500	* 1.8386	* 2.0168	* 1.7765	* 1.9045	* 1.8128	* 2.8742
10	* 1.2477	* 1.6997	* 1.5294	* 1.7061	* 1.5283	* 1.7168	* 1.3966	* 1.2574
	* 2.5085	* 1.8392	* 2.0448	* 1.8118	* 2.0042	* 1.7801	* 2.1575	* 2.3777
11	* 1.5369	* 1.5347	* 1.7029	* 1.2338	* 1.5530	* 1.3484	* 1.4630	* .8365
	* 2.0244	* 2.0206	* 1.8154	* 2.4410	* 1.9527	* 2.2210	* 2.0251	* 3.5091
12	* 1.3623	* 1.7179	* 1.5251	* 1.5487	* 1.0035	* 1.2049	* .8439	*
	* 2.2665	* 1.7799	* 2.0079	* 1.9553	* 2.2724	* 2.0898	* 3.3694	*
13	* 1.7704	* 1.6001	* 1.7136	* 1.3473	* 1.2049	* .7754	* .5484	*
	* 1.7287	* 1.9069	* 1.7835	* 2.2232	* 2.0918	* 2.9208	* 4.7246	*
14	* 1.4362	* 1.6718	* 1.3955	* 1.4619	* .8461	* .5484	*	*
	* 2.1223	* 1.8151	* 2.1597	* 2.0270	* 3.3591	* 4.7174	*	*
15	* .8954	* 1.0453	* 1.2563	* .8354	* F-SUB-Q			
	* 3.3816	* 2.8765	* 2.3800	* 3.5119	* M-SUB-Q			

Table 1 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Normal Operations

AT 50% POWER, 200 EFPD, THIS IS LEVEL 12 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* .8418 *	* 1.2681 *	* 1.2274 *	* 1.5144 *	* 1.3398 *	* 1.7489 *	* 1.4116 *	* .8782 *
	* 3.5939 *	* 2.8037 *	* 2.8705 *	* 2.3121 *	* 2.5777 *	* 1.9605 *	* 2.4133 *	* 3.8453 *
9	* 1.2681 *	* 1.3773 *	* 1.6815 *	* 1.5133 *	* 1.7029 *	* 1.5797 *	* 1.6526 *	* 1.0282 *
	* 2.8037 *	* 2.5698 *	* 2.0900 *	* 2.3073 *	* 2.0049 *	* 2.1544 *	* 2.0505 *	* 3.2482 *
10	* 1.2274 *	* 1.6815 *	* 1.5069 *	* 1.6868 *	* 1.5058 *	* 1.6965 *	* 1.3752 *	* 1.2402 *
	* 2.8705 *	* 2.0900 *	* 2.3331 *	* 2.0648 *	* 2.2729 *	* 2.0086 *	* 2.4277 *	* 2.6567 *
11	* 1.5144 *	* 1.5123 *	* 1.6836 *	* 1.2167 *	* 1.5401 *	* 1.3323 *	* 1.4469 *	* .8225 *
	* 2.3121 *	* 2.3119 *	* 2.0697 *	* 2.7711 *	* 2.2078 *	* 2.5262 *	* 2.2906 *	* 3.9649 *
12	* 1.3398 *	* 1.6986 *	* 1.5026 *	* 1.5347 *	* 1.0089 *	* 1.2006 *	* .8343 *	
	* 2.5777 *	* 2.0086 *	* 2.2776 *	* 2.2111 *	* 2.5765 *	* 2.3593 *	* 3.8170 *	
13	* 1.7489 *	* 1.5776 *	* 1.6933 *	* 1.3302 *	* 1.2006 *	* .7743 *	* .5430 *	
	* 1.9605 *	* 2.1576 *	* 2.0113 *	* 2.5291 *	* 2.3606 *	* 3.3122 *	* 5.3450 *	
14	* 1.4116 *	* 1.6515 *	* 1.3730 *	* 1.4459 *	* .8365 *	* .5430 *		
	* 2.4133 *	* 2.0524 *	* 2.4290 *	* 2.2918 *	* 3.8071 *	* 5.3386 *		
15	* .8782 *	* 1.0282 *	* 1.2381 *	* .8215 *	F-SUB-Q			
	* 3.8453 *	* 3.2530 *	* 2.6583 *	* 3.9684 *	M-SUB-Q			

AT 50% POWER, 200 EFPD, THIS IS LEVEL 11 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* .8290 *	* 1.2424 *	* 1.1995 *	* 1.4823 *	* 1.3088 *	* 1.7125 *	* 1.3784 *	* .8557 *
	* 4.1904 *	* 3.2506 *	* 3.3314 *	* 2.6680 *	* 2.9650 *	* 2.2350 *	* 2.7527 *	* 4.3727 *
9	* 1.2424 *	* 1.3473 *	* 1.6493 *	* 1.4801 *	* 1.6686 *	* 1.5465 *	* 1.6183 *	* 1.0035 *
	* 3.2506 *	* 2.9931 *	* 2.4158 *	* 2.6567 *	* 2.3097 *	* 2.4808 *	* 2.3391 *	* 3.7025 *
10	* 1.1995 *	* 1.6493 *	* 1.4748 *	* 1.6547 *	* 1.4737 *	* 1.6643 *	* 1.3452 *	* 1.2124 *
	* 3.3314 *	* 2.4158 *	* 2.7072 *	* 2.3704 *	* 2.6299 *	* 2.3146 *	* 2.7980 *	* 3.0488 *
11	* 1.4823 *	* 1.4791 *	* 1.6515 *	* 1.1931 *	* 1.5144 *	* 1.3077 *	* 1.4201 *	* .8032 *
	* 2.6680 *	* 2.6615 *	* 2.3755 *	* 3.2198 *	* 2.5590 *	* 2.9351 *	* 2.6599 *	* 4.6002 *
12	* 1.3088 *	* 1.6665 *	* 1.4705 *	* 1.5090 *	* .9982 *	* 1.1856 *	* .8193 *	
	* 2.9650 *	* 2.3134 *	* 2.6346 *	* 2.5619 *	* 2.9940 *	* 2.7327 *	* 4.4352 *	
13	* 1.7125 *	* 1.5444 *	* 1.6611 *	* 1.3066 *	* 1.1856 *	* .7668 *	* .5344 *	
	* 2.2350 *	* 2.4836 *	* 2.3182 *	* 2.9371 *	* 2.7344 *	* 3.8430 *	* 6.2024 *	
14	* 1.3784 *	* 1.6161 *	* 1.3441 *	* 1.4191 *	* .8215 *	* .5355 *		
	* 2.7527 *	* 2.3415 *	* 2.7998 *	* 2.6615 *	* 4.4219 *	* 6.1937 *		
15	* .8557 *	* 1.0025 *	* 1.2113 *	* .8032 *	F-SUB-Q			
	* 4.3727 *	* 3.7056 *	* 3.0510 *	* 4.6050 *	M-SUB-Q			

Table 1 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Normal Operations

AT 50% POWER, 200 EFPD, THIS IS LEVEL 10 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* .8300 *	* 1.2466 *	* 1.2006 *	* 1.4855 *	* 1.3109 *	* 1.7222 *	* 1.3762 *	* .8536 *
	* 4.4386 *	* 3.4430 *	* 3.7496 *	* 3.0135 *	* 3.3824 *	* 2.5480 *	* 3.1532 *	* 5.0066 *
9	* 1.2466 *	* 1.3495 *	* 1.6611 *	* 1.4823 *	* 1.6804 *	* 1.5497 *	* 1.6268 *	* 1.0035 *
	* 3.4430 *	* 3.3165 *	* 2.7222 *	* 3.0280 *	* 2.6346 *	* 2.8466 *	* 2.6744 *	* 4.2508 *
10	* 1.2006 *	* 1.6600 *	* 1.4758 *	* 1.6665 *	* 1.4769 *	* 1.6750 *	* 1.3473 *	* 1.2199 *
	* 3.7496 *	* 2.7222 *	* 3.0615 *	* 2.6956 *	* 3.0197 *	* 2.6488 *	* 3.2222 *	* 3.4892 *
11	* 1.4855 *	* 1.4812 *	* 1.6633 *	* 1.1995 *	* 1.5283 *	* 1.3152 *	* 1.4341 *	* .8086 *
	* 3.0135 *	* 3.0342 *	* 2.7022 *	* 3.4538 *	* 2.7476 *	* 3.1805 *	* 3.0552 *	* 5.2818 *
12	* 1.3109 *	* 1.6772 *	* 1.4737 *	* 1.5240 *	* 1.0046 *	* 1.2038 *	* .8290 *	
	* 3.3824 *	* 2.6456 *	* 3.0238 *	* 2.7527 *	* 3.2482 *	* 2.9630 *	* 4.8421 *	
13	* 1.7222 *	* 1.5476 *	* 1.6729 *	* 1.3130 *	* 1.2038 *	* .7765 *	* .5409 *	
	* 2.5480 *	* 2.8503 *	* 2.6536 *	* 3.1827 *	* 2.9670 *	* 4.2305 *	* 6.8753 *	
14	* 1.3762 *	* 1.6247 *	* 1.3452 *	* 1.4330 *	* .8311 *	* .5419 *		
	* 3.1532 *	* 2.6777 *	* 3.2245 *	* 3.0573 *	* 4.8262 *	* 6.8646 *		
15	* .8536 *	* 1.0025 *	* 1.2199 *	* .8075 *	F-SUB-Q			
	* 5.0066 *	* 4.2549 *	* 3.4920 *	* 5.2881 *	M-SUB-Q			

AT 50% POWER, 200 EFPD, THIS IS LEVEL 9 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* .8161 *	* 1.2242 *	* 1.1727 *	* 1.4533 *	* 1.2777 *	* 1.6815 *	* 1.3409 *	* .8300 *
	* 4.6682 *	* 3.5681 *	* 3.6810 *	* 2.9650 *	* 3.3542 *	* 2.5569 *	* 3.1850 *	* 5.1167 *
9	* 1.2242 *	* 1.3238 *	* 1.6279 *	* 1.4512 *	* 1.6483 *	* 1.5176 *	* 1.5904 *	* .9789 *
	* 3.5681 *	* 3.2942 *	* 2.6777 *	* 2.9911 *	* 2.6268 *	* 2.8466 *	* 2.7055 *	* 4.3684 *
10	* 1.1727 *	* 1.6279 *	* 1.4459 *	* 1.6343 *	* 1.4491 *	* 1.6429 *	* 1.3205 *	* 1.1942 *
	* 3.6810 *	* 2.6777 *	* 3.0115 *	* 2.6680 *	* 3.0115 *	* 2.6488 *	* 3.2771 *	* 3.6030 *
11	* 1.4533 *	* 1.4501 *	* 1.6311 *	* 1.1813 *	* 1.5090 *	* 1.2991 *	* 1.4126 *	* .7904 *
	* 2.9650 *	* 2.9931 *	* 2.6728 *	* 3.6326 *	* 2.8838 *	* 3.3365 *	* 3.1199 *	* 5.4917 *
12	* 1.2777 *	* 1.6451 *	* 1.4459 *	* 1.5037 *	* .9992 *	* 1.2006 *	* .8215 *	
	* 3.3542 *	* 2.6409 *	* 3.0156 *	* 2.8875 *	* 3.4085 *	* 3.1089 *	* 5.0931 *	
13	* 1.6815 *	* 1.5155 *	* 1.6408 *	* 1.2981 *	* 1.2006 *	* .7808 *	* .5409 *	
	* 2.5569 *	* 2.8503 *	* 2.6536 *	* 3.3390 *	* 3.1111 *	* 4.4386 *	* 7.2236 *	
14	* 1.3409 *	* 1.5883 *	* 1.3195 *	* 1.4126 *	* .8236 *	* .5419 *		
	* 3.1850 *	* 2.7088 *	* 3.2795 *	* 3.1221 *	* 5.0756 *	* 7.2236 *		
15	* .8300 *	* .9778 *	* 1.1931 *	* .7904 *	F-SUB-Q			
	* 5.1167 *	* 4.3684 *	* 3.6059 *	* 5.4985 *	M-SUB-Q			

Catawba 1 Cycle 9 Core Operating Limits Report

CNEI-0400-24

Appendix A

Page 114 of 204

Revision 6

Table 1 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Normal Operations

AT 50% POWER, 200 EFPD, THIS IS LEVEL 8 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* .8611 *	* 1.2584 *	* 1.1942 *	* 1.4780 *	* 1.2970 *	* 1.7136 *	* 1.3559 *	* .8397 *
	* 4.5065 *	* 3.3618 *	* 3.4810 *	* 2.8015 *	* 3.1691 *	* 2.4052 *	* 3.0012 *	* 4.7793 *
9	* 1.2584 *	* 1.3537 *	* 1.6675 *	* 1.4780 *	* 1.6890 *	* 1.5455 *	* 1.6215 *	* .9917 *
	* 3.3618 *	* 3.1111 *	* 2.5176 *	* 2.8284 *	* 2.4739 *	* 2.6940 *	* 2.5407 *	* 4.0858 *
10	* 1.1942 *	* 1.6675 *	* 1.4737 *	* 1.6750 *	* 1.4801 *	* 1.6847 *	* 1.3452 *	* 1.2209 *
	* 3.4810 *	* 2.5190 *	* 2.8466 *	* 2.5118 *	* 2.8503 *	* 2.4948 *	* 3.0937 *	* 3.3542 *
11	* 1.4780 *	* 1.4769 *	* 1.6718 *	* 1.2231 *	* 1.5690 *	* 1.3484 *	* 1.4630 *	* .8118 *
	* 2.8015 *	* 2.8302 *	* 2.5176 *	* 3.5114 *	* 2.7665 *	* 3.2105 *	* 2.9355 *	* 5.1226 *
12	* 1.2970 *	* 1.6858 *	* 1.4769 *	* 1.5647 *	* 1.0710 *	* 1.2841 *	* .8654 *	
	* 3.1691 *	* 2.4878 *	* 2.8558 *	* 2.7734 *	* 3.3593 *	* 3.0238 *	* 4.8688 *	
13	* 1.7136 *	* 1.5433 *	* 1.6815 *	* 1.3473 *	* 1.2841 *	* .8461 *	* .5773 *	
	* 2.4052 *	* 2.6973 *	* 2.4991 *	* 3.2128 *	* 3.0259 *	* 4.3427 *	* 6.9292 *	
14	* 1.3559 *	* 1.6194 *	* 1.3430 *	* 1.4619 *	* .8675 *	* .5773 *		
	* 3.0012 *	* 2.5436 *	* 3.0958 *	* 2.9374 *	* 4.8527 *	* 6.9184 *		
15	* .8397 *	* .9907 *	* 1.2199 *	* .8118 *	F-SUB-Q			
	* 4.7793 *	* 4.0896 *	* 3.3567 *	* 5.1286 *	M-SUB-Q			

AT 50% POWER, 200 EFPD, THIS IS LEVEL 7 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* .9543 *	* 1.2970 *	* 1.2006 *	* 1.4833 *	* 1.2970 *	* 1.7157 *	* 1.3527 *	* .8354 *
	* 4.1943 *	* 3.0467 *	* 3.1600 *	* 2.5422 *	* 2.8819 *	* 2.1820 *	* 2.7357 *	* 4.3641 *
9	* 1.2970 *	* 1.3720 *	* 1.6825 *	* 1.4855 *	* 1.7050 *	* 1.5530 *	* 1.6268 *	* .9907 *
	* 3.0467 *	* 2.8248 *	* 2.2870 *	* 2.5732 *	* 2.2441 *	* 2.4451 *	* 2.3049 *	* 3.7244 *
10	* 1.2006 *	* 1.6815 *	* 1.4833 *	* 1.6922 *	* 1.4940 *	* 1.7007 *	* 1.3527 *	* 1.2284 *
	* 3.1600 *	* 2.2870 *	* 2.5913 *	* 2.2811 *	* 2.5913 *	* 2.2636 *	* 2.8087 *	* 3.0488 *
11	* 1.4833 *	* 1.4844 *	* 1.6890 *	* 1.2616 *	* 1.6194 *	* 1.3944 *	* 1.4940 *	* .8204 *
	* 2.5422 *	* 2.5747 *	* 2.2858 *	* 3.2151 *	* 2.5133 *	* 2.9394 *	* 2.6504 *	* 4.6535 *
12	* 1.2970 *	* 1.7018 *	* 1.4919 *	* 1.6151 *	* 1.2113 *	* 1.4169 *	* .9061 *	
	* 2.8819 *	* 2.2567 *	* 2.5959 *	* 2.5204 *	* 3.1443 *	* 2.8212 *	* 4.5435 *	
13	* 1.7157 *	* 1.5508 *	* 1.6986 *	* 1.3934 *	* 1.4148 *	* .9628 *	* .6158 *	
	* 2.1820 *	* 2.4492 *	* 2.2671 *	* 2.9433 *	* 2.8230 *	* 4.0558 *	* 6.5012 *	
14	* 1.3527 *	* 1.6247 *	* 1.3516 *	* 1.4930 *	* .9082 *	* .6169 *		
	* 2.7357 *	* 2.3073 *	* 2.8122 *	* 2.6536 *	* 4.5295 *	* 6.4917 *		
15	* .8354 *	* .9907 *	* 1.2274 *	* .8193 *	F-SUB-Q			
	* 4.3641 *	* 3.7275 *	* 3.0510 *	* 4.6584 *	M-SUB-Q			

Table 1 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Normal Operations

AT 50% POWER, 200 EFPD, THIS IS LEVEL 6 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* .9960 *	* 1.3120 *	* 1.1931 *	* 1.4683 *	* 1.2777 *	* 1.6900 *	* 1.3313 *	* .8215 *
	* 3.8342 *	* 2.8122 *	* 2.9296 *	* 2.3553 *	* 2.6809 *	* 2.0298 *	* 2.5466 *	* 4.0783 *
9	* 1.3120 *	* 1.3698 *	* 1.6697 *	* 1.4737 *	* 1.6933 *	* 1.5390 *	* 1.6065 *	* .9778 *
	* 2.8122 *	* 2.6082 *	* 2.1152 *	* 2.3806 *	* 2.0843 *	* 2.2659 *	* 2.1419 *	* 3.4700 *
10	* 1.1931 *	* 1.6697 *	* 1.4726 *	* 1.6815 *	* 1.4887 *	* 1.6900 *	* 1.3441 *	* 1.2156 *
	* 2.9296 *	* 2.1162 *	* 2.3961 *	* 2.1112 *	* 2.3961 *	* 2.0952 *	* 2.6036 *	* 2.8339 *
11	* 1.4683 *	* 1.4726 *	* 1.6783 *	* 1.2906 *	* 1.6461 *	* 1.4169 *	* 1.4983 *	* .8129 *
	* 2.3553 *	* 2.3832 *	* 2.1152 *	* 2.9670 *	* 2.3146 *	* 2.6940 *	* 2.4451 *	* 4.3257 *
12	* 1.2777 *	* 1.6900 *	* 1.4865 *	* 1.6429 *	* 1.3570 *	* 1.5080 *	* .9253 *	
	* 2.6809 *	* 2.0922 *	* 2.4000 *	* 2.3206 *	* 2.8521 *	* 2.5703 *	* 4.1471 *	
13	* 1.6900 *	* 1.5369 *	* 1.6868 *	* 1.4159 *	* 1.5058 *	* 1.0389 *	* .6405 *	
	* 2.0298 *	* 2.2694 *	* 2.0992 *	* 2.6956 *	* 2.5732 *	* 3.7056 *	* 5.9660 *	
14	* 1.3313 *	* 1.6044 *	* 1.3420 *	* 1.4983 *	* .9286 *	* .6415 *		
	* 2.5466 *	* 2.1440 *	* 2.6051 *	* 2.4479 *	* 4.1316 *	* 5.9580 *		
15	* .8215 *	* .9768 *	* 1.2145 *	* .8129 *	F-SUB-Q			
	* 4.0783 *	* 3.4728 *	* 2.8357 *	* 4.3299 *	M-SUB-Q			

AT 50% POWER, 200 EFPD, THIS IS LEVEL 5 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.0249 *	* 1.3441 *	* 1.2156 *	* 1.4908 *	* 1.2938 *	* 1.7168 *	* 1.3452 *	* .8290 *
	* 3.3415 *	* 2.5392 *	* 2.6615 *	* 2.1398 *	* 2.4438 *	* 1.8459 *	* 2.3317 *	* 3.7401 *
9	* 1.3441 *	* 1.3944 *	* 1.7029 *	* 1.4940 *	* 1.7265 *	* 1.5615 *	* 1.6343 *	* .9896 *
	* 2.5392 *	* 2.3628 *	* 1.9138 *	* 2.1650 *	* 1.8909 *	* 2.0620 *	* 1.9458 *	* 3.1736 *
10	* 1.2156 *	* 1.7018 *	* 1.4951 *	* 1.7147 *	* 1.5193 *	* 1.7243 *	* 1.3645 *	* 1.2391 *
	* 2.6615 *	* 1.9146 *	* 2.1777 *	* 1.9105 *	* 2.1756 *	* 1.8965 *	* 2.3679 *	* 2.5703 *
11	* 1.4908 *	* 1.4940 *	* 1.7115 *	* 1.3355 *	* 1.7029 *	* 1.4566 *	* 1.5401 *	* .8311 *
	* 2.1398 *	* 2.1660 *	* 1.9146 *	* 2.6236 *	* 2.0658 *	* 2.3961 *	* 2.1972 *	* 3.9122 *
12	* 1.2938 *	* 1.7232 *	* 1.5112 *	* 1.7007 *	* 1.4148 *	* 1.5776 *	* .9607 *	
	* 2.4438 *	* 1.8941 *	* 2.1788 *	* 2.0697 *	* 2.5047 *	* 2.2464 *	* 3.6385 *	
13	* 1.7168 *	* 1.5604 *	* 1.7211 *	* 1.4555 *	* 1.5765 *	* 1.0881 *	* .6683 *	
	* 1.8459 *	* 2.0648 *	* 1.8998 *	* 2.3974 *	* 2.2486 *	* 3.2650 *	* 5.2442 *	
14	* 1.3452 *	* 1.6322 *	* 1.3634 *	* 1.5390 *	* .9639 *	* .6694 *		
	* 2.3317 *	* 1.9484 *	* 2.3704 *	* 2.1983 *	* 3.6266 *	* 5.2380 *		
15	* .8290 *	* .9896 *	* 1.2381 *	* .8311 *	F-SUB-Q			
	* 3.7401 *	* 3.1759 *	* 2.5717 *	* 3.9157 *	M-SUB-Q			

Table 1 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Normal Operations

AT 50% POWER, 200 EFPD, THIS IS LEVEL 4 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.0035 *	* 1.3184 *	* 1.1835 *	* 1.4533 *	* 1.2552 *	* 1.6633 *	* 1.3077 *	* .8043 *
	* 3.1600 *	* 2.3503 *	* 2.5378 *	* 2.0410 *	* 2.3490 *	* 1.7776 *	* 2.2407 *	* 3.6088 *
9	* 1.3184 *	* 1.3612 *	* 1.6547 *	* 1.4555 *	* 1.6783 *	* 1.5219 *	* 1.5872 *	* .9639 *
	* 2.3503 *	* 2.2350 *	* 1.8275 *	* 2.0648 *	* 1.8066 *	* 1.9701 *	* 1.8693 *	* 3.0510 *
10	* 1.1835 *	* 1.6547 *	* 1.4566 *	* 1.6665 *	* 1.4758 *	* 1.6761 *	* 1.3313 *	* 1.2038 *
	* 2.5378 *	* 1.8275 *	* 2.0726 *	* 1.8238 *	* 2.0687 *	* 1.8118 *	* 2.2578 *	* 2.4670 *
11	* 1.4533 *	* 1.4544 *	* 1.6633 *	* 1.3034 *	* 1.6622 *	* 1.4276 *	* 1.5026 *	* .8075 *
	* 2.0410 *	* 2.0658 *	* 1.8275 *	* 2.4808 *	* 1.9305 *	* 2.2350 *	* 2.0784 *	* 3.7433 *
12	* 1.2552 *	* 1.6750 *	* 1.4737 *	* 1.6600 *	* 1.3912 *	* 1.5497 *	* .9403 *	
	* 2.3490 *	* 1.8096 *	* 2.0716 *	* 1.9356 *	* 2.3465 *	* 2.1112 *	* 3.4350 *	
13	* 1.6633 *	* 1.5197 *	* 1.6740 *	* 1.4266 *	* 1.5487 *	* 1.0753 *	* .6565 *	
	* 1.7776 *	* 1.9718 *	* 1.8148 *	* 2.2361 *	* 2.1132 *	* 3.0426 *	* 4.9340 *	
14	* 1.3077 *	* 1.5851 *	* 1.3302 *	* 1.5026 *	* .9436 *	* .6576 *		
	* 2.2407 *	* 1.8709 *	* 2.2601 *	* 2.0794 *	* 3.4243 *	* 4.9285 *		
15	* .8043 *	* .9628 *	* 1.2027 *	* .8075 *	F-SUB-Q			
	* 3.6088 *	* 3.0552 *	* 2.4684 *	* 3.7465 *	M-SUB-Q			

AT 50% POWER, 200 EFPD, THIS IS LEVEL 3 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* .9907 *	* 1.2991 *	* 1.1620 *	* 1.4255 *	* 1.2274 *	* 1.6194 *	* 1.2745 *	* .7840 *
	* 2.8875 *	* 2.2071 *	* 2.4250 *	* 1.9596 *	* 2.2671 *	* 1.7262 *	* 2.1756 *	* 3.5142 *
9	* 1.2991 *	* 1.3313 *	* 1.6140 *	* 1.4212 *	* 1.6354 *	* 1.4865 *	* 1.5455 *	* .9393 *
	* 2.2071 *	* 2.1295 *	* 1.7585 *	* 1.9869 *	* 1.7405 *	* 1.8982 *	* 1.8118 *	* 2.9690 *
10	* 1.1620 *	* 1.6140 *	* 1.4223 *	* 1.6247 *	* 1.4394 *	* 1.6343 *	* 1.3002 *	* 1.1706 *
	* 2.4250 *	* 1.7592 *	* 1.9923 *	* 1.7550 *	* 1.9851 *	* 1.7439 *	* 2.1756 *	* 2.3948 *
11	* 1.4255 *	* 1.4201 *	* 1.6215 *	* 1.2766 *	* 1.6215 *	* 1.3966 *	* 1.4673 *	* .7904 *
	* 1.9596 *	* 1.9887 *	* 1.7585 *	* 2.3170 *	* 1.8306 *	* 2.1082 *	* 1.9824 *	* 3.5571 *
12	* 1.2274 *	* 1.6333 *	* 1.4384 *	* 1.6194 *	* 1.3612 *	* 1.5155 *	* .9232 *	
	* 2.2671 *	* 1.7439 *	* 1.9878 *	* 1.8328 *	* 2.2005 *	* 1.9824 *	* 3.2105 *	
13	* 1.6194 *	* 1.4844 *	* 1.6311 *	* 1.3955 *	* 1.5144 *	* 1.0539 *	* .6437 *	
	* 1.7262 *	* 1.9006 *	* 1.7474 *	* 2.1102 *	* 1.9842 *	* 2.8725 *	* 4.6535 *	
14	* 1.2745 *	* 1.5444 *	* 1.2991 *	* 1.4662 *	* .9264 *	* .6437 *		
	* 2.1756 *	* 1.8140 *	* 2.1767 *	* 1.9833 *	* 3.1989 *	* 4.6437 *		
15	* .7840 *	* .9382 *	* 1.1695 *	* .7893 *	F-SUB-Q			
	* 3.5142 *	* 2.9730 *	* 2.3974 *	* 3.6000 *	M-SUB-Q			

Table 1 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Normal Operations

AT 50% POWER, 200 EFPD, THIS IS LEVEL 2 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* .9125 *	* 1.1792 *	* 1.0603 *	* 1.2884 *	* 1.1171 *	* 1.4501 *	* 1.1449 *	* .7036 *
	* 2.9551 *	* 2.2918 *	* 2.5305 *	* 2.0755 *	* 2.3909 *	* 1.8497 *	* 2.3280 *	* 3.7720 *
9	* 1.1792 *	* 1.2049 *	* 1.4394 *	* 1.2831 *	* 1.4598 *	* 1.3430 *	* 1.3730 *	* .8386 *
	* 2.2918 *	* 2.2361 *	* 1.8820 *	* 2.1032 *	* 1.8622 *	* 2.0104 *	* 1.9570 *	* 3.1989 *
10	* 1.0603 *	* 1.4394 *	* 1.2841 *	* 1.4576 *	* 1.3013 *	* 1.4576 *	* 1.1727 *	* 1.0228 *
	* 2.5305 *	* 1.8828 *	* 2.1052 *	* 1.8756 *	* 2.0922 *	* 1.8661 *	* 2.3073 *	* 2.6314 *
11	* 1.2884 *	* 1.2831 *	* 1.4555 *	* 1.1588 *	* 1.4587 *	* 1.2595 *	* 1.2959 *	* .7069 *
	* 2.0755 *	* 2.1042 *	* 1.8788 *	* 2.4144 *	* 1.9221 *	* 2.2104 *	* 2.1285 *	* 3.8442 *
12	* 1.1171 *	* 1.4566 *	* 1.2991 *	* 1.4566 *	* 1.2274 *	* 1.3409 *	* .8322 *	
	* 2.3909 *	* 1.8653 *	* 2.0952 *	* 1.9254 *	* 2.2953 *	* 2.1082 *	* 3.3747 *	
13	* 1.4501 *	* 1.3420 *	* 1.4555 *	* 1.2584 *	* 1.3388 *	* .9457 *	* .5751 *	
	* 1.8497 *	* 2.0122 *	* 1.8685 *	* 2.2126 *	* 2.1102 *	* 2.9992 *	* 4.9011 *	
14	* 1.1449 *	* 1.3709 *	* 1.1717 *	* 1.2948 *	* .8354 *	* .5762 *		
	* 2.3280 *	* 1.9596 *	* 2.3097 *	* 2.1295 *	* 3.3644 *	* 4.8957 *		
15	* .7036 *	* .8375 *	* 1.0217 *	* .7058 *	F-SUB-Q			
	* 3.7720 *	* 3.2012 *	* 2.6330 *	* 3.8475 *	M-SUB-Q			

AT 50% POWER, 200 EFPD, THIS IS LEVEL 1 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* .6501 *	* .8054 *	* .7379 *	* .8729 *	* .7808 *	* 1.0014 *	* .7636 *	* .4787 *
	* 3.9971 *	* 3.2316 *	* 3.5226 *	* 2.9770 *	* 3.3289 *	* 2.6005 *	* 3.4033 *	* 5.3913 *
9	* .8054 *	* .8204 *	* 1.0132 *	* .8643 *	* 1.0389 *	* .9114 *	* .9221 *	* .5601 *
	* 3.2316 *	* 3.1759 *	* 2.5808 *	* 3.0280 *	* 2.5247 *	* 2.8725 *	* 2.8357 *	* 4.6535 *
10	* .7379 *	* 1.0132 *	* .8643 *	* 1.0357 *	* .8793 *	* 1.0271 *	* .7947 *	* .6383 *
	* 3.5226 *	* 2.5823 *	* 3.0342 *	* 2.5436 *	* 2.9972 *	* 2.5703 *	* 3.3090 *	* 4.0934 *
11	* .8729 *	* .8632 *	* 1.0346 *	* .8042 *	* 1.0174 *	* .8439 *	* .8397 *	* .4680 *
	* 2.9770 *	* 3.0300 *	* 2.5480 *	* 3.3289 *	* 2.6330 *	* 3.1759 *	* 3.1805 *	* 5.6388 *
12	* .7808 *	* 1.0367 *	* .8782 *	* 1.0153 *	* .8204 *	* .8857 *	* .5623 *	
	* 3.3289 *	* 2.5305 *	* 3.0012 *	* 2.6377 *	* 3.3090 *	* 3.0786 *	* 4.8105 *	
13	* 1.0014 *	* .9104 *	* 1.0260 *	* .8429 *	* .8857 *	* .6383 *	* .3845 *	
	* 2.6005 *	* 2.8763 *	* 2.5732 *	* 3.1782 *	* 3.0786 *	* 4.2879 *	* 7.0733 *	
14	* .7636 *	* .9211 *	* .7936 *	* .8397 *	* .5633 *	* .3856 *		
	* 3.4033 *	* 2.8375 *	* 3.3115 *	* 3.1827 *	* 4.8000 *	* 7.0733 *		
15	* .4787 *	* .5601 *	* .6383 *	* .4680 *	F-SUB-Q			
	* 5.3913 *	* 4.6584 *	* 4.0972 *	* 5.6388 *	M-SUB-Q			

Table 1 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Normal Operations

AT 50% POWER, 300 EFPD, THIS IS LEVEL 18 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	.5301	.7529	.7658	.9286	.8739	1.0217	.7090	.4445
	2.9360	2.4988	2.4838	2.1433	2.2950	1.8904	2.3193	3.4797
9	.7529	.7561	.9189	.9082	1.0849	.9842	.9371	.6190
	2.4988	2.2908	1.9344	2.1385	1.8775	2.0615	2.0490	3.1443
10	.7658	.9189	.7111	.9960	.9628	1.0699	.8697	.7036
	2.4838	1.9344	2.1498	1.9127	2.1094	1.8899	2.3163	2.8455
11	.9286	.9071	.9950	.7711	.9660	.8707	.8825	.5419
	2.1433	2.1405	1.9136	2.4728	2.0578	2.2744	2.2283	3.6283
12	.8739	1.0839	.9618	.9650	.6608	.7465	.5794	
	2.2950	1.8794	2.1116	2.0589	2.3863	2.3099	3.3225	
13	1.0217	.9832	1.0689	.8697	.7465	.5205	.3931	
	1.8904	2.0636	1.8914	2.2757	2.3099	3.0113	4.7336	
14	.7090	.9361	.8686	.8825	.5805	.3931		
	2.3193	2.0501	2.3163	2.2283	3.3198	4.7296		
15	.4445	.6180	.7026	.5419	F-SUB-Q			
	3.4797	3.1449	2.8455	3.6303	M-SUB-Q			

AT 50% POWER, 300 EFPD, THIS IS LEVEL 17 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	.6854	1.0089	1.0057	1.2456	1.1503	1.3570	.9532	.6030
	2.3969	1.9781	2.0031	1.6760	1.8520	1.5078	1.7736	2.7124
9	1.0089	1.0239	1.2188	1.2477	1.4041	1.3334	1.2927	.8525
	1.9781	1.7898	1.5618	1.6476	1.5305	1.6054	1.5930	2.3952
10	1.0057	1.2199	.9580	1.3398	1.3173	1.4052	1.1835	1.0164
	2.0031	1.5618	1.6544	1.5496	1.6346	1.5356	1.8003	2.0861
11	1.2456	1.2466	1.3377	1.0142	1.2916	1.1899	1.2402	.7433
	1.6760	1.6489	1.5514	1.9693	1.6317	1.7576	1.6862	2.7999
12	1.1503	1.4030	1.3163	1.2906	.8697	1.0453	.7754	
	1.8520	1.5339	1.6363	1.6330	1.8102	1.7566	2.6186	
13	1.3570	1.3323	1.4041	1.1888	1.0453	.7261	.5323	
	1.5078	1.6068	1.5371	1.7583	1.7581	2.3090	3.6263	
14	.9532	1.2916	1.1824	1.2402	.7765	.5323		
	1.7736	1.5942	1.8011	1.6869	2.6126	3.6231		
15	.6030	.8525	1.0164	.7422	F-SUB-Q			
	2.7124	2.3966	2.0861	2.8011	M-SUB-Q			

Table 1 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Normal Operations

AT 50% POWER, 300 EFPD, THIS IS LEVEL 16 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* .7465 *	* 1.1138 *	* 1.1074 *	* 1.3741 *	* 1.2638 *	* 1.5326 *	* 1.0881 *	* .6961 *
	* 2.4166 *	* 1.9539 *	* 1.9885 *	* 1.6446 *	* 1.8258 *	* 1.4484 *	* 1.7368 *	* 2.6734 *
9	* 1.1138 *	* 1.1503 *	* 1.3794 *	* 1.3880 *	* 1.5776 *	* 1.4748 *	* 1.46	* .9521 *
	* 1.9539 *	* 1.7680 *	* 1.5040 *	* 1.6157 *	* 1.4689 *	* 1.5679 *	* 1.53	* 3.352 *
10	* 1.1074 *	* 1.3794 *	* 1.0913 *	* 1.5165 *	* 1.4501 *	* 1.5776 *	* 1.3042 *	* .1545 *
	* 1.9885 *	* 1.5040 *	* 1.6234 *	* 1.4902 *	* 1.5975 *	* 1.4722 *	* 1.7550 *	* 1.7998 *
11	* 1.3741 *	* 1.3859 *	* 1.5144 *	* 1.1213 *	* 1.4426 *	* 1.3034 *	* 1.3848 *	* .8161 *
	* 1.6446 *	* 1.6171 *	* 1.4923 *	* 1.9173 *	* 1.5644 *	* 1.7156 *	* 1.6113 *	* 2.7247 *
12	* 1.2638 *	* 1.5754 *	* 1.4480 *	* 1.4416 *	* .9553 *	* 1.1578 *	* .8397 *	
	* 1.8258 *	* 1.4726 *	* 1.5991 *	* 1.5655 *	* 1.7640 *	* 1.6748 *	* 2.5704 *	
13	* 1.5326 *	* 1.4737 *	* 1.5754 *	* 1.3023 *	* 1.1578 *	* .7883 *	* .5751 *	
	* 1.4484 *	* 1.5695 *	* 1.4741 *	* 1.7163 *	* 1.6760 *	* 2.2522 *	* 3.5379 *	
14	* 1.0881 *	* 1.4598 *	* 1.3045 *	* 1.3848 *	* .8418 *	* .5762 *		
	* 1.7368 *	* 1.5317 *	* 1.7557 *	* 1.6119 *	* 2.5631 *	* 3.5349 *		
15	* .6961 *	* .9521 *	* 1.1535 *	* .8161 *	* F-SUB-Q			
	* 2.6734 *	* 2.3365 *	* 1.9798 *	* 2.7265 *	* M-SUB-Q			

AT 50% POWER, 300 EFPD, THIS IS LEVEL 15 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* .7786 *	* 1.1802 *	* 1.1727 *	* 1.4416 *	* 1.3248 *	* 1.6579 *	* 1.2520 *	* .8193 *
	* 2.6168 *	* 2.0857 *	* 2.1243 *	* 1.7482 *	* 1.9266 *	* 1.5039 *	* 1.8371 *	* 2.8440 *
9	* 1.1802 *	* 1.2616 *	* 1.5048 *	* 1.4673 *	* 1.6793 *	* 1.5497 *	* 1.5690 *	* 1.0078 *
	* 2.0857 *	* 1.9004 *	* 1.5794 *	* 1.7147 *	* 1.5214 *	* 1.6442 *	* 1.5905 *	* 2.4569 *
10	* 1.1727 *	* 1.5048 *	* 1.2702 *	* 1.6286 *	* 1.5048 *	* 1.6654 *	* 1.3645 *	* 1.2231 *
	* 2.1243 *	* 1.5794 *	* 1.7317 *	* 1.5586 *	* 1.6945 *	* 1.5351 *	* 1.8547 *	* 2.0632 *
11	* 1.4416 *	* 1.4651 *	* 1.6215 *	* 1.1931 *	* 1.5090 *	* 1.3452 *	* 1.4448 *	* .8450 *
	* 1.7482 *	* 1.7168 *	* 1.5569 *	* 2.0194 *	* 1.6321 *	* 1.8145 *	* 1.6853 *	* 2.8767 *
12	* 1.3248 *	* 1.6750 *	* 1.5037 *	* 1.5080 *	* .9896 *	* 1.1952 *	* .8589 *	
	* 1.9266 *	* 1.5252 *	* 1.6963 *	* 1.6340 *	* 1.8752 *	* 1.7547 *	* 2.7290 *	
13	* 1.6579 *	* 1.5487 *	* 1.6633 *	* 1.3441 *	* 1.1952 *	* .7990 *	* .5826 *	
	* 1.5039 *	* 1.6460 *	* 1.5369 *	* 1.8158 *	* 1.7552 *	* 2.4001 *	* 3.7706 *	
14	* 1.2520 *	* 1.5679 *	* 1.3634 *	* 1.4437 *	* .8611 *	* .5837 *		
	* 1.8371 *	* 1.5917 *	* 1.8555 *	* 1.6859 *	* 2.7209 *	* 3.7673 *		
15	* .8193 *	* 1.0067 *	* 1.2220 *	* .8439 *	* F-SUB-Q			
	* 2.8440 *	* 2.4584 *	* 2.0642 *	* 2.8786 *	* M-SUB-Q			

Table 1 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Normal Operations

AT 50% POWER, 300 EFPD, THIS IS LEVEL 14 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	.7808	1.1995	1.1867	1.4533	1.3259	1.6975	1.3655	.8739
	2.9577	2.3339	2.3914	1.9470	2.1241	1.6523	2.0407	3.1774
9	1.1995	1.3066	1.5958	1.4801	1.6890	1.5530	1.5990	1.0239
	2.3339	2.1502	1.7628	1.9057	1.6665	1.8020	1.7408	2.7074
10	1.1867	1.5958	1.4373	1.6440	1.4940	1.6675	1.3623	1.2284
	2.3914	1.7628	1.9463	1.7135	1.8745	1.6799	2.0376	2.2551
11	1.4533	1.4780	1.6418	1.2070	1.5069	1.3259	1.4287	.8311
	1.9470	1.9082	1.7158	2.2563	1.8124	2.0512	1.8957	3.2530
12	1.3259	1.6847	1.4919	1.5026	.9810	1.1717	.8365	
	2.1241	1.6712	1.8764	1.8146	2.1098	1.9643	3.1182	
13	1.6975	1.5519	1.6654	1.3248	1.1717	.7754	.5644	
	1.6523	1.8038	1.6821	2.0528	1.9652	2.7173	4.2716	
14	1.3655	1.5979	1.3623	1.4276	.8397	.5655		
	2.0407	1.7417	2.0386	1.8962	3.1078	4.2674		
15	.8739	1.0239	1.2284	.8311	F-SUB-Q			
	3.1774	2.7091	2.2562	3.2554	M-SUB-Q			

AT 50% POWER, 300 EFPD, THIS IS LEVEL 13 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	.7979	1.2359	1.2220	1.4930	1.3580	1.7586	1.4148	.9071
	3.2689	2.5667	2.5957	2.1158	2.3102	1.7748	2.1973	3.4094
9	1.2359	1.3516	1.6665	1.5155	1.7393	1.5862	1.6536	1.0517
	2.5667	2.3500	1.8976	2.0780	1.8039	1.9667	1.8762	2.9312
10	1.2220	1.6665	1.4951	1.6943	1.5187	1.7093	1.3859	1.2649
	2.5957	1.8976	2.1139	1.8558	2.0597	1.8279	2.2316	2.4370
11	1.4930	1.5133	1.6922	1.2424	1.5487	1.3409	1.4544	.8450
	2.1158	2.0810	1.8584	2.4741	1.9725	2.2815	2.0889	3.5724
12	1.3580	1.7339	1.5165	1.5455	.9928	1.1867	.8461	
	2.3102	1.8094	2.0619	1.9757	2.3436	2.1626	3.4656	
13	1.7586	1.5851	1.7072	1.3398	1.1867	.7765	.5655	
	1.7748	1.9679	1.8297	2.2827	2.1637	3.0275	4.7448	
14	1.4148	1.6515	1.3859	1.4544	.8482	.5666		
	2.1973	1.8778	2.2330	2.0889	3.4547	4.7395		
15	.9071	1.0517	1.2649	.8450	F-SUB-Q			
	3.4094	2.9332	2.4374	3.5753	M-SUB-Q			

Table 1 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Normal Operations

AT 50% POWER, 300 EFPD, THIS IS LEVEL 12 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* .7968 *	* 1.2316 *	* 1.2124 *	* 1.4823 *	* 1.3441 *	* 1.7479 *	* 1.4019 *	* .8986 *
	* 3.7431 *	* 2.9320 *	* 2.9660 *	* 2.4148 *	* 2.6321 *	* 2.0160 *	* 2.5010 *	* 3.8787 *
9	* 1.2316 *	* 1.3452 *	* 1.6633 *	* 1.5026 *	* 1.7275 *	* 1.5701 *	* 1.6429 *	* 1.0410 *
	* 2.9320 *	* 2.6807 *	* 2.1560 *	* 2.3774 *	* 2.0457 *	* 2.2296 *	* 2.1214 *	* 3.3225 *
10	* 1.2124 *	* 1.6633 *	* 1.4876 *	* 1.6847 *	* 1.5015 *	* 1.6943 *	* 1.3687 *	* 1.2541 *
	* 2.9660 *	* 2.1560 *	* 2.4101 *	* 2.1167 *	* 2.3398 *	* 2.0656 *	* 2.5160 *	* 2.7384 *
11	* 1.4823 *	* 1.5005 *	* 1.6825 *	* 1.2327 *	* 1.5390 *	* 1.3227 *	* 1.4384 *	* .8322 *
	* 2.4148 *	* 2.3800 *	* 2.1197 *	* 2.8048 *	* 2.2296 *	* 2.6062 *	* 2.3758 *	* 4.0577 *
12	* 1.3441 *	* 1.7222 *	* 1.4994 *	* 1.5358 *	* .9853 *	* 1.1738 *	* .8322 *	
	* 2.6321 *	* 2.0523 *	* 2.3423 *	* 2.2323 *	* 2.6525 *	* 2.4383 *	* 3.9246 *	
13	* 1.7479 *	* 1.5679 *	* 1.6922 *	* 1.3216 *	* 1.1738 *	* .7658 *	* .5558 *	
	* 2.0160 *	* 2.2314 *	* 2.0681 *	* 2.6072 *	* 2.4383 *	* 3.4273 *	* 5.3582 *	
14	* 1.4019 *	* 1.6418 *	* 1.3677 *	* 1.4373 *	* .8354 *	* .5569 *		
	* 2.5010 *	* 2.1231 *	* 2.5174 *	* 2.3771 *	* 3.9107 *	* 5.3517 *		
15	* .8986 *	* 1.0399 *	* 1.2531 *	* .8322 *	F-SUB-Q			
	* 3.8787 *	* 3.3235 *	* 2.7401 *	* 4.0599 *	M-SUB-Q			

AT 50% POWER, 300 EFPD, THIS IS LEVEL 11 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* .7936 *	* 1.2124 *	* 1.1888 *	* 1.4555 *	* 1.3141 *	* 1.7136 *	* 1.3709 *	* .8782 *
	* 4.3427 *	* 3.3876 *	* 3.4494 *	* 2.7932 *	* 3.0352 *	* 2.3062 *	* 2.8635 *	* 4.4245 *
9	* 1.2124 *	* 1.3216 *	* 1.6365 *	* 1.4716 *	* 1.6943 *	* 1.5369 *	* 1.6097 *	* 1.0174 *
	* 3.3876 *	* 3.1278 *	* 2.4978 *	* 2.7464 *	* 2.3570 *	* 2.5735 *	* 2.4310 *	* 3.7931 *
10	* 1.1888 *	* 1.6354 *	* 1.4598 *	* 1.6536 *	* 1.4705 *	* 1.6611 *	* 1.3388 *	* 1.2274 *
	* 3.4494 *	* 2.4978 *	* 2.8028 *	* 2.4376 *	* 2.7148 *	* 2.3879 *	* 2.9092 *	* 3.1411 *
11	* 1.4555 *	* 1.4694 *	* 1.6515 *	* 1.2092 *	* 1.5133 *	* 1.2959 *	* 1.4094 *	* .8118 *
	* 2.7932 *	* 2.7498 *	* 2.4411 *	* 3.2506 *	* 2.5773 *	* 3.0186 *	* 2.7679 *	* 4.7234 *
12	* 1.3141 *	* 1.6900 *	* 1.4683 *	* 1.5101 *	* .9881 *	* 1.1567 *	* .8150 *	
	* 3.0352 *	* 2.3646 *	* 2.7174 *	* 2.5809 *	* 3.0771 *	* 2.8150 *	* 4.5443 *	
13	* 1.7136 *	* 1.5358 *	* 1.6590 *	* 1.2959 *	* 1.1578 *	* .7572 *	* .5462 *	
	* 2.3062 *	* 2.5765 *	* 2.3912 *	* 3.0186 *	* 2.8161 *	* 3.9632 *	* 6.2018 *	
14	* 1.3709 *	* 1.6076 *	* 1.3377 *	* 1.4084 *	* .8172 *	* .5462 *		
	* 2.8635 *	* 2.4323 *	* 2.9099 *	* 2.7689 *	* 4.5303 *	* 6.1931 *		
15	* .8782 *	* 1.0174 *	* 1.2263 *	* .8118 *	F-SUB-Q			
	* 4.4245 *	* 3.7950 *	* 3.1411 *	* 4.7264 *	M-SUB-Q			

Table 1 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Normal Operations

AT 50% POWER, 300 EFPD, THIS IS LEVEL 10 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* .8000 *	* 1.2145 *	* 1.1877 *	* 1.4544 *	* 1.3120 *	* 1.7168 *	* 1.3645 *	* .8739 *
	* 4.6486 *	* 3.6266 *	* 3.8276 *	* 3.1155 *	* 3.4111 *	* 2.5929 *	* 3.2363 *	* 4.9953 *
9	* 1.2145 *	* 1.3205 *	* 1.6418 *	* 1.4683 *	* 1.6997 *	* 1.5337 *	* 1.6119 *	* 1.0142 *
	* 3.6266 *	* 3.4592 *	* 2.7769 *	* 3.0850 *	* 2.6472 *	* 2.9123 *	* 2.7408 *	* 4.3046 *
10	* 1.1877 *	* 1.6418 *	* 1.4576 *	* 1.6590 *	* 1.4673 *	* 1.6654 *	* 1.3345 *	* 1.2295 *
	* 3.8276 *	* 2.7769 *	* 3.1287 *	* 2.7323 *	* 3.0764 *	* 2.6956 *	* 3.3090 *	* 3.5509 *
11	* 1.4544 *	* 1.4662 *	* 1.6568 *	* 1.2092 *	* 1.5208 *	* 1.2959 *	* 1.4148 *	* .8140 *
	* 3.1155 *	* 3.0893 *	* 2.7357 *	* 3.5198 *	* 2.7892 *	* 3.2942 *	* 3.1398 *	* 5.3586 *
12	* 1.3120 *	* 1.6954 *	* 1.4651 *	* 1.5176 *	* .9885 *	* 1.1685 *	* .8193 *	
	* 3.4111 *	* 2.6552 *	* 3.0786 *	* 2.7927 *	* 3.3593 *	* 3.0743 *	* 4.9840 *	
13	* 1.7168 *	* 1.5326 *	* 1.6633 *	* 1.2948 *	* 1.1685 *	* .7636 *	* .5494 *	
	* 2.5929 *	* 2.9161 *	* 2.6989 *	* 3.2967 *	* 3.0743 *	* 4.3771 *	* 6.8753 *	
14	* 1.3645 *	* 1.6097 *	* 1.3334 *	* 1.4137 *	* .8215 *	* .5494 *		
	* 3.2363 *	* 2.7425 *	* 3.3090 *	* 3.1420 *	* 4.9672 *	* 6.8646 *		
15	* .8739 *	* 1.0132 *	* 1.2295 *	* .8129 *	F-SUB-Q			
	* 4.9953 *	* 4.3046 *	* 3.5509 *	* 5.3651 *	M-SUB-Q			

AT 50% POWER, 300 EFPD, THIS IS LEVEL 9 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* .7808 *	* 1.1845 *	* 1.1535 *	* 1.4148 *	* 1.2723 *	* 1.6665 *	* 1.3238 *	* .8472 *
	* 4.8795 *	* 3.7688 *	* 3.8375 *	* 3.1265 *	* 3.4646 *	* 2.6536 *	* 3.3239 *	* 5.1766 *
9	* 1.1845 *	* 1.2873 *	* 1.6001 *	* 1.4287 *	* 1.6536 *	* 1.4919 *	* 1.5647 *	* .9842 *
	* 3.7688 *	* 3.4646 *	* 2.7892 *	* 3.1111 *	* 2.6923 *	* 2.9710 *	* 2.8248 *	* 4.4745 *
10	* 1.1535 *	* 1.6001 *	* 1.4191 *	* 1.6161 *	* 1.4287 *	* 1.6215 *	* 1.2981 *	* 1.1952 *
	* 3.8375 *	* 2.7892 *	* 3.1420 *	* 2.7630 *	* 3.1221 *	* 2.7493 *	* 3.4164 *	* 3.6994 *
11	* 1.4148 *	* 1.4266 *	* 1.6140 *	* 1.1770 *	* 1.4844 *	* 1.2649 *	* 1.3794 *	* .7893 *
	* 3.1265 *	* 3.1155 *	* 2.7665 *	* 3.7212 *	* 2.9512 *	* 3.4782 *	* 3.2554 *	* 5.6388 *
12	* 1.2723 *	* 1.6483 *	* 1.4266 *	* 1.4812 *	* .9693 *	* 1.1449 *	* .8000 *	
	* 3.4646 *	* 2.7006 *	* 3.1265 *	* 2.9551 *	* 3.5480 *	* 3.2435 *	* 5.2629 *	
13	* 1.6665 *	* 1.4908 *	* 1.6194 *	* 1.2649 *	* 1.1460 *	* .7518 *	* .5387 *	
	* 2.6536 *	* 2.9750 *	* 2.7527 *	* 3.4810 *	* 3.2458 *	* 4.6050 *	* 7.2118 *	
14	* 1.3238 *	* 1.5637 *	* 1.2981 *	* 1.3794 *	* .8022 *	* .5398 *		
	* 3.3239 *	* 2.8284 *	* 3.4190 *	* 3.2578 *	* 5.2442 *	* 7.2000 *		
15	* .8472 *	* .9842 *	* 1.1942 *	* .7883 *	F-SUB-Q			
	* 5.1766 *	* 4.4745 *	* 3.6994 *	* 5.6388 *	M-SUB-Q			

Table 1 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Normal Operations

AT 50% POWER, 300 EFPD, THIS IS LEVEL 8 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* .7904 *	* 1.1995 *	* 1.1652 *	* 1.4276 *	* 1.2831 *	* 1.6868 *	* 1.3302 *	* .8514 *
	* 4.5203 *	* 3.4810 *	* 3.5623 *	* 2.9123 *	* 3.2340 *	* 2.4808 *	* 3.1243 *	* 4.8368 *
9	* 1.1995 *	* 1.3013 *	* 1.6247 *	* 1.4416 *	* 1.6783 *	* 1.5058 *	* 1.5829 *	* .9917 *
	* 3.4810 *	* 3.2175 *	* 2.5898 *	* 2.9104 *	* 2.5090 *	* 2.7857 *	* 2.6393 *	* 4.1824 *
10	* 1.1652 *	* 1.6247 *	* 1.4330 *	* 1.6461 *	* 1.4437 *	* 1.6461 *	* 1.3109 *	* 1.2124 *
	* 3.5623 *	* 2.5898 *	* 2.9296 *	* 2.5717 *	* 2.9219 *	* 2.5658 *	* 3.2058 *	* 3.4403 *
11	* 1.4276 *	* 1.4394 *	* 1.6440 *	* 1.1952 *	* 1.5155 *	* 1.2863 *	* 1.4073 *	* .8022 *
	* 2.9123 *	* 2.9123 *	* 2.5747 *	* 3.4538 *	* 2.7374 *	* 3.2387 *	* 3.0300 *	* 5.2318 *
12	* 1.2831 *	* 1.6729 *	* 1.4416 *	* 1.5123 *	* .9885 *	* 1.1802 *	* .8215 *	
	* 3.2340 *	* 2.5176 *	* 2.9258 *	* 2.7408 *	* 3.3090 *	* 3.0074 *	* 4.8634 *	
13	* 1.6868 *	* 1.5048 *	* 1.6440 *	* 1.2863 *	* 1.1802 *	* .7754 *	* .5558 *	
	* 2.4808 *	* 2.7874 *	* 2.5688 *	* 3.7411 *	* 3.0094 *	* 4.2838 *	* 6.6881 *	
14	* 1.3302 *	* 1.5819 *	* 1.3098 *	* 1.4073 *	* .8247 *	* .5569 *		
	* 3.1243 *	* 2.6425 *	* 3.2058 *	* 3.0300 *	* 4.8474 *	* 6.6780 *		
15	* .8514 *	* .9907 *	* 1.2113 *	* .8022 *	F-SUB-Q			
	* 4.8368 *	* 4.1824 *	* 3.4403 *	* 5.2318 *	M-SUB-Q			

AT 50% POWER, 300 EFPD, THIS IS LEVEL 7 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* .8129 *	* 1.2102 *	* 1.1652 *	* 1.4266 *	* 1.2777 *	* 1.6825 *	* 1.3216 *	* .8461 *
	* 4.1904 *	* 3.1089 *	* 3.1896 *	* 2.6051 *	* 2.9008 *	* 2.2226 *	* 2.8069 *	* 4.3512 *
9	* 1.2102 *	* 1.3088 *	* 1.6311 *	* 1.4416 *	* 1.6804 *	* 1.5058 *	* 1.5829 *	* .9875 *
	* 3.1089 *	* 2.8744 *	* 2.3121 *	* 2.6066 *	* 2.2452 *	* 2.4976 *	* 2.3666 *	* 3.7592 *
10	* 1.1652 *	* 1.6311 *	* 1.4351 *	* 1.6579 *	* 1.4491 *	* 1.6526 *	* 1.3109 *	* 1.2113 *
	* 3.1896 *	* 2.3121 *	* 2.6221 *	* 2.2977 *	* 2.6159 *	* 2.2942 *	* 2.8744 *	* 3.0829 *
11	* 1.4266 *	* 1.4394 *	* 1.6558 *	* 1.2124 *	* 1.5422 *	* 1.3088 *	* 1.4244 *	* .8054 *
	* 2.6051 *	* 2.6097 *	* 2.3013 *	* 3.1691 *	* 2.5133 *	* 2.9770 *	* 2.7022 *	* 4.6930 *
12	* 1.2777 *	* 1.6761 *	* 1.4469 *	* 1.5390 *	* 1.0314 *	* 1.2306 *	* .8450 *	
	* 2.9008 *	* 2.2509 *	* 2.6190 *	* 2.5190 *	* 3.0764 *	* 2.7909 *	* 4.5157 *	
13	* 1.6825 *	* 1.5048 *	* 1.6504 *	* 1.3077 *	* 1.2306 *	* .8215 *	* .5794 *	
	* 2.2226 *	* 2.4991 *	* 2.2965 *	* 2.9760 *	* 2.7909 *	* 3.9863 *	* 6.2353 *	
14	* 1.3216 *	* 1.5819 *	* 1.3109 *	* 1.4244 *	* .8472 *	* .5805 *		
	* 2.8069 *	* 2.3679 *	* 2.8744 *	* 2.7022 *	* 4.5019 *	* 6.2265 *		
15	* .8461 *	* .9864 *	* 1.2113 *	* .8054 *	F-SUB-Q			
	* 4.3512 *	* 3.7624 *	* 3.0829 *	* 4.6930 *	M-SUB-Q			

Table 1 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Normal Operations

AT 50% POWER, 300 EFPD, THIS IS LEVEL 6 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* .8975 *	* 1.2274 *	* 1.1578 *	* 1.4159 *	* 1.2616 *	* 1.6611 *	* 1.3034 *	* .8332 *
	* 3.8045 *	* 2.8339 *	* 2.9219 *	* 2.3806 *	* 2.6615 *	* 2.0372 *	* 2.5762 *	* 4.0044 *
9	* 1.2274 *	* 1.3120 *	* 1.6236 *	* 1.4330 *	* 1.6665 *	* 1.4951 *	* 1.5669 *	* .9757 *
	* 2.8339 *	* 2.6205 *	* 2.1102 *	* 2.3806 *	* 2.0533 *	* 2.2823 *	* 2.1692 *	* 3.4538 *
10	* 1.1578 *	* 1.6236 *	* 1.4309 *	* 1.6558 *	* 1.4469 *	* 1.6451 *	* 1.3045 *	* 1.1995 *
	* 2.9219 *	* 2.1102 *	* 2.3935 *	* 2.0972 *	* 2.3871 *	* 2.0962 *	* 2.6268 *	* 2.8284 *
11	* 1.4159 *	* 1.4319 *	* 1.6536 *	* 1.2316 *	* 1.5701 *	* 1.3355 *	* 1.4341 *	* .8011 *
	* 2.3806 *	* 2.3832 *	* 2.1002 *	* 2.8932 *	* 2.2835 *	* 2.6842 *	* 2.4629 *	* 4.3046 *
12	* 1.2616 *	* 1.6611 *	* 1.4448 *	* 1.5679 *	* 1.1567 *	* 1.3377 *	* .8707 *	
	* 2.6615 *	* 2.0591 *	* 2.3896 *	* 2.2870 *	* 2.7998 *	* 2.5392 *	* 4.1010 *	
13	* 1.6611 *	* 1.4940 *	* 1.6440 *	* 1.3345 *	* 1.3377 *	* .9114 *	* .6115 *	
	* 2.0372 *	* 2.2835 *	* 2.0982 *	* 2.6858 *	* 2.5407 *	* 3.6415 *	* 5.6969 *	
14	* 1.3034 *	* 1.5669 *	* 1.3045 *	* 1.4341 *	* .8739 *	* .6115 *		
	* 2.5762 *	* 2.1713 *	* 2.6283 *	* 2.4629 *	* 4.0858 *	* 5.6896 *		
15	* .8332 *	* .9746 *	* 1.1984 *	* .8011 *	F-SUB-Q			
	* 4.0044 *	* 3.4538 *	* 2.8302 *	* 4.3088 *	M-SUB-Q			

AT 50% POWER, 300 EFPD, THIS IS LEVEL 5 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* .9789 *	* 1.2841 *	* 1.1877 *	* 1.4480 *	* 1.2873 *	* 1.6975 *	* 1.3248 *	* .8472 *
	* 3.2967 *	* 2.5276 *	* 2.6174 *	* 2.1357 *	* 2.3922 *	* 1.8260 *	* 2.3243 *	* 3.6177 *
9	* 1.2841 *	* 1.3516 *	* 1.6708 *	* 1.4651 *	* 1.7104 *	* 1.5294 *	* 1.6065 *	* .9939 *
	* 2.5276 *	* 2.3440 *	* 1.8828 *	* 2.1367 *	* 1.8351 *	* 2.0486 *	* 1.9441 *	* 3.1133 *
10	* 1.1877 *	* 1.6708 *	* 1.4694 *	* 1.7115 *	* 1.4865 *	* 1.6933 *	* 1.3355 *	* 1.2295 *
	* 2.6174 *	* 1.8828 *	* 2.1450 *	* 1.8693 *	* 2.1377 *	* 1.8709 *	* 2.3578 *	* 2.5349 *
11	* 1.4480 *	* 1.4641 *	* 1.7093 *	* 1.2991 *	* 1.6675 *	* 1.4009 *	* 1.4930 *	* .8279 *
	* 2.1357 *	* 2.1377 *	* 1.8716 *	* 2.5320 *	* 1.9878 *	* 2.3616 *	* 2.1853 *	* 3.8409 *
12	* 1.2873 *	* 1.7050 *	* 1.4844 *	* 1.6654 *	* 1.3366 *	* 1.4887 *	* .9275 *	
	* 2.3922 *	* 1.8405 *	* 2.1408 *	* 1.9896 *	* 2.4519 *	* 2.2104 *	* 3.5623 *	
13	* 1.6975 *	* 1.5283 *	* 1.6922 *	* 1.4009 *	* 1.4887 *	* 1.0249 *	* .6597 *	
	* 1.8260 *	* 2.0495 *	* 1.8732 *	* 2.3628 *	* 2.2115 *	* 3.1989 *	* 4.9728 *	
14	* 1.3248 *	* 1.6054 *	* 1.3355 *	* 1.4930 *	* .9307 *	* .6608 *		
	* 2.3243 *	* 1.9458 *	* 2.3590 *	* 2.1853 *	* 3.5480 *	* 4.9672 *		
15	* .8472 *	* .9928 *	* 1.2295 *	* .8268 *	F-SUB-Q			
	* 3.6177 *	* 3.1133 *	* 2.5349 *	* 3.8442 *	M-SUB-Q			

Table 1 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Normal Operations

AT 50% POWER, 300 EFPD, THIS IS LEVEL 4 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* .9864 *	* 1.2852 *	* 1.1760 *	* 1.4309 *	* 1.2649 *	* 1.6675 *	* 1.3045 *	* .8322 *
	* 3.0786 *	* 2.3134 *	* 2.4587 *	* 2.0058 *	* 2.2625 *	* 1.7276 *	* 2.1961 *	* 3.4323 *
9	* 1.2852 *	* 1.3420 *	* 1.6493 *	* 1.4480 *	* 1.6825 *	* 1.5112 *	* 1.5829 *	* .9789 *
	* 2.3134 *	* 2.1842 *	* 1.7690 *	* 2.0067 *	* 1.7316 *	* 1.9254 *	* 1.8351 *	* 2.9433 *
10	* 1.1760 *	* 1.6493 *	* 1.4544 *	* 1.6900 *	* 1.4716 *	* 1.6729 *	* 1.3238 *	* 1.2124 *
	* 2.4587 *	* 1.7690 *	* 2.0113 *	* 1.7536 *	* 2.0013 *	* 1.7578 *	* 2.2104 *	* 2.3961 *
11	* 1.4309 *	* 1.4459 *	* 1.6879 *	* 1.3055 *	* 1.6697 *	* 1.4062 *	* 1.4855 *	* .8172 *
	* 2.0058 *	* 2.0067 *	* 1.7557 *	* 2.3565 *	* 1.8505 *	* 2.1777 *	* 2.0335 *	* 3.6177 *
12	* 1.2649 *	* 1.6783 *	* 1.4705 *	* 1.6686 *	* 1.3655 *	* 1.5165 *	* .9328 *	
	* 2.2625 *	* 1.7364 *	* 2.0031 *	* 1.8528 *	* 2.2706 *	* 2.0514 *	* 3.3264 *	
13	* 1.6675 *	* 1.5101 *	* 1.6708 *	* 1.4052 *	* 1.5165 *	* 1.0549 *	* .6715 *	
	* 1.7276 *	* 1.9263 *	* 1.7599 *	* 2.1788 *	* 2.0524 *	* 2.9453 *	* 4.6243 *	
14	* 1.3045 *	* 1.5819 *	* 1.3238 *	* 1.4855 *	* .9361 *	* .6726 *		
	* 2.1961 *	* 1.8367 *	* 2.2115 *	* 2.0344 *	* 3.3165 *	* 4.6146 *		
15	* .8322 *	* .9789 *	* 1.2124 *	* .8172 *	F-SUB-Q			
	* 3.4323 *	* 2.9433 *	* 2.3974 *	* 3.6177 *	M-SUB-Q			

AT 50% POWER, 300 EFPD, THIS IS LEVEL 3 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* .9950 *	* 1.2884 *	* 1.1749 *	* 1.4255 *	* 1.2552 *	* 1.6515 *	* 1.2938 *	* .8257 *
	* 2.7786 *	* 2.1440 *	* 2.3182 *	* 1.8974 *	* 2.1523 *	* 1.6471 *	* 2.0942 *	* 3.2820 *
9	* 1.2884 *	* 1.3366 *	* 1.6354 *	* 1.4351 *	* 1.6654 *	* 1.5005 *	* 1.5701 *	* .9703 *
	* 2.1440 *	* 2.0495 *	* 1.6765 *	* 1.9031 *	* 1.6465 *	* 1.8253 *	* 1.7467 *	* 2.8104 *
10	* 1.1749 *	* 1.6354 *	* 1.4426 *	* 1.6750 *	* 1.4598 *	* 1.6590 *	* 1.3173 *	* 1.2027 *
	* 2.3182 *	* 1.6758 *	* 1.9039 *	* 1.6570 *	* 1.8917 *	* 1.6651 *	* 2.0932 *	* 2.2870 *
11	* 1.4255 *	* 1.4341 *	* 1.6729 *	* 1.3055 *	* 1.6654 *	* 1.4052 *	* 1.4812 *	* .8161 *
	* 1.8974 *	* 1.9031 *	* 1.6588 *	* 2.1799 *	* 1.7142 *	* 2.0233 *	* 1.9064 *	* 3.4111 *
12	* 1.2552 *	* 1.6611 *	* 1.4587 *	* 1.6633 *	* 1.3709 *	* 1.5230 *	* .9393 *	
	* 2.1523 *	* 1.6514 *	* 1.8941 *	* 1.7168 *	* 2.1032 *	* 1.8998 *	* 3.0594 *	
13	* 1.6515 *	* 1.5005 *	* 1.6579 *	* 1.4052 *	* 1.5219 *	* 1.0646 *	* .6769 *	
	* 1.6471 *	* 1.8268 *	* 1.6670 *	* 2.0242 *	* 1.8998 *	* 2.7425 *	* 4.2921 *	
14	* 1.2938 *	* 1.5690 *	* 1.3173 *	* 1.4812 *	* .9425 *	* .6779 *		
	* 2.0942 *	* 1.7474 *	* 2.0942 *	* 1.9064 *	* 3.0488 *	* 4.2879 *		
15	* .8257 *	* .9703 *	* 1.2027 *	* .8161 *	F-SUB-Q			
	* 3.2820 *	* 2.8122 *	* 2.2882 *	* 3.4138 *	M-SUB-Q			

Table 1 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Normal Operations

AT 50% POWER, 300 EFPD, THIS IS LEVEL 2 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	.9393	1.1984	1.0935	1.3152	1.1620	1.5048	1.1888	.7583
	2.7909	2.1799	2.3806	1.9745	2.2373	1.7384	2.1972	3.4511
9	1.1984	1.2338	1.4855	1.3195	1.5230	1.3827	1.4276	.8879
	2.1799	2.1162	1.7669	1.9842	1.7262	1.9023	1.8459	2.9670
10	1.0935	1.4855	1.3248	1.5315	1.3409	1.5080	1.2156	1.0806
	2.3806	1.7669	1.9842	1.7296	1.9683	1.7543	2.1777	2.4533
11	1.3152	1.3184	1.5294	1.2059	1.5219	1.2959	1.3441	.7508
	1.9745	1.9842	1.7316	2.2452	1.7833	2.0883	2.0031	3.5681
12	1.1620	1.5187	1.3409	1.5197	1.2649	1.3837	.8707	
	2.2373	1.7309	1.9709	1.7855	2.1597	1.9815	3.1487	
13	1.5048	1.3816	1.5069	1.2959	1.3837	.9832	.6244	
	1.7384	1.9031	1.7564	2.0892	1.9824	2.8087	4.4297	
14	1.1888	1.4266	1.2156	1.3441	.8739	.6244		
	2.1972	1.8474	2.1788	2.0031	3.1398	4.4253		
15	.7583	.8868	1.0806	.7497	F-SUB-Q			
	3.4511	2.9690	2.4547	3.5709	M-SUB-Q			

AT 50% POWER, 300 EFPD, THIS IS LEVEL 1 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	.6961	.8557	.7861	.9275	.8354	1.0624	.8225	.5344
	3.6506	2.9710	3.2245	2.7374	3.0446	2.4013	3.1089	4.8000
9	.8557	.8718	1.0699	.9221	1.1010	.9703	.9885	.6158
	2.9710	2.9161	2.3819	2.7717	2.3317	2.6456	2.6051	4.1983
10	.7861	1.0699	.9232	1.0978	.9371	1.0903	.8547	.7069
	3.2245	2.3832	2.7769	2.3415	2.7442	2.3717	3.0259	3.6718
11	.9275	.9211	1.0967	.8611	1.0796	.9018	.9050	.5173
	2.7374	2.7752	2.3440	3.0300	2.4197	2.9084	2.9065	5.0582
12	.8354	1.0988	.9371	1.0785	.8782	.9500	.6126	
	3.0446	2.3354	2.7459	2.4224	3.0176	2.8158	4.3512	
13	1.0624	.9693	1.0892	.9018	.9500	.6929	.4338	
	2.4013	2.6472	2.3730	2.9104	2.8158	3.8779	6.2178	
14	.8225	.9875	.8547	.9050	.6137	.4338		
	3.1089	2.6066	3.0280	2.9065	4.3427	6.2090		
15	.5344	.6158	.7069	.5173	F-SUB-Q			
	4.8000	4.1983	3.6748	5.0582	M-SUB-Q			

Table 1 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) = Normal Operations

AT 50% POWER, 400 EFPD, THIS IS LEVEL 18 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* .5698 *	* .8129 *	* .8343 *	* 1.0196 *	* .9682 *	* 1.1299 *	* .7872 *	* .5109 *
	* 2.8146 *	* 2.3984 *	* 2.3726 *	* 2.0419 *	* 2.1706 *	* 1.7937 *	* 2.1683 *	* 3.1678 *
9	* .8129 *	* .8150 *	* .9939 *	* .9982 *	* 1.1984 *	* 1.0967 *	* 1.0528 *	* .7133 *
	* 2.3984 *	* 2.2029 *	* 1.8624 *	* 2.0410 *	* 1.7900 *	* 1.9516 *	* 1.9230 *	* 2.8786 *
10	* .8343 *	* .9950 *	* .7700 *	* 1.0935 *	* 1.0710 *	* 1.1931 *	* .9864 *	* .8182 *
	* 2.3726 *	* 1.8624 *	* 2.0585 *	* 1.8342 *	* 2.0205 *	* 1.8111 *	* 2.1849 *	* 2.6167 *
11	* 1.0196 *	* .9971 *	* 1.0935 *	* .8622 *	* 1.0828 *	* .9875 *	* 1.0153 *	* .6383 *
	* 2.0419 *	* 2.0421 *	* 1.8355 *	* 2.3533 *	* 1.9657 *	* 2.1513 *	* 2.0838 *	* 3.3212 *
12	* .9682 *	* 1.1974 *	* 1.0699 *	* 1.0828 *	* .7411 *	* .8654 *	* .6812 *	
	* 2.1706 *	* 1.7916 *	* 2.0215 *	* 1.9666 *	* 2.2675 *	* 2.1824 *	* 3.0582 *	
13	* 1.1299 *	* 1.0956 *	* 1.1920 *	* .9875 *	* .8654 *	* .6212 *	* .4809 *	
	* 1.7937 *	* 1.9525 *	* 1.8120 *	* 2.1524 *	* 2.1824 *	* 2.8218 *	* 4.2418 *	
14	* .7872 *	* 1.0528 *	* .9864 *	* 1.0153 *	* .6822 *	* .4809 *		
	* 2.1683 *	* 1.9239 *	* 2.1849 *	* 2.0828 *	* 3.0536 *	* 4.2374 *		
15	* .5109 *	* .7133 *	* .8182 *	* .6383 *	F-SUB-Q			
	* 3.1678 *	* 2.8807 *	* 2.6176 *	* 3.3212 *	M-SUB-Q			

AT 50% POWER, 400 EFPD, THIS IS LEVEL 17 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* .6919 *	* 1.0207 *	* 1.0324 *	* 1.2863 *	* 1.2049 *	* 1.4201 *	* .9917 *	* .6501 *
	* 2.4003 *	* 1.9862 *	* 1.9937 *	* 1.6753 *	* 1.8212 *	* 1.4795 *	* 1.7346 *	* 2.5700 *
9	* 1.0207 *	* 1.0324 *	* 1.2466 *	* 1.2906 *	* 1.4801 *	* 1.4009 *	* 1.3752 *	* .9264 *
	* 1.9862 *	* 1.7985 *	* 1.5584 *	* 1.6410 *	* 1.4991 *	* 1.5860 *	* 1.5521 *	* 2.2870 *
10	* 1.0324 *	* 1.2466 *	* .9650 *	* 1.3955 *	* 1.3848 *	* 1.4833 *	* 1.2670 *	* 1.1117 *
	* 1.9937 *	* 1.5584 *	* 1.6558 *	* 1.5365 *	* 1.6332 *	* 1.5231 *	* 1.7764 *	* 2.0024 *
11	* 1.2863 *	* 1.2895 *	* 1.3944 *	* 1.0753 *	* 1.3805 *	* 1.2766 *	* 1.3452 *	* .8279 *
	* 1.6753 *	* 1.6421 *	* 1.5377 *	* 1.9422 *	* 1.6183 *	* 1.7463 *	* 1.6598 *	* 2.6855 *
12	* 1.2049 *	* 1.4791 *	* 1.3837 *	* 1.3805 *	* .9243 *	* 1.1428 *	* .8643 *	
	* 1.8212 *	* 1.5018 *	* 1.6345 *	* 1.6197 *	* 1.7994 *	* 1.7305 *	* 2.5242 *	
13	* 1.4201 *	* 1.3998 *	* 1.4823 *	* 1.2756 *	* 1.1428 *	* .8182 *	* .6190 *	
	* 1.4795 *	* 1.5869 *	* 1.5244 *	* 1.7470 *	* 1.7305 *	* 2.2589 *	* 3.4166 *	
14	* .9917 *	* 1.3752 *	* 1.2670 *	* 1.3452 *	* .8664 *	* .6190 *		
	* 1.7346 *	* 1.5533 *	* 1.7764 *	* 1.6598 *	* 2.5180 *	* 3.4137 *		
15	* .6501 *	* .9264 *	* 1.1117 *	* .8268 *	F-SUB-Q			
	* 2.5700 *	* 2.2870 *	* 2.0030 *	* 2.6872 *	M-SUB-Q			

Table 1 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Normal Operations

AT 50% POWER, 400 EFPD, THIS IS LEVEL 16 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* .7197	* 1.0710	* 1.0828	* 1.3559	* 1.2691	* 1.5262	* 1.0539	* .6897
	* 2.4674	* 2.0038	* 2.0185	* 1.6824	* 1.8330	* 1.4563	* 1.7402	* 2.5882
9	* 1.0710	* 1.0828	* 1.3355	* 1.3666	* 1.6011	* 1.4812	* 1.4801	* .9832
	* 2.0038	* 1.8167	* 1.5362	* 1.6442	* 1.4711	* 1.5847	* 1.5275	* 2.2846
10	* 1.0828	* 1.3366	* 1.0292	* 1.5037	* 1.4619	* 1.5947	* 1.3355	* 1.2049
	* 2.0185	* 1.5362	* 1.6597	* 1.5097	* 1.6327	* 1.4961	* 1.7796	* 1.9525
11	* 1.3559	* 1.3655	* 1.5026	* 1.1353	* 1.4823	* 1.3452	* 1.4448	* .8750
	* 1.6824	* 1.6455	* 1.5108	* 1.9296	* 1.5767	* 1.7506	* 1.6305	* 2.6854
12	* 1.2691	* 1.5990	* 1.4608	* 1.4812	* .9768	* 1.2199	* .9050	
	* 1.8330	* 1.4737	* 1.6336	* 1.5780	* 1.7921	* 1.6921	* 2.5434	
13	* 1.5262	* 1.4812	* 1.5936	* 1.3452	* 1.2199	* .8568	* .6469	
	* 1.4563	* 1.5856	* 1.4972	* 1.7506	* 1.6914	* 2.2527	* 3.4105	
14	* 1.0539	* 1.4801	* 1.3355	* 1.4448	* .9082	* .6480		
	* 1.7402	* 1.5281	* 1.7796	* 1.6305	* 2.5372	* 3.4074		
15	* .6897	* .9832	* 1.2049	* .8739	F-SUB-Q			
	* 2.5882	* 2.2851	* 1.9530	* 2.6854	M-SUB-Q			

AT 50% POWER, 400 EFPD, THIS IS LEVEL 15 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* .7261	* 1.0881	* 1.0999	* 1.3720	* 1.2873	* 1.5669	* 1.0828	* .7133
	* 2.6927	* 2.1637	* 2.1859	* 1.8150	* 1.9584	* 1.5401	* 1.8724	* 2.7946
9	* 1.0881	* 1.1085	* 1.3730	* 1.3859	* 1.6440	* 1.5005	* 1.5155	* .9971
	* 2.1637	* 1.9784	* 1.6393	* 1.7710	* 1.5504	* 1.6893	* 1.6168	* 2.4388
10	* 1.0999	* 1.3741	* 1.0592	* 1.5422	* 1.4683	* 1.6290	* 1.3473	* 1.2306
	* 2.1859	* 1.3393	* 1.7965	* 1.5972	* 1.7493	* 1.5799	* 1.8954	* 2.0540
11	* 1.3720	* 1.3837	* 1.5412	* 1.1524	* 1.5015	* 1.3484	* 1.4630	* .8804
	* 1.8150	* 1.7724	* 1.5984	* 2.0617	* 1.6687	* 1.8891	* 1.7398	* 2.8862
12	* 1.2873	* 1.6418	* 1.4673	* 1.5015	* .9789	* 1.2242	* .9029	
	* 1.9584	* 1.5526	* 1.7502	* 1.6701	* 1.9328	* 1.8015	* 2.7516	
13	* 1.5669	* 1.4994	* 1.6279	* 1.3484	* 1.2252	* .8461	* .6394	
	* 1.5401	* 1.6899	* 1.5805	* 1.8891	* 1.8008	* 2.4342	* 3.6852	
14	* 1.0828	* 1.5155	* 1.3473	* 1.4619	* .9061	* .6394		
	* 1.8724	* 1.6169	* 1.8961	* 1.7398	* 2.7428	* 3.6820		
15	* .7133	* .9971	* 1.2306	* .8793	F-SUB-Q			
	* 2.7946	* 2.4388	* 2.0548	* 2.8862	M-SUB-Q			

Table 1 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Normal Operations

AT 50% POWER, 400 EFPD, THIS IS LEVEL 14 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* .7240 *	* 1.0978 *	* 1.1031 *	* 1.3634 *	* 1.2745 *	* 1.5840 *	* 1.1610 *	* .7765 *
	* 3.0477 *	* 2.4324 *	* 2.4742 *	* 2.0404 *	* 2.1820 *	* 1.7112 *	* 2.1006 *	* 3.1469 *
9	* 1.0978 *	* 1.1470 *	* 1.3987 *	* 1.3827 *	* 1.6301 *	* 1.4855 *	* 1.5144 *	* .9960 *
	* 2.4324 *	* 2.2494 *	* 1.8419 *	* 1.9881 *	* 1.7149 *	* 1.8712 *	* 1.7874 *	* 2.7088 *
10	* 1.1031 *	* 1.3977 *	* 1.1460 *	* 1.5433 *	* 1.4394 *	* 1.6076 *	* 1.3291 *	* 1.2199 *
	* 2.4742 *	* 1.8417 *	* 2.0308 *	* 1.7841 *	* 1.9459 *	* 1.7437 *	* 2.0884 *	* 2.2608 *
11	* 1.3634 *	* 1.3816 *	* 1.5422 *	* 1.1470 *	* 1.4694 *	* 1.3109 *	* 1.4266 *	* .8557 *
	* 2.0404 *	* 1.9899 *	* 1.7856 *	* 2.3153 *	* 1.8634 *	* 2.1361 *	* 1.9574 *	* 3.2569 *
12	* 1.2745 *	* 1.6279 *	* 1.4384 *	* 1.4683 *	* .9564 *	* 1.1824 *	* .8664 *	
	* 2.1820 *	* 1.7169 *	* 1.9468 *	* 1.8654 *	* 2.1842 *	* 2.0265 *	* 3.1743 *	
13	* 1.5840 *	* 1.4844 *	* 1.6065 *	* 1.3109 *	* 1.1835 *	* .8075 *	* .6094 *	
	* 1.7112 *	* 1.8720 *	* 1.7444 *	* 2.1362 *	* 2.0260 *	* 2.7642 *	* 4.1906 *	
14	* 1.1610 *	* 1.5133 *	* 1.3291 *	* 1.4266 *	* .8697 *	* .6105 *		
	* 2.1006 *	* 1.7881 *	* 2.0884 *	* 1.9574 *	* 3.1627 *	* 4.1845 *		
15	* .7765 *	* .9960 *	* 1.2199 *	* .8547 *	F-SUB-Q			
	* 3.1469 *	* 2.7088 *	* 2.2615 *	* 3.2571 *	M-SUB-Q			

AT 50% POWER, 400 EFPD, THIS IS LEVEL 13 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* .7529 *	* 1.1567 *	* 1.1588 *	* 1.4105 *	* 1.3184 *	* 1.6761 *	* 1.3259 *	* .8836 *
	* 3.3570 *	* 2.6709 *	* 2.6968 *	* 2.2216 *	* 2.3789 *	* 1.8450 *	* 2.2662 *	* 3.3837 *
9	* 1.1567 *	* 1.2445 *	* 1.5326 *	* 1.4373 *	* 1.6858 *	* 1.5283 *	* 1.5969 *	* 1.0432 *
	* 2.6709 *	* 2.4707 *	* 1.9960 *	* 2.1743 *	* 1.8643 *	* 2.0490 *	* 1.9335 *	* 2.9370 *
10	* 1.1588 *	* 1.5326 *	* 1.3623 *	* 1.6129 *	* 1.4673 *	* 1.6536 *	* 1.3623 *	* 1.2638 *
	* 2.6968 *	* 1.9954 *	* 2.2185 *	* 1.9304 *	* 2.1457 *	* 1.9031 *	* 2.2937 *	* 2.4482 *
11	* 1.4105 *	* 1.4362 *	* 1.6108 *	* 1.1963 *	* 1.4951 *	* 1.3216 *	* 1.4501 *	* .8707 *
	* 2.2216 *	* 2.1754 *	* 1.9321 *	* 2.5433 *	* 2.0352 *	* 2.3741 *	* 2.1535 *	* 3.5686 *
12	* 1.3184 *	* 1.6836 *	* 1.4673 *	* 1.4951 *	* .9671 *	* 1.1899 *	* .8718 *	
	* 2.3789 *	* 1.8667 *	* 2.1467 *	* 2.0371 *	* 2.4281 *	* 2.2344 *	* 3.4846 *	
13	* 1.6761 *	* 1.5283 *	* 1.6536 *	* 1.3216 *	* 1.1899 *	* .8011 *	* .6062 *	
	* 1.8450 *	* 2.0499 *	* 1.9040 *	* 2.3741 *	* 2.2344 *	* 3.0809 *	* 4.6513 *	
14	* 1.3259 *	* 1.5958 *	* 1.3623 *	* 1.4501 *	* .8739 *	* .6073 *		
	* 2.2662 *	* 1.9340 *	* 2.2944 *	* 2.1535 *	* 3.4738 *	* 4.6464 *		
15	* .8836 *	* 1.0421 *	* 1.2638 *	* .8707 *	F-SUB-Q			
	* 3.3837 *	* 2.9381 *	* 2.4482 *	* 3.5686 *	M-SUB-Q			

Table 1 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Normal Operations

AT 50% POWER, 400 EFPD, THIS IS LEVEL 12 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* .7626 *	* 1.1802 *	* 1.1760 *	* 1.4266 *	* 1.3248 *	* 1.7040 *	* 1.3752 *	* .9178 *
	* 3.8196 *	* 3.0360 *	* 3.0697 *	* 2.5274 *	* 2.7122 *	* 2.0919 *	* 2.5722 *	* 3.8382 *
9	* 1.1802 *	* 1.2820 *	* 1.5883 *	* 1.4512 *	* 1.6933 *	* 1.5315 *	* 1.6172 *	* 1.0592 *
	* 3.0360 *	* 2.8067 *	* 2.2619 *	* 2.4815 *	* 2.1216 *	* 2.3353 *	* 2.1921 *	* 3.3363 *
10	* 1.1760 *	* 1.5883 *	* 1.4201 *	* 1.6386 *	* 1.4641 *	* 1.6547 *	* 1.3612 *	* 1.2756 *
	* 3.0697 *	* 2.2614 *	* 2.5242 *	* 2.1953 *	* 2.4509 *	* 2.1566 *	* 2.5968 *	* 2.7613 *
11	* 1.4266 *	* 1.4501 *	* 1.6376 *	* 1.2081 *	* 1.4962 *	* 1.3077 *	* 1.4384 *	* .8632 *
	* 2.5274 *	* 2.4837 *	* 2.1975 *	* 2.8746 *	* 2.2944 *	* 2.6875 *	* 2.4477 *	* 4.0440 *
12	* 1.3248 *	* 1.6911 *	* 1.4630 *	* 1.4930 *	* .9607 *	* 1.1717 *	* .8557 *	
	* 2.7122 *	* 2.1246 *	* 2.4510 *	* 2.2966 *	* 2.7388 *	* 2.5102 *	* 3.9292 *	
13	* 1.7040 *	* 1.5315 *	* 1.6547 *	* 1.3077 *	* 1.1727 *	* .7840 *	* .5923 *	
	* 2.0919 *	* 2.3354 *	* 2.1577 *	* 2.6890 *	* 2.5089 *	* 3.4718 *	* 5.2297 *	
14	* 1.3752 *	* 1.6172 *	* 1.3612 *	* 1.4384 *	* .8589 *	* .5933 *		
	* 2.5722 *	* 2.1932 *	* 2.5982 *	* 2.4477 *	* 3.9153 *	* 5.2235 *		
15	* .9178 *	* 1.0592 *	* 1.2756 *	* .8632 *	F-SUB-Q			
	* 3.8382 *	* 3.3378 *	* 2.7629 *	* 4.0475 *	M-SUB-Q			

AT 50% POWER, 400 EFPD, THIS IS LEVEL 11 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* .7615 *	* 1.1781 *	* 1.1695 *	* 1.4180 *	* 1.3098 *	* 1.6900 *	* 1.3677 *	* .9136 *
	* 4.4076 *	* 3.4892 *	* 3.5652 *	* 2.9219 *	* 3.1177 *	* 2.3960 *	* 2.9471 *	* 4.3809 *
9	* 1.1781 *	* 1.2809 *	* 1.5862 *	* 1.4373 *	* 1.6761 *	* 1.5133 *	* 1.6054 *	* 1.0496 *
	* 3.4892 *	* 3.2676 *	* 2.6205 *	* 2.8669 *	* 2.4342 *	* 2.6807 *	* 2.5027 *	* 3.7904 *
10	* 1.1695 *	* 1.5862 *	* 1.4169 *	* 1.6279 *	* 1.4437 *	* 1.6343 *	* 1.3420 *	* 1.2638 *
	* 3.5652 *	* 2.6205 *	* 2.9335 *	* 2.5349 *	* 2.8266 *	* 2.4818 *	* 2.9863 *	* 3.1476 *
11	* 1.4180 *	* 1.4362 *	* 1.6268 *	* 1.1984 *	* 1.4801 *	* 1.2841 *	* 1.4148 *	* .8472 *
	* 2.9219 *	* 2.8688 *	* 2.5363 *	* 3.3145 *	* 2.6405 *	* 3.0974 *	* 2.8383 *	* 4.6812 *
12	* 1.3098 *	* 1.6729 *	* 1.4426 *	* 1.4780 *	* .9468 *	* 1.1503 *	* .8365 *	
	* 3.1177 *	* 2.4369 *	* 2.8283 *	* 2.6420 *	* 3.1547 *	* 2.8839 *	* 4.5321 *	
13	* 1.6900 *	* 1.5133 *	* 1.6333 *	* 1.2841 *	* 1.1503 *	* .7668 *	* .5783 *	
	* 2.3960 *	* 2.6808 *	* 2.4831 *	* 3.0974 *	* 2.8820 *	* 3.9893 *	* 6.0179 *	
14	* 1.3677 *	* 1.6044 *	* 1.3420 *	* 1.4148 *	* .8386 *	* .5794 *		
	* 2.9471 *	* 2.5027 *	* 2.9863 *	* 2.8383 *	* 4.5136 *	* 6.0097 *		
15	* .9136 *	* 1.0496 *	* 1.2638 *	* .8461 *	F-SUB-Q			
	* 4.3809 *	* 3.7904 *	* 3.1476 *	* 4.6862 *	M-SUB-Q			

Table 1 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Normal Operations

AT 50% POWER, 400 EFPD, THIS IS LEVEL 10 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* .7743 *	* 1.1877 *	* 1.1760 *	* 1.4234 *	* 1.3109 *	* 1.6986 *	* 1.3677 *	* .9157 *
	* 4.7536 *	* 3.7720 *	* 3.9227 *	* 3.2292 *	* 3.4810 *	* 2.6793 *	* 3.3115 *	* 4.9120 *
9	* 1.1877 *	* 1.2884 *	* 1.6001 *	* 1.4384 *	* 1.6836 *	* 1.5133 *	* 1.6129 *	* 1.0507 *
	* 3.7720 *	* 3.5942 *	* 2.8894 *	* 3.1966 *	* 2.7205 *	* 3.0156 *	* 2.8051 *	* 4.2713 *
10	* 1.1760 *	* 1.6001 *	* 1.4212 *	* 1.6397 *	* 1.4416 *	* 1.6408 *	* 1.3409 *	* 1.2713 *
	* 3.9227 *	* 2.8894 *	* 3.2482 *	* 2.8140 *	* 3.1827 *	* 2.7909 *	* 3.3824 *	* 3.5367 *
11	* 1.4234 *	* 1.4373 *	* 1.6376 *	* 1.2017 *	* 1.4876 *	* 1.2820 *	* 1.4191 *	* .8493 *
	* 3.2292 *	* 3.1989 *	* 2.8176 *	* 3.6177 *	* 2.8800 *	* 3.4006 *	* 3.2081 *	* 5.2818 *
12	* 1.3109 *	* 1.6815 *	* 1.4405 *	* 1.4855 *	* .9553 *	* 1.1578 *	* .8397 *	
	* 3.4810 *	* 2.7239 *	* 3.1827 *	* 2.8819 *	* 3.4700 *	* 3.1645 *	* 4.9728 *	
13	* 1.6986 *	* 1.5123 *	* 1.6408 *	* 1.2820 *	* 1.1578 *	* .7711 *	* .5794 *	
	* 2.6793 *	* 3.0176 *	* 2.7909 *	* 3.4006 *	* 3.1623 *	* 4.4164 *	* 6.6579 *	
14	* 1.3677 *	* 1.6129 *	* 1.3398 *	* 1.4191 *	* .8429 *	* .5805 *		
	* 3.3115 *	* 2.8069 *	* 3.3824 *	* 3.2081 *	* 4.9561 *	* 6.6479 *		
15	* .9157 *	* 1.0507 *	* 1.2702 *	* .8493 *	F-SUB-Q			
	* 4.9120 *	* 4.2713 *	* 3.5367 *	* 5.2881 *	M-SUB-Q			

AT 50% POWER, 400 EFPD, THIS IS LEVEL 9 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* .7636 *	* 1.1588 *	* 1.1417 *	* 1.3837 *	* 1.2691 *	* 1.6472 *	* 1.3259 *	* .8879 *
	* 5.0931 *	* 3.9720 *	* 4.0116 *	* 3.3065 *	* 3.5942 *	* 2.7804 *	* 3.4403 *	* 5.1286 *
9	* 1.1588 *	* 1.2552 *	* 1.5562 *	* 1.3966 *	* 1.6343 *	* 1.4673 *	* 1.5647 *	* 1.0196 *
	* 3.9720 *	* 3.6687 *	* 2.9630 *	* 3.2869 *	* 2.8122 *	* 3.1221 *	* 2.9258 *	* 4.4791 *
10	* 1.1417 *	* 1.5551 *	* 1.3816 *	* 1.5926 *	* 1.3987 *	* 1.5915 *	* 1.3013 *	* 1.2338 *
	* 4.0116 *	* 2.9610 *	* 3.3314 *	* 2.9008 *	* 3.2893 *	* 2.8932 *	* 3.5254 *	* 3.7119 *
11	* 1.3837 *	* 1.3955 *	* 1.5904 *	* 1.1663 *	* 1.4480 *	* 1.2466 *	* 1.3794 *	* .8215 *
	* 3.3065 *	* 3.2893 *	* 2.9027 *	* 3.9157 *	* 3.1199 *	* 3.6748 *	* 3.3567 *	* 5.5960 *
12	* 1.2691 *	* 1.6311 *	* 1.3977 *	* 1.4459 *	* .9414 *	* 1.1310 *	* .8150 *	
	* 3.5942 *	* 2.8194 *	* 3.2893 *	* 3.1221 *	* 3.7465 *	* 3.4111 *	* 5.3651 *	
13	* 1.6472 *	* 1.4673 *	* 1.5915 *	* 1.2466 *	* 1.1310 *	* .7572 *	* .5655 *	
	* 2.7804 *	* 3.1221 *	* 2.8932 *	* 3.6748 *	* 3.4111 *	* 4.7383 *	* 7.0960 *	
14	* 1.3259 *	* 1.5637 *	* 1.3013 *	* 1.3794 *	* .8182 *	* .5655 *		
	* 3.4403 *	* 2.9258 *	* 3.5254 *	* 3.3542 *	* 5.3456 *	* 7.0847 *		
15	* .8879 *	* 1.0196 *	* 1.2327 *	* .8215 *	F-SUB-Q			
	* 5.1286 *	* 4.4791 *	* 3.7119 *	* 5.6031 *	M-SUB-Q			

Table 1 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Normal Operations

AT 50% POWER, 400 EFPD, THIS IS LEVEL 8 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* .7690	* 1.1642	* 1.1449	* 1.3869	* 1.2713	* 1.6547	* 1.3238	* .8889
	* 4.6633	* 3.7119	* 3.7817	* 3.1309	* 3.4164	* 2.6440	* 3.2844	* 4.8527
9	* 1.1642	* 1.2595	* 1.5679	* 1.3977	* 1.6440	* 1.4694	* 1.5722	* 1.0207
	* 3.7119	* 3.4619	* 2.7962	* 3.1287	* 2.6712	* 2.9790	* 2.7804	* 4.2426
10	* 1.1449	* 1.5679	* 1.3837	* 1.6044	* 1.3998	* 1.6044	* 1.3023	* 1.2424
	* 3.7817	* 2.7980	* 3.1623	* 2.7442	* 3.1353	* 2.7493	* 3.3618	* 3.5030
11	* 1.3869	* 1.3966	* 1.6033	* 1.1706	* 1.4587	* 1.2509	* 1.3912	* .8290
	* 3.1309	* 3.1287	* 2.7476	* 3.6177	* 2.8857	* 3.4059	* 3.1759	* 5.2566
12	* 1.2713	* 1.6429	* 1.3998	* 1.4566	* .9478	* 1.1460	* .8257	*
	* 3.4164	* 2.6760	* 3.1376	* 2.8875	* 3.4755	* 3.1443	* 4.9066	*
13	* 1.6547	* 1.4694	* 1.6033	* 1.2509	* 1.1460	* .7668	* .5730	*
	* 2.6440	* 2.9790	* 2.7493	* 3.4059	* 3.1443	* 4.3641	* 6.5108	*
14	* 1.3238	* 1.5712	* 1.3023	* 1.3912	* .8290	* .5730	*	*
	* 3.2844	* 2.7804	* 3.3644	* 3.1759	* 4.8903	* 6.5012	*	*
15	* .8889	* 1.0207	* 1.2424	* .8290	* F-SUB-Q			
	* 4.8527	* 4.2426	* 3.5030	* 5.2629	* M-SUB-Q			

AT 50% POWER, 400 EFPD, THIS IS LEVEL 7 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* .7647	* 1.1578	* 1.1342	* 1.3741	* 1.2563	* 1.6386	* 1.3077	* .8771
	* 4.2549	* 3.2674	* 3.3239	* 2.7544	* 3.0176	* 2.3354	* 2.9046	* 4.2879
9	* 1.1578	* 1.2499	* 1.5583	* 1.3837	* 1.6322	* 1.4544	* 1.5572	* 1.0100
	* 3.2674	* 3.0363	* 2.4574	* 2.7578	* 2.3565	* 2.6314	* 2.4533	* 3.7465
10	* 1.1342	* 1.5583	* 1.3709	* 1.5958	* 1.3869	* 1.5947	* 1.2906	* 1.2327
	* 3.3239	* 2.4587	* 2.7839	* 2.4144	* 2.7647	* 2.4224	* 2.9630	* 3.0829
11	* 1.3741	* 1.3827	* 1.5947	* 1.1620	* 1.4533	* 1.2456	* 1.3869	* .8236
	* 2.7544	* 2.7596	* 2.4171	* 3.2991	* 2.6205	* 3.0850	* 2.7839	* 4.6291
12	* 1.2563	* 1.6301	* 1.3869	* 1.4523	* .9468	* 1.1503	* .8268	*
	* 3.0176	* 2.3590	* 2.7665	* 2.6221	* 3.1919	* 2.8819	* 4.4745	*
13	* 1.6386	* 1.4544	* 1.5936	* 1.2445	* 1.1503	* .7733	* .5762	*
	* 2.3354	* 2.6314	* 2.4224	* 3.0850	* 2.8800	* 4.0080	* 5.9822	*
14	* 1.3077	* 1.5572	* 1.2906	* 1.3869	* .8300	* .5773	*	*
	* 2.9046	* 2.4547	* 2.9630	* 2.7839	* 4.4565	* 5.9741	*	*
15	* .8771	* 1.0100	* 1.2327	* .8236	* F-SUB-Q			
	* 4.2879	* 3.7465	* 3.0829	* 4.6291	* M-SUB-Q			

Catawba 1 Cycle 9 Core Operating Limits Report

CNEI-0400-24

Appendix A

Page 133 of 204

Revision 6

Table 1 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Normal Operations

AT 50% POWER, 400 EFPD, THIS IS LEVEL 6 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* .7679 *	* 1.1513 *	* 1.1181 *	* 1.3548 *	* 1.2327 *	* 1.6097 *	* 1.2841 *	* .8611 *
	* 3.7882 *	* 2.9200 *	* 2.9850 *	* 2.4684 *	* 2.7172 *	* 2.1002 *	* 2.6128 *	* 3.8677 *
9	* 1.1513 *	* 1.2402 *	* 1.5390 *	* 1.3655 *	* 1.6086 *	* 1.4341 *	* 1.5326 *	* .9939 *
	* 2.9200 *	* 2.7155 *	* 2.2005 *	* 2.4711 *	* 2.1142 *	* 2.3603 *	* 2.2060 *	* 3.3721 *
10	* 1.1181 *	* 1.5390 *	* 1.3559 *	* 1.5776 *	* 1.3730 *	* 1.5754 *	* 1.2745 *	* 1.2134 *
	* 2.9850 *	* 2.2016 *	* 2.4920 *	* 2.1618 *	* 2.4753 *	* 2.1703 *	* 2.6567 *	* 2.7752 *
11	* 1.3548 *	* 1.3645 *	* 1.5765 *	* 1.1545 *	* 1.4501 *	* 1.2445 *	* 1.3784 *	* .8129 *
	* 2.4684 *	* 2.4725 *	* 2.1639 *	* 2.9355 *	* 2.3304 *	* 2.7306 *	* 2.4878 *	* 4.1667 *
12	* 1.2327 *	* 1.6076 *	* 1.3730 *	* 1.4480 *	* .9596 *	* 1.1685 *	* .8300 *	
	* 2.7172 *	* 2.1162 *	* 2.4753 *	* 2.3329 *	* 2.8466 *	* 2.5688 *	* 3.9935 *	
13	* 1.6097 *	* 1.4341 *	* 1.5754 *	* 1.2445 *	* 1.1685 *	* .7958 *	* .5880 *	
	* 2.1002 *	* 2.3603 *	* 2.1703 *	* 2.7306 *	* 2.5688 *	* 3.5854 *	* 5.3521 *	
14	* 1.2841 *	* 1.5326 *	* 1.2745 *	* 1.3794 *	* .8332 *	* .5880 *		
	* 2.6128 *	* 2.2071 *	* 2.6567 *	* 2.4878 *	* 3.9791 *	* 5.3392 *		
15	* .8611 *	* .9939 *	* 1.2134 *	* .8118 *	F-SUB-Q			
	* 3.8677 *	* 3.3721 *	* 2.7752 *	* 4.1667 *	M-SUB-Q			

AT 50% POWER, 400 EFPD, THIS IS LEVEL 5 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* .8557 *	* 1.1952 *	* 1.1481 *	* 1.3859 *	* 1.2574 *	* 1.6429 *	* 1.3034 *	* .8761 *
	* 3.2222 *	* 2.5363 *	* 2.6221 *	* 2.1713 *	* 2.3948 *	* 1.8474 *	* 2.3134 *	* 3.4217 *
9	* 1.1952 *	* 1.2788 *	* 1.5851 *	* 1.3955 *	* 1.6526 *	* 1.4651 *	* 1.5701 *	* 1.0132 *
	* 2.5363 *	* 2.3806 *	* 1.9246 *	* 2.1756 *	* 1.8513 *	* 2.0775 *	* 1.9407 *	* 2.9790 *
10	* 1.1481 *	* 1.5840 *	* 1.3912 *	* 1.6268 *	* 1.4094 *	* 1.6258 *	* 1.3045 *	* 1.2456 *
	* 2.6221 *	* 1.9246 *	* 2.1896 *	* 1.8876 *	* 2.1735 *	* 1.8949 *	* 2.3391 *	* 2.4357 *
11	* 1.3859 *	* 1.3955 *	* 1.6258 *	* 1.2070 *	* 1.5283 *	* 1.3034 *	* 1.4341 *	* .8397 *
	* 2.1713 *	* 2.1767 *	* 1.8892 *	* 2.5176 *	* 1.9923 *	* 2.3590 *	* 2.1639 *	* 3.6385 *
12	* 1.2574 *	* 1.6515 *	* 1.4094 *	* 1.5272 *	* 1.0806 *	* 1.2777 *	* .8857 *	
	* 2.3948 *	* 1.8528 *	* 2.1745 *	* 1.9941 *	* 2.4465 *	* 2.1961 *	* 3.4033 *	
13	* 1.6429 *	* 1.4651 *	* 1.6258 *	* 1.3034 *	* 1.2777 *	* .8879 *	* .6372 *	
	* 1.8474 *	* 2.0775 *	* 1.8957 *	* 2.3590 *	* 2.1950 *	* 3.0872 *	* 4.5764 *	
14	* 1.3034 *	* 1.5701 *	* 1.3045 *	* 1.4351 *	* .8889 *	* .6383 *		
	* 2.3134 *	* 1.9407 *	* 2.3391 *	* 2.1639 *	* 3.3902 *	* 4.5670 *		
15	* .8761 *	* 1.0132 *	* 1.2456 *	* .8397 *	F-SUB-Q			
	* 3.4217 *	* 2.9790 *	* 2.4357 *	* 3.6415 *	M-SUB-Q			

Catawba 1 Cycle 9 Core Operating Limits Report

CNEI-0400-24

Appendix A

Page 134 of 204

Revision 6

Table 1 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Normal Operations

AT 50% POWER, 400 EFPD, THIS IS LEVEL 4 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* .9436 *	* 1.2306 *	* 1.1470 *	* 1.3837 *	* 1.2456 *	* 1.6290 *	* 1.2948 *	* .8697 *
	* 2.9472 *	* 2.2729 *	* 2.4065 *	* 1.9932 *	* 2.2137 *	* 1.7069 *	* 2.1346 *	* 3.1691 *
9	* 1.2306 *	* 1.2895 *	* 1.5829 *	* 1.3944 *	* 1.6451 *	* 1.4630 *	* 1.5615 *	* 1.0078 *
	* 2.2729 *	* 2.1660 *	* 1.7655 *	* 1.9959 *	* 1.7036 *	* 1.9072 *	* 1.7876 *	* 2.7493 *
10	* 1.1470 *	* 1.5819 *	* 1.3955 *	* 1.6301 *	* 1.4148 *	* 1.6268 *	* 1.3066 *	* 1.2381 *
	* 2.4065 *	* 1.7662 *	* 2.0040 *	* 1.7303 *	* 1.9860 *	* 1.7371 *	* 2.1419 *	* 2.2486 *
11	* 1.3837 *	* 1.3944 *	* 1.6290 *	* 1.2359 *	* 1.5787 *	* 1.3388 *	* 1.4512 *	* .8397 *
	* 1.9932 *	* 1.9968 *	* 1.7316 *	* 2.2977 *	* 1.8163 *	* 2.1305 *	* 1.9639 *	* 3.3466 *
12	* 1.2456 *	* 1.6440 *	* 1.4148 *	* 1.5776 *	* 1.2456 *	* 1.4019 *	* .9168 *	
	* 2.2137 *	* 1.7049 *	* 1.9869 *	* 1.8178 *	* 2.2160 *	* 1.9932 *	* 3.1155 *	
13	* 1.6290 *	* 1.4630 *	* 1.6258 *	* 1.3388 *	* 1.4030 *	* .9896 *	* .6747 *	
	* 1.7069 *	* 1.9072 *	* 1.7371 *	* 2.1305 *	* 1.9923 *	* 2.7821 *	* 4.1588 *	
14	* 1.2948 *	* 1.5615 *	* 1.3066 *	* 1.4512 *	* .9200 *	* .6758 *		
	* 2.1346 *	* 1.7876 *	* 2.1419 *	* 1.9639 *	* 3.1045 *	* 4.1549 *		
15	* .8697 *	* 1.0078 *	* 1.2381 *	* .8397 *	F-SUB-Q			
	* 3.1691 *	* 2.7510 *	* 2.2486 *	* 3.3466 *	M-SUB-Q			

AT 50% POWER, 400 EFPD, THIS IS LEVEL 3 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* .9982 *	* 1.2723 *	* 1.1706 *	* 1.4019 *	* 1.2563 *	* 1.6397 *	* 1.3045 *	* .8761 *
	* 2.6051 *	* 2.0533 *	* 2.2126 *	* 1.8382 *	* 2.0524 *	* 1.5851 *	* 1.9842 *	* 2.9512 *
9	* 1.2723 *	* 1.3141 *	* 1.6022 *	* 1.4094 *	* 1.6611 *	* 1.4791 *	* 1.5776 *	* 1.0174 *
	* 2.0533 *	* 1.9789 *	* 1.6283 *	* 1.8451 *	* 1.5755 *	* 1.7620 *	* 1.6557 *	* 2.5569 *
10	* 1.1706 *	* 1.6011 *	* 1.4137 *	* 1.6526 *	* 1.4341 *	* 1.6483 *	* 1.3259 *	* 1.2509 *
	* 2.2126 *	* 1.6289 *	* 1.8474 *	* 1.5931 *	* 1.8291 *	* 1.5994 *	* 1.9745 *	* 2.0883 *
11	* 1.4019 *	* 1.4084 *	* 1.6515 *	* 1.2841 *	* 1.6311 *	* 1.3805 *	* 1.4833 *	* .8568 *
	* 1.8382 *	* 1.8459 *	* 1.5942 *	* 2.0706 *	* 1.6373 *	* 1.9288 *	* 1.7927 *	* 3.0743 *
12	* 1.2563 *	* 1.6600 *	* 1.4341 *	* 1.6301 *	* 1.3334 *	* 1.4898 *	* .9564 *	
	* 2.0524 *	* 1.5772 *	* 1.8298 *	* 1.6386 *	* 2.0022 *	* 1.7985 *	* 2.7909 *	
13	* 1.6397 *	* 1.4801 *	* 1.6483 *	* 1.3816 *	* 1.4898 *	* 1.0635 *	* .7111 *	
	* 1.5851 *	* 1.7620 *	* 1.5994 *	* 1.9288 *	* 1.7978 *	* 2.5247 *	* 3.7624 *	
14	* 1.3045 *	* 1.5776 *	* 1.3259 *	* 1.4833 *	* .9607 *	* .7122 *		
	* 1.9842 *	* 1.6557 *	* 1.9745 *	* 1.7927 *	* 2.7821 *	* 3.7560 *		
15	* .8761 *	* 1.0174 *	* 1.2509 *	* .8568 *	F-SUB-Q			
	* 2.9512 *	* 2.5569 *	* 2.0883 *	* 3.0743 *	M-SUB-Q			

Table 1 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Normal Operations

AT 50% POWER, 400 EFPD, THIS IS LEVEL 2 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* .9735 *	* 1.2242 *	* 1.1192 *	* 1.3313 *	* 1.1899 *	* 1.5347 *	* 1.2306 *	* .8257 *
	* 2.5451 *	* 2.0251 *	* 2.2049 *	* 1.8520 *	* 2.0736 *	* 1.6194 *	* 2.0159 *	* 3.0094 *
9	* 1.2242 *	* 1.2488 *	* 1.5080 *	* 1.3302 *	* 1.5594 *	* 1.3998 *	* 1.4780 *	* .9543 *
	* 2.0251 *	* 1.9824 *	* 1.6496 *	* 1.8669 *	* 1.6012 *	* 1.7790 *	* 1.6906 *	* 2.6174 *
10	* 1.1192 *	* 1.5080 *	* 1.3345 *	* 1.5519 *	* 1.3548 *	* 1.5508 *	* 1.2584 *	* 1.1567 *
	* 2.2049 *	* 1.6496 *	* 1.8685 *	* 1.6146 *	* 1.8459 *	* 1.6211 *	* 1.9896 *	* 2.1671 *
11	* 1.3313 *	* 1.3291 *	* 1.5508 *	* 1.2263 *	* 1.5412 *	* 1.3163 *	* 1.3912 *	* .8097 *
	* 1.8520 *	* 1.8677 *	* 1.6158 *	* 2.0736 *	* 1.6526 *	* 1.9313 *	* 1.8215 *	* 3.1155 *
12	* 1.1899 *	* 1.5583 *	* 1.3548 *	* 1.5401 *	* 1.2798 *	* 1.4126 *	* .9178 *	
	* 2.0736 *	* 1.6029 *	* 1.8459 *	* 1.6539 *	* 1.9932 *	* 1.8126 *	* 2.7909 *	
13	* 1.5347 *	* 1.4009 *	* 1.5497 *	* 1.3163 *	* 1.4126 *	* 1.0239 *	* .6822 *	
	* 1.6194 *	* 1.7790 *	* 1.6211 *	* 1.9313 *	* 1.8126 *	* 2.5061 *	* 3.7656 *	
14	* 1.2306 *	* 1.4780 *	* 1.2584 *	* 1.3912 *	* .9211 *	* .6833 *		
	* 2.0159 *	* 1.6912 *	* 1.9896 *	* 1.8215 *	* 2.7821 *	* 3.7624 *		
15	* .8257 *	* .9532 *	* 1.1578 *	* .8097 *	F-SUB-Q			
	* 3.0094 *	* 2.6174 *	* 2.1671 *	* 3.1155 *	M-SUB-Q			

AT 50% POWER, 400 EFPD, THIS IS LEVEL 1 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* .7551 *	* .9157 *	* .8407 *	* .9842 *	* .8921 *	* 1.1288 *	* .8954 *	* .6062 *
	* 3.1827 *	* 2.6236 *	* 2.8540 *	* 2.4424 *	* 2.7006 *	* 2.1408 *	* 2.7039 *	* 4.0044 *
9	* .9157 *	* .9275 *	* 1.1235 *	* .9746 *	* 1.1599 *	* 1.0314 *	* 1.0678 *	* .6908 *
	* 2.6236 *	* 2.5944 *	* 2.1481 *	* 2.4794 *	* 2.0902 *	* 2.3503 *	* 2.2776 *	* 3.5395 *
10	* .8407 *	* 1.1235 *	* .9746 *	* 1.1513 *	* .9939 *	* 1.1535 *	* .9286 *	* .7958 *
	* 2.8540 *	* 2.1481 *	* 2.4920 *	* 2.1082 *	* 2.4451 *	* 2.1132 *	* 2.6299 *	* 3.0807 *
11	* .9842 *	* .9735 *	* 1.1513 *	* .9146 *	* 1.1374 *	* .9650 *	* .9853 *	* .5848 *
	* 2.4424 *	* 2.4808 *	* 2.1102 *	* 2.6874 *	* 2.1597 *	* 2.5524 *	* 2.5047 *	* 4.2183 *
12	* .8921 *	* 1.1588 *	* .9939 *	* 1.1363 *	* .9371 *	* 1.0239 *	* .6769 *	
	* 2.7006 *	* 2.0922 *	* 2.4465 *	* 2.1618 *	* 2.6456 *	* 2.4411 *	* 3.6840 *	
13	* 1.1288 *	* 1.0314 *	* 1.1535 *	* .9650 *	* 1.0239 *	* .7604 *	* .4969 *	
	* 2.1408 *	* 2.3503 *	* 2.1132 *	* 2.5524 *	* 2.4411 *	* 3.2967 *	* 5.0582 *	
14	* .8954 *	* 1.0678 *	* .9286 *	* .9864 *	* .6790 *	* .4980 *		
	* 2.7039 *	* 2.2776 *	* 2.6299 *	* 2.5047 *	* 3.6748 *	* 5.0524 *		
15	* .6062 *	* .6908 *	* .7958 *	* .5848 *	F-SUB-Q			
	* 4.0044 *	* 3.5423 *	* 3.0807 *	* 4.2183 *	M-SUB-Q			

Table 2
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Power Escalation

AT 100% POWER, 4 EFPD, THIS IS LEVEL 18 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	.6940	.8675	.8032	.8932	.7850	.9189	.7422	.4809
	* 2.1227	* 1.8740	* 2.0737	* 1.8306	* 2.0548	* 1.7361	* 2.1380	* 3.2589
9	.8675	.8932	1.0014	.8761	.9660	.8525	.8279	.5441
	* 1.8740	* 1.8837	* 1.6560	* 1.8732	* 1.6852	* 1.8945	* 1.9217	* 2.9147
10	.8032	1.0014	.8889	.9810	.8568	.9221	.7486	.5773
	* 2.0737	* 1.6560	* 1.8645	* 1.6795	* 1.9216	* 1.7713	* 2.1539	* 2.7590
11	.8932	.8761	.9800	.7604	.8846	.7690	.7326	.4498
	* 1.8306	* 1.8750	* 1.6809	* 2.1985	* 1.8292	* 2.1357	* 2.2677	* 3.6032
12	.7850	.9639	.8557	.8836	.6779	.7004	.5173	
	* 2.0548	* 1.6880	* 1.9252	* 1.8325	* 2.1195	* 2.0714	* 3.0694	
13	.9189	.8514	.9211	.7679	.7004	.5323	.3577	
	* 1.7361	* 1.8981	* 1.7744	* 2.1378	* 2.0734	* 2.6248	* 4.2649	
14	.7422	.8268	.7476	.7315	.5173	.3577		
	* 2.1380	* 1.9235	* 2.1563	* 2.2677	* 3.0691	* 4.2649		
15	.4809	.5441	.5762	.4487	F-SUB-Q			
	* 3.2589	* 2.9149	* 2.7627	* 3.6093	M-SUB-Q			

AT 100% POWER, 4 EFPD, THIS IS LEVEL 17 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	1.0571	1.2852	1.1267	1.2906	1.0785	1.2177	1.0764	.6940
	* 1.5601	* 1.3173	* 1.5627	* 1.3164	* 1.5533	* 1.3676	* 1.5268	* 2.3438
9	1.2852	1.2723	1.3227	1.2552	1.2595	1.2059	1.1802	.8150
	* 1.3173	* 1.3647	* 1.3164	* 1.3557	* 1.3521	* 1.3927	* 1.4042	* 2.0218
10	1.1267	1.3227	1.2756	1.2916	1.2177	1.2370	1.0742	.9136
	* 1.5627	* 1.3164	* 1.3529	* 1.3284	* 1.4080	* 1.3721	* 1.5618	* 1.8139
11	1.2906	1.2552	1.2927	1.0164	1.1963	1.1245	1.1074	.6790
	* 1.3164	* 1.3556	* 1.3266	* 1.6652	* 1.4425	* 1.5125	* 1.5526	* 2.4801
12	1.0785	1.2574	1.2156	1.1920	1.0142	1.0946	.7743	
	* 1.5533	* 1.3566	* 1.4099	* 1.4473	* 1.4934	* 1.4645	* 2.1606	
13	1.2177	1.2038	1.2349	1.1235	1.0946	.8600	.5441	
	* 1.3676	* 1.3946	* 1.3740	* 1.5136	* 1.4655	* 1.8217	* 2.9819	
14	1.0764	1.1792	1.0742	1.1074	.7754	.5451		
	* 1.5268	* 1.4052	* 1.5630	* 1.5526	* 2.1582	* 2.9775		
15	.6940	.8140	.9125	.6790	F-SUB-Q			
	* 2.3438	* 2.0238	* 1.8155	* 2.4831	M-SUB-Q			

Table 2 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Power Escalation

AT 100% POWER, 4 EFPD, THIS IS LEVEL 16 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.2445	* 1.5165	* 1.2768	* 1.4673	* 1.2070	* 1.3912	* 1.2316	* .7904 *
	* 1.4503	* 1.1968	* 1.4426	* 1.2087	* 1.4480	* 1.2451	* 1.3882	* 2.1382 *
9	* 1.5165	* 1.4544	* 1.5080	* 1.4148	* 1.4287	* 1.3645	* 1.3773	* .9532 *
	* 1.1968	* 1.2538	* 1.2094	* 1.2555	* 1.2361	* 1.2843	* 1.2533	* 1.7993 *
10	* 1.2788	* 1.5080	* 1.4319	* 1.4641	* 1.3677	* 1.4148	* 1.2424	* 1.1010 *
	* 1.4426	* 1.2101	* 1.2623	* 1.2244	* 1.3135	* 1.2533	* 1.4098	* 1.5649 *
11	* 1.4673	* 1.4148	* 1.4662	* 1.1578	* 1.3805	* 1.3098	* 1.3409	* .8022 *
	* 1.2087	* 1.2547	* 1.2223	* 1.5403	* 1.3042	* 1.3669	* 1.3431	* 2.1900 *
12	* 1.2070	* 1.4266	* 1.3645	* 1.3794	* 1.2863	* 1.3527	* .9189	*
	* 1.4480	* 1.2420	* 1.3151	* 1.3058	* 1.3542	* 1.2808	* 1.9249	*
13	* 1.3912	* 1.3623	* 1.4126	* 1.3088	* 1.3527	* 1.0614	* .6490	*
	* 1.2451	* 1.2859	* 1.2556	* 1.3678	* 1.2815	* 1.6201	* 2.6680	*
14	* 1.2316	* 1.3752	* 1.2413	* 1.3398	* .9211	* .6501	*	
	* 1.3882	* 1.2549	* 1.4117	* 1.3431	* 1.9213	* 2.6612	*	
15	* .7904	* .9521	* 1.0999	* .8022	* F-SUB-Q			
	* 2.1382	* 1.8009	* 1.5661	* 2.1923	* M-SUB-Q			

AT 100% POWER, 4 EFPD, THIS IS LEVEL 15 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.3098 *	1.6108 *	1.3462 *	1.5497 *	1.2723 *	1.4930 *	1.3152 *	.8375 *
	* 1.4604 *	1.1913 *	1.4323 *	1.2018 *	1.4397 *	1.2082 *	1.3609 *	2.1131 *
9	* 1.6108 *	1.5230 *	1.6011 *	1.4823 *	1.5230 *	1.4555 *	1.4930 *	1.0260 *
	* 1.1913 *	1.2626 *	1.1957 *	1.2562 *	1.2166 *	1.2616 *	1.2096 *	1.7489 *
10	* 1.3462 *	1.6001 *	1.4994 *	1.5562 *	1.4394 *	1.5197 *	1.3377 *	1.2070 *
	* 1.4323 *	1.1951 *	1.2645 *	1.2081 *	1.3085 *	1.2229 *	1.3715 *	1.4939 *
11	* 1.5497 *	1.4833 *	1.5583 *	1.2477 *	1.4994 *	1.4159 *	1.4791 *	.8729 *
	* 1.2018 *	1.2555 *	1.2067 *	1.5124 *	1.2565 *	1.3277 *	1.2758 *	2.1089 *
12	* 1.2723 *	1.5197 *	1.4362 *	1.4983 *	1.3987 *	1.5058 *	1.0057 *	
	* 1.4397 *	1.2222 *	1.3117 *	1.2573 *	1.3241 *	1.2279 *	1.8594 *	
13	* 1.4930 *	1.4533 *	1.5176 *	1.4148 *	1.5058 *	1.1674 *	.7069 *	
	* 1.2082 *	1.2631 *	1.2250 *	1.3285 *	1.2279 *	1.5760 *	2.6040 *	
14	* 1.3152 *	1.4908 *	1.3355 *	1.4700 *	1.0078 *	.7090 *		
	* 1.3609 *	1.2109 *	1.3732 *	1.2758 *	1.8545 *	2.5976 *		
15	* .8375 *	1.0249 *	1.2059 *	.8729 *	F-SUB-Q			
	* 2.1131 *	1.7504 *	1.4950 *	2.1110 *	M-SUB-Q			

Table 2 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Power Escalation

AT 100% POWER, 4 EFPD, THIS IS LEVEL 14 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.2948	* 1.6011	* 1.3366	* 1.5476	* 1.2713	* 1.5144	* 1.3280	* .8397
	* 1.5454	* 1.2518	* 1.5016	* 1.2667	* 1.5188	* 1.2535	* 1.4194	* 2.2220
9	* 1.6011	* 1.5037	* 1.6022	* 1.4769	* 1.5422	* 1.4705	* 1.5197	* 1.0389
	* 1.2518	* 1.3353	* 1.2477	* 1.3287	* 1.2661	* 1.3142	* 1.2506	* 1.8174
10	* 1.3366	* 1.6022	* 1.4908	* 1.5626	* 1.4405	* 1.5412	* 1.3591	* 1.2316
	* 1.5016	* 1.2477	* 1.3372	* 1.2668	* 1.3720	* 1.2684	* 1.4194	* 1.5385
11	* 1.5476	* 1.4769	* 1.5647	* 1.2627	* 1.5283	* 1.4405	* 1.5176	* .8857
	* 1.2667	* 1.3287	* 1.2654	* 1.5646	* 1.2870	* 1.3639	* 1.2951	* 2.1857
12	* 1.2713	* 1.5390	* 1.4373	* 1.5272	* 1.4234	* 1.5465	* 1.0239	*
	* 1.5189	* 1.2684	* 1.3741	* 1.2878	* 1.3696	* 1.2585	* 1.9125	*
13	* 1.5144	* 1.4683	* 1.5390	* 1.4394	* 1.5455	* 1.1910	* .7176	*
	* 1.2535	* 1.3158	* 1.2706	* 1.3642	* 1.2585	* 1.6295	* 2.7010	*
14	* 1.3280	* 1.5176	* 1.3580	* 1.5165	* 1.0260	* .7197	*	*
	* 1.4194	* 1.2521	* 1.4213	* 1.2951	* 1.9075	* 2.6943	*	*
15	* .8397	* 1.0378	* 1.2306	* .8846	* F-SUB-Q			
	* 2.2220	* 1.8190	* 1.5407	* 2.1879	* M-SUB-Q			

AT 100% POWER, 4 EFPD, THIS IS LEVEL 13 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.3120	* 1.6354	* 1.3666	* 1.5904	* 1.3077	* 1.5754	* 1.3730	* .8622
	* 1.5983	* 1.2800	* 1.5304	* 1.3012	* 1.5610	* 1.2739	* 1.4519	* 2.2878
9	* 1.6354	* 1.5262	* 1.6451	* 1.5112	* 1.6011	* 1.5230	* 1.5851	* 1.0753
	* 1.2800	* 1.3717	* 1.2672	* 1.3691	* 1.2816	* 1.3387	* 1.2658	* 1.8527
10	* 1.3666	* 1.6451	* 1.5230	* 1.6097	* 1.4833	* 1.6011	* 1.4137	* 1.2884
	* 1.5304	* 1.2674	* 1.3671	* 1.2906	* 1.3888	* 1.2816	* 1.4387	* 1.5500
11	* 1.5904	* 1.5112	* 1.6119	* 1.3109	* 1.5926	* 1.4962	* 1.5936	* .9253
	* 1.3012	* 1.3691	* 1.2890	* 1.5759	* 1.2912	* 1.3718	* 1.2806	* 2.1892
12	* 1.3077	* 1.5979	* 1.4812	* 1.5904	* 1.4769	* 1.6215	* 1.0699	*
	* 1.5610	* 1.2838	* 1.3906	* 1.2922	* 1.3901	* 1.2632	* 1.9106	*
13	* 1.5754	* 1.5208	* 1.5979	* 1.4951	* 1.6215	* 1.2381	* .7433	*
	* 1.2739	* 1.3404	* 1.2838	* 1.3724	* 1.2637	* 1.6552	* 2.7381	*
14	* 1.3730	* 1.5829	* 1.4116	* 1.5926	* 1.0731	* .7454	*	*
	* 1.4519	* 1.2679	* 1.4404	* 1.2806	* 1.9050	* 2.7312	*	*
15	* .8622	* 1.0742	* 1.2873	* .9243	* F-SUB-Q			
	* 2.2878	* 1.8543	* 1.5522	* 2.1914	* M-SUB-Q			

Table 2 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Power Escalation

AT 100% POWER, 4 EFPD, THIS IS LEVEL 12 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.2948	* 1.6247	* 1.3559	* 1.5883	* 1.3055	* 1.5872	* 1.3773	* .8600
	* 1.6941	* 1.3460	* 1.6130	* 1.3624	* 1.6444	* 1.3305	* 1.5239	* 2.4149
9	* 1.6247	* 1.5123	* 1.6429	* 1.5058	* 1.6119	* 1.5315	* 1.6002	* 1.0785
	* 1.3460	* 1.4476	* 1.3267	* 1.4367	* 1.3269	* 1.3923	* 1.3185	* 1.9403
10	* 1.3559	* 1.6418	* 1.5155	* 1.6108	* 1.4887	* 1.6129	* 1.4255	* 1.3002
	* 1.6130	* 1.3275	* 1.4358	* 1.3453	* 1.4444	* 1.3269	* 1.4914	* 1.6109
11	* 1.5883	* 1.5058	* 1.6129	* 1.3163	* 1.6076	* 1.5080	* 1.6140	* .9296
	* 1.3624	* 1.4360	* 1.3436	* 1.6366	* 1.3303	* 1.4175	* 1.3187	* 2.2698
12	* 1.3055	* 1.6086	* 1.4865	* 1.6054	* 1.4876	* 1.6408	* 1.0774	*
	* 1.6444	* 1.3293	* 1.4468	* 1.3319	* 1.4381	* 1.2991	* 1.9776	*
13	* 1.5872	* 1.5294	* 1.6097	* 1.5069	* 1.6408	* 1.2445	* .7433	*
	* 1.3305	* 1.3941	* 1.3293	* 1.4184	* 1.2991	* 1.7123	* 2.8448	*
14	* 1.3773	* 1.5969	* 1.4234	* 1.6140	* 1.0806	* .7454	*	*
	* 1.5239	* 1.3201	* 1.4924	* 1.3192	* 1.9723	* 2.8375	*	*
15	* .8600	* 1.0774	* 1.2991	* .9286	* F-SUB-Q			
	* 2.4149	* 1.9420	* 1.6123	* 2.2721	* M-SUB-Q			

AT 100% POWER, 4 EFPD, THIS IS LEVEL 11 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.2702	* 1.6033	* 1.3345	* 1.5733	* 1.2916	* 1.5819	* 1.3687	* .8493
	* 1.8097	* 1.4277	* 1.7131	* 1.4372	* 1.7415	* 1.4002	* 1.6098	* 2.5618
9	* 1.6033	* 1.4887	* 1.6268	* 1.4887	* 1.6076	* 1.5251	* 1.5969	* 1.0699
	* 1.4277	* 1.5397	* 1.3963	* 1.5186	* 1.3875	* 1.4595	* 1.3826	* 2.0460
10	* 1.3345	* 1.6258	* 1.4973	* 1.5979	* 1.4801	* 1.6086	* 1.4212	* 1.2948
	* 1.7131	* 1.3970	* 1.5155	* 1.4143	* 1.5136	* 1.3866	* 1.5561	* 1.6878
11	* 1.5733	* 1.4887	* 1.5990	* 1.3066	* 1.6065	* 1.5037	* 1.6151	* .9211
	* 1.4372	* 1.5177	* 1.4127	* 1.7239	* 1.3893	* 1.4848	* 1.3732	* 2.3834
12	* 1.2916	* 1.6044	* 1.4791	* 1.6054	* 1.4812	* 1.6408	* 1.0699	*
	* 1.7415	* 1.3901	* 1.5150	* 1.3902	* 1.5077	* 1.3564	* 2.0790	*
13	* 1.5819	* 1.5230	* 1.6054	* 1.5037	* 1.6408	* 1.2370	* .7358	*
	* 1.4002	* 1.4613	* 1.3891	* 1.4848	* 1.3564	* 1.7993	* 3.0019	*
14	* 1.3687	* 1.5936	* 1.4201	* 1.6140	* 1.0731	* .7368	*	*
	* 1.6098	* 1.3843	* 1.5572	* 1.3732	* 2.0731	* 2.9938	*	*
15	* .8493	* 1.0689	* 1.2938	* .9200	* F-SUB-Q			
	* 2.5618	* 2.0478	* 1.6902	* 2.3838	* M-SUB-Q			

Table 2 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Power Escalation

AT 100% POWER, 4 EFPD, THIS IS LEVEL 10 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.2691	* 1.6161	* 1.3420	* 1.5915	* 1.3034	* 1.6097	* 1.3837	* .8547
	* 1.8193	* 1.4316	* 1.7202	* 1.4523	* 1.7683	* 1.4353	* 1.6657	* 2.6748
9	* 1.6161	* 1.4940	* 1.6440	* 1.5005	* 1.6354	* 1.5497	* 1.6279	* 1.0806
	* 1.4316	* 1.5479	* 1.4079	* 1.5404	* 1.4160	* 1.4935	* 1.4206	* 2.1241
10	* 1.3420	* 1.6440	* 1.5069	* 1.6172	* 1.5005	* 1.6365	* 1.4437	* 1.3173
	* 1.7202	* 1.4079	* 1.5350	* 1.4307	* 1.5457	* 1.4151	* 1.6029	* 1.7401
11	* 1.5915	* 1.5005	* 1.6194	* 1.3238	* 1.6376	* 1.5283	* 1.6515	* .9350
	* 1.4523	* 1.5393	* 1.4298	* 1.7515	* 1.4206	* 1.5223	* 1.4041	* 2.4565
12	* 1.3034	* 1.6311	* 1.4983	* 1.6365	* 1.5026	* 1.6761	* 1.0892	*
	* 1.7683	* 1.4188	* 1.5468	* 1.4215	* 1.5479	* 1.3885	* 2.1295	*
13	* 1.6097	* 1.5465	* 1.6333	* 1.5272	* 1.6761	* 1.2520	* .7411	*
	* 1.4353	* 1.4955	* 1.4178	* 1.5223	* 1.3885	* 1.8559	* 3.1060	*
14	* 1.3837	* 1.6247	* 1.4426	* 1.6504	* 1.0924	* .7433	*	*
	* 1.6657	* 1.4224	* 1.6041	* 1.4048	* 2.1234	* 3.0973	*	*
15	* .8547	* 1.0796	* 1.3163	* .9339	* F-SUB-Q			
	* 2.6748	* 2.1261	* 1.7414	* 2.4592	* M-SUB-Q			

AT 100% POWER, 4 EFPD, THIS IS LEVEL 9 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.2284	* 1.5744	* 1.3002	* 1.5540	* 1.2670	* 1.5787	* 1.3516	* .8322
	* 1.8268	* 1.4307	* 1.7269	* 1.4495	* 1.7697	* 1.4270	* 1.6595	* 2.6825
9	* 1.5744	* 1.4512	* 1.6044	* 1.4619	* 1.6044	* 1.5197	* 1.5979	* 1.0560
	* 1.4307	* 1.5490	* 1.4043	* 1.5382	* 1.4061	* 1.4835	* 1.4106	* 2.1234
10	* 1.3002	* 1.6044	* 1.4673	* 1.5797	* 1.4694	* 1.6065	* 1.4169	* 1.2895
	* 1.7269	* 1.4062	* 1.5350	* 1.4270	* 1.5371	* 1.4052	* 1.5914	* 1.7405
11	* 1.5540	* 1.4619	* 1.5819	* 1.2906	* 1.6108	* 1.4994	* 1.6247	* .9104
	* 1.4495	* 1.5382	* 1.4252	* 1.7501	* 1.4106	* 1.5119	* 1.3946	* 2.4642
12	* 1.2670	* 1.6011	* 1.4673	* 1.6097	* 1.4726	* 1.6472	* 1.0624	*
	* 1.7697	* 1.4097	* 1.5393	* 1.4115	* 1.5404	* 1.3806	* 2.1274	*
13	* 1.5787	* 1.5176	* 1.6033	* 1.4994	* 1.6472	* 1.2252	* .7219	*
	* 1.4270	* 1.4865	* 1.4079	* 1.5119	* 1.3806	* 1.8513	* 3.1265	*
14	* 1.3516	* 1.5947	* 1.4159	* 1.6236	* 1.0656	* .7240	*	*
	* 1.6595	* 1.4124	* 1.5925	* 1.3955	* 2.1193	* 3.1177	*	*
15	* .8322	* 1.0549	* 1.2873	* .9093	* F-SUB-Q			
	* 2.6825	* 2.1254	* 1.7432	* 2.4670	* M-SUB-Q			

Catawba 1 Cycle 9 Core Operating Limits Report

CNEI-0400-24

Appendix A

Page 141 of 204

Revision 6

Table 2 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Power Escalation

AT 100% POWER, 4 EFPD, THIS IS LEVEL 8 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.2263 *	* 1.5829 *	* 1.3066 *	* 1.5669 *	* 1.2766 *	* 1.6011 *	* 1.3634 *	* .8365 *
	* 1.7783 *	* 1.3806 *	* 1.6708 *	* 1.3963 *	* 1.7031 *	* 1.3620 *	* 1.5887 *	* 2.5544 *
9	* 1.5829 *	* 1.4544 *	* 1.6183 *	* 1.4694 *	* 1.6258 *	* 1.5369 *	* 1.6226 *	* 1.0646 *
	* 1.3806 *	* 1.5027 *	* 1.3528 *	* 1.4895 *	* 1.3495 *	* 1.4248 *	* 1.3442 *	* 2.0236 *
10	* 1.3066 *	* 1.6183 *	* 1.4726 *	* 1.5947 *	* 1.4833 *	* 1.6279 *	* 1.4341 *	* 1.3098 *
	* 1.6708 *	* 1.3536 *	* 1.4865 *	* 1.3738 *	* 1.4795 *	* 1.3478 *	* 1.5266 *	* 1.6491 *
11	* 1.5669 *	* 1.4694 *	* 1.5958 *	* 1.3055 *	* 1.6365 *	* 1.5176 *	* 1.6558 *	* .9232 *
	* 1.3963 *	* 1.4885 *	* 1.3729 *	* 1.6809 *	* 1.3445 *	* 1.4485 *	* 1.3268 *	* 2.3406 *
12	* 1.2766 *	* 1.6215 *	* 1.4812 *	* 1.6354 *	* 1.4876 *	* 1.6772 *	* 1.0785 *	
	* 1.7031 *	* 1.3524 *	* 1.4815 *	* 1.3454 *	* 1.4776 *	* 1.3126 *	* 2.0316 *	
13	* 1.6011 *	* 1.5347 *	* 1.6247 *	* 1.5165 *	* 1.6772 *	* 1.2370 *	* .7261 *	
	* 1.3620 *	* 1.4266 *	* 1.3503 *	* 1.4485 *	* 1.3126 *	* 1.7754 *	* 3.0074 *	
14	* 1.3634 *	* 1.6204 *	* 1.4330 *	* 1.6547 *	* 1.0817 *	* .7283 *		
	* 1.5887 *	* 1.3462 *	* 1.5276 *	* 1.3276 *	* 2.0242 *	* 2.9952 *		
15	* .8365 *	* 1.0635 *	* 1.3088 *	* .9221 *	F-SUB-Q			
	* 2.5544 *	* 2.0254 *	* 1.6516 *	* 2.3431 *	M-SUB-Q			

AT 100% POWER, 4 EFPD, THIS IS LEVEL 7 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.2006 *	* 1.5583 *	* 1.2831 *	* 1.5455 *	* 1.2574 *	* 1.5851 *	* 1.3452 *	* .8215 *
	* 1.7270 *	* 1.3322 *	* 1.6049 *	* 1.3331 *	* 1.6292 *	* 1.2956 *	* 1.5180 *	* 2.4536 *
9	* 1.5583 *	* 1.4298 *	* 1.5969 *	* 1.4480 *	* 1.6097 *	* 1.5208 *	* 1.6086 *	* 1.0496 *
	* 1.3322 *	* 1.4450 *	* 1.2944 *	* 1.4232 *	* 1.2821 *	* 1.3556 *	* 1.2769 *	* 1.9342 *
10	* 1.2831 *	* 1.5969 *	* 1.4491 *	* 1.5754 *	* 1.4662 *	* 1.6129 *	* 1.4191 *	* 1.2970 *
	* 1.6049 *	* 1.2952 *	* 1.4250 *	* 1.3113 *	* 1.4140 *	* 1.2806 *	* 1.4512 *	* 1.5703 *
11	* 1.5455 *	* 1.4469 *	* 1.5765 *	* 1.2873 *	* 1.6236 *	* 1.5015 *	* 1.6440 *	* .9114 *
	* 1.3331 *	* 1.4232 *	* 1.3102 *	* 1.6165 *	* 1.2876 *	* 1.3878 *	* 1.2622 *	* 2.2351 *
12	* 1.2574 *	* 1.6065 *	* 1.4641 *	* 1.6215 *	* 1.4705 *	* 1.6643 *	* 1.0656 *	
	* 1.6292 *	* 1.2851 *	* 1.4158 *	* 1.2894 *	* 1.4326 *	* 1.2625 *	* 1.9433 *	
13	* 1.5851 *	* 1.5176 *	* 1.6097 *	* 1.5015 *	* 1.6643 *	* 1.2209 *	* .7133 *	
	* 1.2956 *	* 1.3572 *	* 1.2836 *	* 1.3891 *	* 1.2618 *	* 1.7148 *	* 2.8815 *	
14	* 1.3452 *	* 1.6054 *	* 1.4180 *	* 1.6440 *	* 1.0689 *	* .7154 *		
	* 1.5180 *	* 1.2788 *	* 1.4526 *	* 1.2622 *	* 1.9365 *	* 2.8722 *		
15	* .8215 *	* 1.0485 *	* 1.2959 *	* .9104 *	F-SUB-Q			
	* 2.4536 *	* 1.9368 *	* 1.5725 *	* 2.2386 *	M-SUB-Q			

Table 2 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Power Escalation

AT 100% POWER, 4 EFPD, THIS IS LEVEL 6 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.1567 *	* 1.5080 *	* 1.2370 *	* 1.4973 *	* 1.2134 *	* 1.5380 *	* 1.3023 *	* .7925 *
	* 1.6826 *	* 1.2939 *	* 1.5698 *	* 1.2993 *	* 1.5953 *	* 1.2636 *	* 1.4836 *	* 2.4092 *
9	* 1.5080 *	* 1.3837 *	* 1.5476 *	* 1.4019 *	* 1.5637 *	* 1.4758 *	* 1.5604 *	* 1.0142 *
	* 1.2939 *	* 1.4084 *	* 1.2604 *	* 1.3885 *	* 1.2476 *	* 1.3194 *	* 1.2445 *	* 1.8937 *
10	* 1.2370 *	* 1.5476 *	* 1.4019 *	* 1.5262 *	* 1.4223 *	* 1.5658 *	* 1.3773 *	* 1.2552 *
	* 1.5698 *	* 1.2611 *	* 1.3894 *	* 1.2775 *	* 1.3755 *	* 1.2462 *	* 1.4120 *	* 1.5350 *
11	* 1.4973 *	* 1.4009 *	* 1.5283 *	* 1.2445 *	* 1.5765 *	* 1.4576 *	* 1.5958 *	* .8771 *
	* 1.2993 *	* 1.3885 *	* 1.2767 *	* 1.5742 *	* 1.2500 *	* 1.3479 *	* 1.2258 *	* 2.1941 *
12	* 1.2134 *	* 1.5594 *	* 1.4201 *	* 1.5754 *	* 1.4255 *	* 1.6151 *	* 1.0282 *	
	* 1.5953 *	* 1.2504 *	* 1.3773 *	* 1.2510 *	* 1.3836 *	* 1.2216 *	* 1.8976 *	
13	* 1.5380 *	* 1.4737 *	* 1.5637 *	* 1.4566 *	* 1.6151 *	* 1.1802 *	* .6876 *	
	* 1.2636 *	* 1.3218 *	* 1.2483 *	* 1.3487 *	* 1.2206 *	* 1.6628 *	* 2.8150 *	
14	* 1.3023 *	* 1.5583 *	* 1.3752 *	* 1.5958 *	* 1.0314 *	* .6887 *		
	* 1.4836 *	* 1.2462 *	* 1.4134 *	* 1.2258 *	* 1.8511 *	* 2.8078 *		
15	* .7925 *	* 1.0132 *	* 1.2531 *	* .8761 *	F-SUB-Q			
	* 2.4092 *	* 1.8969 *	* 1.5361 *	* 2.1973 *	M-SUB-Q			

AT 100% POWER, 4 EFPD, THIS IS LEVEL 5 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.1470 *	* 1.5026 *	* 1.2295 *	* 1.4930 *	* 1.2081 *	* 1.5337 *	* 1.2916 *	* .7840 *
	* 1.5972 *	* 1.2224 *	* 1.4885 *	* 1.2303 *	* 1.5151 *	* 1.1990 *	* 1.4161 *	* 2.3114 *
9	* 1.5026 *	* 1.3730 *	* 1.5433 *	* 1.3934 *	* 1.5594 *	* 1.4694 *	* 1.5583 *	* 1.0046 *
	* 1.2224 *	* 1.3377 *	* 1.1941 *	* 1.3198 *	* 1.1829 *	* 1.2528 *	* 1.1801 *	* 1.8128 *
10	* 1.2295 *	* 1.5422 *	* 1.3923 *	* 1.5219 *	* 1.4126 *	* 1.5615 *	* 1.3687 *	* 1.2499 *
	* 1.4885 *	* 1.1944 *	* 1.3214 *	* 1.2115 *	* 1.3073 *	* 1.1817 *	* 1.3440 *	* 1.4596 *
11	* 1.4930 *	* 1.3912 *	* 1.5230 *	* 1.2381 *	* 1.5722 *	* 1.4491 *	* 1.5936 *	* .8718 *
	* 1.2303 *	* 1.3198 *	* 1.2101 *	* 1.4926 *	* 1.1820 *	* 1.2797 *	* 1.1590 *	* 2.0902 *
12	* 1.2081 *	* 1.5551 *	* 1.4116 *	* 1.5712 *	* 1.4159 *	* 1.6119 *	* 1.0228 *	
	* 1.5151 *	* 1.1861 *	* 1.3089 *	* 1.1829 *	* 1.3109 *	* 1.1530 *	* 1.7987 *	
13	* 1.5337 *	* 1.4673 *	* 1.5594 *	* 1.4480 *	* 1.6119 *	* 1.1695 *	* .6779 *	
	* 1.1990 *	* 1.2549 *	* 1.1839 *	* 1.2797 *	* 1.1521 *	* 1.5815 *	* 2.6937 *	
14	* 1.2916 *	* 1.5551 *	* 1.3666 *	* 1.5936 *	* 1.0271 *	* .6801 *		
	* 1.4161 *	* 1.1820 *	* 1.3453 *	* 1.1590 *	* 1.7929 *	* 2.6872 *		
15	* .7840 *	* 1.0035 *	* 1.2488 *	* .8707 *	F-SUB-Q			
	* 2.3114 *	* 1.8151 *	* 1.4616 *	* 2.0921 *	M-SUB-Q			

Table 2 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Power Escalation

AT 100% POWER, 4 EFPD, THIS IS LEVEL 4 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.0935 *	* 1.4362 *	* 1.1706 *	* 1.4287 *	* 1.1503 *	* 1.4608 *	* 1.2295 *	* .7411 *
	* 1.5876 *	* 1.2113 *	* 1.4835 *	* 1.2201 *	* 1.5115 *	* 1.1970 *	* 1.4151 *	* 2.3264 *
9	* 1.4362 *	* 1.3120 *	* 1.4726 *	* 1.3313 *	* 1.4876 *	* 1.4030 *	* 1.4801 *	* .9500 *
	* 1.2113 *	* 1.3268 *	* 1.1866 *	* 1.3107 *	* 1.1778 *	* 1.2464 *	* 1.1794 *	* 1.8227 *
10	* 1.1706 *	* 1.4726 *	* 1.3302 *	* 1.4533 *	* 1.3473 *	* 1.4898 *	* 1.3002 *	* 1.1802 *
	* 1.4835 *	* 1.1869 *	* 1.3123 *	* 1.2038 *	* 1.3004 *	* 1.1763 *	* 1.3416 *	* 1.4694 *
11	* 1.4287 *	* 1.3302 *	* 1.4544 *	* 1.1760 *	* 1.4930 *	* 1.3773 *	* 1.5101 *	* .8204 *
	* 1.2201 *	* 1.3107 *	* 1.2028 *	* 1.4887 *	* 1.1772 *	* 1.2737 *	* 1.1596 *	* 2.1125 *
12	* 1.1503 *	* 1.4833 *	* 1.3452 *	* 1.4919 *	* 1.3452 *	* 1.5283 *	* .9639 *	
	* 1.5115 *	* 1.1810 *	* 1.3019 *	* 1.1785 *	* 1.3042 *	* 1.1505 *	* 1.8092 *	
13	* 1.4608 *	* 1.4009 *	* 1.4865 *	* 1.3773 *	* 1.5283 *	* 1.1063 *	* .6394 *	
	* 1.1970 *	* 1.2485 *	* 1.1791 *	* 1.2741 *	* 1.1499 *	* 1.5815 *	* 2.7144 *	
14	* 1.2295 *	* 1.4780 *	* 1.2991 *	* 1.5101 *	* .9671 *	* .6405 *		
	* 1.4151 *	* 1.1817 *	* 1.3432 *	* 1.1596 *	* 1.8033 *	* 2.7044 *		
15	* .7411 *	* .9489 *	* 1.1792 *	* .8193 *	F-SUB-Q			
	* 2.3264 *	* 1.8258 *	* 1.4713 *	* 2.1145 *	M-SUB-Q			

AT 100% POWER, 4 EFPD, THIS IS LEVEL 3 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.0528 *	* 1.3837 *	* 1.1310 *	* 1.3837 *	* 1.1149 *	* 1.4030 *	* 1.1770 *	* .7047 *
	* 1.5810 *	* 1.2051 *	* 1.4737 *	* 1.2088 *	* 1.4974 *	* 1.1955 *	* 1.4199 *	* 2.3533 *
9	* 1.3837 *	* 1.2659 *	* 1.4201 *	* 1.2884 *	* 1.4330 *	* 1.3548 *	* 1.4148 *	* .8986 *
	* 1.2051 *	* 1.3210 *	* 1.1800 *	* 1.3004 *	* 1.1722 *	* 1.2384 *	* 1.1839 *	* 1.8514 *
10	* 1.1310 *	* 1.4201 *	* 1.2873 *	* 1.4052 *	* 1.2981 *	* 1.4351 *	* 1.2402 *	* 1.1117 *
	* 1.4737 *	* 1.1806 *	* 1.3012 *	* 1.1948 *	* 1.2940 *	* 1.1710 *	* 1.3507 *	* 1.4975 *
11	* 1.3837 *	* 1.2873 *	* 1.4062 *	* 1.1353 *	* 1.4298 *	* 1.3152 *	* 1.4298 *	* .7743 *
	* 1.2088 *	* 1.3008 *	* 1.1938 *	* 1.4778 *	* 1.1770 *	* 1.2779 *	* 1.1729 *	* 2.1471 *
12	* 1.1149 *	* 1.4298 *	* 1.2959 *	* 1.4276 *	* 1.2831 *	* 1.4491 *	* .9157 *	
	* 1.4974 *	* 1.1754 *	* 1.2959 *	* 1.1788 *	* 1.3094 *	* 1.1606 *	* 1.8268 *	
13	* 1.4030 *	* 1.3527 *	* 1.4319 *	* 1.3152 *	* 1.4501 *	* 1.0474 *	* .6019 *	
	* 1.1955 *	* 1.2405 *	* 1.1738 *	* 1.2779 *	* 1.1602 *	* 1.6002 *	* 2.7614 *	
14	* 1.1770 *	* 1.4126 *	* 1.2381 *	* 1.4298 *	* .9178 *	* .6040 *		
	* 1.4199 *	* 1.1861 *	* 1.3524 *	* 1.1732 *	* 1.8208 *	* 2.7545 *		
15	* .7047 *	* .8975 *	* 1.1106 *	* .7733 *	F-SUB-Q			
	* 2.3533 *	* 1.8545 *	* 1.4996 *	* 2.1502 *	M-SUB-Q			

Table 2 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Power Escalation

AT 100% POWER, 4 EFPD, THIS IS LEVEL 2 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	.9371	1.2124	1.0121	1.2306	1.0100	1.2670	1.0399	.6169
	1.7263	1.3348	1.5986	1.3189	1.6051	1.2852	1.5587	2.6169
9	1.2124	1.1353	1.2649	1.1620	1.2831	1.2199	1.2402	.7733
	1.3348	1.4287	1.2855	1.3975	1.2703	1.3330	1.3104	2.0899
10	1.0121	1.2638	1.1610	1.2595	1.1706	1.2831	1.0849	.9318
	1.5986	1.2862	1.3993	1.2923	1.3901	1.2700	1.4968	1.7354
11	1.2306	1.1610	1.2606	1.0303	1.2798	1.1674	1.2134	.6629
	1.3189	1.3993	1.2915	1.5793	1.2759	1.3949	1.3403	2.4403
12	1.0100	1.2798	1.1674	1.2777	1.1310	1.2434	.7936	
	1.6051	1.2737	1.3932	1.2777	1.4396	1.3100	2.0452	
13	1.2670	1.2177	1.2798	1.1663	1.2434	.9039	.5173	
	1.2852	1.3354	1.2729	1.3963	1.3100	1.7991	3.1230	
14	1.0399	1.2381	1.0839	1.2124	.7958	.5184		
	1.5587	1.3127	1.4983	1.3411	2.0386	3.1162		
15	.6169	.7722	.9307	.6619	F-SUB-Q			
	2.6169	2.0938	1.7374	2.4430	M-SUB-Q			

AT 100% POWER, 4 EFPD, THIS IS LEVEL 1 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	.6244	.7679	.6779	.7947	.6865	.8804	.6790	.4048
	2.5352	2.0669	2.3438	2.0023	2.3157	1.8085	2.3453	3.9091
9	.7679	.7518	.9039	.7668	.9157	.8086	.8129	.4884
	2.0669	2.1145	1.7600	2.0787	1.7400	1.9701	1.9571	3.2494
10	.6779	.9039	.7647	.9061	.7754	.9082	.7069	.5494
	2.3438	1.7614	2.0846	1.7580	2.0555	1.7553	2.2530	2.8394
11	.7947	.7658	.9050	.7036	.8996	.7551	.7508	.4113
	2.0023	2.0807	1.7622	2.2669	1.7743	2.1137	2.1209	3.8577
12	.6865	.9125	.7743	.8975	.7294	.7947	.5044	
	2.3157	1.7462	2.0593	1.7764	2.1870	2.0042	3.1518	
13	.8804	.8075	.9061	.7540	.7958	.5741	.3299	
	1.8085	1.9736	1.7587	2.1157	2.0042	2.7732	4.8083	
14	.6790	.8118	.7058	.7508	.5055	.3299		
	2.3453	1.9606	2.2566	2.1218	3.1473	4.8035		
15	.4048	.4873	.5484	.4102	F-SUB-Q			
	3.9091	3.2542	2.8932	3.8645	M-SUB-Q			

Table 2 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Power Escalation

AT 75% POWER, 4 EFPD, THIS IS LEVEL 18 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* .6929 *	* .9007 *	* .8450 *	* .9564 *	* .8418 *	* .9971 *	* .8032 *	* .5109 *
	* 2.4183 *	* 2.1228 *	* 2.2249 *	* 1.9505 *	* 2.1912 *	* 1.8373 *	* 2.2686 *	* 3.5136 *
9	* .9007 *	* .9425 *	* 1.0678 *	* .9382 *	* 1.0399 *	* .9200 *	* .8986 *	* .5816 *
	* 2.1228 *	* 2.0191 *	* 1.7629 *	* 1.9977 *	* 1.7894 *	* 2.0071 *	* 2.0298 *	* 3.1198 *
10	* .8450 *	* 1.0678 *	* .9468 *	* 1.0507 *	* .9157 *	* .9907 *	* .8054 *	* .6180 *
	* 2.2249 *	* 1.7629 *	* 1.9913 *	* 1.7874 *	* 2.0451 *	* 1.8773 *	* 2.2865 *	* 2.9440 *
11	* .9564 *	* .9371 *	* 1.0496 *	* .7990 *	* .9221 *	* .8065 *	* .7754 *	* .4734 *
	* 1.9505 *	* 1.9977 *	* 1.7890 *	* 2.3722 *	* 2.0487 *	* 2.3688 *	* 2.4329 *	* 3.8975 *
12	* .8418 *	* 1.0378 *	* .9136 *	* .9200 *	* .6737 *	* .6994 *	* .5280 *	
	* 2.1912 *	* 1.7929 *	* 2.0482 *	* 2.0523 *	* 2.3715 *	* 2.3116 *	* 3.4703 *	
13	* .9971 *	* .9189 *	* .9896 *	* .8054 *	* .6994 *	* .5130 *	* .3502 *	
	* 1.8373 *	* 2.0101 *	* 1.8804 *	* 2.3716 *	* 2.3122 *	* 2.9538 *	* 4.9065 *	
14	* .8032 *	* .8975 *	* .8043 *	* .7754 *	* .5280 *	* .3502 *		
	* 2.2686 *	* 2.0328 *	* 2.2891 *	* 2.4339 *	* 3.4689 *	* 4.9065 *		
15	* .5109 *	* .5816 *	* .6180 *	* .4723 *	F-SUB-Q			
	* 3.5136 *	* 3.1234 *	* 2.9451 *	* 3.9001 *	M-SUB-Q			

AT 75% POWER, 4 EFPD, THIS IS LEVEL 17 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.0367 *	* 1.3345 *	* 1.1920 *	* 1.3966 *	* 1.1674 *	* 1.3270 *	* 1.1760 *	* .7433 *
	* 1.7727 *	* 1.4849 *	* 1.6756 *	* 1.4013 *	* 1.6570 *	* 1.4462 *	* 1.6173 *	* 2.5300 *
9	* 1.3345 *	* 1.3570 *	* 1.4201 *	* 1.3570 *	* 1.3634 *	* 1.3141 *	* 1.2916 *	* .8782 *
	* 1.4849 *	* 1.4802 *	* 1.4054 *	* 1.4444 *	* 1.4383 *	* 1.4742 *	* 1.4821 *	* 2.1657 *
10	* 1.1920 *	* 1.4201 *	* 1.3741 *	* 1.3944 *	* 1.3152 *	* 1.3420 *	* 1.1674 *	* .9864 *
	* 1.6756 *	* 1.4054 *	* 1.4434 *	* 1.4148 *	* 1.4983 *	* 1.4546 *	* 1.6567 *	* 1.9345 *
11	* 1.3966 *	* 1.3580 *	* 1.3966 *	* 1.0699 *	* 1.2659 *	* 1.1888 *	* 1.1835 *	* .7219 *
	* 1.4013 *	* 1.4436 *	* 1.4126 *	* 1.8704 *	* 1.6028 *	* 1.6874 *	* 1.6773 *	* 2.6726 *
12	* 1.1674 *	* 1.3612 *	* 1.3130 *	* 1.2606 *	* .9907 *	* 1.1031 *	* .8000 *	
	* 1.6570 *	* 1.4434 *	* 1.5011 *	* 1.6091 *	* 1.6648 *	* 1.6274 *	* 2.4387 *	
13	* 1.3270 *	* 1.3120 *	* 1.3398 *	* 1.1877 *	* 1.1031 *	* .8236 *	* .5398 *	
	* 1.4462 *	* 1.4765 *	* 1.4569 *	* 1.6885 *	* 1.6284 *	* 2.0433 *	* 3.4229 *	
14	* 1.1760 *	* 1.2906 *	* 1.1652 *	* 1.1824 *	* .8011 *	* .5409 *		
	* 1.6173 *	* 1.4837 *	* 1.6587 *	* 1.6787 *	* 2.4344 *	* 3.4187 *		
15	* .7433 *	* .8771 *	* .9864 *	* .7208 *	F-SUB-Q			
	* 2.5300 *	* 2.1674 *	* 1.9359 *	* 2.6752 *	M-SUB-Q			

Catawba 1 Cycle 9 Core Operating Limits Report

CNEI-0400-24

Appendix A

Page 146 of 204

Revision 6

Table 2 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Power Escalation

AT 75% POWER, 4 EFPD, THIS IS LEVEL 16 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.2616 *	* 1.5776 *	* 1.3548 *	* 1.5840 *	* 1.3002 *	* 1.5112 *	* 1.3409 *	* .8439 *
	* 1.3570 *	* 1.3646 *	* 1.5897 *	* 1.3034 *	* 1.5630 *	* 1.3299 *	* 1.4888 *	* 2.3383 *
9	* 1.5776 *	* 1.5315 *	* 1.6194 *	* 1.5262 *	* 1.5444 *	* 1.4833 *	* 1.5037 *	* 1.0239 *
	* 1.3646 *	* 1.4008 *	* 1.3107 *	* 1.3561 *	* 1.3313 *	* 1.3731 *	* 1.3365 *	* 1.9463 *
10	* 1.3548 *	* 1.6194 *	* 1.5401 *	* 1.5797 *	* 1.4748 *	* 1.5337 *	* 1.3462 *	* 1.1877 *
	* 1.5897 *	* 1.3103 *	* 1.3669 *	* 1.3236 *	* 1.4153 *	* 1.3429 *	* 1.5092 *	* 1.6828 *
11	* 1.5840 *	* 1.5262 *	* 1.5819 *	* 1.2081 *	* 1.4758 *	* 1.3944 *	* 1.4394 *	* .8525 *
	* 1.3034 *	* 1.3558 *	* 1.3215 *	* 1.7499 *	* 1.4663 *	* 1.5386 *	* 1.4772 *	* 2.3861 *
12	* 1.3002 *	* 1.5412 *	* 1.4716 *	* 1.4737 *	* 1.2895 *	* 1.4073 *	* .9618 *	
	* 1.5630 *	* 1.3382 *	* 1.4178 *	* 1.4673 *	* 1.5236 *	* 1.4369 *	* 2.1946 *	
13	* .5112 *	* 1.4812 *	* 1.5305 *	* 1.3934 *	* 1.4084 *	* 1.0742 *	* .6576 *	
	* 1.3299 *	* 1.3754 *	* 1.3455 *	* 1.5394 *	* 1.4375 *	* 1.8364 *	* 3.0962 *	
14	* 1.3409 *	* 1.5015 *	* 1.3441 *	* 1.4394 *	* .9628 *	* .6587 *		
	* 1.4988 *	* 1.3384 *	* 1.5112 *	* 1.4780 *	* 2.1906 *	* 3.0893 *		
15	* .8439 *	* 1.0228 *	* 1.1867 *	* .8525 *	F-SUB-Q			
	* 2.3383 *	* 1.9490 *	* 1.6843 *	* 2.3881 *	M-SUB-Q			

AT 75% POWER, 4 EFPD, THIS IS LEVEL 15 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.3741 *	* 1.7082 *	* 1.4298 *	* 1.6654 *	* 1.3634 *	* 1.6215 *	* 1.4223 *	* .8889 *
	* 1.7127 *	* 1.3826 *	* 1.6247 *	* 1.3188 *	* 1.5853 *	* 1.3104 *	* 1.4812 *	* 2.3445 *
9	* 1.7082 *	* 1.6151 *	* 1.7179 *	* 1.5936 *	* 1.6451 *	* 1.5754 *	* 1.6226 *	* 1.0967 *
	* 1.3826 *	* 1.4383 *	* 1.3184 *	* 1.3815 *	* 1.3277 *	* 1.3741 *	* 1.3107 *	* 1.9270 *
10	* 1.4298 *	* 1.7168 *	* 1.6097 *	* 1.6740 *	* 1.5497 *	* 1.6440 *	* 1.4448 *	* 1.2959 *
	* 1.6247 *	* 1.3182 *	* 1.3968 *	* 1.3313 *	* 1.4366 *	* 1.3359 *	* 1.4972 *	* 1.6381 *
11	* 1.6654 *	* 1.5936 *	* 1.6761 *	* 1.3238 *	* 1.6119 *	* 1.5187 *	* 1.5936 *	* .9264 *
	* 1.3188 *	* 1.3812 *	* 1.3294 *	* 1.7487 *	* 1.4353 *	* 1.5196 *	* 1.4373 *	* 2.3484 *
12	* 1.3634 *	* 1.6418 *	* 1.5465 *	* 1.6097 *	* 1.4855 *	* 1.6033 *	* 1.0624 *	
	* 1.5853 *	* 1.3362 *	* 1.4395 *	* 1.4361 *	* 1.5151 *	* 1.3989 *	* 2.1568 *	
13	* 1.6215 *	* 1.5733 *	* 1.6408 *	* 1.5176 *	* 1.6022 *	* 1.2263 *	* .7294 *	
	* 1.3104 *	* 1.3768 *	* 1.3383 *	* 1.5198 *	* 1.3994 *	* 1.8177 *	* 3.0706 *	
14	* 1.4223 *	* 1.6204 *	* 1.4437 *	* 1.5936 *	* 1.0646 *	* .7304 *		
	* 1.4812 *	* 1.3128 *	* 1.4991 *	* 1.4384 *	* 2.1503 *	* 3.0629 *		
15	* .8889 *	* 1.0956 *	* 1.2948 *	* .9253 *	F-SUB-Q			
	* 2.3445 *	* 1.9297 *	* 1.6400 *	* 2.3523 *	M-SUB-Q			

Table 2 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Power Escalation

AT 75% POWER, 4 EFPD, THIS IS LEVEL 14 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.3580	* 1.6986	* 1.4126	* 1.6526	* 1.3505	* 1.6322	* 1.4244	* .8836
	* 1.8573	* 1.4859	* 1.7830	* 1.4356	* 1.7276	* 1.3991	* 1.5911	* 2.5358
9	* 1.6986	* 1.5926	* 1.7104	* 1.5754	* 1.6579	* 1.5819	* 1.6386	* 1.1021
	* 1.4859	* 1.5840	* 1.4323	* 1.5106	* 1.4241	* 1.4775	* 1.3964	* 2.0679
10	* 1.4126	* 1.7093	* 1.5904	* 1.6697	* 1.5433	* 1.6568	* 1.4587	* 1.3120
	* 1.7830	* 1.4323	* 1.5301	* 1.4433	* 1.5600	* 1.4322	* 1.6026	* 1.7456
11	* 1.6526	* 1.5754	* 1.6718	* 1.3409	* 1.6408	* 1.5444	* 1.6322	* .9350
	* 1.4356	* 1.5106	* 1.4418	* 1.8514	* 1.5025	* 1.5953	* 1.5124	* 2.5217
12	* 1.3505	* 1.6536	* 1.5401	* 1.6386	* 1.5197	* 1.6568	* 1.0828	*
	* 1.7276	* 1.4329	* 1.5634	* 1.5040	* 1.6028	* 1.4658	* 2.2662	*
13	* 1.6322	* 1.5787	* 1.6536	* 1.5433	* 1.6568	* 1.2595	* .7443	*
	* 1.3991	* 1.4801	* 1.4354	* 1.5960	* 1.4658	* 1.9227	* 3.2527	*
14	* 1.4244	* 1.6365	* 1.4566	* 1.6311	* 1.0860	* .7465	*	*
	* 1.5911	* 1.3984	* 1.6048	* 1.5124	* 2.2609	* 3.2453	*	*
15	* .8836	* 1.1010	* 1.3109	* .9339	* F-SUB-Q			
	* 2.5358	* 2.0700	* 1.7471	* 2.5249	* M-SUB-Q			

AT 75% POWER, 4 EFPD, THIS IS LEVEL 13 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.3634	* 1.7211	* 1.4287	* 1.6815	* 1.3741	* 1.6815	* 1.4544	* .8975
	* 1.9758	* 1.5618	* 1.8814	* 1.5445	* 1.8535	* 1.4793	* 1.6950	* 2.7118
9	* 1.7211	* 1.6022	* 1.7404	* 1.5958	* 1.7050	* 1.6226	* 1.6933	* 1.1288
	* 1.5618	* 1.6797	* 1.5392	* 1.6322	* 1.5130	* 1.5738	* 1.4730	* 2.1978
10	* 1.4287	* 1.7404	* 1.6086	* 1.7040	* 1.5765	* 1.7061	* 1.5015	* 1.3580
	* 1.8814	* 1.5392	* 1.6570	* 1.5489	* 1.6730	* 1.5217	* 1.7035	* 1.8378
11	* 1.6815	* 1.5958	* 1.7061	* 1.3816	* 1.6965	* 1.5926	* 1.7018	* .9671
	* 1.5445	* 1.6322	* 1.5469	* 1.9171	* 1.5513	* 1.6502	* 1.5343	* 2.6620
12	* 1.3741	* 1.7018	* 1.5733	* 1.6943	* 1.5690	* 1.7297	* 1.1256	*
	* 1.8535	* 1.5228	* 1.6768	* 1.5525	* 1.6752	* 1.5123	* 2.3242	*
13	* 1.6815	* 1.6194	* 1.7018	* 1.5915	* 1.7297	* 1.3034	* .7679	*
	* 1.4793	* 1.5767	* 1.5244	* 1.6502	* 1.5123	* 2.0088	* 3.3875	*
14	* 1.4544	* 1.6900	* 1.5005	* 1.7007	* 1.1278	* .7700	*	*
	* 1.6950	* 1.4752	* 1.7059	* 1.5343	* 2.3186	* 3.3797	*	*
15	* .8975	* 1.1278	* 1.3570	* .9660	* F-SUB-Q			
	* 2.7118	* 2.2011	* 1.8395	* 2.6651	* M-SUB-Q			

Table 2 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Power Escalation

AT 75% POWER, 4 EFPD, THIS IS LEVEL 12 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.3291	* 1.6890	* 1.3998	* 1.6579	* 1.3537	* 1.6718	* 1.4394	* .8846
	* 2.1590	* 1.6966	* 2.0462	* 1.7092	* 2.0556	* 1.6224	* 1.8649	* 2.9950
9	* 1.6890	* 1.5658	* 1.7147	* 1.5690	* 1.6943	* 1.6097	* 1.6858	* 1.1181
	* 1.6966	* 1.8306	* 1.6646	* 1.8064	* 1.6517	* 1.7319	* 1.6127	* 2.4171
10	* 1.3998	* 1.7147	* 1.5797	* 1.6825	* 1.5615	* 1.6954	* 1.4940	* 1.3527
	* 2.0462	* 1.6651	* 1.8052	* 1.6869	* 1.7989	* 1.6499	* 1.8585	* 2.0098
11	* 1.6579	* 1.5690	* 1.6847	* 1.3698	* 1.6922	* 1.5851	* 1.7029	* .9607
	* 1.7092	* 1.8064	* 1.6850	* 2.0519	* 1.6469	* 1.7591	* 1.6297	* 2.8663
12	* 1.3537	* 1.6911	* 1.5594	* 1.6911	* 1.5604	* 1.7318	* 1.1203	*
	* 2.0556	* 1.6553	* 1.8011	* 1.6487	* 1.7867	* 1.6041	* 2.4784	*
13	* 1.6718	* 1.6076	* 1.6922	* 1.5851	* 1.7318	* 1.2970	* .7615	*
	* 1.6224	* 1.7340	* 1.6535	* 1.7591	* 1.6041	* 2.1401	* 3.6157	*
14	* 1.4394	* 1.6825	* 1.4930	* 1.7029	* 1.1235	* .7636	*	*
	* 1.8649	* 1.6154	* 1.8608	* 1.6302	* 2.4710	* 3.6069	*	*
15	* .8846	* 1.1171	* 1.3505	* .9596	* F-SUB-Q			
	* 2.9950	* 2.4202	* 2.0126	* 2.8690	* M-SUB-Q			

AT 75% POWER, 4 EFPD, THIS IS LEVEL 11 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.2831	* 1.6397	* 1.3559	* 1.6161	* 1.3184	* 1.6386	* 1.4073	* .8622
	* 2.3854	* 1.8632	* 2.2468	* 1.8653	* 2.2719	* 1.7958	* 2.0706	* 3.3322
9	* 1.6397	* 1.5176	* 1.6708	* 1.5272	* 1.6633	* 1.5787	* 1.6558	* 1.0935
	* 1.8632	* 2.0097	* 1.8147	* 1.9739	* 1.7870	* 1.8781	* 1.7741	* 2.6606
10	* 1.3559	* 1.6708	* 1.5358	* 1.6429	* 1.5294	* 1.6654	* 1.4673	* 1.3280
	* 2.2468	* 1.8147	* 1.9724	* 1.8341	* 1.9524	* 1.7838	* 2.0047	* 2.1863
11	* 1.6161	* 1.5262	* 1.6451	* 1.3409	* 1.6665	* 1.5572	* 1.6772	* .9393
	* 1.8653	* 1.9751	* 1.8318	* 2.2330	* 1.7806	* 1.9065	* 1.7599	* 3.1055
12	* 1.3184	* 1.6590	* 1.5272	* 1.6654	* 1.5315	* 1.7050	* 1.0978	*
	* 2.2719	* 1.7903	* 1.9550	* 1.7816	* 1.9397	* 1.7346	* 2.6921	*
13	* 1.6386	* 1.5754	* 1.6611	* 1.5562	* 1.7050	* 1.2713	* .7443	*
	* 1.7958	* 1.8816	* 1.7881	* 1.9065	* 1.7341	* 2.3242	* 3.9346	*
14	* 1.4073	* 1.6526	* 1.4662	* 1.6772	* 1.1010	* .7465	*	*
	* 2.0706	* 1.7767	* 2.0062	* 1.7599	* 2.6847	* 3.9241	*	*
15	* .8622	* 1.0924	* 1.3259	* .9382	* F-SUB-Q			
	* 3.3322	* 2.6632	* 2.1895	* 3.1088	* M-SUB-Q			

Table 2 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Power Escalation

AT 75% POWER, 4 EFPD, THIS IS LEVEL 10 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.2638 *	* 1.6247 *	* 1.3430 *	* 1.6065 *	* 1.3109 *	* 1.6397 *	* 1.4009 *	* .8557 *
	* 2.4177 *	* 1.8832 *	* 2.2758 *	* 1.9027 *	* 2.3298 *	* 1.8653 *	* 2.1783 *	* 3.5552 *
9	* 1.6247 *	* 1.4983 *	* 1.6611 *	* 1.5144 *	* 1.6633 *	* 1.5765 *	* 1.6590 *	* 1.0892 *
	* 1.8832 *	* 2.0424 *	* 1.8443 *	* 2.0214 *	* 1.8432 *	* 1.9428 *	* 1.8443 *	* 2.8069 *
10	* 1.3430 *	* 1.6611 *	* 1.5208 *	* 1.6365 *	* 1.5240 *	* 1.6654 *	* 1.4673 *	* 1.3313 *
	* 2.2758 *	* 1.8455 *	* 2.0145 *	* 1.8736 *	* 2.0145 *	* 1.8409 *	* 2.0902 *	* 2.2989 *
11	* 1.6065 *	* 1.5133 *	* 1.6376 *	* 1.3377 *	* 1.6708 *	* 1.5562 *	* 1.6868 *	* .9403 *
	* 1.9027 *	* 2.0214 *	* 1.8713 *	* 2.2989 *	* 1.8455 *	* 1.9793 *	* 1.8226 *	* 3.2566 *
12	* 1.3109 *	* 1.6600 *	* 1.5219 *	* 1.6697 *	* 1.5283 *	* 1.7125 *	* 1.0999 *	
	* 2.3298 *	* 1.8466 *	* 2.0173 *	* 1.8466 *	* 2.0173 *	* 1.8015 *	* 2.7962 *	
13	* 1.6397 *	* 1.5733 *	* 1.6622 *	* 1.5551 *	* 1.7125 *	* 1.2681 *	* .7411 *	
	* 1.8653 *	* 1.9466 *	* 1.8443 *	* 1.9807 *	* 1.8015 *	* 2.4337 *	* 4.1627 *	
14	* 1.4009 *	* 1.6558 *	* 1.4651 *	* 1.6858 *	* 1.1031 *	* .7422 *		
	* 2.1783 *	* 1.8478 *	* 2.0932 *	* 1.8226 *	* 2.7883 *	* 4.1510 *		
15	* .8557 *	* 1.0881 *	* 1.3291 *	* .9393 *	F-SUB-Q			
	* 3.5552 *	* 2.8096 *	* 2.3007 *	* 3.2602 *	M-SUB-Q			

AT 75% POWER, 4 EFPD, THIS IS LEVEL 9 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.2049 *	* 1.5562 *	* 1.2820 *	* 1.5433 *	* 1.2552 *	* 1.5819 *	* 1.3484 *	* .8215 *
	* 2.4704 *	* 1.9163 *	* 2.3225 *	* 1.9313 *	* 2.3711 *	* 1.8772 *	* 2.1880 *	* 3.5681 *
9	* 1.5562 *	* 1.4351 *	* 1.5958 *	* 1.4533 *	* 1.6065 *	* 1.5208 *	* 1.6011 *	* 1.0485 *
	* 1.9163 *	* 2.0799 *	* 1.8724 *	* 2.0538 *	* 1.8618 *	* 1.9648 *	* 1.8641 *	* 2.8421 *
10	* 1.2820 *	* 1.5947 *	* 1.4576 *	* 1.5733 *	* 1.4694 *	* 1.6086 *	* 1.4169 *	* 1.2831 *
	* 2.3225 *	* 1.8724 *	* 2.0495 *	* 1.8990 *	* 2.0396 *	* 1.8594 *	* 2.1112 *	* 2.3243 *
11	* 1.5433 *	* 1.4523 *	* 1.5744 *	* 1.2852 *	* 1.6161 *	* 1.5026 *	* 1.6301 *	* .9029 *
	* 1.9313 *	* 2.0552 *	* 1.8978 *	* 2.3335 *	* 1.8630 *	* 2.0008 *	* 1.8409 *	* 3.3078 *
12	* 1.2552 *	* 1.6022 *	* 1.4673 *	* 1.6151 *	* 1.4737 *	* 1.6547 *	* 1.0571 *	
	* 2.3711 *	* 1.8665 *	* 2.0424 *	* 1.8641 *	* 2.0424 *	* 1.8215 *	* 2.8393 *	
13	* 1.5819 *	* 1.5187 *	* 1.6054 *	* 1.5015 *	* 1.6547 *	* 1.2220 *	* .7111 *	
	* 1.8772 *	* 1.9674 *	* 1.8630 *	* 2.0022 *	* 1.8215 *	* 2.4663 *	* 4.2224 *	
14	* 1.3484 *	* 1.5990 *	* 1.4159 *	* 1.6301 *	* 1.0303 *	* .7133 *		
	* 2.1880 *	* 1.8677 *	* 2.1127 *	* 1.8409 *	* 2.8311 *	* 4.2103 *		
15	* .8215 *	* 1.0474 *	* 1.2820 *	* .9018 *	F-SUB-Q			
	* 3.5681 *	* 2.8448 *	* 2.3261 *	* 3.3115 *	M-SUB-Q			

Table 2 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Power Escalation

AT 75% POWER, 4 EFPD, THIS IS LEVEL 8 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.1877 *	* 1.5412 *	* 1.2691 *	* 1.5326 *	* 1.2466 *	* 1.5797 *	* 1.3398 *	* .8140 *
	* 2.3903 *	* 1.8420 *	* 2.2060 *	* 1.8215 *	* 2.2044 *	* 1.7367 *	* 2.0284 *	* 3.2820 *
9	* 1.5412 *	* 1.4191 *	* 1.5851 *	* 1.4394 *	* 1.6033 *	* 1.5144 *	* 1.6022 *	* 1.0421 *
	* 1.8420 *	* 1.9820 *	* 1.7744 *	* 1.9428 *	* 1.7481 *	* 1.8432 *	* 1.7205 *	* 2.6151 *
10	* 1.2691 *	* 1.5851 *	* 1.4416 *	* 1.5647 *	* 1.4608 *	* 1.6065 *	* 1.4126 *	* 1.2852 *
	* 2.2060 *	* 1.7754 *	* 1.9479 *	* 1.7938 *	* 1.9301 *	* 1.7460 *	* 1.9847 *	* 2.1403 *
11	* 1.5326 *	* 1.4384 *	* 1.5669 *	* 1.2809 *	* 1.6172 *	* 1.4973 *	* 1.6365 *	* .9029 *
	* 1.8215 *	* 1.9428 *	* 1.7916 *	* 2.2344 *	* 1.7712 *	* 1.9076 *	* 1.7377 *	* 3.0668 *
12	* 1.2466 *	* 1.5990 *	* 1.4587 *	* 1.6151 *	* 1.4662 *	* 1.6579 *	* 1.0581 *	
	* 2.2044 *	* 1.7522 *	* 1.9339 *	* 1.7733 *	* 1.9968 *	* 1.7553 *	* 2.6940 *	
13	* 1.5797 *	* 1.5123 *	* 1.6044 *	* 1.4962 *	* 1.6579 *	* 1.2156 *	* .7058 *	
	* 1.7367 *	* 1.8466 *	* 1.7501 *	* 1.9088 *	* 1.7543 *	* 2.3981 *	* 4.0318 *	
14	* 1.3398 *	* 1.5990 *	* 1.4116 *	* 1.6354 *	* 1.0614 *	* .7079 *		
	* 2.0284 *	* 1.7235 *	* 1.9873 *	* 1.7377 *	* 2.6866 *	* 4.0208 *		
15	* .8140 *	* 1.0410 *	* 1.2841 *	* .9018 *	* F-SUB-Q			
	* 3.2820 *	* 2.6198 *	* 2.1434 *	* 3.0700 *	* M-SUB-Q			

AT 75% POWER, 4 EFPD, THIS IS LEVEL 7 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.1470 *	* 1.4951 *	* 1.2295 *	* 1.4908 *	* 1.2102 *	* 1.5422 *	* 1.3034 *	* .7904 *
	* 2.2044 *	* 1.6919 *	* 2.0200 *	* 1.6502 *	* 2.0104 *	* 1.5837 *	* 1.8571 *	* 3.0166 *
9	* 1.4951 *	* 1.3762 *	* 1.5422 *	* 1.3987 *	* 1.5658 *	* 1.4769 *	* 1.5647 *	* 1.0142 *
	* 1.6919 *	* 1.8126 *	* 1.6158 *	* 1.7637 *	* 1.5862 *	* 1.6708 *	* 1.5643 *	* 2.3883 *
10	* 1.2295 *	* 1.5422 *	* 1.3987 *	* 1.5240 *	* 1.4234 *	* 1.5690 *	* 1.3784 *	* 1.2541 *
	* 2.0200 *	* 1.6167 *	* 1.7754 *	* 1.6301 *	* 1.7606 *	* 1.5845 *	* 1.8070 *	* 1.9415 *
11	* 1.4908 *	* 1.3977 *	* 1.5251 *	* 1.2456 *	* 1.5808 *	* 1.4598 *	* 1.6011 *	* .8782 *
	* 1.6502 *	* 1.7637 *	* 1.6283 *	* 2.0567 *	* 1.6256 *	* 1.7522 *	* 1.5914 *	* 2.7962 *
12	* 1.2102 *	* 1.5615 *	* 1.4212 *	* 1.5797 *	* 1.4287 *	* 1.6215 *	* 1.0303 *	
	* 2.0104 *	* 1.5897 *	* 1.7637 *	* 1.6283 *	* 1.8328 *	* 1.6061 *	* 2.4787 *	
13	* 1.5422 *	* 1.4748 *	* 1.5669 *	* 1.4598 *	* 1.6215 *	* 1.1824 *	* .6844 *	
	* 1.5837 *	* 1.6736 *	* 1.5888 *	* 1.7543 *	* 1.6044 *	* 2.1994 *	* 3.7212 *	
14	* 1.3034 *	* 1.5626 *	* 1.3762 *	* 1.6011 *	* 1.0335 *	* .6865 *		
	* 1.8571 *	* 1.5668 *	* 1.8103 *	* 1.5922 *	* 2.4725 *	* 3.7072 *		
15	* .7904 *	* 1.0121 *	* 1.2531 *	* .8771 *	* F-SUB-Q			
	* 3.0166 *	* 2.3903 *	* 1.9441 *	* 2.7989 *	* M-SUB-Q			

Catawba 1 Cycle 9 Core Operating Limits Report

CNEI-0400-24

Appendix A

Page 151 of 204

Revision 6

Table 2 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Power Escalation

AT 75% POWER, 4 EFPD, THIS IS LEVEL 6 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.0913	* 1.4276	* 1.1695	* 1.4244	* 1.1535	* 1.4748	* 1.2445	* .7518
	* 2.0228	* 1.5504	* 1.8748	* 1.5398	* 1.8892	* 1.4877	* 1.7491	* 2.8558
9	* 1.4276	* 1.3141	* 1.4748	* 1.3366	* 1.4994	* 1.4148	* 1.4973	* .9671
	* 1.5504	* 1.6784	* 1.4991	* 1.6465	* 1.4773	* 1.5602	* 1.4670	* 2.2464
10	* 1.1695	* 1.4737	* 1.3355	* 1.4576	* 1.3623	* 1.5037	* 1.3184	* 1.1974
	* 1.8748	* 1.4999	* 1.6520	* 1.5176	* 1.6364	* 1.4758	* 1.6803	* 1.8215
11	* 1.4244	* 1.3345	* 1.4587	* 1.1877	* 1.5133	* 1.3966	* 1.5326	* .8343
	* 1.5398	* 1.6474	* 1.5161	* 1.8990	* 1.4953	* 1.6131	* 1.4655	* 2.6221
12	* 1.1535	* 1.4962	* 1.3602	* 1.5123	* 1.3655	* 1.5508	* .9810	*
	* 1.8892	* 1.4810	* 1.6392	* 1.4976	* 1.6812	* 1.4780	* 2.2953	*
13	* 1.4748	* 1.4116	* 1.5015	* 1.3966	* 1.5508	* 1.1288	* .6512	*
	* 1.4877	* 1.5627	* 1.4788	* 1.6140	* 1.4773	* 2.0326	* 3.4551	*
14	* 1.2445	* 1.4951	* 1.3173	* 1.5315	* .9842	* .6533	*	*
	* 1.7491	* 1.4692	* 1.6822	* 1.4663	* 2.2882	* 3.4430	*	*
15	* .7518	* .9650	* 1.1963	* .8332	* F-SUB-Q			
	* 2.8558	* 2.2498	* 1.8238	* 2.6244	* M-SUB-Q			

AT 75% POWER, 4 EFPD, THIS IS LEVEL 5 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.0689	* 1.4041	* 1.1492	* 1.4030	* 1.1342	* 1.4533	* 1.2199	* .7347
	* 1.8513	* 1.4142	* 1.7225	* 1.4183	* 1.7470	* 1.3766	* 1.6283	* 2.6696
9	* 1.4041	* 1.2895	* 1.4523	* 1.3120	* 1.4769	* 1.3902	* 1.4758	* .9457
	* 1.4142	* 1.5455	* 1.3772	* 1.5223	* 1.3619	* 1.4412	* 1.3557	* 2.0917
10	* 1.1492	* 1.4512	* 1.3098	* 1.4362	* 1.3366	* 1.4801	* 1.2938	* 1.1781
	* 1.7225	* 1.3778	* 1.5247	* 1.3968	* 1.5098	* 1.3600	* 1.5504	* 1.6841
11	* 1.4030	* 1.3098	* 1.4362	* 1.1685	* 1.4898	* 1.3709	* 1.5101	* .8204
	* 1.4183	* 1.5223	* 1.3955	* 1.7306	* 1.3670	* 1.4795	* 1.3390	* 2.4197
12	* 1.1342	* 1.4726	* 1.3545	* 1.4887	* 1.3388	* 1.5272	* .9639	*
	* 1.7470	* 1.3651	* 1.5122	* 1.3689	* 1.5231	* 1.3378	* 2.0917	*
13	* 1.4533	* 1.3880	* 1.4780	* 1.3698	* 1.5283	* 1.1042	* .6351	*
	* 1.3766	* 1.4440	* 1.3626	* 1.4803	* 1.3366	* 1.8443	* 3.1589	*
14	* 1.2199	* 1.4726	* 1.2927	* 1.5101	* .9671	* .6372	*	*
	* 1.6283	* 1.3582	* 1.5528	* 1.3396	* 2.0843	* 3.1487	*	*
15	* .7347	* .9446	* 1.1770	* .8193	* F-SUB-Q			
	* 2.6696	* 2.0947	* 1.6861	* 2.4237	* M-SUB-Q			

Table 2 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Power Escalation

AT 75% POWER, 4 EFPD, THIS IS LEVEL 4 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.0089	* 1.3280	* 1.0528	* 1.3270	* 1.0689	* 1.3677	* 1.1470	* .6887
	* 1.8070	* 1.3766	* 1.3870	* 1.3843	* 1.7155	* 1.3550	* 1.6044	* 2.6480
9	* 1.3280	* 1.2177	* .3709	* 1.2402	* 1.3923	* 1.3120	* 1.3859	* .8846
	* 1.3766	* 1.5091	* .3464	* 1.4877	* 1.3348	* 1.4122	* 1.3360	* 2.0726
10	* 1.0828	* 1.3709	* 1.2381	* 1.3559	* 1.2595	* 1.3944	* 1.2156	* 1.0999
	* 1.6870	* 1.3470	* 1.4892	* 1.3657	* 1.4758	* 1.3330	* 1.5239	* 1.6698
11	* 1.3270	* 1.2381	* 1.3570	* 1.0967	* 1.3987	* 1.2884	* 1.4137	* .7626
	* 1.3843	* 1.4877	* 1.3645	* 1.6838	* 1.3378	* 1.4483	* 1.3169	* 2.4059
12	* 1.0689	* 1.3891	* 1.2584	* 1.3977	* 1.2574	* 1.4309	* .8986	*
	* 1.7155	* 1.3378	* 1.4780	* 1.3396	* 1.4847	* 1.3087	* 2.0624	*
13	* 1.3677	* 1.3098	* 1.3912	* 1.2873	* 1.4309	* 1.0324	* .5923	*
	* 1.3550	* 1.4149	* 1.3360	* 1.4490	* 1.3081	* 1.8048	* 3.1089	*
14	* 1.1470	* 1.3837	* 1.2134	* 1.4126	* .9018	* .5944	*	*
	* 1.6044	* 1.3384	* 1.5255	* 1.3175	* 2.0567	* 3.1023	*	*
15	* .6887	* .8836	* 1.0988	* .7615	F-SUB-Q			
	* 2.6480	* 2.0755	* 1.6727	* 2.4098	M-SUB-Q			

AT 75% POWER, 4 EFPD, THIS IS LEVEL 3 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* .9628	* 1.2670	* 1.0357	* 1.2734	* 1.0260	* 1.3002	* 1.0871	* .6480
	* 1.7819	* 1.3569	* 1.6595	* 1.3588	* 1.6841	* 1.3415	* 1.5957	* 2.6552
9	* 1.2670	* 1.1642	* 1.3098	* 1.1877	* 1.3280	* 1.2531	* 1.3109	* .8290
	* 1.3569	* 1.4855	* 1.2264	* 1.4219	* 1.3163	* 1.3909	* 1.3300	* 2.0873
10	* 1.0357	* 1.3088	* 1.1856	* 1.2970	* 1.2006	* 1.3291	* 1.1460	* 1.0260
	* 1.6595	* 1.3270	* 1.4626	* 1.3427	* 1.4547	* 1.3151	* 1.5192	* 1.6880
11	* 1.2734	* 1.1867	* 1.2981	* 1.0485	* 1.3248	* 1.2167	* 1.3238	* .7133
	* 1.3588	* 1.4626	* 1.3415	* 1.6632	* 1.3228	* 1.4377	* 1.3198	* 2.4237
12	* 1.0260	* 1.3248	* 1.1995	* 1.3238	* 1.1867	* 1.3420	* .8450	*
	* 1.6841	* 1.3198	* 1.4569	* 1.3246	* 1.4743	* 1.3064	* 2.0624	*
13	* 1.3002	* 1.2509	* 1.1270	* 1.2557	* 1.3430	* .9671	* .5537	*
	* 1.3415	* 1.3935	* 1.3181	* 1.4384	* 1.3058	* 1.8059	* 3.1287	*
14	* 1.0871	* 1.3088	* 1.1449	* 1.3238	* .8472	* .5548	*	*
	* 1.5957	* 1.3324	* 1.5215	* 1.3204	* 2.0552	* 3.1188	*	*
15	* .6480	* .8279	* 1.0249	* .7133	F-SUB-Q			
	* 2.6552	* 2.0902	* 1.6899	* 2.4257	M-SUB-Q			

Table 2 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Power Escalation

AT 75% POWER, 4 EFPD, THIS IS LEVEL 2 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* .8504 *	* 1.1010 *	* .9211 *	* 1.1224 *	* .9232 *	* 1.1620 *	* .9532 *	* .5623 *
	* 1.9377 *	* 1.4968 *	* 1.7927 *	* 1.4773 *	* 1.7993 *	* 1.4384 *	* 1.7470 *	* 2.9413 *
9	* 1.1010 *	* 1.0357 *	* 1.1567 *	* 1.0635 *	* 1.1781 *	* 1.1192 *	* 1.1385 *	* .7079 *
	* 1.4968 *	* 1.6009 *	* 1.4391 *	* 1.5652 *	* 1.4217 *	* 1.4923 *	* 1.4677 *	* 2.3484 *
10	* .9211 *	* 1.1567 *	* 1.0603 *	* 1.1545 *	* 1.0731 *	* 1.1781 *	* .9950 *	* .8525 *
	* 1.7927 *	* 1.4398 *	* 1.5668 *	* 1.4468 *	* 1.5569 *	* 1.4210 *	* 1.6774 *	* 1.9492 *
11	* 1.1224 *	* 1.0624 *	* 1.1535 *	* .9436 *	* 1.1749 *	* 1.0710 *	* 1.1128 *	* .6051 *
	* 1.4773 *	* 1.5668 *	* 1.4454 *	* 1.7701 *	* 1.4296 *	* 1.5635 *	* 1.5029 *	* 2.7442 *
12	* .9232 *	* 1.1749 *	* 1.0710 *	* 1.1738 *	* 1.0378 *	* 1.1417 *	* .7261 *	
	* 1.7993 *	* 1.4252 *	* 1.5594 *	* 1.4307 *	* 1.6140 *	* 1.4692 *	* 2.2989 *	
13	* 1.1620 *	* 1.1171 *	* 1.1760 *	* 1.0699 *	* 1.1417 *	* .8279 *	* .4712 *	
	* 1.4384 *	* 1.4945 *	* 1.4245 *	* 1.5652 *	* 1.4692 *	* 2.0214 *	* 3.5212 *	
14	* .9532 *	* 1.1363 *	* .9928 *	* 1.1128 *	* .7283 *	* .4723 *		
	* 1.7470 *	* 1.4707 *	* 1.6803 *	* 1.5037 *	* 2.2918 *	* 3.5128 *		
15	* .5623 *	* .7069 *	* .8514 *	* .6051 *	F-SUB-Q			
	* 2.9413 *	* 2.3521 *	* 1.9518 *	* 2.7467 *	M-SUB-Q			

AT 75% POWER, 4 EFPD, THIS IS LEVEL 1 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* .5623 *	* .6919 *	* .6115 *	* .7186 *	* .6223 *	* .8011 *	* .6169 *	* .3674 *
	* 2.8476 *	* 2.3188 *	* 2.6291 *	* 2.2446 *	* 2.5967 *	* 2.0256 *	* 2.6291 *	* 4.3988 *
9	* .6919 *	* .6801 *	* .8204 *	* .6951 *	* .8332 *	* .7358 *	* .7390 *	* .4434 *
	* 2.3188 *	* 2.3711 *	* 1.9714 *	* 2.3280 *	* 1.9492 *	* 2.2060 *	* 2.1945 *	* 3.6521 *
10	* .6115 *	* .8193 *	* .6929 *	* .8236 *	* .7047 *	* .8268 *	* .6426 *	* .4980 *
	* 2.6291 *	* 1.9740 *	* 2.3354 *	* 1.9688 *	* 2.3025 *	* 1.9661 *	* 2.5255 *	* 3.2494 *
11	* .7186 *	* .6940 *	* .8225 *	* .6383 *	* .8182 *	* .6865 *	* .6822 *	* .3727 *
	* 2.2446 *	* 2.3317 *	* 1.9740 *	* 2.5407 *	* 1.9873 *	* 2.3691 *	* 2.3787 *	* 4.3405 *
12	* .6223 *	* .8300 *	* .7036 *	* .8172 *	* .6629 *	* .7229 *	* .4584 *	
	* 2.5967 *	* 1.9557 *	* 2.3079 *	* 1.9914 *	* 2.4540 *	* 2.2498 *	* 3.5423 *	
13	* .8011 *	* .7336 *	* .8247 *	* .6854 *	* .7229 *	* .5216 *	* .2988 *	
	* 2.0256 *	* 2.2110 *	* 1.9701 *	* 2.3730 *	* 2.2498 *	* 3.1188 *	* 5.4177 *	
14	* .6169 *	* .7379 *	* .6415 *	* .6822 *	* .4595 *	* .2988 *		
	* 2.6291 *	* 2.1978 *	* 2.5298 *	* 2.3806 *	* 3.5381 *	* 5.4177 *		
15	* .3674 *	* .4423 *	* .4969 *	* .3716 *	F-SUB-Q			
	* 4.3988 *	* 3.6566 *	* 3.2530 *	* 4.3469 *	M-SUB-Q			

Table 2 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Power Escalation

AT 50% POWER, 4 EFPD, THIS IS LEVEL 18 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* .7465 *	* .9810 *	* .9157 *	* 1.0485 *	* .9157 *	* 1.0988 *	* .8793 *	* .5462 *
	* 2.6995 *	* 2.3421 *	* 2.5995 *	* 2.2516 *	* 2.5488 *	* 2.1077 *	* 2.6247 *	* 4.1677 *
9	* .9810 *	* 1.0303 *	* 1.1727 *	* 1.0271 *	* 1.1438 *	* 1.0132 *	* .9896 *	* .6276 *
	* 2.3421 *	* 2.3400 *	* 2.0306 *	* 2.3080 *	* 2.0595 *	* 2.3067 *	* 2.3319 *	* 3.6731 *
10	* .9157 *	* 1.1727 *	* 1.0367 *	* 1.1535 *	* 1.0046 *	* 1.0935 *	* .8825 *	* .6683 *
	* 2.5995 *	* 2.0306 *	* 2.3028 *	* 2.0616 *	* 2.3645 *	* 2.1581 *	* 2.6452 *	* 3.4512 *
11	* 1.0485 *	* 1.0271 *	* 1.1524 *	* .8654 *	* 1.0132 *	* .8836 *	* .8536 *	* .5077 *
	* 2.2516 *	* 2.3093 *	* 2.0637 *	* 2.7138 *	* 2.2268 *	* 2.6004 *	* 2.7495 *	* 4.6239 *
12	* .9157 *	* 1.1406 *	* 1.0025 *	* 1.0110 *	* .7336 *	* .7679 *	* .5698 *	
	* 2.5488 *	* 2.0637 *	* 2.3687 *	* 2.2317 *	* 2.5717 *	* 2.4878 *	* 3.8202 *	
13	* 1.0988 *	* 1.0121 *	* 1.0913 *	* .8825 *	* .7668 *	* .5526 *	* .3695 *	
	* 2.1077 *	* 2.3106 *	* 2.1616 *	* 2.6032 *	* 2.4888 *	* 3.2242 *	* 5.4749 *	
14	* .8793 *	* .9885 *	* .8814 *	* .8525 *	* .5698 *	* .3695 *		
	* 2.6247 *	* 2.3346 *	* 2.6487 *	* 2.7513 *	* 3.8166 *	* 5.4725 *		
15	* .5462 *	* .6265 *	* .6683 *	* .5066 *	F-SUB-Q			
	* 4.1677 *	* 3.6765 *	* 3.4541 *	* 4.6345 *	M-SUB-Q			

AT 50% POWER, 4 EFPD, THIS IS LEVEL 17 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.1245 *	* 1.4619 *	* 1.2970 *	* 1.5380 *	* 1.2734 *	* 1.4662 *	* 1.2906 *	* .7990 *
	* 1.9877 *	* 1.6464 *	* 1.9561 *	* 1.6142 *	* 1.9277 *	* 1.6578 *	* 1.8708 *	* 2.9960 *
9	* 1.4619 *	* 1.4908 *	* 1.5647 *	* 1.4930 *	* 1.5037 *	* 1.4544 *	* 1.4309 *	* .9510 *
	* 1.6464 *	* 1.7150 *	* 1.6225 *	* 1.6692 *	* 1.6624 *	* 1.6932 *	* 1.7002 *	* 2.5460 *
10	* 1.2970 *	* 1.5647 *	* 1.5123 *	* 1.5369 *	* 1.4501 *	* 1.4855 *	* 1.2841 *	* 1.0731 *
	* 1.9561 *	* 1.6231 *	* 1.6685 *	* 1.6334 *	* 1.7316 *	* 1.6739 *	* 1.9178 *	* 2.2672 *
11	* 1.5380 *	* 1.4919 *	* 1.5390 *	* 1.1674 *	* 1.3934 *	* 1.3130 *	* 1.3498 *	* .7786 *
	* 1.6142 *	* 1.6685 *	* 1.6321 *	* 2.0635 *	* 1.7590 *	* 1.8435 *	* 1.8860 *	* 3.1786 *
12	* 1.2734 *	* 1.5015 *	* 1.4469 *	* 1.3880 *	* 1.0860 *	* 1.2167 *	* .8686 *	
	* 1.9277 *	* 1.6658 *	* 1.7353 *	* 1.7610 *	* 1.8133 *	* 1.7594 *	* 2.6944 *	
13	* 1.4662 *	* 1.4512 *	* 1.4833 *	* 1.3109 *	* 1.2167 *	* .8943 *	* .5741 *	
	* 1.6578 *	* 1.6967 *	* 1.6773 *	* 1.8451 *	* 1.7599 *	* 2.2399 *	* 3.8363 *	
14	* 1.2906 *	* 1.4298 *	* 1.2820 *	* 1.3088 *	* .8697 *	* .5751 *		
	* 1.8708 *	* 1.7023 *	* 1.9205 *	* 1.8869 *	* 2.6908 *	* 3.8316 *		
15	* .7990 *	* .9500 *	* 1.0721 *	* .7775 *	F-SUB-Q			
	* 2.9960 *	* 2.5492 *	* 2.2697 *	* 3.1835 *	M-SUB-Q			

Table 2 (continued)
F-sub-Q/M-sub-Q Value* (F-sub-Q OP Margin) - Power Escalation

AT 50% POWER, 4 EFPD, THIS IS LEVEL 16 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.3559 *	* 1.7136 *	* 1.4587 *	* 1.7275 *	* 1.4052 *	* 1.6579 *	* 1.4598 *	* .9007 *
	* 1.9165 *	* 1.5517 *	* 1.8889 *	* 1.5297 *	* 1.8562 *	* 1.5548 *	* 1.7535 *	* 2.8155 *
9	* 1.7136 *	* 1.6654 *	* 1.7671 *	* 1.6600 *	* 1.6879 *	* 1.6258 *	* 1.6515 *	* 1.1021 *
	* 1.5517 *	* 1.6357 *	* 1.5405 *	* 1.5963 *	* 1.5705 *	* 1.6123 *	* 1.5641 *	* 2.3347 *
10	* 1.4587 *	* 1.7661 *	* 1.6772 *	* 1.7232 *	* 1.6097 *	* 1.6815 *	* 1.4683 *	* 1.2831 *
	* 1.8889 *	* 1.5410 *	* 1.6079 *	* 1.5553 *	* 1.6695 *	* 1.5794 *	* 1.7864 *	* 2.0144 *
11	* 1.7275 *	* 1.6611 *	* 1.7254 *	* 1.3077 *	* 1.6194 *	* 1.5272 *	* 1.5819 *	* .9146 *
	* 1.5297 *	* 1.5957 *	* 1.5536 *	* 1.9788 *	* 1.6286 *	* 1.7157 *	* 1.6857 *	* 2.8894 *
12	* 1.4052 *	* 1.6836 *	* 1.6065 *	* 1.6172 *	* 1.4062 *	* 1.5465 *	* 1.0378 *	
	* 1.8562 *	* 1.5788 *	* 1.6735 *	* 1.6306 *	* 1.6947 *	* 1.5889 *	* 2.4804 *	
13	* 1.6579 *	* 1.6226 *	* 1.6783 *	* 1.5262 *	* 1.5465 *	* 1.1610 *	* .6961 *	
	* 1.5548 *	* 1.6154 *	* 1.5830 *	* 1.7164 *	* 1.5889 *	* 2.0566 *	* 3.5389 *	
14	* 1.4598 *	* 1.6483 *	* 1.4662 *	* 1.5808 *	* 1.0399 *	* .6983 *		
	* 1.7535 *	* 1.5664 *	* 1.7887 *	* 1.6864 *	* 2.4750 *	* 3.5309 *		
15	* .9007 *	* 1.1010 *	* 1.2820 *	* .9136 *	F-SUB-Q			
	* 2.8155 *	* 2.3374 *	* 2.0163 *	* 2.8934 *	M-SUB-Q			

AT 50% POWER, 4 EFPD, THIS IS LEVEL 15 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.4512 *	* 1.8293 *	* 1.5176 *	* 1.7907 *	* 1.4533 *	* 1.7575 *	* 1.5294 *	* .9393 *
	* 2.0409 *	* 1.6314 *	* 1.9899 *	* 1.5996 *	* 1.9409 *	* 1.5800 *	* 1.8010 *	* 2.9040 *
9	* 1.8293 *	* 1.7243 *	* 1.8485 *	* 1.7093 *	* 1.7811 *	* 1.7050 *	* 1.7607 *	* 1.1685 *
	* 1.6314 *	* 1.7391 *	* 1.6026 *	* 1.6813 *	* 1.6111 *	* 1.6622 *	* 1.5806 *	* 2.3708 *
10	* 1.5176 *	* 1.8485 *	* 1.7297 *	* 1.8025 *	* 1.6697 *	* 1.7800 *	* 1.5572 *	* 1.3859 *
	* 1.9899 *	* 1.6032 *	* 1.6967 *	* 1.6160 *	* 1.7455 *	* 1.6173 *	* 1.8203 *	* 2.0088 *
11	* 1.7907 *	* 1.7104 *	* 1.8046 *	* 1.4180 *	* 1.7479 *	* 1.6440 *	* 1.7307 *	* .9832 *
	* 1.5996 *	* 1.6806 *	* 1.6142 *	* 2.0474 *	* 1.6510 *	* 1.7551 *	* 1.6862 *	* 2.9060 *
12	* 1.4533 *	* 1.7768 *	* 1.6665 *	* 1.7457 *	* 1.6054 *	* 1.7414 *	* 1.1753 *	
	* 1.9409 *	* 1.6179 *	* 1.7498 *	* 1.6523 *	* 1.7447 *	* 1.6019 *	* 2.5199 *	
13	* 1.7575 *	* 1.7018 *	* 1.7768 *	* 1.6429 *	* 1.7414 *	* 1.3152 *	* .7658 *	
	* 1.5800 *	* 1.6654 *	* 1.6210 *	* 1.7559 *	* 1.6019 *	* 2.1048 *	* 3.6242 *	
14	* 1.5294 *	* 1.7575 *	* 1.5551 *	* 1.7307 *	* 1.1385 *	* .7679 *		
	* 1.8010 *	* 1.5829 *	* 1.8226 *	* 1.6868 *	* 2.5124 *	* 3.6159 *		
15	* .9393 *	* 1.1674 *	* 1.3837 *	* .9821 *	F-SUB-Q			
	* 2.9040 *	* 2.3735 *	* 2.0116 *	* 2.9099 *	M-SUB-Q			

Table 2 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Power Escalation

AT 50% POWER, 4 EFPD, THIS IS LEVEL 14 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.4126	* 1.7907	* 1.4780	* 1.7500	* 1.4201	* 1.7436	* 1.5101	* .9232
	* 2.3146	* 1.8371	* 2.2183	* 1.8035	* 2.1827	* 1.7437	* 1.9951	* 3.2341
9	* 1.7907	* 1.6729	* 1.8121	* 1.6654	* 1.7682	* 1.6868	* 1.7522	* 1.1599
	* 1.8371	* 1.9674	* 1.8035	* 1.9020	* 1.7848	* 1.8459	* 1.7395	* 2.6198
10	* 1.4780	* 1.8121	* 1.6836	* 1.7714	* 1.6429	* 1.7682	* 1.5508	* 1.3859
	* 2.2183	* 1.8035	* 1.9266	* 1.8141	* 1.9571	* 1.7907	* 2.0100	* 2.2039
11	* 1.7500	* 1.6654	* 1.7736	* 1.4180	* 1.7532	* 1.6483	* 1.7479	* .9810
	* 1.8035	* 1.9020	* 1.8125	* 2.2662	* 1.8119	* 1.9303	* 1.8295	* 3.2100
12	* 1.4201	* 1.7639	* 1.6397	* 1.7511	* 1.6194	* 1.7757	* 1.1428	*
	* 2.1827	* 1.7930	* 1.9616	* 1.8134	* 1.9355	* 1.7601	* 2.7703	*
13	* 1.7436	* 1.6836	* 1.7650	* 1.6472	* 1.7757	* 1.3345	* .7743	*
	* 1.7437	* 1.8498	* 1.7952	* 1.9312	* 1.7601	* 2.3338	* 4.0138	*
14	* 1.5101	* 1.7500	* 1.5487	* 1.7468	* 1.1460	* .7765	*	*
	* 1.9951	* 1.7423	* 2.0128	* 1.8303	* 2.7614	* 4.0026	*	*
15	* .9232	* 1.1588	* 1.3848	* .9800	* F-SUB-Q			
	* 3.2341	* 2.6230	* 2.2062	* 3.2148	* M-SUB-Q			

AT 50% POWER, 4 EFPD, THIS IS LEVEL 13 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.3987	* 1.7832	* 1.4737	* 1.7511	* 1.4244	* 1.7682	* 1.5208	* .9264
	* 2.5780	* 2.0195	* 2.4450	* 2.0112	* 2.4194	* 1.9022	* 2.1888	* 3.5517
9	* 1.7832	* 1.6568	* 1.8153	* 1.6622	* 1.7918	* 1.7040	* 1.7821	* 1.1727
	* 2.0195	* 2.1770	* 1.9820	* 2.1293	* 1.9565	* 2.0298	* 1.8923	* 2.8613
10	* 1.4737	* 1.8143	* 1.6761	* 1.7800	* 1.6526	* 1.7929	* 1.5754	* 1.4159
	* 2.4450	* 1.9829	* 2.1451	* 2.0137	* 2.1434	* 1.9644	* 2.1998	* 2.3839
11	* 1.7511	* 1.6600	* 1.7821	* 1.4405	* 1.7864	* 1.6740	* 1.7950	* 1.0025
	* 2.0112	* 2.1293	* 2.0124	* 2.4636	* 1.9722	* 2.1011	* 1.9479	* 3.4730
12	* 1.4244	* 1.7875	* 1.6504	* 1.7843	* 1.6472	* 1.8261	* 1.1717	*
	* 2.4194	* 1.9670	* 2.1465	* 1.9740	* 2.1357	* 1.9196	* 2.9900	*
13	* 1.7682	* 1.7007	* 1.7886	* 1.6729	* 1.8261	* 1.3623	* .7893	*
	* 1.9022	* 2.0345	* 1.9688	* 2.1021	* 1.9193	* 2.5754	* 4.4127	*
14	* 1.5208	* 1.7789	* 1.5733	* 1.7939	* 1.1749	* .7915	*	*
	* 2.1888	* 1.8956	* 2.2031	* 1.9488	* 2.9806	* 4.4012	*	*
15	* .9264	* 1.1717	* 1.4137	* 1.0014	* F-SUB-Q			
	* 3.5517	* 2.8651	* 2.3865	* 3.4785	* M-SUB-Q			

Table 2 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Power Escalation

AT 50% POWER, 4 EFPD, THIS IS LEVEL 12 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.3441 *	* 1.7222 *	* 1.4223 *	* 1.6997 *	* 1.3827 *	* 1.7318 *	* 1.4844 *	* .9007 *
	* 2.9995 *	* 2.3348 *	* 2.8262 *	* 2.2858 *	* 2.7340 *	* 2.1213 *	* 2.4451 *	* 3.9613 *
9	* 1.7222 *	* 1.5969 *	* 1.7618 *	* 1.6108 *	* 1.7543 *	* 1.6654 *	* 1.7479 *	* 1.1460 *
	* 2.3348 *	* 2.5172 *	* 2.2764 *	* 2.4250 *	* 2.1885 *	* 2.2729 *	* 2.1042 *	* 3.1782 *
10	* 1.4223 *	* 1.7607 *	* 1.6215 *	* 1.7318 *	* 1.6151 *	* 1.7564 *	* 1.5455 *	* 1.3902 *
	* 2.8262 *	* 2.2769 *	* 2.4719 *	* 2.2847 *	* 2.4378 *	* 2.1950 *	* 2.4506 *	* 2.6346 *
11	* 1.6997 *	* 1.6097 *	* 1.7339 *	* 1.4094 *	* 1.7564 *	* 1.6429 *	* 1.7682 *	* .9821 *
	* 2.2858 *	* 2.4250 *	* 2.2882 *	* 2.7958 *	* 2.2195 *	* 2.3747 *	* 2.1935 *	* 3.8610 *
12	* 1.3827 *	* 1.7500 *	* 1.6119 *	* 1.7554 *	* 1.6151 *	* 1.7993 *	* 1.1513 *	
	* 2.7340 *	* 2.2016 *	* 2.4419 *	* 2.2213 *	* 2.4152 *	* 2.1575 *	* 3.3736 *	
13	* 1.7318 *	* 1.6633 *	* 1.7522 *	* 1.6418 *	* 1.8004 *	* 1.3366 *	* .7733 *	
	* 2.1213 *	* 2.2776 *	* 2.1983 *	* 2.3752 *	* 2.1569 *	* 2.9057 *	* 4.9761 *	
14	* 1.4844 *	* 1.7447 *	* 1.5433 *	* 1.7682 *	* 1.1545 *	* .7754 *		
	* 2.4451 *	* 2.1082 *	* 2.4547 *	* 2.1946 *	* 3.3643 *	* 4.9649 *		
15	* .9007 *	* 1.1449 *	* 1.3891 *	* .9810 *	F-SUB-Q			
	* 3.9613 *	* 3.1827 *	* 2.6393 *	* 3.8677 *	M-SUB-Q			

AT 50% POWER, 4 EFPD, THIS IS LEVEL 11 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.2809 *	* 1.6472 *	* 1.3591 *	* 1.6333 *	* 1.3280 *	* 1.6729 *	* 1.4298 *	* .8664 *
	* 3.5509 *	* 2.7596 *	* 3.3214 *	* 2.6020 *	* 3.0915 *	* 2.3781 *	* 2.7442 *	* 4.4386 *
9	* 1.6472 *	* 1.5272 *	* 1.6911 *	* 1.5455 *	* 1.6975 *	* 1.6097 *	* 1.6911 *	* 1.1053 *
	* 2.7596 *	* 2.9694 *	* 2.5959 *	* 2.7613 *	* 2.4547 *	* 2.5510 *	* 2.3515 *	* 3.5452 *
10	* 1.3591 *	* 1.6900 *	* 1.5530 *	* 1.6665 *	* 1.5583 *	* 1.6997 *	* 1.4951 *	* 1.3452 *
	* 3.3214 *	* 2.5974 *	* 2.8375 *	* 2.5808 *	* 2.7510 *	* 2.4479 *	* 2.7357 *	* 2.9258 *
11	* 1.6333 *	* 1.5444 *	* 1.6686 *	* 1.3591 *	* 1.7040 *	* 1.5894 *	* 1.7157 *	* .9478 *
	* 2.6020 *	* 2.7647 *	* 2.5868 *	* 3.2607 *	* 2.9732 *	* 2.7599 *	* 2.5413 *	* 4.2962 *
12	* 1.3280 *	* 1.6933 *	* 1.5562 *	* 1.7029 *	* 1.5615 *	* 1.7457 *	* 1.1117 *	
	* 3.0915 *	* 2.4670 *	* 2.7561 *	* 2.5747 *	* 2.8108 *	* 2.5016 *	* 3.9261 *	
13	* 1.6729 *	* 1.6065 *	* 1.6954 *	* 1.5894 *	* 1.7457 *	* 1.2906 *	* .7454 *	
	* 2.3781 *	* 2.5554 *	* 2.4519 *	* 2.7599 *	* 2.5010 *	* 3.3803 *	* 5.7864 *	
14	* 1.4298 *	* 1.6879 *	* 1.4940 *	* 1.7157 *	* 1.1149 *	* .7476 *		
	* 2.7442 *	* 2.3553 *	* 2.7391 *	* 2.5427 *	* 3.9136 *	* 5.7713 *		
15	* .8664 *	* 1.1042 *	* 1.3441 *	* .9468 *	F-SUB-Q			
	* 4.4386 *	* 3.5509 *	* 2.9296 *	* 4.3046 *	M-SUB-Q			

Table 2 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Power Escalation

AT 50% POWER, 4 EFPD, THIS IS LEVEL 10 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.2445 *	* 1.6086 *	* 1.3259 *	* 1.6011 *	* 1.3013 *	* 1.6504 *	* 1.4030 *	* .8482 *
	* 3.6326 *	* 2.8122 *	* 3.4085 *	* 2.7699 *	* 3.3189 *	* 2.5853 *	* 3.0053 *	* 4.8527 *
9	* 1.6086 *	* 1.4887 *	* 1.6568 *	* 1.5112 *	* 1.6729 *	* 1.5840 *	* 1.6697 *	* 1.0860 *
	* 2.8122 *	* 3.0446 *	* 2.7391 *	* 2.9531 *	* 2.6567 *	* 2.7752 *	* 2.5628 *	* 3.8745 *
10	* 1.3259 *	* 1.6568 *	* 1.5155 *	* 1.6365 *	* 1.5305 *	* 1.6750 *	* 1.4726 *	* 1.3302 *
	* 3.4085 *	* 2.7391 *	* 2.9951 *	* 2.7769 *	* 2.9750 *	* 2.6696 *	* 2.9972 *	* 3.1782 *
11	* 1.6011 *	* 1.5090 *	* 1.6376 *	* 1.3366 *	* 1.6836 *	* 1.5647 *	* 1.6997 *	* .9361 *
	* 2.7699 *	* 2.9531 *	* 2.7752 *	* 3.4085 *	* 2.7172 *	* 2.9200 *	* 2.6809 *	* 4.6831 *
12	* 1.3013 *	* 1.6686 *	* 1.5283 *	* 1.6825 *	* 1.5347 *	* 1.7265 *	* 1.0988 *	
	* 3.3189 *	* 2.6777 *	* 2.9790 *	* 2.7188 *	* 2.9790 *	* 2.6520 *	* 4.1549 *	
13	* 1.6504 *	* 1.5808 *	* 1.6718 *	* 1.5637 *	* 1.7275 *	* 1.2691 *	* .7326 *	
	* 2.5853 *	* 2.7821 *	* 2.6744 *	* 2.9200 *	* 2.6520 *	* 3.6118 *	* 6.2529 *	
14	* 1.4030 *	* 1.6675 *	* 1.4705 *	* 1.6997 *	* 1.1021 *	* .7336 *		
	* 3.0053 *	* 2.5673 *	* 2.9992 *	* 2.6825 *	* 4.1432 *	* 6.2353 *		
15	* .8482 *	* 1.0849 *	* 1.3291 *	* .9350 *	F-SUB-Q			
	* 4.8527 *	* 3.8779 *	* 3.1805 *	* 4.6880 *	M-SUB-Q			

AT 50% POWER, 4 EFPD, THIS IS LEVEL 9 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.1706 *	* 1.5176 *	* 1.2477 *	* 1.5155 *	* 1.2295 *	* 1.5679 *	* 1.3313 *	* .8032 *
	* 3.7785 *	* 2.9142 *	* 3.4350 *	* 2.6940 *	* 3.2411 *	* 2.5161 *	* 2.9335 *	* 4.8105 *
9	* 1.5176 *	* 1.4062 *	* 1.5690 *	* 1.4298 *	* 1.5915 *	* 1.5058 *	* 1.5883 *	* 1.0303 *
	* 2.9142 *	* 3.0786 *	* 2.6874 *	* 2.8763 *	* 2.5853 *	* 2.7022 *	* 2.5061 *	* 3.8543 *
10	* 1.2477 *	* 1.5679 *	* 1.4319 *	* 1.5508 *	* 1.4544 *	* 1.5947 *	* 1.4019 *	* 1.2649 *
	* 3.4350 *	* 2.6874 *	* 2.9453 *	* 2.7006 *	* 2.9161 *	* 2.6036 *	* 2.9472 *	* 3.1805 *
11	* 1.5155 *	* 1.4287 *	* 1.5519 *	* 1.2670 *	* 1.6044 *	* 1.4887 *	* 1.6194 *	* .8857 *
	* 2.6940 *	* 2.8763 *	* 2.6989 *	* 3.5226 *	* 2.7927 *	* 3.0033 *	* 2.7578 *	* 4.7030 *
12	* 1.2295 *	* 1.5883 *	* 1.4523 *	* 1.6033 *	* 1.4587 *	* 1.6440 *	* 1.0410 *	
	* 3.2411 *	* 2.6051 *	* 2.9238 *	* 2.7945 *	* 3.0700 *	* 2.7289 *	* 4.2921 *	
13	* 1.5679 *	* 1.5037 *	* 1.5926 *	* 1.4887 *	* 1.6440 *	* 1.2059 *	* .6940 *	
	* 2.5161 *	* 2.7088 *	* 2.6112 *	* 3.0053 *	* 2.7289 *	* 3.7244 *	* 6.4538 *	
14	* 1.3313 *	* 1.5862 *	* 1.4009 *	* 1.6183 *	* 1.0453 *	* .6951 *		
	* 2.9335 *	* 2.5104 *	* 2.9531 *	* 2.7578 *	* 4.2796 *	* 6.4350 *		
15	* .8032 *	* 1.0292 *	* 1.2627 *	* .8846 *	F-SUB-Q			
	* 4.8105 *	* 3.8610 *	* 3.1873 *	* 4.7130 *	M-SUB-Q			

Table 2 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Power Escalation

AT 50% POWER, 4 EFPD, THIS IS LEVEL 8 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.1374 *	* 1.4823 *	* 1.2188 *	* 1.4833 *	* 1.2049 *	* 1.5444 *	* 1.3034 *	* .7850 *
	* 3.6236 *	* 2.7786 *	* 3.2482 *	* 2.5436 *	* 3.0510 *	* 2.3565 *	* 2.7544 *	* 4.4882 *
9	* 1.4823 *	* 1.3709 *	* 1.5369 *	* 1.3966 *	* 1.5669 *	* 1.4791 *	* 1.5669 *	* 1.0110 *
	* 2.7786 *	* 2.9123 *	* 2.5334 *	* 2.7222 *	* 2.4250 *	* 2.5451 *	* 2.3453 *	* 3.6059 *
10	* 1.2188 *	* 1.5369 *	* 1.3955 *	* 1.5219 *	* 1.4255 *	* 1.5712 *	* 1.3784 *	* 1.2488 *
	* 3.2482 *	* 2.5334 *	* 2.7909 *	* 2.5451 *	* 2.7578 *	* 2.4506 *	* 2.7734 *	* 2.9571 *
11	* 1.4833 *	* 1.3955 *	* 1.5219 *	* 1.2445 *	* 1.5819 *	* 1.4619 *	* 1.6011 *	* .8739 *
	* 2.5436 *	* 2.7222 *	* 2.5451 *	* 3.3466 *	* 2.6314 *	* 2.8375 *	* 2.5792 *	* 4.3814 *
12	* 1.2049 *	* 1.5626 *	* 1.4234 *	* 1.5808 *	* 1.4309 *	* 1.6236 *	* 1.0282 *	
	* 3.0510 *	* 2.4438 *	* 2.7647 *	* 2.6362 *	* 2.9810 *	* 2.6082 *	* 4.0447 *	
13	* 1.5444 *	* 1.4756 *	* 1.5690 *	* 1.4619 *	* 1.6236 *	* 1.1824 *	* .6790 *	
	* 2.3565 *	* 2.5510 *	* 2.4547 *	* 2.8412 *	* 2.6066 *	* 3.5942 *	* 6.1230 *	
14	* 1.3034 *	* 1.5637 *	* 1.3762 *	* 1.6011 *	* 1.0314 *	* .6812 *		
	* 2.7544 *	* 2.3490 *	* 2.7786 *	* 2.5808 *	* 4.0299 *	* 6.1061 *		
15	* .7850 *	* 1.0100 *	* 1.2477 *	* .8729 *	F-SUB-Q			
	* 4.4882 *	* 3.6118 *	* 2.9630 *	* 4.3901 *	M-SUB-Q			

AT 50% POWER, 4 EFPD, THIS IS LEVEL 7 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.0849 *	* 1.4191 *	* 1.1652 *	* 1.4234 *	* 1.1545 *	* 1.4865 *	* 1.2509 *	* .7529 *
	* 3.3517 *	* 2.5598 *	* 2.9453 *	* 2.3013 *	* 2.7717 *	* 2.1398 *	* 2.1104 *	* 4.1048 *
9	* 1.4191 *	* 1.3120 *	* 1.4758 *	* 1.3398 *	* 1.5090 *	* 1.4223 *	* 1.5090 *	* .9703 *
	* 2.5598 *	* 2.6362 *	* 2.2894 *	* 2.4670 *	* 2.2005 *	* 2.3085 *	* 2.1274 *	* 3.2844 *
10	* 1.1652 *	* 1.4748 *	* 1.3366 *	* 1.4641 *	* 1.3698 *	* 1.5144 *	* 1.3259 *	* 1.2027 *
	* 2.9453 *	* 2.2906 *	* 2.5276 *	* 2.3001 *	* 2.4976 *	* 2.2160 *	* 2.5161 *	* 2.6842 *
11	* 1.4234 *	* 1.3377 *	* 1.4630 *	* 1.1952 *	* 1.5251 *	* 1.4062 *	* 1.5444 *	* .8397 *
	* 2.3013 *	* 2.4670 *	* 2.2989 *	* 3.0958 *	* 2.4264 *	* 2.6143 *	* 2.3378 *	* 3.9791 *
12	* 1.1545 *	* 1.5048 *	* 1.3677 *	* 1.5240 *	* 1.3752 *	* 1.5647 *	* .9875 *	
	* 2.7717 *	* 2.2182 *	* 2.5033 *	* 2.4304 *	* 2.7493 *	* 2.4000 *	* 3.7401 *	
13	* 1.4865 *	* 1.4201 *	* 1.5123 *	* 1.4062 *	* 1.5647 *	* 1.1353 *	* .6512 *	
	* 2.1398 *	* 2.3134 *	* 2.2215 *	* 2.6174 *	* 2.3987 *	* 3.3140 *	* 5.6750 *	
14	* 1.2509 *	* 1.5069 *	* 1.3238 *	* 1.5444 *	* .9907 *	* .6522 *		
	* 2.5104 *	* 2.1315 *	* 2.5219 *	* 2.3403 *	* 3.7275 *	* 5.6605 *		
15	* .7529 *	* .9693 *	* 1.2017 *	* .8386 *	F-SUB-Q			
	* 4.1048 *	* 3.2893 *	* 2.6891 *	* 3.9863 *	M-SUB-Q			

Table 2 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Power Escalation

AT 50% POWER, 4 EFPD, THIS IS LEVEL 6 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.0196 *	* 1.3377 *	* 1.0956 *	* 1.3441 *	* 1.0871 *	* 1.4041 *	* 1.1802 *	* .7079 *
	* 3.0786 *	* 2.3490 *	* 2.7442 *	* 2.1398 *	* 2.5944 *	* 2.0031 *	* 2.3553 *	* 3.8644 *
9	* 1.3377 *	* 1.2370 *	* 1.3934 *	* 1.2638 *	* 1.4266 *	* 1.3441 *	* 1.4255 *	* .9136 *
	* 2.3490 *	* 2.4424 *	* 2.1264 *	* 2.2953 *	* 2.0552 *	* 2.1523 *	* 1.9896 *	* 3.0829 *
10	* 1.0956 *	* 1.3923 *	* 1.2606 *	* 1.3837 *	* 1.2938 *	* 1.4319 *	* 1.2520 *	* 1.1331 *
	* 2.7442 *	* 2.1274 *	* 2.3478 *	* 2.1367 *	* 2.3219 *	* 2.0620 *	* 2.3478 *	* 2.5147 *
11	* 1.3441 *	* 1.2616 *	* 1.3816 *	* 1.1245 *	* 1.4416 *	* 1.3280 *	* 1.4576 *	* .7872 *
	* 2.1398 *	* 2.2965 *	* 2.1357 *	* 2.8595 *	* 2.2327 *	* 2.4013 *	* 2.1692 *	* 3.7307 *
12	* 1.0871 *	* 1.4234 *	* 1.2916 *	* 1.4405 *	* 1.2970 *	* 1.4769 *	* .9275 *	
	* 2.5944 *	* 2.0658 *	* 2.3280 *	* 2.2361 *	* 2.5247 *	* 2.2137 *	* 3.4673 *	
13	* 1.4041 *	* 1.3420 *	* 1.4298 *	* 1.3280 *	* 1.4769 *	* 1.0689 *	* .6115 *	
	* 2.0031 *	* 2.1565 *	* 2.0668 *	* 2.4039 *	* 2.2126 *	* 3.0679 *	* 5.2755 *	
14	* 1.1802 *	* 1.4223 *	* 1.2499 *	* 1.4576 *	* .9307 *	* .6137 *		
	* 2.3553 *	* 1.9932 *	* 2.3515 *	* 2.1724 *	* 3.4565 *	* 5.2566 *		
15	* .7079 *	* .9125 *	* 1.1320 *	* .7861 *	F-SUB-Q			
	* 3.8644 *	* 3.0872 *	* 2.5190 *	* 3.7370 *	M-SUB-Q			

AT 50% POWER, 4 EFPD, THIS IS LEVEL 5 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* .9879 *	* 1.3002 *	* 1.0646 *	* 1.3066 *	* 1.0560 *	* 1.3655 *	* 1.1417 *	* .6833 *
	* 3.7442 *	* 2.0853 *	* 2.5047 *	* 1.9535 *	* 2.3793 *	* 1.8412 *	* 2.1788 *	* 3.5913 *
9	* 1.3002 *	* 1.1995 *	* 1.3559 *	* 1.2252 *	* 1.3880 *	* 1.3045 *	* 1.3859 *	* .8836 *
	* 2.0853 *	* 2.2226 *	* 1.9373 *	* 2.1022 *	* 1.8836 *	* 1.9745 *	* 1.8268 *	* 2.8503 *
10	* 1.0646 *	* 1.3548 *	* 1.2220 *	* 1.3462 *	* 1.2541 *	* 1.3912 *	* 1.2124 *	* 1.1010 *
	* 2.5047 *	* 1.9381 *	* 2.1429 *	* 1.9475 *	* 2.1244 *	* 1.8844 *	* 2.1586 *	* 2.3109 *
11	* 1.3066 *	* 1.2242 *	* 1.3441 *	* 1.0924 *	* 1.4009 *	* 1.2863 *	* 1.4191 *	* .7647 *
	* 1.9535 *	* 2.1022 *	* 1.9458 *	* 2.5598 *	* 1.9941 *	* 2.1586 *	* 1.9509 *	* 3.4164 *
12	* 1.0560 *	* 1.3837 *	* 1.2520 *	* 1.3998 *	* 1.2552 *	* 1.4362 *	* .9018 *	
	* 2.3793 *	* 1.8884 *	* 2.1295 *	* 1.9968 *	* 2.2776 *	* 1.9860 *	* 3.1002 *	
13	* 1.3655 *	* 1.3023 *	* 1.3891 *	* 1.2863 *	* 1.4362 *	* 1.0335 *	* .5901 *	
	* 1.8412 *	* 1.9789 *	* 1.8892 *	* 2.1607 *	* 1.9842 *	* 2.7786 *	* 4.7741 *	
14	* 1.1417 *	* 1.3837 *	* 1.2113 *	* 1.4180 *	* .9050 *	* .5912 *		
	* 2.1788 *	* 1.8306 *	* 2.1618 *	* 1.9527 *	* 3.0915 *	* 4.7638 *		
15	* .6833 *	* .8814 *	* 1.0999 *	* .7636 *	F-SUB-Q			
	* 3.5913 *	* 2.8558 *	* 2.3134 *	* 3.4217 *	M-SUB-Q			

Table 2 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Power Escalation

AT 50% POWER, 4 EFPD, THIS IS LEVEL 4 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* .9221 *	* 1.2167 *	* .9917 *	* 1.2231 *	* .9842 *	* 1.2702 *	* 1.0614 *	* .6340 *
	* 2.6236 *	* 1.9932 *	* 2.3819 *	* 1.8820 *	* 2.3109 *	* 1.7993 *	* 2.1315 *	* 3.5338 *
9	* 1.2167 *	* 1.1213 *	* 1.2659 *	* 1.1460 *	* 1.2927 *	* 1.2167 *	* 1.2863 *	* .8172 *
	* 1.9932 *	* 2.1183 *	* 1.8653 *	* 2.0260 *	* 1.8215 *	* 1.9121 *	* 1.7855 *	* 2.7980 *
10	* .9917 *	* 1.2649 *	* 1.1417 *	* 1.2563 *	* 1.1685 *	* 1.2959 *	* 1.1256 *	* 1.0164 *
	* 2.3819 *	* 1.8661 *	* 2.0572 *	* 1.8748 *	* 2.0448 *	* 1.8223 *	* 2.0972 *	* 2.2671 *
11	* 1.2231 *	* 1.1438 *	* 1.2552 *	* 1.0142 *	* 1.2991 *	* 1.1952 *	* 1.3120 *	* .7036 *
	* 1.8820 *	* 2.0260 *	* 1.8732 *	* 2.4547 *	* 1.9146 *	* 2.0687 *	* 1.8748 *	* 3.3466 *
12	* .9842 *	* 1.2895 *	* 1.1663 *	* 1.2981 *	* 1.1652 *	* 1.3280 *	* .8311 *	
	* 2.3109 *	* 1.8268 *	* 2.0495 *	* 1.9179 *	* 2.1597 *	* 1.8990 *	* 3.0033 *	
13	* 1.2702 *	* 1.2145 *	* 1.2927 *	* 1.1942 *	* 1.3291 *	* .9553 *	* .5441 *	
	* 1.7993 *	* 1.9163 *	* 1.8268 *	* 2.0706 *	* 1.8974 *	* 2.6409 *	* 4.5859 *	
14	* 1.0614 *	* 1.2841 *	* 1.1245 *	* 1.3109 *	* .8332 *	* .5462 *		
	* 2.1315 *	* 1.7891 *	* 2.1012 *	* 1.8756 *	* 2.9931 *	* 4.5717 *		
15	* .6340 *	* .8161 *	* 1.0153 *	* .7026 *	F-SUB-Q			
	* 3.5338 *	* 2.8015 *	* 2.2706 *	* 3.3517 *	M-SUB-Q			

AT 50% POWER, 4 EFPD, THIS IS LEVEL 3 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* .8729 *	* 1.1492 *	* .9414 *	* 1.1620 *	* .9361 *	* 1.1952 *	* .9960 *	* .5912 *
	* 2.4822 *	* 1.8844 *	* 2.2823 *	* 1.8208 *	* 2.2441 *	* 1.7690 *	* 2.1052 *	* 3.5198 *
9	* 1.1492 *	* 1.0614 *	* 1.1974 *	* 1.0871 *	* 1.2209 *	* 1.1503 *	* 1.2038 *	* .7583 *
	* 1.8844 *	* 2.0335 *	* 1.8022 *	* 1.9639 *	* 1.7705 *	* 1.8606 *	* 1.7627 *	* 2.7909 *
10	* .9414 *	* 1.1963 *	* 1.0828 *	* 1.1899 *	* 1.1021 *	* 1.2220 *	* 1.0507 *	* .9382 *
	* 2.2823 *	* 1.8029 *	* 1.9824 *	* 1.8126 *	* 1.9753 *	* 1.7705 *	* 2.0620 *	* 2.2671 *
11	* 1.1620 *	* 1.0849 *	* 1.1888 *	* .9607 *	* 1.2188 *	* 1.1171 *	* 1.2156 *	* .6512 *
	* 1.8208 *	* 1.9639 *	* 1.8111 *	* 2.3554 *	* 1.8344 *	* 2.0004 *	* 1.8313 *	* 3.3165 *
12	* .9361 *	* 1.2177 *	* 1.1010 *	* 1.2161 *	* 1.0881 *	* 1.2327 *	* .7733 *	
	* 2.2441 *	* 1.7754 *	* 1.9798 *	* 1.8367 *	* 2.1052 *	* 1.8567 *	* 2.9161 *	
13	* 1.1952 *	* 1.1481 *	* 1.2188 *	* 1.1160 *	* 1.2338 *	* .8857 *	* .5034 *	
	* 1.7690 *	* 1.8645 *	* 1.7754 *	* 2.0022 *	* 1.8559 *	* 2.6066 *	* 4.5249 *	
14	* .9960 *	* 1.2017 *	* 1.0496 *	* 1.2145 *	* .7754 *	* .5044 *		
	* 2.1052 *	* 1.7669 *	* 2.0658 *	* 1.8328 *	* 2.9065 *	* 4.5111 *		
15	* .5912 *	* .7561 *	* .9311 *	* .6512 *	F-SUB-Q			
	* 3.5198 *	* 2.7962 *	* 2.2706 *	* 3.3214 *	M-SUB-Q			

Table 2 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Power Escalation

AT 50% POWER, 4 EFPD, THIS IS LEVEL 2 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	.7647	.9917	.8300	1.0153	.8354	1.0587	.8654	.5087
	2.6440	2.0391	2.4131	1.9613	2.3781	1.8876	2.2942	3.8779
9	.9917	.9361	1.0507	.9639	1.0721	1.0174	1.0357	.6415
	2.0391	2.1492	1.9229	2.0863	1.8917	1.9780	1.9356	3.1199
10	.8300	1.0496	.9607	1.0496	.9757	1.0731	.9029	.7722
	2.4131	1.9238	2.0952	1.9297	2.0843	1.8925	2.2384	2.6005
11	1.0153	.9628	1.0474	.8568	1.0710	.9746	1.0121	.5484
	1.9613	2.0883	1.9288	2.4304	1.9587	2.1408	2.0572	3.7087
12	.8354	1.0699	.9715	1.0699	.9425	1.0378	.6587	
	2.3781	1.8965	2.0812	1.9622	2.2305	2.0354	3.1827	
13	1.0587	1.0153	1.0699	.9735	1.0378	.7508	.4252	
	1.8876	1.9824	1.8974	2.1440	2.0354	2.8248	4.9450	
14	.8654	1.0333	.9018	1.0110	.6608	.4263		
	2.2942	1.9390	2.2429	2.0581	3.1736	4.9340		
15	.5087	.6405	.7711	.5473	F-SUB-Q			
	3.8779	3.1243	2.6036	3.7150	M-SUB-Q			

AT 50% POWER, 4 EFPD, THIS IS LEVEL 1 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	.5012	.6180	.5473	.6447	.5591	.7208	.5548	.3288
	3.8375	3.1155	3.5058	2.9730	3.4243	2.6599	3.4538	5.7864
9	.6180	.6094	.7368	.6244	.7508	.6619	.6651	.3973
	3.1155	3.1623	2.6190	3.0915	2.5792	2.9200	2.8989	4.8421
10	.5473	.7368	.6223	.7422	.6351	.7454	.5794	.4466
	3.5058	2.6221	3.1067	2.6205	3.0679	2.6174	3.3517	4.3257
11	.6447	.6233	.7401	.5751	.7379	.6180	.6148	.3342
	2.9730	3.0958	2.6268	3.4619	2.6956	3.2175	3.2222	5.8399
12	.5591	.7486	.6330	.7368	.5965	.6512	.4113	
	3.4243	2.5883	3.0743	2.6989	3.3644	3.0980	4.8741	
13	.7208	.6608	.7443	.6169	.6512	.4680	.2667	
	2.6599	2.9258	2.6221	3.2222	3.0958	4.3172	7.5312	
14	.5548	.6640	.5783	.6137	.4123	.2667		
	3.4538	2.9046	3.3593	3.2245	4.8688	7.5312		
15	.3288	.3963	.4455	.3331	F-SUB-Q			
	5.7864	4.8527	4.3299	5.8554	M-SUB-Q			

Table 2 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Power Escalation

AT 30% POWER, 4 EFPD, THIS IS LEVEL 18 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	.7797	1.0314	.9596	1.1074	.9628	1.1663	.9286	.5687
	2.6995	2.3421	2.5995	2.2516	2.5488	2.1077	2.6247	4.1677
9	1.0314	1.0871	1.2424	1.0860	1.2134	1.0764	1.0507	.6565
	2.3421	2.3400	2.0306	2.3080	2.0595	2.3067	2.3319	3.6731
10	.9596	1.2424	1.0956	1.2220	1.0635	1.1620	.9339	.7015
	2.5995	2.0306	2.3028	2.0616	2.3645	2.1581	2.6452	3.4512
11	1.1074	1.0849	1.2209	.9093	1.0731	.9361	.9050	.5291
	2.2516	2.3093	2.0637	2.7138	2.2268	2.6004	2.7495	4.6239
12	.9628	1.2102	1.0614	1.0710	.7722	.8118	.5955	
	2.5488	2.0637	2.3687	2.2317	2.5717	2.4878	3.8202	
13	1.1663	1.0742	1.1611	.9339	.8107	.5773	.3802	
	2.1077	2.3106	2.1611	2.6032	2.4888	3.2242	5.4749	
14	.9286	1.0496	.9328	.9039	.5965	.3802		
	2.6247	2.3346	2.6487	2.7513	3.8166	5.4725		
15	.5687	.6555	.7004	.5280	F-SUB-Q			
	4.1677	3.6765	3.4541	4.6345	M-SUB-Q			

AT 30% POWER, 4 EFPD, THIS IS LEVEL 17 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	1.1835	1.5465	1.3687	1.6343	1.3473	1.5679	1.3730	.8375
	1.9877	1.6464	1.9561	1.6142	1.9277	1.6578	1.8708	2.9960
9	1.5465	1.5829	1.6665	1.5883	1.6044	1.5540	1.5305	1.0035
	1.6464	1.7150	1.6225	1.6692	1.6624	1.6932	1.7002	2.5460
10	1.3687	1.6654	1.6086	1.6376	1.5455	1.5883	1.3677	1.1342
	1.9561	1.6231	1.6685	1.6334	1.7316	1.6739	1.9178	2.2672
11	1.6343	1.5872	1.6397	1.2349	1.4855	1.4009	1.3987	.8182
	1.6142	1.6685	1.6321	2.0635	1.7590	1.8435	1.8860	3.1786
12	1.3473	1.6011	1.5422	1.4833	1.1524	1.2970	.9157	
	1.9277	1.6658	1.7353	1.7610	1.8133	1.7594	2.6944	
13	1.5679	1.5508	1.5851	1.3987	1.2959	.9436	.5965	
	1.6578	1.6967	1.6773	1.8451	1.7599	2.2399	3.8363	
14	1.3730	1.5283	1.3655	1.3977	.9178	.5976		
	1.8708	1.7023	1.9205	1.8869	2.6908	3.8316		
15	.8375	1.0014	1.1331	.8172	F-SUB-Q			
	2.9960	2.5492	2.2697	3.1835	M-SUB-Q			

Table 2 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Power Escalation

AT 30% POWER, 4 EFPD, THIS IS LEVEL 16 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.4201	* 1.8046	* 1.5305	* 1.8282	* 1.4801	* 1.7671	* 1.5476	* .9425
	* 1.9165	* 1.5517	* 1.8889	* 1.5297	* 1.8562	* 1.5548	* 1.7535	* 2.8155
9	* 1.8046	* 1.7607	* 1.8732	* 1.7564	* 1.7939	* 1.7307	* 1.7597	* 1.1599
	* 1.5517	* 1.6357	* 1.5405	* 1.5963	* 1.5705	* 1.6123	* 1.5641	* 2.3347
10	* 1.5305	* 1.8721	* 1.7768	* 1.8293	* 1.7093	* 1.7918	* 1.5583	* 1.3537
	* 1.8889	* 1.5410	* 1.6079	* 1.5553	* 1.6695	* 1.5794	* 1.7864	* 2.0144
11	* 1.8282	* 1.7564	* 1.8314	* 1.3805	* 1.7254	* 1.6258	* 1.6858	* .9596
	* 1.5297	* 1.5957	* 1.5536	* 1.9788	* 1.6286	* 1.7157	* 1.6857	* 2.8894
12	* 1.4801	* 1.7896	* 1.7061	* 1.7232	* 1.4930	* 1.6472	* 1.0935	*
	* 1.8562	* 1.5788	* 1.6735	* 1.6306	* 1.6947	* 1.5889	* 2.4804	*
13	* 1.7671	* 1.7275	* 1.7875	* 1.6236	* 1.6483	* 1.2252	* .7229	*
	* 1.5548	* 1.6154	* 1.5830	* 1.7164	* 1.5889	* 2.0566	* 3.5389	*
14	* 1.5476	* 1.7575	* 1.5562	* 1.6847	* 1.0956	* .7251	*	*
	* 1.7535	* 1.5664	* 1.7887	* 1.6864	* 2.4750	* 3.5309	*	*
15	* .9425	* 1.1588	* 1.3527	* .9575	* F-SUB-Q			
	* 2.8155	* 2.3374	* 2.0163	* 2.8934	* M-SUB-Q			

AT 30% POWER, 4 EFPD, THIS IS LEVEL 15 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.5090	* 1.9128	* 1.5819	* 1.8817	* 1.5208	* 1.8614	* 1.6119	* .9778
	* 2.0409	* 1.6314	* 1.9899	* 1.5996	* 1.9409	* 1.5800	* 1.8010	* 2.9040
9	* 1.9128	* 1.8025	* 1.9460	* 1.7961	* 1.8850	* 1.8036	* 1.8657	* 1.2242
	* 1.6314	* 1.7391	* 1.6026	* 1.6813	* 1.6111	* 1.6622	* 1.5806	* 2.3708
10	* 1.5819	* 1.9460	* 1.8186	* 1.9000	* 1.7639	* 1.8850	* 1.6429	* 1.4544
	* 1.9899	* 1.6032	* 1.6967	* 1.6160	* 1.7455	* 1.6173	* 1.8203	* 2.0088
11	* 1.8817	* 1.7961	* 1.9021	* 1.4898	* 1.8518	* 1.7393	* 1.8346	* 1.0271
	* 1.5996	* 1.6806	* 1.6142	* 2.0474	* 1.6510	* 1.7551	* 1.6862	* 2.9060
12	* 1.5208	* 1.8807	* 1.7607	* 1.8496	* 1.6954	* 1.8464	* 1.1910	*
	* 1.9409	* 1.6179	* 1.7498	* 1.6523	* 1.7447	* 1.6019	* 2.5199	*
13	* 1.8614	* 1.8004	* 1.8807	* 1.7372	* 1.8464	* 1.3816	* .7936	*
	* 1.5800	* 1.6654	* 1.6210	* 1.7559	* 1.6019	* 2.1048	* 3.6242	*
14	* 1.6119	* 1.8625	* 1.6408	* 1.8336	* 1.1942	* .7958	*	*
	* 1.8010	* 1.5829	* 1.8226	* 1.6868	* 2.5124	* 3.6159	*	*
15	* .9778	* 1.2220	* 1.4533	* 1.0260	* F-SUB-Q			
	* 2.9040	* 2.3735	* 2.0116	* 2.9099	* M-SUB-Q			

Table 2 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Power Escalation

AT 30% POWER, 4 EFPD, THIS IS LEVEL 14 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.4566	* 1.8550	* 1.5272	* 1.8228	* 1.4737	* 1.8325	* 1.5797	* .9543
	* 2.3146	* 1.8371	* 2.2183	* 1.8035	* 2.1827	* 1.7437	* 1.9951	* 3.2341
9	* 1.8550	* 1.7329	* 1.8914	* 1.7372	* 1.8571	* 1.7704	* 1.8421	* 1.2059
	* 1.8371	* 1.9674	* 1.8035	* 1.9020	* 1.7848	* 1.8459	* 1.7395	* 2.6198
10	* 1.5272	* 1.8903	* 1.7543	* 1.8518	* 1.7222	* 1.8582	* 1.6247	* 1.4448
	* 2.2183	* 1.8035	* 1.9266	* 1.8141	* 1.9571	* 1.7907	* 2.0100	* 2.2039
11	* 1.8228	* 1.7350	* 1.8539	* 1.4791	* 1.8443	* 1.7307	* 1.8378	* 1.0174
	* 1.8035	* 1.9020	* 1.8125	* 2.2662	* 1.8119	* 1.9303	* 1.8295	* 3.2100
12	* 1.4737	* 1.8528	* 1.7179	* 1.8410	* 1.6986	* 1.8689	* 1.1910	*
	* 2.1827	* 1.7930	* 1.9616	* 1.8134	* 1.9355	* 1.7601	* 2.7703	*
13	* 1.8325	* 1.7671	* 1.8539	* 1.7286	* 1.8689	* 1.3934	* .7979	*
	* 1.7437	* 1.8498	* 1.7952	* 1.9312	* 1.7601	* 2.3338	* 4.0138	*
14	* 1.5797	* 1.8389	* 1.6226	* 1.8378	* 1.1942	* .7990	*	*
	* 1.9951	* 1.7423	* 2.0128	* 1.8303	* 2.7614	* 4.0026	*	*
15	* .9543	* 1.2049	* 1.4426	* 1.0164	* F-SUB-Q			
	* 3.2341	* 2.6230	* 2.2062	* 3.2148	* M-SUB-Q			

AT 30% POWER, 4 EFPD, THIS IS LEVEL 13 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.4287	* 1.8293	* 1.5090	* 1.8078	* 1.4651	* 1.8410	* 1.5765	* .9500
	* 2.5780	* 2.0195	* 2.4450	* 2.0112	* 2.4194	* 1.9022	* 2.1888	* 3.5517
9	* 1.8293	* 1.7040	* 1.8764	* 1.7179	* 1.8646	* 1.7714	* 1.8571	* 1.2102
	* 2.0195	* 2.1770	* 1.9820	* 2.1293	* 1.9565	* 2.0298	* 1.8923	* 2.8613
10	* 1.5090	* 1.8753	* 1.7307	* 1.8432	* 1.7179	* 1.8657	* 1.6365	* 1.4641
	* 2.4450	* 1.9829	* 2.1451	* 2.0137	* 2.1434	* 1.9644	* 2.1998	* 2.3839
11	* 1.8078	* 1.7157	* 1.8453	* 1.4898	* 1.8625	* 1.7414	* 1.8710	* 1.0314
	* 2.0112	* 2.1293	* 2.0124	* 2.4636	* 1.9722	* 2.1011	* 1.9479	* 3.4730
12	* 1.4651	* 1.8593	* 1.7147	* 1.8593	* 1.7125	* 1.9042	* 1.2113	*
	* 2.4194	* 1.9670	* 2.1465	* 1.9740	* 2.1357	* 1.9196	* 2.9900	*
13	* 1.8410	* 1.7682	* 1.8614	* 1.7404	* 1.9053	* 1.4105	* .8065	*
	* 1.9022	* 2.0345	* 1.9688	* 2.1021	* 1.9193	* 2.5754	* 4.4127	*
14	* 1.5765	* 1.8539	* 1.6343	* 1.8700	* 1.2145	* .8086	*	*
	* 2.1888	* 1.8956	* 2.2031	* 1.9488	* 2.9806	* 4.4012	*	*
15	* .9500	* 1.2081	* 1.4619	* 1.0303	* F-SUB-Q			
	* 3.5517	* 2.8651	* 2.3865	* 3.4785	* M-SUB-Q			

Catawba 1 Cycle 9 Core Operating Limits Report

CNEI-0400-24

Appendix A

Page 166 of 204

Revision 6

Table 2 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Power Escalation

AT 30% POWER, 4 EFPD, THIS IS LEVEL 12 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.3591	* 1.7489	* 1.4416	* 1.7372	* 1.4094	* 1.7854	* 1.5230	* .9157
	* 2.9995	* 2.3348	* 2.8262	* 2.2858	* 2.7340	* 2.1213	* 2.4451	* 3.9613
9	* 1.7489	* 1.6279	* 1.8014	* 1.6483	* 1.8078	* 1.7147	* 1.8025	* 1.1717
	* 2.3348	* 2.5172	* 2.2764	* 2.4250	* 2.1885	* 2.2729	* 2.1042	* 3.1782
10	* 1.4416	* 1.8014	* 1.6568	* 1.7757	* 1.6611	* 1.8100	* 1.5894	* 1.4244
	* 2.8262	* 2.2769	* 2.4719	* 2.2847	* 2.4378	* 2.1950	* 2.4506	* 2.6346
11	* 1.7372	* 1.6472	* 1.7768	* 1.4437	* 1.8132	* 1.6922	* 1.8261	* 1.0014
	* 2.2858	* 2.4250	* 2.2882	* 2.7958	* 2.2195	* 2.3747	* 2.1935	* 3.8610
12	* 1.4094	* 1.8036	* 1.6590	* 1.8121	* 1.6613	* 1.8582	* 1.1781	
	* 2.7340	* 2.2016	* 2.4419	* 2.2213	* 2.4152	* 2.1575	* 3.3736	
13	* 1.7854	* 1.7115	* 1.8057	* 1.6922	* 1.8593	* 1.3709	* .7840	
	* 2.1213	* 2.2776	* 2.1983	* 2.3752	* 2.1569	* 2.9057	* 4.9761	
14	* 1.5230	* 1.7993	* 1.5872	* 1.8250	* 1.1813	* .7861		
	* 2.4451	* 2.1082	* 2.4547	* 2.1946	* 3.3643	* 4.9649		
15	* .9157	* 1.1695	* 1.4223	* 1.0003	* F-SUB-Q			
	* 3.9613	* 3.1827	* 2.6393	* 3.8677	* M-SUB-Q			

AT 30% POWER, 4 EFPD, THIS IS LEVEL 11 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.2809	* 1.6547	* 1.3634	* 1.6504	* 1.3398	* 1.7061	* 1.4523	* .8718
	* 3.5509	* 2.7596	* 3.3214	* 2.6020	* 3.0915	* 2.3781	* 2.7442	* 4.4386
9	* 1.6547	* 1.5401	* 1.7115	* 1.5358	* 1.7297	* 1.6397	* 1.7254	* 1.1181
	* 2.7596	* 2.9694	* 2.5959	* 2.7613	* 2.4547	* 2.5510	* 2.3515	* .5452
10	* 1.3634	* 1.7115	* 1.5701	* 1.6911	* 1.5862	* 1.7329	* 1.5219	* 1.3634
	* 3.3214	* 2.5974	* 2.8375	* 2.5808	* 2.7510	* 2.4479	* 2.7357	* 2.9258
11	* 1.6504	* 1.5637	* 1.6922	* 1.3784	* 1.7404	* 1.6204	* 1.7522	* .9564
	* 2.6020	* 2.7647	* 2.5868	* 3.2607	* 2.5732	* 2.7599	* 2.5413	* 4.2962
12	* 1.3398	* 1.7254	* 1.5840	* 1.7393	* 1.5904	* 1.7832	* 1.1267	
	* 3.0915	* 2.4670	* 2.7561	* 2.5747	* 2.8108	* 2.5016	* 3.9261	
13	* 1.7061	* 1.6365	* 1.7286	* 1.6204	* 1.7832	* 1.3109	* .7486	
	* 2.3781	* 2.5554	* 2.4519	* 2.7599	* 2.5010	* 3.3803	* 5.7864	
14	* 1.4523	* 1.7222	* 1.5197	* 1.7511	* 1.1299	* .7508		
	* 2.7442	* 2.3553	* 2.7391	* 2.5427	* 3.9136	* 5.7713		
15	* .8718	* 1.1160	* 1.3623	* .9553	* F-SUB-Q			
	* 4.4386	* 3.5509	* 2.9296	* 4.3046	* M-SUB-Q			

Table 2 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Power Escalation

AT 30% POWER, 4 EFPD, THIS IS LEVEL 10 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.2316 *	* 1.5979 *	* 1.3163 *	* 1.6001 *	* 1.2991 *	* 1.6643 *	* 1.4094 *	* .8450 *
	* 3.6326 *	* 2.8122 *	* 3.4085 *	* 2.7699 *	* 3.3189 *	* 2.5853 *	* 3.0053 *	* 4.8527 *
9	* 1.5979 *	* 1.4855 *	* 1.6590 *	* 1.5144 *	* 1.6868 *	* 1.5947 *	* 1.6847 *	* 1.0871 *
	* 2.8122 *	* 3.0446 *	* 2.7391 *	* 2.9531 *	* 2.6567 *	* 2.7752 *	* 2.5628 *	* 3.8745 *
10	* 1.3163 *	* 1.6579 *	* 1.5155 *	* 1.6418 *	* 1.5412 *	* 1.6900 *	* 1.4823 *	* 1.3334 *
	* 3.4085 *	* 2.7391 *	* 2.9951 *	* 2.7769 *	* 2.9750 *	* 2.6696 *	* 2.9972 *	* 3.1782 *
11	* 1.6001 *	* 1.5123 *	* 1.6429 *	* 1.3420 *	* 1.7007 *	* 1.5776 *	* 1.7157 *	* .9350 *
	* 2.7699 *	* 2.9531 *	* 2.7752 *	* 3.4085 *	* 2.7172 *	* 2.9200 *	* 2.6809 *	* 4.6831 *
12	* 1.2991 *	* 1.6825 *	* 1.5390 *	* 1.6997 *	* 1.5465 *	* 1.7447 *	* 1.1021 *	
	* 3.3189 *	* 2.6777 *	* 2.9790 *	* 2.7188 *	* 2.9790 *	* 2.6520 *	* 4.1549 *	
13	* 1.6643 *	* 1.5926 *	* 1.6879 *	* 1.5765 *	* 1.7447 *	* 1.2745 *	* .7272 *	
	* 2.5853 *	* 2.7821 *	* 2.6744 *	* 2.9200 *	* 2.6520 *	* 3.6118 *	* 6.2529 *	
14	* 1.4094 *	* 1.6815 *	* 1.4801 *	* 1.7157 *	* 1.1053 *	* .7294 *		
	* 3.0053 *	* 2.5673 *	* 2.9992 *	* 2.6825 *	* 4.1432 *	* 6.2353 *		
15	* .8450 *	* 1.0849 *	* 1.3313 *	* .9328 *	F-SUB-Q			
	* 4.8527 *	* 3.8779 *	* 3.1805 *	* 4.6880 *	M-SUB-Q			

AT 30% POWER, 4 EFPD, THIS IS LEVEL 9 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.1460 *	* 1.4908 *	* 1.2252 *	* 1.4983 *	* 1.2145 *	* 1.5637 *	* 1.3216 *	* .7915 *
	* 3.7785 *	* 2.9142 *	* 3.4350 *	* 2.6940 *	* 3.2411 *	* 2.5161 *	* 2.9335 *	* 4.8105 *
9	* 1.4908 *	* 1.3869 *	* 1.5530 *	* 1.4169 *	* 1.5862 *	* 1.4994 *	* 1.5840 *	* 1.0196 *
	* 2.9142 *	* 3.0786 *	* 2.6874 *	* 2.8763 *	* 2.5853 *	* 2.7022 *	* 2.5061 *	* 3.8543 *
10	* 1.2252 *	* 1.5519 *	* 1.4159 *	* 1.5401 *	* 1.4480 *	* 1.5904 *	* 1.3944 *	* 1.2531 *
	* 3.4350 *	* 2.6874 *	* 2.9453 *	* 2.7006 *	* 2.9161 *	* 2.6036 *	* 2.9472 *	* 3.1805 *
11	* 1.4983 *	* 1.4148 *	* 1.5390 *	* 1.2563 *	* 1.6011 *	* 1.4833 *	* 1.6151 *	* .8750 *
	* 2.6940 *	* 2.8763 *	* 2.6989 *	* 3.5226 *	* 2.7927 *	* 3.0033 *	* 2.7578 *	* 4.7030 *
12	* 1.2145 *	* 1.5819 *	* 1.4448 *	* 1.6001 *	* 1.4523 *	* 1.6408 *	* 1.0324 *	
	* 3.2411 *	* 2.6051 *	* 2.9238 *	* 2.7945 *	* 3.0700 *	* 2.7289 *	* 4.2921 *	
13	* 1.5637 *	* 1.4973 *	* 1.5883 *	* 1.4833 *	* 1.6408 *	* 1.1974 *	* .6812 *	
	* 2.5161 *	* 2.7088 *	* 2.6112 *	* 3.0053 *	* 2.7289 *	* 3.7244 *	* 6.4538 *	
14	* 1.3216 *	* 1.5808 *	* 1.3934 *	* 1.6140 *	* 1.0357 *	* .6833 *		
	* 2.9335 *	* 2.5104 *	* 2.9531 *	* 2.7578 *	* 4.2796 *	* 6.4350 *		
15	* .7915 *	* 1.0185 *	* 1.2509 *	* .8739 *	F-SUB-Q			
	* 4.8105 *	* 3.8610 *	* 3.1873 *	* 4.7130 *	M-SUB-Q			

Catawba 1 Cycle 9 Core Operating Limits Report

CNEI-0400-24

Appendix A

Page 168 of 204

Revision 6

Table 2 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Power Escalation

AT 30% POWER, 4 EFPD, THIS IS LEVEL 8 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.1021 *	* 1.4394 *	* 1.1835 *	* 1.4501 *	* 1.1760 *	* 1.5219 *	* 1.2798 *	* .7647 *
	* 3.6236 *	* 2.7786 *	* 3.2482 *	* 2.5436 *	* 3.0510 *	* 2.3565 *	* 2.7544 *	* 4.4882 *
9	* 1.4394 *	* 1.3366 *	* 1.5037 *	* 1.3687 *	* 1.5433 *	* 1.4555 *	* 1.5433 *	* .9885 *
	* 2.7786 *	* 2.9123 *	* 2.5334 *	* 2.7222 *	* 2.4250 *	* 2.5451 *	* 2.3453 *	* 3.6059 *
10	* 1.1835 *	* 1.5037 *	* 1.3655 *	* 1.4962 *	* 1.4019 *	* 1.5487 *	* 1.3548 *	* 1.2231 *
	* 3.2482 *	* 2.5334 *	* 2.7909 *	* 2.5451 *	* 2.7578 *	* 2.4506 *	* 2.7734 *	* 2.9571 *
11	* 1.4501 *	* 1.3666 *	* 1.4930 *	* 1.2209 *	* 1.5604 *	* 1.4394 *	* 1.5787 *	* .8536 *
	* 2.5436 *	* 2.7222 *	* 2.5451 *	* 3.3466 *	* 2.6314 *	* 2.8375 *	* 2.5792 *	* 4.3814 *
12	* 1.1760 *	* 1.5390 *	* 1.3998 *	* 1.5594 *	* 1.4073 *	* 1.6011 *	* 1.0067 *	
	* 3.0510 *	* 2.4438 *	* 2.7647 *	* 2.6362 *	* 2.9810 *	* 2.6082 *	* 4.0447 *	
13	* 1.5219 *	* 1.4523 *	* 1.5465 *	* 1.4394 *	* 1.6011 *	* 1.1599 *	* .6597 *	
	* 2.3565 *	* 2.5510 *	* 2.4547 *	* 2.8412 *	* 2.6066 *	* 3.5942 *	* 6.1230 *	
14	* 1.2798 *	* 1.5401 *	* 1.3527 *	* 1.5776 *	* 1.0100 *	* .6619 *		
	* 2.7544 *	* 3.3490 *	* 2.7786 *	* 2.5808 *	* 4.0299 *	* 6.1061 *		
15	* .7647 *	* .9875 *	* 1.2209 *	* .8525 *	F-SUB-Q			
	* 4.4882 *	* 3.6118 *	* 2.9630 *	* 4.3901 *	M-SUB-Q			

AT 30% POWER, 4 EFPD, THIS IS LEVEL 7 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.0399 *	* 1.3623 *	* 1.1192 *	* 1.3752 *	* 1.1149 *	* 1.4480 *	* 1.2134 *	* .7240 *
	* 3.3517 *	* 2.5598 *	* 2.9453 *	* 2.3013 *	* 2.7717 *	* 2.1398 *	* 2.5104 *	* 4.1048 *
9	* 1.3623 *	* 1.2659 *	* 1.4276 *	* 1.2970 *	* 1.4683 *	* 1.3837 *	* 1.4694 *	* .9382 *
	* 2.5598 *	* 2.6362 *	* 2.2894 *	* 2.4670 *	* 2.2005 *	* 2.3085 *	* 2.1274 *	* 3.2844 *
10	* 1.1192 *	* 1.4266 *	* 1.2927 *	* 1.4223 *	* 1.3323 *	* 1.4748 *	* 1.2873 *	* 1.1642 *
	* 2.9453 *	* 2.2906 *	* 2.5276 *	* 2.3001 *	* 2.4976 *	* 2.2160 *	* 2.5161 *	* 2.6842 *
11	* 1.3752 *	* 1.2948 *	* 1.4180 *	* 1.1588 *	* 1.4855 *	* 1.3677 *	* 1.5037 *	* .8107 *
	* 2.3013 *	* 2.4670 *	* 2.2989 *	* 3.0958 *	* 2.4264 *	* 2.6143 *	* 2.3378 *	* 3.9791 *
12	* 1.1149 *	* 1.4651 *	* 1.3302 *	* 1.4844 *	* 1.3366 *	* 1.5240 *	* .9564 *	
	* 2.7717 *	* 2.2182 *	* 2.5033 *	* 2.4304 *	* 2.7493 *	* 2.4000 *	* 3.7401 *	
13	* 1.4480 *	* 1.3805 *	* 1.4726 *	* 1.3677 *	* 1.5251 *	* 1.1010 *	* .6255 *	
	* 2.1398 *	* 2.3134 *	* 2.2215 *	* 2.6174 *	* 2.3987 *	* 3.3140 *	* 5.6750 *	
14	* 1.2134 *	* 1.4662 *	* 1.2863 *	* 1.5037 *	* .9596 *	* .6276 *		
	* 2.5104 *	* 2.1315 *	* 2.5219 *	* 2.3403 *	* 3.7275 *	* 5.6605 *		
15	* .7240 *	* .9371 *	* 1.1620 *	* .8097 *	F-SUB-Q			
	* 4.1048 *	* 3.2893 *	* 2.6891 *	* 3.9863 *	M-SUB-Q			

Table 2 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Power Escalation

AT 30% POWER, 4 EPPD, THIS IS LEVEL 6 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* .9660	* 1.2702	* 1.0399	* 1.2831	* 1.0378	* 1.3505	* 1.1310	* .6737
	* 3.0786	* 2.3490	* 2.7442	* 2.1398	* 2.5944	* 2.0031	* 2.3553	* 3.8644
9	* 1.2702	* 1.1802	* 1.3323	* 1.2092	* 1.3730	* 1.2916	* 1.3709	* .8729
	* 2.3490	* 2.4424	* 2.1264	* 2.2953	* 2.0552	* 2.1523	* 1.9896	* 3.0829
10	* 1.0399	* 1.3313	* 1.2049	* 1.3291	* 1.2434	* 1.3784	* 1.2017	* 1.0839
	* 2.7442	* 2.1274	* 2.3478	* 2.1367	* 2.3219	* 2.0620	* 2.3478	* 2.5147
11	* 1.2831	* 1.2081	* 1.3248	* 1.0785	* 1.3869	* 1.2766	* 1.4019	* .7518
	* 2.1398	* 2.2965	* 2.1357	* 2.8595	* 2.2327	* 2.4013	* 2.1692	* 3.7307
12	* 1.0378	* 1.3687	* 1.2413	* 1.3859	* 1.2466	* 1.4212	* .8889	*
	* 2.5944	* 2.0658	* 2.3280	* 2.2361	* 2.5247	* 2.2137	* 3.4673	*
13	* 1.3505	* 1.2895	* 1.3762	* 1.2756	* 1.4212	* 1.0249	* .5816	*
	* 2.0031	* 2.1565	* 2.0668	* 2.4039	* 2.2126	* 3.0679	* 5.2755	*
14	* 1.1310	* 1.3677	* 1.1995	* 1.4019	* .8911	* .5826	*	*
	* 2.3553	* 1.9932	* 2.3515	* 2.1724	* 3.4565	* 5.2566	*	*
15	* .6737	* .8718	* 1.0828	* .7508	F-SUB-Q			
	* 3.8644	* 3.0872	* 2.5190	* 3.7370	M-SUB-Q			

AT 30% POWER, 4 EPPD, THIS IS LEVEL 5 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* .9264	* 1.2220	* 1.0003	* 1.2349	* .9971	* 1.2991	* 1.0817	* .6437
	* 2.7442	* 2.0853	* 2.5047	* 1.9535	* 2.3793	* 1.8412	* 2.1788	* 3.5913
9	* 1.2220	* 1.1320	* 1.2820	* 1.1599	* 1.3195	* 1.2391	* 1.3173	* .8343
	* 2.0853	* 2.2226	* 1.9373	* 2.1022	* 1.8836	* 1.9745	* 1.8268	* 2.8503
10	* 1.0003	* 1.2820	* 1.1556	* 1.2777	* 1.1910	* 1.3238	* 1.1503	* 1.0410
	* 2.5047	* 1.9381	* 2.1429	* 1.9475	* 2.1244	* 1.8844	* 2.1586	* 2.3109
11	* 1.2349	* 1.1588	* 1.2745	* 1.0357	* 1.3323	* 1.2220	* 1.3484	* .7219
	* 1.9535	* 2.1022	* 1.9458	* 2.5598	* 1.9941	* 2.1586	* 1.9509	* 3.4164
12	* .9971	* 1.3163	* 1.1888	* 1.3313	* 1.1920	* 1.3655	* .8536	*
	* 2.3793	* 1.8884	* 2.1295	* 1.9968	* 2.2776	* 1.9860	* 3.1002	*
13	* 1.2991	* 1.2370	* 1.3216	* 1.2220	* 1.3655	* .9789	* .5548	*
	* 1.8412	* 1.9789	* 1.8892	* 2.1607	* 1.9842	* 2.7786	* 4.7741	*
14	* 1.0817	* 1.3152	* 1.1481	* 1.3473	* .8557	* .5558	*	*
	* 2.1788	* 1.8306	* 2.1618	* 1.9527	* 3.0915	* 4.7638	*	*
15	* .6437	* .8332	* 1.0389	* .7208	F-SUB-Q			
	* 3.5913	* 2.8558	* 2.3134	* 3.4217	M-SUB-Q			

Table 2 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Power Escalation

AT 30% POWER, 4 EFPD, THIS IS LEVEL 4 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* .8568	* 1.1310	* .9232	* 1.1428	* .9200	* 1.1942	* .9950	* .5901
	* 2.6236	* 1.9932	* 2.3819	* 1.8820	* 2.3109	* 1.7993	* 2.1315	* 3.5338
9	* 1.1310	* 1.0474	* 1.1845	* 1.0731	* 1.2156	* 1.1438	* 1.2092	* .7636
	* 1.9932	* 2.1183	* 1.8653	* 2.0260	* 1.8215	* 1.9121	* 1.7855	* 2.7980
10	* .9232	* 1.1845	* 1.0689	* 1.1802	* 1.0978	* 1.2188	* 1.0560	* .9500
	* 2.3819	* 1.8661	* 2.0572	* 1.8748	* 2.0448	* 1.8223	* 2.0972	* 2.2671
11	* 1.1428	* 1.0721	* 1.1770	* .9510	* 1.2209	* 1.1224	* 1.2316	* .6565
	* 1.8820	* 2.0260	* 1.8732	* 2.4547	* 1.9146	* 2.0687	* 1.8748	* 3.3466
12	* .9200	* 1.2124	* 1.0956	* 1.2209	* 1.0946	* 1.2477	* .7775	
	* 2.3109	* 1.8268	* 2.0495	* 1.9179	* 2.1597	* 1.8990	* 3.0033	
13	* 1.1942	* 1.1406	* 1.2156	* 1.1213	* 1.2488	* .8954	* .5055	
	* 1.7993	* 1.9163	* 1.8268	* 2.0706	* 1.8974	* 2.6409	* 4.5859	
14	* .9950	* 1.2059	* 1.0539	* 1.2316	* .7797	* .5077		
	* 2.1315	* 1.7891	* 2.1012	* 1.8756	* 2.9931	* 4.5717		
15	* .5901	* .7626	* .9489	* .6555	F-SUB-Q			
	* 3.5338	* 2.8015	* 2.2706	* 3.3517	M-SUB-Q			

AT 30% POWER, 4 EFPD, THIS IS LEVEL 3 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* .8032	* 1.0591	* .8571	* 1.0753	* .8664	* 1.1117	* .9243	* .5451
	* 2.4822	* 1.8844	* 2.2823	* 1.8208	* 2.2441	* 1.7690	* 2.1052	* 3.5198
9	* 1.0592	* .9810	* 1.1096	* 1.0078	* 1.1353	* 1.0699	* 1.1192	* .7004
	* 1.8844	* 2.0335	* 1.8022	* 1.9639	* 1.7705	* 1.8606	* 1.7627	* 2.7909
10	* .8675	* 1.1085	* 1.0035	* 1.1053	* 1.0249	* 1.1374	* .9746	* .8675
	* 2.2823	* 1.8029	* 1.9824	* 1.8126	* 1.9753	* 1.7705	* 2.0620	* 2.2671
11	* 1.0753	* 1.0067	* 1.1042	* .8911	* 1.1342	* 1.0378	* 1.1288	* .6019
	* 1.8208	* 1.9639	* 1.8111	* 2.3354	* 1.8344	* 2.0004	* 1.8313	* 3.3165
12	* .8664	* 1.1320	* 1.0228	* 1.1320	* 1.0110	* 1.1460	* .7154	
	* 2.2441	* 1.7754	* 1.9798	* 1.8367	* 2.1052	* 1.8567	* 2.9161	
13	* 1.1117	* 1.0678	* 1.1342	* 1.0367	* 1.1460	* .8215	* .4627	
	* 1.7690	* 1.8645	* 1.7754	* 2.0022	* 1.8559	* 2.6066	* 4.5249	
14	* .9243	* 1.1171	* .9735	* 1.1278	* .7186	* .4648		
	* 2.1052	* 1.7669	* 2.0658	* 1.8328	* 2.9065	* 4.5111		
15	* .5451	* .6994	* .8664	* .6008	F-SUB-Q			
	* 3.5198	* 2.7962	* 2.2706	* 3.3214	M-SUB-Q			

Table 2 (continued)
F-sub-Q/M-sub-Q Values (F-sub-Q OP Margin) - Power Escalation

AT 30% POWER, 4 EFPD, THIS IS LEVEL 2 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	.6983	.9050	.7583	.9318	.7668	.9735	.7947	.4648
	* 2.6440	* 2.0391	* 2.4131	* 1.9613	* 2.3781	* 1.8876	* 2.2942	* 3.8779
9	.9050	.8579	.9660	.8857	.9085	.9371	.9521	.5869
	* 2.035	* 2.1492	* 1.9229	* 2.0863	* 1.8917	* 1.9780	* 1.9356	* 3.1199
10	.7583	.9650	.8525	.9660	.8986	.9885	.8290	.7069
	* 2.4131	* 1.9232	* 2.0952	* 1.9297	* 2.0843	* 1.8925	* 2.2384	* 2.6005
11	.9318	.8846	.9639	.7872	.9875	.8964	.9296	.5012
	* 1.9613	* 2.0883	* 1.9288	* 2.4304	* 1.9587	* 2.1408	* 2.0572	* 3.7087
12	.7668	.9853	.8964	.9853	.8675	.9543	.6040	
	* 2.3781	* 1.8965	* 2.0892	* 1.9622	* 2.2305	* 2.0354	* 3.1827	
13	.9735	.9350	.9864	.8954	.9543	.6887	.3877	
	* 1.8876	* 1.9824	* 1.8974	* 2.1440	* 2.0354	* 2.8248	* 4.9450	
14	.7947	.9500	.8279	.9286	.6051	.3888		
	* 2.2942	* 1.9390	* 2.2429	* 2.0581	* 3.1736	* 4.9340		
15	.4648	.5858	.7058	.5002	F-SUB-Q			
	* 3.8779	* 3.1243	* 2.6036	* 3.7150	M-SUB-Q			

AT 30% POWER, 4 EFPD, THIS IS LEVEL 1 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	.4520	.5591	.4959	.5858	.5077	.6565	.5044	.2967
	* 3.8375	* 3.1155	* 3.5058	* 2.9730	* 3.4243	* 2.6599	* 3.4538	* 5.7864
9	.5591	.5526	.6704	.5676	.6844	.6030	.6051	.3599
	* 3.1155	* 3.1623	* 2.6190	* 3.0915	* 2.5792	* 2.9200	* 2.8989	* 4.8421
10	.4959	.6704	.5655	.6758	.5783	.6801	.5269	.4038
	* 3.5058	* 2.6221	* 3.1067	* 2.6205	* 3.0679	* 2.6174	* 3.3517	* 4.3257
11	.5858	.5666	.6747	.5226	.6726	.5623	.5580	.3020
	* 2.9730	* 3.0958	* 2.6268	* 3.4619	* 2.6956	* 3.2175	* 3.2222	* 5.8399
12	.5077	.6822	.5773	.6715	.5430	.5923	.3727	
	* 3.4243	* 2.5883	* 3.0743	* 2.6989	* 3.3644	* 3.0980	* 4.8741	
13	.6565	.6019	.6779	.5623	.5923	.4252	.2399	
	* 2.6599	* 2.9258	* 2.6221	* 3.2222	* 3.0958	* 4.3172	* 7.5312	
14	.5044	.6040	.5259	.5580	.3738	.2410		
	* 3.4538	* 2.9046	* 3.3593	* 3.2245	* 4.8688	* 7.5312		
15	.2967	.3588	.4038	.3010	F-SUB-Q			
	* 5.7864	* 4.8527	* 4.3299	* 5.8554	M-SUB-Q			

Table 3
M-sub-C Values (F-sub-Q RPS Margin) - Normal Operations

THIS IS LEVEL 18 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	2.4481	2.1728	2.4447	2.2521	2.5534	2.1444	2.6780	4.0464
	2.6401	2.3321	2.5592	2.2812	2.4945	2.0904	2.5657	3.7975
	2.6708	2.3655	2.4827	2.1907	2.3723	1.9925	2.4142	3.4979
	2.6066	2.3179	2.4171	2.1335	2.2911	1.9333	2.3170	3.2806
	2.4901	2.2237	2.3160	2.0407	2.1848	1.8459	2.1949	3.0301
9	2.1728	2.2005	1.9511	2.2741	2.0211	2.3131	2.3367	3.5583
	2.3321	2.3066	2.0547	2.3080	2.0535	2.2829	2.2812	3.4181
	2.3655	2.2962	1.9912	2.2123	1.9713	2.1666	2.1547	3.1767
	2.3179	2.2517	1.9550	2.1533	1.9231	2.0958	2.0738	3.0022
	2.2237	2.1691	1.8798	2.0604	1.8397	2.0000	1.9708	2.7947
10	2.4447	1.9511	2.2361	1.9864	2.2841	2.0717	2.6096	3.2733
	2.5592	2.0547	2.2983	2.0481	2.2984	2.1011	2.5953	3.1831
	2.4827	1.9899	2.2107	1.9849	2.2185	2.0323	2.4442	2.9312
	2.4171	1.9549	2.1564	1.9444	2.1564	1.9752	2.3444	2.7581
	2.3160	1.8798	2.0671	1.8668	2.0631	1.8895	2.2176	2.5571
11	2.2521	2.2745	1.9877	2.4869	2.0492	2.4107	2.5098	4.2041
	2.2812	2.3080	2.0481	2.4780	2.0765	2.4031	2.5113	4.1396
	2.1907	2.2123	1.9849	2.4524	2.0721	2.3765	2.4626	3.8913
	2.1335	2.1548	1.9454	2.3793	2.0166	2.3021	2.3697	3.6580
	2.0407	2.0617	1.8668	2.2590	1.9289	2.1838	2.2275	3.3736
12	2.5534	2.0237	2.2874	2.0519	2.3847	2.2915	3.4267	
	2.4945	2.0562	2.3002	2.0792	2.3762	2.3024	3.4042	
	2.3723	1.9737	2.2201	2.0749	2.3519	2.2769	3.3377	
	2.2911	1.9243	2.1578	2.0184	2.2772	2.1992	3.1853	
	2.1848	1.8419	2.0644	1.9303	2.1587	2.0765	2.9627	
13	2.1444	2.3152	2.0734	2.4125	2.2928	2.9228	4.7452	
	2.0904	2.2845	2.1025	2.4048	2.3040	2.9224	4.6217	
	1.9925	2.1681	2.0336	2.3765	2.2769	2.8811	4.4106	
	1.9333	2.0972	1.9763	2.3038	2.1992	2.7679	4.0811	
	1.8459	2.0012	1.8897	2.1853	2.0765	2.5939	3.6763	
14	2.6780	2.3384	2.6118	2.5113	3.4229	4.7399		
	2.5657	2.2829	2.5974	2.5132	3.4005	4.6154		
	2.4142	2.1562	2.4442	2.4643	3.3311	4.4106		
	2.3170	2.0752	2.3462	2.3697	3.1820	4.0818		
	2.1949	1.9717	2.2192	2.2275	2.9576	3.6763		
15	4.0464	3.5624	3.2732	4.2056	4 EFPD	118 % POWER		
	3.7975	3.4218	3.1863	4.1399	100 EFPD	118 % POWER		
	3.4979	3.1767	2.9339	3.8962	200 EFPD	118 % POWER		
	3.2806	3.0025	2.7581	3.6585	300 EFPD	118 % POWER		
	3.0301	2.7947	2.5571	3.3736	400 EFPD	118 % POWER		

Table 3 (continued)

M-sub-C Values (F-sub-Q RPS Margin) - Normal Operations

THIS IS LEVEL 17 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A

8	* 1.7768 *	* 1.5035 *	* 1.7846 *	* 1.5875 *	* 1.8980 *	* 1.6536 *	* 1.8650 *	* 2.8645 *
	* 1.9776 *	* 1.6674 *	* 1.9051 *	* 1.6439 *	* 1.8739 *	* 1.6037 *	* 1.8082 *	* 2.7375 *
	* 2.0733 *	* 1.7564 *	* 1.9045 *	* 1.6252 *	* 1.8187 *	* 1.5409 *	* 1.7528 *	* 2.5974 *
	* 2.1163 *	* 1.8045 *	* 1.9190 *	* 1.6445 *	* 1.8140 *	* 1.5272 *	* 1.7466 *	* 2.5203 *
	* 2.1175 *	* 1.8183 *	* 1.9232 *	* 1.6552 *	* 1.8060 *	* 1.5173 *	* 1.7328 *	* 2.4240 *

9	* 1.5035 *	* 1.5563 *	* 1.5135 *	* 1.6217 *	* 1.5809 *	* 1.6675 *	* 1.6789 *	* 2.4278 *
	* 1.6674 *	* 1.6823 *	* 1.5826 *	* 1.6613 *	* 1.6002 *	* 1.6613 *	* 1.6534 *	* 2.3922 *
	* 1.7564 *	* 1.7118 *	* 1.5485 *	* 1.6252 *	* 1.5508 *	* 1.6119 *	* 1.5988 *	* 2.2879 *
	* 1.8045 *	* 1.7370 *	* 1.5556 *	* 1.6379 *	* 1.5463 *	* 1.6107 *	* 1.5913 *	* 2.2384 *
	* 1.8183 *	* 1.7558 *	* 1.5616 *	* 1.6444 *	* 1.5339 *	* 1.6091 *	* 1.5728 *	* 2.1751 *

10	* 1.7846 *	* 1.5141 *	* 1.5903 *	* 1.5520 *	* 1.6401 *	* 1.5963 *	* 1.8312 *	* 2.1101 *
	* 1.9051 *	* 1.5833 *	* 1.6500 *	* 1.5889 *	* 1.6605 *	* 1.6084 *	* 1.8475 *	* 2.1057 *
	* 1.9045 *	* 1.5477 *	* 1.6219 *	* 1.5470 *	* 1.6354 *	* 1.5577 *	* 1.7897 *	* 2.0206 *
	* 1.9190 *	* 1.5549 *	* 1.6371 *	* 1.5519 *	* 1.6387 *	* 1.5525 *	* 1.7808 *	* 1.9845 *
	* 1.9232 *	* 1.5616 *	* 1.6505 *	* 1.5521 *	* 1.6423 *	* 1.5473 *	* 1.7647 *	* 1.9268 *

11	* 1.5875 *	* 1.6217 *	* 1.5497 *	* 1.8619 *	* 1.5958 *	* 1.6821 *	* 1.6945 *	* 2.8472 *
	* 1.6439 *	* 1.6621 *	* 1.5874 *	* 1.8577 *	* 1.6030 *	* 1.7035 *	* 1.7399 *	* 2.8948 *
	* 1.6252 *	* 1.6261 *	* 1.5462 *	* 1.8671 *	* 1.6058 *	* 1.7273 *	* 1.7629 *	* 2.8259 *
	* 1.6445 *	* 1.6379 *	* 1.5534 *	* 1.8621 *	* 1.5967 *	* 1.7348 *	* 1.7561 *	* 2.7637 *
	* 1.6552 *	* 1.6453 *	* 1.5533 *	* 1.8544 *	* 1.5862 *	* 1.7350 *	* 1.7389 *	* 2.6606 *

12	* 1.8980 *	* 1.5833 *	* 1.6427 *	* 1.5960 *	* 1.6556 *	* 1.5952 *	* 2.3851 *	
	* 1.8739 *	* 1.6018 *	* 1.6622 *	* 1.6046 *	* 1.6749 *	* 1.6337 *	* 2.4378 *	
	* 1.8187 *	* 1.5523 *	* 1.6371 *	* 1.6075 *	* 1.7011 *	* 1.6588 *	* 2.4709 *	
	* 1.8140 *	* 1.5501 *	* 1.6404 *	* 1.5983 *	* 1.7094 *	* 1.6589 *	* 2.4510 *	
	* 1.8060 *	* 1.5354 *	* 1.6432 *	* 1.5870 *	* 1.7112 *	* 1.6444 *	* 2.3889 *	

13	* 1.6536 *	* 1.6693 *	* 1.5986 *	* 1.6832 *	* 1.5961 *	* 2.0022 *	* 3.2785 *	
	* 1.6037 *	* 1.6630 *	* 1.6100 *	* 1.7044 *	* 1.6345 *	* 2.0590 *	* 3.2708 *	
	* 1.5409 *	* 1.6136 *	* 1.5592 *	* 1.7283 *	* 1.6605 *	* 2.1023 *	* 3.2233 *	
	* 1.5272 *	* 1.6115 *	* 1.5533 *	* 1.7358 *	* 1.6598 *	* 2.0994 *	* 3.1005 *	
	* 1.5173 *	* 1.6099 *	* 1.5481 *	* 1.7358 *	* 1.6444 *	* 2.0688 *	* 2.9251 *	

14	* 1.8650 *	* 1.6807 *	* 1.8323 *	* 1.6948 *	* 2.3815 *	* 3.2751 *		
	* 1.8082 *	* 1.6543 *	* 1.8496 *	* 1.7399 *	* 2.4340 *	* 3.2708 *		
	* 1.7528 *	* 1.5996 *	* 1.7907 *	* 1.7630 *	* 2.4668 *	* 3.2201 *		
	* 1.7466 *	* 1.5921 *	* 1.7817 *	* 1.7561 *	* 2.4452 *	* 3.0975 *		
	* 1.7328 *	* 1.5726 *	* 1.7647 *	* 1.7391 *	* 2.3838 *	* 2.9201 *		

15	* 2.8645 *	* 2.4297 *	* 2.1120 *	* 2.8498 *	4 EFPD 118 %	POWER		
	* 2.7375 *	* 2.3922 *	* 2.1072 *	* 2.8948 *	100 EFPD 118 %	POWER		
	* 2.5974 *	* 2.2879 *	* 2.0206 *	* 2.8285 *	200 EFPD 118 %	POWER		
	* 2.5203 *	* 2.2398 *	* 1.9858 *	* 2.7659 *	300 EFPD 118 %	POWER		
	* 2.4240 *	* 2.1751 *	* 1.9268 *	* 2.6623 *	400 EFPD 118 %	POWER		

Table 3 (continued)

M-sub-C Values (F-sub-Q RPS Margin) - Normal Operations

THIS IS LEVEL 16 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	1.6609	1.3679	1.6594	1.4537	1.7617	1.4870	1.6745	2.6039
	1.8688	1.5348	1.7755	1.4984	1.7326	1.4362	1.6337	2.5025
	1.9719	1.6338	1.7756	1.4920	1.6844	1.3856	1.6005	2.4013
	2.0369	1.7029	1.8052	1.5285	1.6949	1.3909	1.6187	2.3648
	2.0721	1.7479	1.8398	1.5690	1.7175	1.4127	1.6409	2.3135
9	1.3679	1.4344	1.3874	1.5058	1.4526	1.5321	1.4841	2.1547
	1.5348	1.5587	1.4349	1.5230	1.4428	1.5121	1.4649	2.1503
	1.6338	1.5851	1.3992	1.4941	1.3998	1.4738	1.4329	2.0890
	1.7029	1.6251	1.4201	1.5200	1.4118	1.4910	1.4484	2.0781
	1.7479	1.6740	1.4564	1.5561	1.4246	1.5197	1.4617	2.0548
10	1.6594	1.3880	1.4812	1.4280	1.5202	1.4457	1.6421	1.8220
	1.7755	1.4349	1.5221	1.4362	1.5261	1.4476	1.6657	1.8335
	1.7756	1.3985	1.4927	1.3979	1.5034	1.4041	1.6328	1.7928
	1.8052	1.4195	1.5207	1.4151	1.5193	1.4144	1.6505	1.7955
	1.8398	1.4558	1.5629	1.4438	1.5519	1.4392	1.6680	1.7784
11	1.4537	1.5051	1.4259	1.7293	1.4224	1.5108	1.4633	2.5193
	1.4984	1.5238	1.4349	1.7120	1.4399	1.5441	1.5249	2.6044
	1.4920	1.4941	1.3973	1.7192	1.4456	1.5783	1.5719	2.5825
	1.5285	1.5207	1.4163	1.7301	1.4542	1.6089	1.5966	2.5676
	1.5690	1.5567	1.4451	1.7560	1.4763	1.6426	1.6101	2.5194
12	1.7617	1.4546	1.5219	1.4238	1.4913	1.3900	2.1295	
	1.7326	1.4487	1.5276	1.4399	1.5214	1.4388	2.2084	
	1.6844	1.4029	1.5048	1.4469	1.5572	1.4833	2.2729	
	1.6949	1.4138	1.5208	1.4549	1.5870	1.5086	2.2921	
	1.7175	1.4264	1.5527	1.4777	1.6213	1.5314	2.2753	
13	1.4870	1.5337	1.4470	1.5115	1.3905	1.7815	2.9481	
	1.4362	1.5135	1.4490	1.5449	1.4388	1.8576	2.9756	
	1.3856	1.4759	1.4054	1.5791	1.4854	1.9255	2.9766	
	1.3909	1.4917	1.4156	1.6089	1.5086	1.9559	2.9112	
	1.4127	1.5202	1.4398	1.6426	1.5314	1.9637	2.7994	
14	1.6745	1.4855	1.6436	1.4634	2.1248	2.9419		
	1.6337	1.4663	1.6665	1.5249	2.2039	2.9702		
	1.6005	1.4336	1.6337	1.5720	2.2680	2.9738		
	1.6187	1.4491	1.6514	1.5966	2.2854	2.9059		
	1.6409	1.4624	1.6680	1.6101	2.2687	2.7949		
15	2.6039	2.1562	1.8236	2.5213	4 EFPD 118	% POWER		
	2.5025	2.1518	1.8346	2.6065	100 EFPD 118	% POWER		
	2.4013	2.0904	1.7938	2.5846	200 EFPD 118	% POWER		
	2.3648	2.0793	1.7955	2.5694	300 EFPD 118	% POWER		
	2.3135	2.0562	1.7787	2.5194	400 EFPD 118	% POWER		

Table 3 (continued)
M-sub-C Values (F-sub-Q RPS Margin) - Normal Operations

THIS IS LEVEL 15 OF 18

(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.7051 *	* 1.3834 *	* 1.6757 *	* 1.4414 *	* 1.7470 *	* 1.4321 *	* 1.6354 *	* 2.5657 *
	* 1.8862 *	* 1.5440 *	* 1.7793 *	* 1.4871 *	* 1.7231 *	* 1.3874 *	* 1.6053 *	* 2.4906 *
	* 2.0023 *	* 1.6453 *	* 1.7826 *	* 1.4842 *	* 1.6736 *	* 1.3459 *	* 1.5820 *	* 2.4086 *
	* 2.0815 *	* 1.7220 *	* 1.8156 *	* 1.5274 *	* 1.6899 *	* 1.3637 *	* 1.6135 *	* 2.3884 *
	* 2.1344 *	* 1.7848 *	* 1.8664 *	* 1.5845 *	* 1.7302 *	* 1.4047 *	* 1.6542 *	* 2.3547 *
9	* 1.3834 *	* 1.4693 *	* 1.3812 *	* 1.5070 *	* 1.4206 *	* 1.4977 *	* 1.4183 *	* 2.0821 *
	* 1.5440 *	* 1.5704 *	* 1.4059 *	* 1.5157 *	* 1.4026 *	* 1.4815 *	* 1.4142 *	* 2.1171 *
	* 1.6453 *	* 1.5924 *	* 1.3729 *	* 1.4871 *	* 1.3670 *	* 1.4507 *	* 1.3948 *	* 2.0779 *
	* 1.7220 *	* 1.6386 *	* 1.4006 *	* 1.5189 *	* 1.3820 *	* 1.4784 *	* 1.4213 *	* 2.0839 *
	* 1.7848 *	* 1.7035 *	* 1.4543 *	* 1.5724 *	* 1.4143 *	* 1.5263 *	* 1.4552 *	* 2.0784 *
10	* 1.6757 *	* 1.3818 *	* 1.4926 *	* 1.4159 *	* 1.5213 *	* 1.4170 *	* 1.6001 *	* 1.7335 *
	* 1.7793 *	* 1.4057 *	* 1.5141 *	* 1.4063 *	* 1.5184 *	* 1.4038 *	* 1.6303 *	* 1.7746 *
	* 1.7826 *	* 1.3729 *	* 1.4885 *	* 1.3717 *	* 1.4941 *	* 1.3693 *	* 1.6111 *	* 1.7558 *
	* 1.8156 *	* 1.4001 *	* 1.5219 *	* 1.3922 *	* 1.5176 *	* 1.3898 *	* 1.6417 *	* 1.7711 *
	* 1.8664 *	* 1.4541 *	* 1.5808 *	* 1.4390 *	* 1.5677 *	* 1.4331 *	* 1.6790 *	* 1.7727 *
11	* 1.4414 *	* 1.5063 *	* 1.4140 *	* 1.7229 *	* 1.3829 *	* 1.4839 *	* 1.4056 *	* 2.4420 *
	* 1.4871 *	* 1.5164 *	* 1.4051 *	* 1.6991 *	* 1.4010 *	* 1.5224 *	* 1.4779 *	* 2.5539 *
	* 1.4842 *	* 1.4878 *	* 1.3711 *	* 1.7018 *	* 1.4084 *	* 1.5617 *	* 1.5360 *	* 2.5615 *
	* 1.5274 *	* 1.5197 *	* 1.3940 *	* 1.7225 *	* 1.4291 *	* 1.6048 *	* 1.5730 *	* 2.5663 *
	* 1.5845 *	* 1.5732 *	* 1.4396 *	* 1.7668 *	* 1.4715 *	* 1.6571 *	* 1.6026 *	* 2.5401 *
12	* 1.7470 *	* 1.4230 *	* 1.5232 *	* 1.3842 *	* 1.4740 *	* 1.3422 *	* 2.0834 *	
	* 1.7231 *	* 1.4045 *	* 1.5200 *	* 1.4023 *	* 1.5097 *	* 1.3982 *	* 2.1813 *	
	* 1.6736 *	* 1.3693 *	* 1.4962 *	* 1.4097 *	* 1.5501 *	* 1.4519 *	* 2.2616 *	
	* 1.6899 *	* 1.3850 *	* 1.5190 *	* 1.4298 *	* 1.5910 *	* 1.4908 *	* 2.2988 *	
	* 1.7302 *	* 1.4167 *	* 1.5691 *	* 1.4723 *	* 1.6423 *	* 1.5324 *	* 2.3019 *	
13	* 1.4321 *	* 1.5005 *	* 1.4185 *	* 1.4841 *	* 1.3422 *	* 1.7530 *	* 2.9188 *	
	* 1.3874 *	* 1.4835 *	* 1.4057 *	* 1.5239 *	* 1.3982 *	* 1.8415 *	* 2.9685 *	
	* 1.3459 *	* 1.4521 *	* 1.3711 *	* 1.5626 *	* 1.4537 *	* 1.9249 *	* 2.9942 *	
	* 1.3637 *	* 1.4791 *	* 1.3909 *	* 1.6048 *	* 1.4908 *	* 1.9718 *	* 2.9522 *	
	* 1.4047 *	* 1.5270 *	* 1.4342 *	* 1.6571 *	* 1.5324 *	* 1.9971 *	* 2.8652 *	
14	* 1.6354 *	* 1.4203 *	* 1.6017 *	* 1.4056 *	* 2.0785 *	* 2.9134 *		
	* 1.6053 *	* 1.4155 *	* 1.6311 *	* 1.4779 *	* 2.1753 *	* 2.9655 *		
	* 1.5820 *	* 1.3960 *	* 1.6119 *	* 1.5360 *	* 2.2564 *	* 2.9909 *		
	* 1.6135 *	* 1.4220 *	* 1.6418 *	* 1.5738 *	* 2.2921 *	* 2.9495 *		
	* 1.6542 *	* 1.4559 *	* 1.6790 *	* 1.6026 *	* 2.2951 *	* 2.8604 *		
15	* 2.5657 *	* 2.0848 *	* 1.7355 *	* 2.4450 *	* 4 EFPD 118	* POWER		
	* 2.4906 *	* 2.1185 *	* 1.7756 *	* 2.5560 *	* 100 EFPD 118	* POWER		
	* 2.4086 *	* 2.0793 *	* 1.7567 *	* 2.5636 *	* 200 EFPD 118	* POWER		
	* 2.3884 *	* 2.0841 *	* 1.7721 *	* 2.5665 *	* 300 EFPD 118	* POWER		
	* 2.3547 *	* 2.0794 *	* 1.7727 *	* 2.5416 *	* 400 EFPD 118	* POWER		

Table 3 (continued)
M-sub-C Values (F-sub-Q RPS Margin) - Normal Operations

THIS IS LEVEL 14 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.8486	* 1.4913	* 1.8072	* 1.5267	* 1.8551	* 1.4927	* 1.7146	* 2.7139
	* 2.0297	* 1.6474	* 1.8930	* 1.5788	* 1.8356	* 1.4507	* 1.6943	* 2.6521
	* 2.1309	* 1.7352	* 1.9149	* 1.5812	* 1.7836	* 1.4104	* 1.6772	* 2.5804
	* 2.2142	* 1.8172	* 1.9460	* 1.6234	* 1.7982	* 1.4316	* 1.7103	* 2.5604
	* 2.2733	* 1.8866	* 2.0000	* 1.6887	* 1.8445	* 1.4821	* 1.7576	* 2.5291
9	* 1.4913	* 1.5958	* 1.4680	* 1.6013	* 1.4785	* 1.5631	* 1.4715	* 2.1726
	* 1.6474	* 1.6653	* 1.4682	* 1.5978	* 1.4507	* 1.5485	* 1.4759	* 2.2374
	* 1.7352	* 1.7084	* 1.4527	* 1.5851	* 1.4368	* 1.5289	* 1.4642	* 2.2123
	* 1.8172	* 1.7571	* 1.4796	* 1.6124	* 1.4518	* 1.5593	* 1.4946	* 2.2212
	* 1.8866	* 1.8277	* 1.5422	* 1.6754	* 1.4938	* 1.6173	* 1.5367	* 2.2196
10	* 1.8072	* 1.4687	* 1.5948	* 1.4941	* 1.6106	* 1.4785	* 1.6648	* 1.7905
	* 1.8930	* 1.4682	* 1.5943	* 1.4677	* 1.5867	* 1.4507	* 1.6920	* 1.8562
	* 1.9149	* 1.4527	* 1.5883	* 1.4487	* 1.5907	* 1.4395	* 1.7054	* 1.8595
	* 1.9460	* 1.4789	* 1.6189	* 1.4676	* 1.6109	* 1.4616	* 1.7364	* 1.8775
	* 2.0000	* 1.5414	* 1.6866	* 1.5226	* 1.6717	* 1.5147	* 1.7805	* 1.8802
11	* 1.5267	* 1.6013	* 1.4920	* 1.8307	* 1.4536	* 1.5630	* 1.4586	* 2.5491
	* 1.5788	* 1.5992	* 1.4670	* 1.7986	* 1.4677	* 1.6012	* 1.5415	* 2.6629
	* 1.5812	* 1.5859	* 1.4514	* 1.7952	* 1.4703	* 1.6396	* 1.5971	* 2.7351
	* 1.6234	* 1.6140	* 1.4695	* 1.8140	* 1.4915	* 1.6833	* 1.6392	* 2.7425
	* 1.6887	* 1.6763	* 1.5233	* 1.8623	* 1.5396	* 1.7418	* 1.6781	* 2.7171
12	* 1.8551	* 1.4813	* 1.6126	* 1.4550	* 1.5667	* 1.4113	* 2.2001	*
	* 1.8356	* 1.4527	* 1.5889	* 1.4691	* 1.6059	* 1.4752	* 2.3120	*
	* 1.7836	* 1.4388	* 1.5932	* 1.4717	* 1.6439	* 1.5292	* 2.4017	*
	* 1.7982	* 1.4550	* 1.6126	* 1.4929	* 1.6851	* 1.5713	* 2.4444	*
	* 1.8445	* 1.4958	* 1.6726	* 1.5404	* 1.7418	* 1.6189	* 2.4460	*
13	* 1.4927	* 1.5647	* 1.4806	* 1.5635	* 1.4113	* 1.8653	* 3.1173	*
	* 1.4507	* 1.5505	* 1.4527	* 1.6026	* 1.4752	* 1.9670	* 3.1848	*
	* 1.4104	* 1.5304	* 1.4414	* 1.6405	* 1.5307	* 2.0562	* 3.1984	*
	* 1.4316	* 1.5600	* 1.4629	* 1.6842	* 1.5719	* 2.1074	* 3.1637	*
	* 1.4821	* 1.6173	* 1.5160	* 1.7418	* 1.6189	* 2.1335	* 3.0795	*
14	* 1.7146	* 1.4735	* 1.6665	* 1.4590	* 2.1940	* 3.1081	*	*
	* 1.6943	* 1.4780	* 1.6929	* 1.5415	* 2.3065	* 3.1792	*	*
	* 1.6772	* 1.4656	* 1.7063	* 1.5979	* 2.3944	* 3.1952	*	*
	* 1.7103	* 1.4953	* 1.7374	* 1.6396	* 2.4364	* 3.1605	*	*
	* 1.7576	* 1.5369	* 1.7812	* 1.6781	* 2.4401	* 3.0739	*	*
15	* 2.7139	* 2.1741	* 1.7926	* 2.5511	* 4 EFPD 118	* POWER		
	* 2.6521	* 2.2390	* 1.8579	* 2.6661	* 100 EFPD 118	* POWER		
	* 2.5804	* 2.2138	* 1.8595	* 2.7375	* 200 EFPD 118	* POWER		
	* 2.5604	* 2.2212	* 1.8776	* 2.7447	* 300 EFPD 118	* POWER		
	* 2.5291	* 2.2196	* 1.8902	* 2.7188	* 400 EFPD 118	* POWER		

Table 3 (continued)

M-sub-C Values (F-sub-Q RPS Margin) - Normal Operations

THIS IS LEVEL 13 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	1.9887	1.5804	1.9033	1.6045	1.9481	1.5447	1.7867	2.8464
	2.1592	1.7307	1.9812	1.6482	1.9149	1.4955	1.7696	2.7933
	2.2673	1.8250	2.0167	1.6746	1.8840	1.4663	1.7666	2.7351
	2.3082	1.8708	2.0345	1.7125	1.8934	1.4848	1.7993	2.7057
	2.3672	1.9414	2.0984	1.7739	1.9365	1.5388	1.8461	2.6658
9	1.5804	1.6989	1.5385	1.6898	1.5287	1.6219	1.5160	2.2551
	1.7307	1.7520	1.5258	1.6743	1.4954	1.6013	1.5164	2.3216
	1.8250	1.7885	1.5162	1.6721	1.4906	1.6033	1.5260	2.3354
	1.8708	1.8206	1.5465	1.7003	1.5071	1.6317	1.5527	2.3392
	1.9414	1.8928	1.6105	1.7646	1.5515	1.6916	1.5960	2.3334
10	1.9033	1.5385	1.6826	1.5618	1.6718	1.5272	1.7128	1.8371
	1.9812	1.5260	1.6716	1.5196	1.6483	1.4948	1.7519	1.9033
	2.0167	1.5162	1.6712	1.5050	1.6561	1.4919	1.7864	1.9433
	2.0345	1.5465	1.7054	1.5269	1.6871	1.5205	1.8240	1.9592
	2.0984	1.6105	1.7700	1.5742	1.7490	1.5772	1.8674	1.9601
11	1.6045	1.6898	1.5602	1.9114	1.5145	1.6303	1.4884	2.6147
	1.6482	1.6754	1.5225	1.8632	1.5093	1.6533	1.5701	2.7450
	1.6746	1.6730	1.5078	1.8552	1.5067	1.6928	1.6326	2.8369
	1.7125	1.7013	1.5288	1.8711	1.5213	1.7351	1.6736	2.8579
	1.7739	1.7656	1.5750	1.9152	1.5667	1.7887	1.7083	2.8286
12	1.9481	1.5317	1.6745	1.5160	1.6538	1.4692	2.2779	
	1.9149	1.4982	1.6509	1.5113	1.6857	1.5327	2.3915	
	1.8840	1.4926	1.6586	1.5079	1.7227	1.5845	2.4858	
	1.8934	1.5107	1.6896	1.5232	1.7624	1.6250	2.5223	
	1.9365	1.5536	1.7494	1.5682	1.8155	1.6698	2.5179	
13	1.5447	1.6244	1.5294	1.6303	1.4689	1.9632	3.2825	
	1.4955	1.6037	1.4975	1.6541	1.5327	2.0729	3.3384	
	1.4663	1.6058	1.4939	1.6937	1.5861	2.1664	3.3422	
	1.4848	1.6333	1.5220	1.7360	1.6259	2.2176	3.3004	
	1.5388	1.6923	1.5780	1.7887	1.6698	2.2359	3.2129	
14	1.7867	1.5182	1.7146	1.4884	2.2713	3.2757		
	1.7696	1.5186	1.7536	1.5701	2.3848	3.3348		
	1.7666	1.5275	1.7883	1.6326	2.4786	3.3387		
	1.7993	1.5535	1.8241	1.6736	2.5142	3.2969		
	1.8461	1.5966	1.8677	1.7083	2.5090	3.2077		
15	2.8464	2.2567	1.8382	2.6169	4 EFPD	118	POWER	
	2.7933	2.3233	1.9045	2.7474	100 EFPD	118	POWER	
	2.7351	2.3371	1.9445	2.8392	200 EFPD	118	POWER	
	2.7057	2.3407	1.9603	2.8582	300 EFPD	118	POWER	
	2.6658	2.3334	1.9601	2.8286	400 EFPD	118	POWER	

Table 3 (continued)
M-sub-C Values (F-sub-Q RPS Margin) - Normal Operations

THIS IS LEVEL 12 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 2.2170	* 1.7548	* 2.1157	* 1.7686	* 2.1474	* 1.6801	* 1.9517	* 3.1200
	* 2.3976	* 1.9022	* 2.1756	* 1.7999	* 2.0945	* 1.6194	* 1.9266	* 3.0623
	* 2.4769	* 1.9737	* 2.1831	* 1.8289	* 2.0694	* 1.5990	* 1.9423	* 3.0212
	* 2.5195	* 2.0252	* 2.2068	* 1.8661	* 2.0830	* 1.6176	* 1.9719	* 2.9748
	* 2.5743	* 2.0981	* 2.2592	* 1.9186	* 2.1102	* 1.6687	* 2.0125	* 2.9066
9	* 1.7548	* 1.8930	* 1.6947	* 1.8639	* 1.6621	* 1.7676	* 1.6436	* 2.4575
	* 1.9022	* 1.9278	* 1.6595	* 1.8260	* 1.6152	* 1.7335	* 1.6379	* 2.5185
	* 1.9737	* 1.9385	* 1.6425	* 1.8197	* 1.6061	* 1.7383	* 1.6578	* 2.5597
	* 2.0252	* 1.9688	* 1.6681	* 1.8477	* 1.6320	* 1.7737	* 1.6901	* 2.5627
	* 2.0981	* 2.0328	* 1.7201	* 1.8989	* 1.6689	* 1.8309	* 1.7286	* 2.5384
10	* 2.1157	* 1.6957	* 1.8606	* 1.7125	* 1.8218	* 1.6532	* 1.8562	* 1.9890
	* 2.1756	* 1.6595	* 1.8282	* 1.6491	* 1.7948	* 1.6144	* 1.8930	* 2.0509
	* 2.1831	* 1.6425	* 1.8185	* 1.6254	* 1.7897	* 1.6061	* 1.9308	* 2.1025
	* 2.2068	* 1.6673	* 1.8376	* 1.6368	* 1.8177	* 1.6322	* 1.9716	* 2.1306
	* 2.2592	* 1.7194	* 1.8932	* 1.6774	* 1.8714	* 1.6793	* 2.0096	* 2.1233
11	* 1.7686	* 1.8661	* 1.7125	* 2.0821	* 1.6315	* 1.7636	* 1.6020	* 2.8412
	* 1.7999	* 1.8282	* 1.6525	* 2.0276	* 1.6309	* 1.7932	* 1.6937	* 2.9783
	* 1.8289	* 1.8208	* 1.6279	* 2.0130	* 1.6232	* 1.8335	* 1.7604	* 3.0630
	* 1.8661	* 1.8496	* 1.6383	* 2.0059	* 1.6327	* 1.8673	* 1.7969	* 3.0748
	* 1.9186	* 1.8998	* 1.6783	* 2.0554	* 1.6746	* 1.9217	* 1.8301	* 3.0202
12	* 2.1474	* 1.6656	* 1.8250	* 1.6324	* 1.7917	* 1.5816	* 2.4652	*
	* 2.0945	* 1.6177	* 1.7979	* 1.6326	* 1.8299	* 1.6512	* 2.5918	*
	* 2.0694	* 1.6085	* 1.7917	* 1.6249	* 1.8653	* 1.7067	* 2.6917	*
	* 2.0830	* 1.6337	* 1.8190	* 1.6343	* 1.8925	* 1.7404	* 2.7022	*
	* 2.1102	* 1.6704	* 1.8725	* 1.6759	* 1.9487	* 1.7824	* 2.6976	*
13	* 1.6801	* 1.7696	* 1.6550	* 1.7636	* 1.5816	* 2.1314	* 3.5652	*
	* 1.6194	* 1.7364	* 1.6177	* 1.7945	* 1.6503	* 2.2459	* 3.6402	*
	* 1.5990	* 1.7402	* 1.6086	* 1.8345	* 1.7086	* 2.3446	* 3.6394	*
	* 1.6176	* 1.7747	* 1.6337	* 1.8682	* 1.7405	* 2.3707	* 3.5401	*
	* 1.6687	* 1.8309	* 1.6793	* 1.9217	* 1.7818	* 2.3911	* 3.4376	*
14	* 1.9517	* 1.6462	* 1.8584	* 1.6020	* 2.4575	* 3.5572	*	*
	* 1.9266	* 1.6405	* 1.8942	* 1.6937	* 2.5833	* 3.6330	*	*
	* 1.9423	* 1.6595	* 1.9320	* 1.7614	* 2.6825	* 3.6352	*	*
	* 1.9719	* 1.6910	* 1.9719	* 1.7969	* 2.6933	* 3.5361	*	*
	* 2.0125	* 1.7289	* 2.0096	* 1.8295	* 2.6884	* 3.4338	*	*
15	* 3.1200	* 2.4594	* 1.9902	* 2.8438	* 4 EFPD 118 % POWER			
	* 3.0623	* 2.5205	* 2.0522	* 2.9811	* 100 EFPD 118 % POWER			
	* 3.0212	* 2.5618	* 2.1038	* 3.0660	* 200 EFPD 118 % POWER			
	* 2.9748	* 2.5627	* 2.1311	* 3.0752	* 300 EFPD 118 % POWER			
	* 2.9066	* 2.5402	* 2.1233	* 3.0202	* 400 EFPD 118 % POWER			

Table 3 (continued)

M-sub-C Values (F-sub-Q RPS Margin) - Normal Operations

THIS IS LEVEL 11 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	2.4710	1.9553	2.3458	1.9812	2.4013	1.8681	2.1666	3.4443
	2.6792	2.1128	2.4179	2.0128	2.3546	1.8051	2.1533	3.4330
	2.7761	2.1999	2.4366	2.0376	2.3267	1.7846	2.1746	3.3940
	2.8183	2.2502	2.4499	2.0589	2.3063	1.8055	2.2123	3.3243
	2.8560	2.3101	2.4983	2.1223	2.3422	1.8444	2.2366	3.2347
9	1.9553	2.1072	1.8943	2.0918	1.8591	1.9762	1.8274	2.7399
	2.1128	2.1386	1.8540	2.0482	1.7938	1.9302	1.8208	2.8083
	2.1999	2.1547	1.8292	2.0336	1.7849	1.9374	1.8462	2.8613
	2.2502	2.1816	1.8367	2.0402	1.8041	1.9651	1.8723	2.8489
	2.3101	2.2437	1.8924	2.0969	1.8300	2.0142	1.8991	2.8059
10	2.3458	1.8943	2.0834	1.9201	2.0442	1.8448	2.0725	2.2114
	2.4179	1.8551	2.0455	1.8367	1.9963	1.7928	2.1029	2.2763
	2.4366	1.8292	2.0271	1.8098	1.9932	1.7849	2.1474	2.3341
	2.4499	1.8356	2.0310	1.8051	2.0077	1.8041	2.1801	2.3476
	2.4983	1.8924	2.0871	1.8368	2.0585	1.8378	2.2076	2.3315
11	1.9812	2.0904	1.9177	2.3406	1.8178	1.9713	1.7823	3.1831
	2.0128	2.0495	1.8410	2.2730	1.8166	2.0013	1.8772	3.3103
	2.0376	2.0336	1.8129	2.2311	1.8024	2.0357	1.9427	3.4088
	2.0589	2.0416	1.8072	2.2276	1.8003	2.0667	1.9762	3.3850
	2.1223	2.0983	1.8379	2.2684	1.8354	2.1100	1.9963	3.3167
12	2.4013	1.8625	2.0469	1.8188	2.0064	1.7621	2.7615	
	2.3546	1.7969	2.0001	1.8187	2.0528	1.8422	2.9063	
	2.3267	1.7870	1.9956	1.8035	2.0738	1.8964	2.9940	
	2.3063	1.8051	2.0103	1.8022	2.0977	1.9200	2.9964	
	2.3422	1.8319	2.0596	1.8365	2.1553	1.9633	2.9764	
13	1.8681	1.9787	1.8470	1.9713	1.7611	2.3867	4.0052	
	1.8051	1.9325	1.7958	2.0026	1.8422	2.5166	4.0621	
	1.7846	1.9398	1.7870	2.0370	1.8987	2.6017	4.0308	
	1.8055	1.9651	1.8061	2.0667	1.9201	2.6244	3.9306	
	1.8444	2.0142	1.8380	2.1100	1.9633	2.6394	3.8035	
14	2.1666	1.8296	2.0738	1.7823	2.7518	3.9950		
	2.1533	1.8239	2.1043	1.8772	2.8975	4.0568		
	2.1746	1.8473	2.1489	1.9438	2.9755	4.0257		
	2.2123	1.8725	2.1801	1.9762	2.9879	3.9257		
	2.2366	1.8993	2.2076	1.9953	2.9658	3.7962		
15	3.4443	2.7422	2.2129	3.1863	4	EPFD 118	POWER	
	3.4330	2.8108	2.2779	3.3138	100	EPFD 118	POWER	
	3.3940	2.8613	2.3358	3.4088	200	EPFD 118	POWER	
	3.3243	2.8515	2.3493	3.3850	300	EPFD 118	POWER	
	3.2347	2.8059	2.3315	3.3167	400	EPFD 118	POWER	

Table 3 (continued)

M-sub-C Values (F-sub-Q RPS Margin) - Normal Operations

THIS IS LEVEL 10 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	2.6234	2.0793	2.4906	2.1072	2.5636	2.0109	2.3493	3.7300
	2.9312	2.2979	2.6278	2.1786	2.5491	1.9837	2.3777	3.7433
	3.0653	2.4160	2.6747	2.2311	2.5429	1.9713	2.4142	3.7300
	3.1293	2.4906	2.7162	2.2812	2.5532	1.9849	2.4423	3.6606
	3.1722	2.5612	2.7757	2.3573	2.5974	2.0311	2.4770	3.5769
9	2.0793	2.2454	2.0187	2.2343	1.9890	2.1228	1.9750	2.9840
	2.2979	2.3267	2.0026	2.2217	1.9639	2.1228	2.0077	3.0924
	2.4160	2.3688	1.9963	2.2311	1.9602	2.1372	2.0376	3.1576
	2.4906	2.4160	2.0206	2.2583	1.9774	2.1651	2.0509	3.1324
	2.5612	2.4923	2.0892	2.3295	2.0127	2.2266	2.0835	3.0903
10	2.4906	2.0200	2.2311	2.0440	2.2015	1.9864	2.2535	2.4012
	2.6278	2.0026	2.2217	1.9950	2.1892	1.9626	2.3233	2.5025
	2.6747	1.9963	2.2264	1.9787	2.1953	1.9602	2.3723	2.5615
	2.7162	2.0206	2.2470	1.9774	2.2154	1.9774	2.3976	2.5636
	2.7757	2.0900	2.3171	2.0214	2.2798	2.0167	2.4354	2.5478
11	2.1072	2.2359	2.0413	2.5104	1.9763	2.1459	1.9405	3.4481
	2.1786	2.2232	1.9988	2.4672	1.9849	2.1984	2.0576	3.6185
	2.2311	2.2311	1.9812	2.4499	1.9713	2.2390	2.1300	3.7211
	2.2812	2.2599	1.9787	2.4499	1.9663	2.2697	2.1547	3.6949
	2.3573	2.3308	2.0227	2.4952	2.0100	2.3226	2.1834	3.6315
12	2.5636	1.9941	2.2045	1.9788	2.1877	1.9248	3.0068	
	2.5491	1.9663	2.1923	1.9862	2.2486	2.0245	3.1607	
	2.5429	1.9626	2.1984	1.9737	2.2862	2.0752	3.2623	
	2.5532	1.9787	2.2170	1.9676	2.3131	2.1015	3.2758	
	2.5974	2.0145	2.2798	2.0112	2.3686	2.1410	3.2447	
13	2.0109	2.1257	1.9902	2.1474	1.9240	2.6212	4.3422	
	1.9837	2.1257	1.9663	2.1999	2.0232	2.7639	4.4215	
	1.9713	2.1386	1.9626	2.2406	2.0766	2.8671	4.4339	
	1.9849	2.1651	1.9787	2.2697	2.1029	2.8908	4.3184	
	2.0311	2.2266	2.0167	2.3230	2.1410	2.8959	4.1615	
14	2.3493	1.9789	2.2551	1.9405	2.9953	4.3302		
	2.3777	2.0103	2.3250	2.0576	3.1481	4.4153		
	2.4142	2.0402	2.3741	2.1314	3.2522	4.4277		
	2.4423	2.0522	2.3976	2.1547	3.2623	4.3125		
	2.4770	2.0838	2.4354	2.1834	3.2347	4.1561		
15	3.7300	2.9868	2.4031	3.4519	4 EFPD 118	% POWER		
	3.7433	3.0955	2.5044	3.6185	100 EFPD 118	% POWER		
	3.7300	3.1576	2.5615	3.7211	200 EFPD 118	% POWER		
	3.6606	3.1355	2.5636	3.6993	300 EFPD 118	% POWER		
	3.5769	3.0933	2.5478	3.6315	400 EFPD 118	% POWER		

Table 3 (continued)

M-sub-C Values (F-sub-Q RPS Margin) - Normal Operations

THIS IS LEVEL 9 OF 18

(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	2.6039	2.0562	2.4710	2.0876	2.5408	2.0122	2.3581	3.8020
	2.9339	2.3182	2.6521	2.2201	2.6082	2.0245	2.4423	3.9253
	3.1639	2.5185	2.7933	2.3250	2.6589	2.0725	2.5511	4.0154
	3.3526	2.6724	2.9149	2.4537	2.7566	2.1711	2.6792	4.0621
	3.4330	2.7884	3.0387	2.5889	2.8723	2.2664	2.7591	3.9950
9	2.0562	2.2232	1.9966	2.2154	1.9941	2.1285	1.9788	3.0154
	2.3182	2.3599	2.0416	2.2664	2.0013	2.1636	2.0549	3.2123
	2.5185	2.4633	2.0766	2.3199	2.0522	2.2390	2.1533	3.3850
	2.6724	2.5932	2.1756	2.4347	2.1518	2.3564	2.2567	3.4709
	2.7884	2.7327	2.3080	2.5741	2.2406	2.4749	2.3233	3.4481
10	2.4710	1.9979	2.2107	2.0306	2.2092	1.9915	2.2551	2.4218
	2.6521	2.0416	2.2664	2.0336	2.2311	2.0001	2.3831	2.5996
	2.7933	2.0766	2.3148	2.0630	2.2945	2.0535	2.5104	2.7494
	2.9149	2.1756	2.4197	2.1401	2.3995	2.1533	2.6344	2.8412
	3.0387	2.3080	2.5573	2.2454	2.5286	2.2454	2.7045	2.8361
11	2.0876	2.2154	2.0279	2.5205	1.9788	2.1518	1.9417	3.4940
	2.2201	2.2681	2.0389	2.5266	2.0258	2.2454	2.1214	3.7838
	2.3250	2.3216	2.0670	2.5678	2.0711	2.3581	2.2583	4.0154
	2.4537	2.4366	2.1430	2.6566	2.1430	2.4788	2.3705	4.1151
	2.5889	2.5741	2.2470	2.7639	2.2359	2.5804	2.4291	4.0516
12	2.5408	1.9992	2.2123	1.9813	2.1969	1.9284	3.0270	
	2.6082	2.0052	2.2343	2.0271	2.2996	2.0779	3.2793	
	2.6589	2.0549	2.2979	2.0725	2.4031	2.1907	3.4940	
	2.7566	2.1533	2.4013	2.1445	2.5185	2.3012	3.6268	
	2.8723	2.2422	2.5286	2.2374	2.6256	2.3795	3.6185	
13	2.0122	2.1314	1.9941	2.1518	1.9284	2.6344	4.4402	
	2.0245	2.1666	2.0039	2.2470	2.0779	2.8541	4.6777	
	2.0725	2.2406	2.0562	2.3599	2.1923	3.0534	4.8210	
	2.1711	2.3581	2.1547	2.4788	2.3012	3.1863	4.8062	
	2.2664	2.4749	2.2454	2.5804	2.3795	3.2123	4.6295	
14	2.3581	1.9826	2.2583	1.9417	3.0154	4.4277		
	2.4423	2.0576	2.3849	2.1214	3.2690	4.6708		
	2.5511	2.1562	2.5124	2.2583	3.4824	4.8136		
	2.6792	2.2567	2.6344	2.3705	3.6143	4.7989		
	2.7591	2.3233	2.7045	2.4291	3.6102	4.6364		
15	3.8020	3.0183	2.4237	3.4979	4 EFPD	118 %	POWER	
	3.9253	3.2156	2.5996	3.7883	100 EFPD	118 %	POWER	
	4.0154	3.3887	2.7494	4.0154	200 EFPD	118 %	POWER	
	4.0621	3.4709	2.8412	4.1151	300 EFPD	118 %	POWER	
	3.9950	3.4481	2.8361	4.0568	400 EFPD	118 %	POWER	

Table 3 (continued)
M-sub-C Values (F-sub-Q RPS Margin) - Normal Operations

THIS IS LEVEL 8 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	2.4827	1.9469	2.3388	1.9676	2.3813	1.8749	2.1999	3.5174
	2.7615	2.1666	2.4788	2.0670	2.4272	1.9079	2.2971	3.6497
	2.9476	2.3336	2.5846	2.1726	2.4866	1.9397	2.4050	3.7433
	3.0985	2.4866	2.7139	2.2862	2.5678	2.0180	2.5005	3.7838
	3.2058	2.6039	2.8361	2.4253	2.6953	2.1459	2.6190	3.7792
9	1.9469	2.1114	1.8840	2.0945	1.8851	2.0116	1.8448	2.7958
	2.1666	2.2076	1.9045	2.1214	1.8919	2.0522	1.9337	3.0096
	2.3336	2.3029	1.9493	2.1862	1.9266	2.1086	2.0180	3.1671
	2.4866	2.4216	2.0232	2.2746	2.0039	2.1999	2.1001	3.2421
	2.6039	2.5615	2.1621	2.4216	2.1128	2.3406	2.2076	3.2793
10	2.3388	1.8851	2.0945	1.9130	2.1001	1.8828	2.1357	2.2482
	2.4788	1.9045	2.1214	1.9079	2.1157	1.8930	2.2567	2.4216
	2.5846	1.9493	2.1816	1.9385	2.1666	1.9278	2.3688	2.5657
	2.7139	2.0232	2.2616	1.9925	2.2438	2.0052	2.4614	2.6455
	2.8361	2.1607	2.4050	2.1114	2.3867	2.1228	2.5741	2.6976
11	1.9676	2.0945	1.9106	2.3795	1.8955	2.0616	1.8459	3.2589
	2.0670	2.1228	1.9056	2.3795	1.9243	2.1445	2.0090	3.5372
	2.1726	2.1877	1.9421	2.4253	1.9481	2.2311	2.1199	3.7567
	2.2862	2.2746	1.9950	2.4788	1.9963	2.3216	2.2076	3.8345
	2.4253	2.4235	2.1128	2.5974	2.1114	2.4440	2.2979	3.8438
12	2.3813	1.8897	2.1029	1.8978	2.1072	1.8503	2.8750	
	2.4272	1.8953	2.1185	1.9254	2.1892	1.9750	3.0985	
	2.4866	1.9290	2.1696	1.9517	2.2796	2.0630	3.2930	
	2.5678	2.0052	2.2454	1.9975	2.3599	2.1430	3.3778	
	2.6953	2.1142	2.3867	2.1128	2.4847	2.2470	3.4144	
13	1.8749	2.0141	1.8874	2.0630	1.8503	2.5185	4.2250	
	1.9079	2.0549	1.8964	2.1459	1.9750	2.7139	4.3968	
	1.9397	2.1100	1.9302	2.2327	2.0657	2.8961	4.5166	
	2.0180	2.2015	2.0064	2.3216	2.1430	2.9811	4.5037	
	2.1459	2.3406	2.1228	2.4442	2.2470	3.0505	4.3968	
14	2.1999	1.8481	2.1386	1.8470	2.8671	4.2087		
	2.2971	1.9361	2.2583	2.0090	3.0894	4.3906		
	2.4050	2.0193	2.3705	2.1214	3.2827	4.5102		
	2.5005	2.1001	2.4633	2.2076	3.3669	4.4973		
	2.6190	2.2076	2.5741	2.2962	3.4033	4.3906		
15	3.5174	2.7983	2.2515	3.2657	4	EFPD 118 % POWER		
	3.6497	3.0096	2.4235	3.5412	100	EFPD 118 % POWER		
	3.7433	3.1703	2.5657	3.7612	200	EFPD 118 % POWER		
	3.7838	3.2421	2.6455	3.8345	300	EFPD 118 % POWER		
	3.7792	3.2793	2.6953	3.8438	400	EFPD 118 % POWER		

Table 3 (continued)
M-sub-C Values (F-sub-Q RPS Margin) - Normal Operations

THIS IS LEVEL 7 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 2.3131 *	* 1.7989 *	* 2.1489 *	* 1.8020 *	* 2.1869 *	* 1.7022 *	* 2.0064 *	* 3.2255 *
	* 2.5769 *	* 2.0082 *	* 2.2908 *	* 1.9063 *	* 2.2356 *	* 1.7211 *	* 2.0814 *	* 3.3232 *
	* 2.7559 *	* 2.1655 *	* 2.3945 *	* 2.0026 *	* 2.2845 *	* 1.7656 *	* 2.1827 *	* 3.4066 *
	* 2.8089 *	* 2.2426 *	* 2.4580 *	* 2.0732 *	* 2.3326 *	* 1.8281 *	* 2.2752 *	* 3.4465 *
	* 2.9065 *	* 2.3615 *	* 2.5811 *	* 2.2070 *	* 2.4572 *	* 1.9551 *	* 2.3923 *	* 3.4483 *
9	* 1.7989 *	* 1.9493 *	* 1.7287 *	* 1.9207 *	* 1.7087 *	* 1.8197 *	* 1.6701 *	* 2.5449 *
	* 2.0082 *	* 2.0421 *	* 1.7579 *	* 1.9602 *	* 1.7156 *	* 1.8570 *	* 1.7439 *	* 2.7254 *
	* 2.1655 *	* 2.1343 *	* 1.7846 *	* 2.0064 *	* 1.7587 *	* 1.9243 *	* 1.8309 *	* 2.8738 *
	* 2.2426 *	* 2.1947 *	* 1.8298 *	* 2.0629 *	* 1.8123 *	* 1.9949 *	* 1.9021 *	* 2.9481 *
	* 2.3615 *	* 2.3312 *	* 1.9676 *	* 2.2093 *	* 1.9243 *	* 2.1351 *	* 2.0097 *	* 2.9898 *
10	* 2.1489 *	* 1.7287 *	* 1.9243 *	* 1.7531 *	* 1.9219 *	* 1.7069 *	* 1.9421 *	* 2.0332 *
	* 2.2908 *	* 1.7579 *	* 1.9627 *	* 1.7519 *	* 1.9334 *	* 1.7165 *	* 2.0410 *	* 2.1867 *
	* 2.3945 *	* 1.7846 *	* 2.0064 *	* 1.7726 *	* 1.9824 *	* 1.7597 *	* 2.1531 *	* 2.3169 *
	* 2.4580 *	* 1.8294 *	* 2.0503 *	* 1.8003 *	* 2.0336 *	* 1.8130 *	* 2.2333 *	* 2.3958 *
	* 2.5811 *	* 1.9664 *	* 2.1943 *	* 1.9255 *	* 2.1776 *	* 1.9350 *	* 2.3442 *	* 2.4491 *
11	* 1.8020 *	* 1.9196 *	* 1.7502 *	* 2.1938 *	* 1.7374 *	* 1.8862 *	* 1.6837 *	* 2.9671 *
	* 1.9063 *	* 1.9614 *	* 1.7558 *	* 2.2091 *	* 1.7558 *	* 1.9602 *	* 1.8208 *	* 3.2111 *
	* 2.0026 *	* 2.0077 *	* 1.7756 *	* 2.2343 *	* 1.7917 *	* 2.0442 *	* 1.9290 *	* 3.4033 *
	* 2.0732 *	* 2.0629 *	* 1.8020 *	* 2.2460 *	* 1.8051 *	* 2.1020 *	* 1.9932 *	* 3.4746 *
	* 2.2070 *	* 2.2093 *	* 1.9264 *	* 2.3711 *	* 1.9255 *	* 2.2316 *	* 2.0901 *	* 3.4913 *
12	* 2.1869 *	* 1.7125 *	* 1.9254 *	* 1.7394 *	* 1.9663 *	* 1.7012 *	* 2.6322 *	
	* 2.2356 *	* 1.7193 *	* 1.9358 *	* 1.7577 *	* 2.0482 *	* 1.8166 *	* 2.8412 *	
	* 2.2845 *	* 1.7607 *	* 1.9849 *	* 1.7928 *	* 2.1228 *	* 1.9056 *	* 3.0039 *	
	* 2.3326 *	* 1.8134 *	* 2.0349 *	* 1.8065 *	* 2.1386 *	* 1.9380 *	* 3.0551 *	
	* 2.4572 *	* 1.9264 *	* 2.1779 *	* 1.9267 *	* 2.2686 *	* 2.0470 *	* 3.1086 *	
13	* 1.7022 *	* 1.8229 *	* 1.7106 *	* 1.8873 *	* 1.7003 *	* 2.3354 *	* 3.8532 *	
	* 1.7211 *	* 1.8603 *	* 1.7193 *	* 1.9614 *	* 1.8155 *	* 2.5225 *	* 4.0334 *	
	* 1.7656 *	* 1.9264 *	* 1.7617 *	* 2.0455 *	* 1.9068 *	* 2.6769 *	* 4.1575 *	
	* 1.8281 *	* 1.9955 *	* 1.8140 *	* 2.1029 *	* 1.9380 *	* 2.7017 *	* 4.0830 *	
	* 1.9551 *	* 2.1340 *	* 1.9350 *	* 2.2316 *	* 2.0470 *	* 2.7811 *	* 3.9966 *	
14	* 2.0064 *	* 1.6728 *	* 1.9445 *	* 1.6837 *	* 2.6234 *	* 3.8438 *		
	* 2.0814 *	* 1.7459 *	* 2.0435 *	* 1.8208 *	* 2.8310 *	* 4.0283 *		
	* 2.1827 *	* 1.8322 *	* 2.1533 *	* 1.9290 *	* 2.9953 *	* 4.1520 *		
	* 2.2752 *	* 1.9028 *	* 2.2342 *	* 1.9932 *	* 3.0451 *	* 4.0777 *		
	* 2.3923 *	* 2.0097 *	* 2.3442 *	* 2.0891 *	* 3.0964 *	* 3.9915 *		
15	* 3.2255 *	* 2.5470 *	* 2.0346 *	* 2.9699 *	4 EFPD 118 % POWER			
	* 3.3232 *	* 2.7278 *	* 2.1882 *	* 3.2113 *	100 EFPD 118 % POWER			
	* 3.4066 *	* 2.8764 *	* 2.3186 *	* 3.4070 *	200 EFPD 118 % POWER			
	* 3.4465 *	* 2.9481 *	* 2.3958 *	* 3.4769 *	300 EFPD 118 % POWER			
	* 3.4483 *	* 2.9898 *	* 2.4491 *	* 3.4913 *	400 EFPD 118 % POWER			

Table 3 (continued)

M-sub-C Values (F-sub-Q RPS Margin) - Normal Operations

THIS IS LEVEL 6 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 2.1439 *	* 1.6637 *	* 2.0073 *	* 1.6734 *	* 2.0393 *	* 1.5897 *	* 1.8783 *	* 3.0387 *
	* 2.3797 *	* 1.8491 *	* 2.1254 *	* 1.7576 *	* 2.0711 *	* 1.5942 *	* 1.9318 *	* 3.1040 *
	* 2.5268 *	* 1.9790 *	* 2.2032 *	* 1.8398 *	* 2.1124 *	* 1.6256 *	* 2.0134 *	* 3.1611 *
	* 2.5929 *	* 2.0573 *	* 2.2621 *	* 1.9083 *	* 2.1555 *	* 1.6809 *	* 2.0972 *	* 3.1939 *
	* 2.6625 *	* 2.1497 *	* 2.3592 *	* 2.0174 *	* 2.2530 *	* 1.7809 *	* 2.1876 *	* 3.1684 *
9	* 1.6637 *	* 1.8079 *	* 1.6060 *	* 1.7852 *	* 1.5825 *	* 1.6898 *	* 1.5555 *	* 2.3813 *
	* 1.8491 *	* 1.8842 *	* 1.6213 *	* 1.8077 *	* 1.5822 *	* 1.7146 *	* 1.6120 *	* 2.5292 *
	* 1.9790 *	* 1.9537 *	* 1.6434 *	* 1.8477 *	* 1.6160 *	* 1.7686 *	* 1.6844 *	* 2.6589 *
	* 2.0573 *	* 2.0177 *	* 1.6837 *	* 1.8991 *	* 1.6649 *	* 1.8338 *	* 1.7494 *	* 2.7264 *
	* 2.1497 *	* 2.1294 *	* 1.7953 *	* 2.0180 *	* 1.7521 *	* 1.9469 *	* 1.8327 *	* 2.7409 *
10	* 2.0073 *	* 1.6068 *	* 1.7909 *	* 1.6294 *	* 1.7756 *	* 1.5800 *	* 1.7928 *	* 1.8955 *
	* 2.1254 *	* 1.6213 *	* 1.8107 *	* 1.6163 *	* 1.7804 *	* 1.5822 *	* 1.8833 *	* 2.0259 *
	* 2.2032 *	* 1.6434 *	* 1.8477 *	* 1.6306 *	* 1.8218 *	* 1.6168 *	* 1.9783 *	* 2.1366 *
	* 2.2621 *	* 1.6837 *	* 1.8866 *	* 1.6540 *	* 1.8698 *	* 1.6654 *	* 2.0556 *	* 2.2128 *
	* 2.3592 *	* 1.7943 *	* 2.0036 *	* 1.7511 *	* 1.9865 *	* 1.7602 *	* 2.1412 *	* 2.2418 *
11	* 1.6734 *	* 1.7852 *	* 1.6277 *	* 2.0381 *	* 1.5955 *	* 1.7269 *	* 1.5416 *	* 2.7663 *
	* 1.7576 *	* 1.8088 *	* 1.6205 *	* 2.0328 *	* 1.6089 *	* 1.7945 *	* 1.6673 *	* 2.9779 *
	* 1.8398 *	* 1.8488 *	* 1.6338 *	* 2.0524 *	* 1.6404 *	* 1.8734 *	* 1.7704 *	* 3.1492 *
	* 1.9083 *	* 1.8991 *	* 1.6558 *	* 2.0691 *	* 1.6558 *	* 1.9315 *	* 1.8334 *	* 3.2234 *
	* 2.0174 *	* 2.0180 *	* 1.7521 *	* 2.1666 *	* 1.7502 *	* 2.0340 *	* 1.9071 *	* 3.2112 *
12	* 2.0393 *	* 1.5865 *	* 1.7796 *	* 1.5971 *	* 1.8041 *	* 1.5610 *	* 2.4423 *	
	* 2.0711 *	* 1.5854 *	* 1.7824 *	* 1.6105 *	* 1.8601 *	* 1.6561 *	* 2.6108 *	
	* 2.1124 *	* 1.6185 *	* 1.8239 *	* 1.6415 *	* 1.9285 *	* 1.7368 *	* 2.7650 *	
	* 2.1555 *	* 1.6663 *	* 1.8709 *	* 1.6575 *	* 1.9648 *	* 1.7791 *	* 2.8238 *	
	* 2.2530 *	* 1.7531 *	* 1.9874 *	* 1.7511 *	* 2.0674 *	* 1.8650 *	* 2.8514 *	
13	* 1.5897 *	* 1.6916 *	* 1.5833 *	* 1.7278 *	* 1.5594 *	* 2.1577 *	* 3.6018 *	
	* 1.5942 *	* 1.7164 *	* 1.5846 *	* 1.7965 *	* 1.6560 *	* 2.3008 *	* 3.7379 *	
	* 1.6256 *	* 1.7704 *	* 1.6193 *	* 1.8745 *	* 1.7385 *	* 2.4410 *	* 3.8203 *	
	* 1.6809 *	* 1.8338 *	* 1.6672 *	* 1.9322 *	* 1.7801 *	* 2.4857 *	* 3.7752 *	
	* 1.7809 *	* 1.9469 *	* 1.7602 *	* 2.0340 *	* 1.8642 *	* 2.5366 *	* 3.6665 *	
14	* 1.8783 *	* 1.5578 *	* 1.7948 *	* 1.5424 *	* 2.4347 *	* 3.5905 *		
	* 1.9318 *	* 1.6144 *	* 1.8855 *	* 1.6674 *	* 2.6024 *	* 3.7317 *		
	* 2.0134 *	* 1.6862 *	* 1.9795 *	* 1.7704 *	* 2.7553 *	* 3.8143 *		
	* 2.0972 *	* 1.7504 *	* 2.0556 *	* 1.8334 *	* 2.8137 *	* 3.7706 *		
	* 2.1876 *	* 1.8327 *	* 2.1408 *	* 1.9062 *	* 2.8411 *	* 3.6623 *		
15	* 3.0387 *	* 2.3849 *	* 1.8978 *	* 2.7712 *	4 EFPD 118 %	POWER		
	* 3.1040 *	* 2.5312 *	* 2.0272 *	* 2.9807 *	100 EFPD 118 %	POWER		
	* 3.1611 *	* 2.6594 *	* 2.1380 *	* 3.1523 *	200 EFPD 118 %	POWER		
	* 3.1939 *	* 2.7264 *	* 2.2128 *	* 3.2253 *	300 EFPD 118 %	POWER		
	* 3.1684 *	* 2.7409 *	* 2.2418 *	* 3.2112 *	400 EFPD 118 %	POWER		

Table 3 (continued)

M-sub-C Values (F-sub-Q RPS Margin) - Normal Operations

THIS IS LEVEL 5 OF 18

(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	1.9567	1.5088	1.8307	1.5211	1.8664	1.4576	1.7335	2.8149
	2.1653	1.6721	1.9317	1.5937	1.8868	1.4478	1.7669	2.8538
	2.2841	1.7810	1.9878	1.6553	1.9062	1.4636	1.8271	2.8756
	2.3459	1.8505	2.0341	1.7108	1.9378	1.5085	1.8968	2.8914
	2.3840	1.9174	2.1032	1.7949	2.0067	1.5829	1.9583	2.8372
9	1.5088	1.6490	1.4606	1.6311	1.4461	1.5477	1.4236	2.1999
	1.6721	1.7133	1.4661	1.6439	1.4353	1.5593	1.4625	2.3159
	1.7810	1.7625	1.4781	1.6701	1.4545	1.5980	1.5166	2.4159
	1.8505	1.8131	1.5094	1.7098	1.4953	1.6529	1.5708	2.4701
	1.9174	1.8978	1.5940	1.8001	1.5552	1.7373	1.6292	2.4558
10	1.8307	1.4607	1.6361	1.4836	1.6227	1.4434	1.6388	1.7374
	1.9317	1.4661	1.6466	1.4673	1.6202	1.4347	1.7159	1.8398
	1.9878	1.4781	1.6683	1.4690	1.6476	1.4551	1.7900	1.9265
	2.0341	1.5094	1.7006	1.4840	1.6884	1.4960	1.8571	1.9918
	2.1032	1.5932	1.7878	1.5552	1.7757	1.5616	1.9136	1.9980
11	1.5211	1.6311	1.4815	1.8574	1.4407	1.5686	1.3941	2.5347
	1.5937	1.6449	1.4681	1.8380	1.4519	1.6251	1.5007	2.7069
	1.6553	1.6701	1.4718	1.8450	1.4680	1.6876	1.5890	2.8427
	1.7108	1.7098	1.4858	1.8637	1.4840	1.7424	1.6465	2.9077
	1.7949	1.8001	1.5565	1.9304	1.5537	1.8165	1.6955	2.8627
12	1.8664	1.4495	1.6244	1.4421	1.6211	1.4985	2.2076	
	1.8868	1.4380	1.6227	1.4538	1.6752	1.4831	2.3542	
	1.9062	1.4565	1.6491	1.4694	1.7301	1.5506	2.4825	
	1.9378	1.4960	1.6902	1.4854	1.7732	1.5974	2.5427	
	2.0067	1.5567	1.7757	1.5544	1.8474	1.6575	2.5375	
13	1.4576	1.5500	1.4468	1.5693	1.3973	1.9505	3.3101	
	1.4478	1.5616	1.4373	1.6268	1.4825	2.0743	3.3990	
	1.4636	1.5990	1.4572	1.6885	1.5521	2.1930	3.4447	
	1.5085	1.6535	1.4967	1.7428	1.5979	2.2478	3.4139	
	1.5829	1.7373	1.5616	1.8165	1.6569	2.2675	3.2776	
14	1.7335	1.4262	1.6413	1.3948	2.2015	3.2999		
	1.7669	1.4645	1.7178	1.5014	2.3454	3.3947		
	1.8271	1.5181	1.7910	1.5892	2.4732	3.4387		
	1.8968	1.5711	1.8582	1.6465	2.5345	3.4083		
	1.9583	1.6292	1.9136	1.6948	2.5277	3.2742		
15	2.8149	2.2030	1.7394	2.5367	4 EFPD 118	% POWER		
	2.8538	2.3176	1.8419	2.7093	100 EFPD 118	% POWER		
	2.8756	2.4177	1.9277	2.8453	200 EFPD 118	% POWER		
	2.8914	2.4701	1.9926	2.9093	300 EFPD 118	% POWER		
	2.8372	2.4558	1.9971	2.8627	400 EFPD 118	% POWER		

Table 3 (continued)

M-sub-C Values (F-sub-Q RPS Margin) - Normal Operations

THIS IS LEVEL 4 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	* 1.8871	* 1.4491	* 1.7716	* 1.4652	* 1.8101	* 1.4196	* 1.6907	* 2.7580
	* 2.0782	* 1.5993	* 1.8594	* 1.5256	* 1.8176	* 1.3963	* 1.7032	* 2.7646
	* 2.1687	* 1.6840	* 1.8911	* 1.5672	* 1.8143	* 1.3934	* 1.7380	* 2.7444
	* 2.1878	* 1.7184	* 1.8970	* 1.5886	* 1.8058	* 1.4066	* 1.7664	* 2.7051
	* 2.1776	* 1.7434	* 1.9202	* 1.6315	* 1.8308	* 1.4415	* 1.7836	* 2.5992
9	* 1.4491	* 1.5858	* 1.4090	* 1.5731	* 1.4023	* 1.4978	* 1.3873	* 2.1562
	* 1.5993	* 1.6413	* 1.4071	* 1.5752	* 1.3810	* 1.4975	* 1.4093	* 2.2371
	* 1.6840	* 1.6690	* 1.4016	* 1.5808	* 1.3833	* 1.5160	* 1.4420	* 2.3071
	* 1.7184	* 1.6835	* 1.4016	* 1.5862	* 1.3929	* 1.5367	* 1.4688	* 2.3110
	* 1.7434	* 1.7247	* 1.4493	* 1.6360	* 1.4157	* 1.5790	* 1.4853	* 2.2470
10	* 1.7716	* 1.4090	* 1.5770	* 1.4316	* 1.5693	* 1.3998	* 1.5924	* 1.7031
	* 1.8594	* 1.4077	* 1.5783	* 1.4089	* 1.5558	* 1.3798	* 1.6498	* 1.7808
	* 1.8911	* 1.4016	* 1.5787	* 1.3966	* 1.5648	* 1.3837	* 1.6988	* 1.8392
	* 1.8970	* 1.4016	* 1.5782	* 1.3807	* 1.5672	* 1.3941	* 1.7315	* 1.8701
	* 1.9202	* 1.4487	* 1.6242	* 1.4131	* 1.6122	* 1.4233	* 1.7433	* 1.8300
11	* 1.4652	* 1.5731	* 1.4297	* 1.7945	* 1.3910	* 1.5186	* 1.3546	* 2.4945
	* 1.5256	* 1.5768	* 1.4097	* 1.7667	* 1.3950	* 1.5580	* 1.4414	* 2.6254
	* 1.5672	* 1.5816	* 1.3991	* 1.7552	* 1.3937	* 1.5990	* 1.5091	* 2.7212
	* 1.5886	* 1.5869	* 1.3819	* 1.7362	* 1.3849	* 1.6229	* 1.5398	* 2.7332
	* 1.6315	* 1.6356	* 1.4137	* 1.7601	* 1.4137	* 1.6532	* 1.5474	* 2.6343
12	* 1.8101	* 1.4061	* 1.5717	* 1.3923	* 1.5639	* 1.3517	* 2.1547	*
	* 1.8176	* 1.3835	* 1.5588	* 1.3963	* 1.6031	* 1.4201	* 2.2709	*
	* 1.8143	* 1.3856	* 1.5663	* 1.3954	* 1.6375	* 1.4689	* 2.3650	*
	* 1.8058	* 1.3941	* 1.5688	* 1.3862	* 1.6500	* 1.4910	* 2.3807	*
	* 1.8308	* 1.4163	* 1.6127	* 1.4148	* 1.6795	* 1.5104	* 2.3255	*
13	* 1.4196	* 1.5020	* 1.4023	* 1.5201	* 1.3511	* 1.8885	* 3.2219	*
	* 1.3963	* 1.4996	* 1.3828	* 1.5588	* 1.4194	* 1.9869	* 3.2831	*
	* 1.3934	* 1.5174	* 1.3857	* 1.5998	* 1.4703	* 2.0758	* 3.2813	*
	* 1.4066	* 1.5374	* 1.3954	* 1.6229	* 1.4910	* 2.0933	* 3.2051	*
	* 1.4415	* 1.5786	* 1.4233	* 1.6524	* 1.5104	* 2.0657	* 3.0132	*
14	* 1.6907	* 1.3892	* 1.5940	* 1.3546	* 2.1474	* 3.2151	*	*
	* 1.7032	* 1.4112	* 1.6515	* 1.4420	* 2.2628	* 3.2763	*	*
	* 1.7380	* 1.4433	* 1.6998	* 1.5097	* 2.3562	* 3.2745	*	*
	* 1.7664	* 1.4695	* 1.7325	* 1.5398	* 2.3718	* 3.1985	*	*
	* 1.7836	* 1.4853	* 1.7433	* 1.5467	* 2.3179	* 3.0075	*	*
15	* 2.7580	* 2.1592	* 1.7050	* 2.4965	* 4 EFPD 118	* POWER		
	* 2.7646	* 2.2402	* 1.7828	* 2.6298	* 100 EFPD 118	* POWER		
	* 2.7444	* 2.3075	* 1.8401	* 2.7236	* 200 EFPD 118	* POWER		
	* 2.7051	* 2.3110	* 1.8702	* 2.7332	* 300 EFPD 118	* POWER		
	* 2.5992	* 2.2473	* 1.8295	* 2.6349	* 400 EFPD 118	* POWER		

Table 3 (continued)

M-sub-C Values (F-sub-Q RPS Margin) - Normal Operations

THIS IS LEVEL 3 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	1.8378	1.4069	1.7188	1.4162	1.7511	1.3861	1.6586	2.7286
	2.0074	1.5404	1.7945	1.4684	1.7529	1.3544	1.6566	2.7055
	2.0649	1.6005	1.8028	1.4906	1.7312	1.3346	1.6670	2.6388
	2.0442	1.6031	1.7742	1.4833	1.6905	1.3141	1.6542	2.5469
	1.9877	1.5875	1.7526	1.4869	1.6722	1.3124	1.6270	2.3827
9	1.4069	1.5442	1.3673	1.5248	1.3630	1.4568	1.3611	2.1430
	1.5404	1.5861	1.3592	1.5201	1.3372	1.4474	1.3696	2.1914
	1.6005	1.5928	1.3384	1.5090	1.3249	1.4491	1.3814	2.2201
	1.6031	1.5758	1.3130	1.4867	1.3032	1.4354	1.3736	2.1750
	1.5875	1.5752	1.3223	1.4949	1.2904	1.4377	1.3539	2.0590
10	1.7188	1.3679	1.5263	1.3861	1.5232	1.3617	1.5662	1.6975
	1.7945	1.3592	1.5223	1.3603	1.5053	1.3361	1.6028	1.7480
	1.8028	1.3384	1.5078	1.3337	1.4965	1.3249	1.6262	1.7715
	1.7742	1.3125	1.4798	1.2926	1.4687	1.3043	1.6203	1.7584
	1.7526	1.3226	1.4851	1.2880	1.4730	1.2968	1.5896	1.6764
11	1.4162	1.5241	1.3849	1.7356	1.3641	1.4899	1.3377	2.4788
	1.4684	1.5209	1.3616	1.7028	1.3515	1.5089	1.4030	2.5688
	1.4906	1.5097	1.3359	1.6739	1.3343	1.5287	1.4460	2.6126
	1.4833	1.4867	1.2942	1.6269	1.2963	1.5182	1.4420	2.5635
	1.4869	1.4942	1.2890	1.6074	1.2886	1.5064	1.4114	2.4072
12	1.7511	1.3666	1.5254	1.3653	1.5319	1.3302	2.1257	
	1.7529	1.3401	1.5075	1.3533	1.5526	1.3798	2.2083	
	1.7312	1.3270	1.4979	1.3354	1.5669	1.4062	2.2598	
	1.6905	1.3049	1.4701	1.2974	1.5464	1.3961	2.2287	
	1.6722	1.2915	1.4734	1.2891	1.5333	1.3774	2.1215	
13	1.3861	1.4588	1.3647	1.4913	1.3291	1.8661	3.2009	
	1.3544	1.4494	1.3389	1.5102	1.3792	1.9354	3.2159	
	1.3346	1.4505	1.3270	1.5295	1.4074	1.9885	3.1560	
	1.3141	1.4360	1.3054	1.5182	1.3967	1.9640	3.0223	
	1.3124	1.4374	1.2968	1.5064	1.3768	1.8874	2.7670	
14	1.6586	1.3635	1.5678	1.3377	2.1185	3.1911		
	1.6566	1.3714	1.6052	1.4036	2.2007	3.2099		
	1.6670	1.3826	1.6277	1.4462	2.2517	3.1497		
	1.6542	1.3742	1.6203	1.4420	2.2208	3.0194		
	1.6270	1.3539	1.5896	1.4112	2.1136	2.7635		
15	2.7286	2.1459	1.7003	2.4827	4 EFPD 118	% POWER		
	2.7055	2.1929	1.7499	2.5709	100 EFPD 118	% POWER		
	2.6388	2.2217	1.7725	2.6126	200 EFPD 118	% POWER		
	2.5469	2.1750	1.7584	2.5655	300 EFPD 118	% POWER		
	2.3827	2.0590	1.6760	2.4072	400 EFPD 118	% POWER		

Table 3 (continued)

M-sub-C Values (F-sub-Q RPS Margin) - Normal Operations

THIS IS LEVEL 2 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
B	* 1.9702	* 1.5270	* 1.8299	* 1.5145	* 1.8426	* 1.4614	* 1.7883	* 2.9765
	* 2.1175	* 1.6449	* 1.8891	* 1.5586	* 1.8349	* 1.4359	* 1.7741	* 2.9143
	* 2.1326	* 1.6732	* 1.8737	* 1.5590	* 1.7986	* 1.4043	* 1.7517	* 2.7889
	* 2.0688	* 1.6402	* 1.8103	* 1.5216	* 1.7290	* 1.3575	* 1.7020	* 2.6348
	* 1.9538	* 1.5724	* 1.7364	* 1.4775	* 1.6618	* 1.3117	* 1.6218	* 2.3892
9	* 1.5270	* 1.6402	* 1.4594	* 1.6084	* 1.4465	* 1.357	* 1.4792	* 2.3795
	* 1.6449	* 1.6758	* 1.4482	* 1.6032	* 1.4275	* 1.5282	* 1.4802	* 2.3889
	* 1.6732	* 1.6639	* 1.4150	* 1.5776	* 1.3987	* 1.5120	* 1.4693	* 2.3551
	* 1.6402	* 1.6158	* 1.3639	* 1.5282	* 1.3408	* 1.4706	* 1.4242	* 2.2629
	* 1.5724	* 1.5672	* 1.3192	* 1.4906	* 1.2882	* 1.4271	* 1.3558	* 2.0728
10	* 1.8299	* 1.4601	* 1.6092	* 1.4697	* 1.6026	* 1.4464	* 1.7044	* 1.9344
	* 1.8891	* 1.4487	* 1.6032	* 1.4461	* 1.5863	* 1.4269	* 1.7144	* 1.9524
	* 1.8737	* 1.4150	* 1.5757	* 1.4061	* 1.5609	* 1.3993	* 1.7079	* 1.9255
	* 1.8103	* 1.3633	* 1.5223	* 1.3311	* 1.5099	* 1.3534	* 1.6617	* 1.8561
	* 1.7364	* 1.3194	* 1.4832	* 1.2879	* 1.4683	* 1.2946	* 1.5783	* 1.7079
11	* 1.5145	* 1.6100	* 1.4683	* 1.8171	* 1.4529	* 1.6037	* 1.5013	* 2.7712
	* 1.5586	* 1.6040	* 1.4494	* 1.7833	* 1.4301	* 1.6066	* 1.5415	* 2.8041
	* 1.5590	* 1.5784	* 1.4080	* 1.7416	* 1.3993	* 1.6022	* 1.5479	* 2.7692
	* 1.5216	* 1.5282	* 1.3328	* 1.6687	* 1.3379	* 1.5592	* 1.5057	* 2.6570
	* 1.4775	* 1.4902	* 1.2887	* 1.6015	* 1.2898	* 1.4993	* 1.4245	* 2.4164
12	* 1.8426	* 1.4498	* 1.6051	* 1.4549	* 1.6580	* 1.4749	* 2.3388	*
	* 1.8349	* 1.4307	* 1.5887	* 1.4320	* 1.6545	* 1.5070	* 2.3818	*
	* 1.7986	* 1.4005	* 1.5627	* 1.4011	* 1.6405	* 1.5036	* 2.3736	*
	* 1.7290	* 1.3442	* 1.5114	* 1.3396	* 1.5914	* 1.4584	* 2.2908	*
	* 1.6618	* 1.2893	* 1.4683	* 1.2906	* 1.5285	* 1.3875	* 2.1155	*
13	* 1.4614	* 1.5387	* 1.4491	* 1.6053	* 1.4735	* 2.0603	* 3.5469	*
	* 1.4359	* 1.5304	* 1.4295	* 1.6082	* 1.5063	* 2.0976	* 3.5067	*
	* 1.4043	* 1.5134	* 1.4011	* 1.6030	* 1.5055	* 2.0962	* 3.3565	*
	* 1.3575	* 1.4713	* 1.3545	* 1.5599	* 1.4590	* 2.0302	* 3.1466	*
	* 1.3117	* 1.4271	* 1.2946	* 1.4993	* 1.3872	* 1.8880	* 2.7911	*
14	* 1.7883	* 1.4820	* 1.7072	* 1.5021	* 2.3319	* 3.5389	*	
	* 1.7741	* 1.4823	* 1.7163	* 1.5422	* 2.3746	* 3.5021	*	
	* 1.7517	* 1.4706	* 1.7097	* 1.5479	* 2.3657	* 3.3530	*	
	* 1.7020	* 1.4249	* 1.6626	* 1.5057	* 2.2841	* 3.1435	*	
	* 1.6218	* 1.3560	* 1.5783	* 1.4245	* 2.1084	* 2.7862	*	
15	* 2.9765	* 2.3831	* 1.9368	* 2.7736	* 4 EFPD	118 %	POWER	
	* 2.9143	* 2.3924	* 1.9548	* 2.8066	* 100 EFPD	118 %	POWER	
	* 2.7889	* 2.3569	* 1.9257	* 2.7717	* 200 EFPD	118 %	POWER	
	* 2.6348	* 2.2629	* 1.8572	* 2.6591	* 300 EFPD	118 %	POWER	
	* 2.3892	* 2.0736	* 1.7075	* 2.4164	* 400 EFPD	118 %	POWER	

Table 3 (continued)

M-sub-C Values (F-sub-Q RPS Margin) - Normal Operations

THIS IS LEVEL 1 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8	2.8462	2.3237	2.6395	2.2589	2.6133	2.0162	2.6438	4.3771
	2.9623	2.4158	2.6699	2.2663	2.5708	1.9968	2.6066	4.2125
	2.8723	2.3483	2.5713	2.1898	2.4565	1.9225	2.5030	3.9114
	2.6960	2.2173	2.4156	2.0691	2.3096	1.8274	2.3544	3.5987
	2.4328	2.0272	2.2134	1.9101	2.1225	1.6895	2.1265	3.1195
9	2.3237	2.3849	1.9630	2.3494	1.9445	2.2285	2.1779	3.6418
	2.4158	2.4028	1.9673	2.3171	1.9281	2.1927	2.1616	3.5597
	2.3483	2.3223	1.8983	2.2267	1.8597	2.1122	2.0735	3.3593
	2.2173	2.1881	1.7993	2.0938	1.7651	2.0010	1.9637	3.1314
	2.0272	2.0160	1.6794	1.9399	1.6415	1.8148	1.7840	2.7451
10	2.6395	1.9654	2.3546	1.9641	2.3252	1.9604	2.5438	3.1978
	2.6699	1.9685	2.3205	1.9420	2.2805	1.9468	2.5060	3.1360
	2.5713	1.8995	2.2260	1.8664	2.1919	1.8780	2.4014	2.9303
	2.4156	1.8003	2.0896	1.7651	2.0651	1.7840	2.2649	2.7262
	2.2134	1.6794	1.9402	1.6469	1.9085	1.6496	2.0451	2.3778
11	2.2589	2.3511	1.9679	2.5624	1.9827	2.3901	2.3590	4.3234
	2.2663	2.3188	1.9456	2.4981	1.9683	2.3579	2.3582	4.2398
	2.1898	2.2276	1.8686	2.3861	1.8960	2.2714	2.2632	3.9949
	2.0691	2.0952	1.7671	2.2376	1.7942	2.1450	2.1349	3.7128
	1.9101	1.9404	1.6477	2.0545	1.6629	1.9562	1.9152	3.2173
12	2.6133	1.9506	2.3302	1.9052	2.4723	2.2324	3.5436	
	2.5708	1.9339	2.2838	1.9707	2.4297	2.2310	3.5049	
	2.4565	1.8630	2.1950	1.8988	2.3334	2.1465	3.3486	
	2.3096	1.7671	2.0664	1.7932	2.1941	2.0280	3.1314	
	2.1225	1.6424	1.9085	1.6646	2.0011	1.8308	2.7620	
13	2.0162	2.2333	1.9641	2.3919	2.2324	3.1238	5.3727	
	1.9968	2.1957	1.9492	2.3596	2.2297	3.0876	5.1924	
	1.9225	2.1150	1.8802	2.2720	2.1465	2.9549	4.8006	
	1.8274	2.0022	1.7850	2.1450	2.0280	2.7667	4.3761	
	1.6895	1.8448	1.6501	1.9562	1.8302	2.4501	3.7069	
14	2.6438	2.1824	2.5479	2.3607	3.5397	5.3727		
	2.6066	2.1646	2.5080	2.3582	3.4971	5.1839		
	2.5030	2.0749	2.4032	2.2632	3.3400	4.7976		
	2.3544	1.9649	2.2666	2.1349	3.1252	4.3702		
	2.1265	1.7840	2.0451	1.9140	2.7547	3.7025		
15	4.3771	3.6499	3.2010	4.3293	4 EFPD	118 %	POWER	
	4.2125	3.5637	3.1399	4.2408	100 EFPD	118 %	POWER	
	3.9114	3.3593	2.9399	3.9979	200 EFPD	118 %	POWER	
	3.5987	3.1314	2.7262	3.7128	300 EFPD	118 %	POWER	
	3.1195	2.7451	2.3778	3.2173	400 EFPD	118 %	POWER	

Table 4
M-sub-C Values (F-sub-Q RPS Margin) - Power Escalation

AT 118% POWER, 4 EFPD, THIS IS LEVEL 18 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8*	2.4481	2.1728	2.4447	2.2521	2.5534	2.1444	2.6780	4.0464
9*	2.1728	2.2005	1.9511	2.2741	2.0211	2.3131	2.3367	3.5583
10*	2.4447	1.9511	2.2361	1.9864	2.2841	2.0717	2.6096	3.2732
11*	2.2521	2.2745	1.9877	2.4869	2.0492	2.4107	2.5068	4.2041
12*	2.5534	2.0237	2.2874	2.0519	2.3847	2.2915	3.4267	
13*	2.1444	2.3152	2.0734	2.4125	2.2928	2.9228	4.7452	
14*	2.6780	2.3384	2.6118	2.5113	3.4229	4.7399		
15*	4.0464	3.5624	3.2732	4.2056				

AT 118% POWER, 4 EFPD, THIS IS LEVEL 17 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8*	1.7768	1.5035	1.7846	1.5875	1.8980	1.6536	1.8650	2.8645
9*	1.5035	1.5563	1.5135	1.6217	1.5809	1.6675	1.6789	2.4278
10*	1.7846	1.5141	1.5903	1.5520	1.6401	1.5963	1.8312	2.1101
11*	1.5875	1.6217	1.5497	1.8619	1.5958	1.6821	1.6945	2.8472
12*	1.8980	1.5833	1.6427	1.5960	1.6556	1.5952	2.3851	
13*	1.6536	1.6693	1.5986	1.6832	1.5961	2.0022	3.2785	
14*	1.8650	1.6807	1.8323	1.6948	2.3815	3.2751		
15*	2.8645	2.4297	2.1120	2.8498				

AT 118% POWER, 4 EFPD, THIS IS LEVEL 16 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8*	1.6609	1.3679	1.6594	1.4537	1.7617	1.4870	1.6745	2.6039
9*	1.3679	1.4344	1.3874	1.5058	1.4526	1.5321	1.4841	2.1547
10*	1.6594	1.3880	1.4812	1.4280	1.5202	1.4457	1.6421	1.8233
11*	1.4537	1.5051	1.4259	1.7293	1.4224	1.5108	1.4633	2.5193
12*	1.7617	1.4546	1.5219	1.4238	1.4913	1.3900	2.1295	
13*	1.4870	1.5337	1.4470	1.5115	1.3905	1.7815	2.9481	
14*	1.6745	1.4855	1.6436	1.4634	2.1248	2.9419		
15*	2.6039	2.1562	1.8246	2.5213				

AT 118% POWER, 4 EFPD, THIS IS LEVEL 15 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8*	1.7051	1.3834	1.6843	1.4414	1.7470	1.4321	1.6354	2.5657
9*	1.3834	1.4708	1.3901	1.5070	1.4236	1.4977	1.4183	2.0821
10*	1.6843	1.3907	1.5020	1.4209	1.5216	1.4170	1.6086	1.7335
11*	1.4414	1.5063	1.4190	1.7229	1.3829	1.4839	1.4056	2.4569
12*	1.7470	1.4262	1.5238	1.3842	1.4740	1.3422	2.0834	
13*	1.4321	1.5005	1.4185	1.4841	1.3422	1.7530	2.9188	
14*	1.6354	1.4203	1.6096	1.4056	2.0785	2.9134		
15*	2.5657	2.0848	1.7355	2.4593				

AT 118% POWER, 4 EFPD, THIS IS LEVEL 14 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8*	1.8486	1.5041	1.8072	1.5267	1.8551	1.4927	1.7146	2.7139
9*	1.5041	1.6070	1.4680	1.6013	1.4785	1.5631	1.4715	2.1726
10*	1.8072	1.4687	1.5948	1.4941	1.6111	1.4785	1.6648	1.7905
11*	1.5267	1.6013	1.4920	1.8503	1.4650	1.5776	1.4694	2.5491
12*	1.8551	1.4813	1.6136	1.4664	1.5773	1.4202	2.2215	
13*	1.4927	1.5647	1.4806	1.5784	1.4202	1.8746	3.1358	
14*	1.7146	1.4735	1.6665	1.4701	2.2152	3.1264		
15*	2.7139	2.1741	1.7926	2.5511				

Table 4 (continued)
M-sub-C Values (F-sub-Q RPS Margin) - Power Escalation

AT 118% POWER, 4 EFPD, THIS IS LEVEL 13 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8*	1.9887	1.5804	1.9033	1.6045	1.9481	1.5447	1.7867	2.8464
9*	1.5804	1.6989	1.5385	1.6898	1.5287	1.6219	1.5160	2.2551
10*	1.9033	1.5385	1.6826	1.5618	1.6718	1.5272	1.7128	1.8371
11*	1.6045	1.6898	1.5602	1.9114	1.5145	1.6303	1.4884	2.6147
12*	1.9481	1.5317	1.6745	1.5160	1.6543	1.4708	2.2779	
13*	1.5447	1.6244	1.5294	1.6303	1.4708	1.9700	3.2895	
14*	1.7867	1.5182	1.7146	1.4884	2.2713	3.2793		
15 *	2.8464	2.2567	1.8382	2.6169				

AT 118% POWER, 4 EFPD, THIS IS LEVEL 12 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8*	2.2170	1.7548	2.1157	1.7686	2.1474	1.6801	1.9517	3.1200
9*	1.7548	1.8930	1.6947	1.8639	1.6621	1.7676	1.6436	2.4575
10*	2.1157	1.6957	1.8606	1.7125	1.8218	1.6532	1.8562	1.9890
11*	1.7686	1.8661	1.7125	2.0821	1.6315	1.7636	1.6020	2.8412
12*	2.1474	1.6656	1.8250	1.6324	1.7917	1.5816	2.4652	
13*	1.6801	1.7696	1.6550	1.7636	1.5816	2.1314	3.5652	
14*	1.9517	1.6462	1.8584	1.6020	2.4575	3.5572		
15 *	3.1200	2.4594	1.9902	2.8438				

AT 118% POWER, 4 EFPD, THIS IS LEVEL 11 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8*	2.4710	1.9553	2.3458	1.9812	2.4013	1.8681	2.1666	3.4443
9*	1.9553	2.1072	1.8943	2.0918	1.8591	1.9762	1.8274	2.7399
10*	2.3458	1.8943	2.0834	1.9201	2.0442	1.8448	2.0725	2.2114
11*	1.9812	2.0904	1.9177	2.3406	1.8178	1.9713	1.7823	3.1831
12*	2.4013	1.8625	2.0469	1.8188	2.0064	1.7621	2.7615	
13*	1.8681	1.9787	1.8470	1.9713	1.7611	2.3867	4.0052	
14*	2.1666	1.8296	2.0738	1.7823	2.7518	3.99		
15 *	3.4443	2.7422	2.2129	3.1863				

AT 118% POWER, 4 EFPD, THIS IS LEVEL 10 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8*	2.6234	2.0793	2.4906	2.1072	2.5636	2.0109	2.3493	3.7300
9*	2.0793	2.2454	2.0187	2.2343	1.9890	2.1228	1.9750	2.9840
10*	2.4906	2.0200	2.2311	2.0440	2.2015	1.9864	2.2535	2.4012
11*	2.1072	2.2359	2.0413	2.5104	1.9763	2.1459	1.9405	3.4481
12*	2.5636	1.9941	2.2045	1.9788	2.1877	1.9248	3.0068	
13*	2.0109	2.1257	1.9902	2.1474	1.9248	2.6212	4.3422	
14*	2.3493	1.9788	2.2551	1.9405	2.9953	4.3302		
15 *	3.7300	2.9868	2.4031	3.4519				

AT 118% POWER, 4 EFPD, THIS IS LEVEL 9 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8*	2.6039	2.0562	2.4710	2.0876	2.5408	2.0122	2.3581	3.8020
9*	2.0562	2.2232	1.9966	2.2154	1.9941	2.1285	1.9788	3.0154
10*	2.4710	1.9979	2.2107	2.0306	2.2092	1.9915	2.2551	2.4218
11*	2.0876	2.2154	2.0279	2.5205	1.9788	2.1518	1.9417	3.4940
12*	2.5408	1.9992	2.2123	1.9813	2.1969	1.9284	3.0270	
13*	2.0122	2.1314	1.9941	2.1518	1.9284	2.6344	4.4402	
14*	2.3581	1.9826	2.2583	1.9417	3.0154	4.4277		
15 *	3.8020	3.0183	2.4237	3.4979				

Catawba 1 Cycle 9 Core Operating Limits Report

CNEI-0400-24

Appendix A

Page 192 of 204

Revision 6

Table 4 (continued)
M-sub-C Values (F-sub-Q RPS Margin) - Power Escalation

AT 118% POWER, 4 EFPD, THIS IS LEVEL 8 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8*	2.4827	1.9469	2.3388	1.9676	2.3813	1.8749	2.1999	3.5174
9*	1.9469	2.1114	1.8840	2.0945	1.8851	2.0116	1.8448	2.7958
10*	2.3388	1.8851	2.0945	1.9130	2.1001	1.8828	2.1357	2.2482
11*	1.9676	2.0945	1.9106	2.3795	1.8955	2.0616	1.8459	3.2589
12*	2.3813	1.8897	2.1029	1.8978	2.1072	1.8503	2.8750	
13*	1.8749	2.0141	1.8874	2.0630	1.8503	2.5185	4.2256	
14*	2.1999	1.8481	2.1386	1.8470	2.8671	4.2087		
15 *	3.5174	2.7983	2.2515	3.2657				

AT 118% POWER, 4 EFPD, THIS IS LEVEL 7 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8*	2.3131	1.7989	2.1489	1.8020	2.1869	1.7022	2.0064	3.2255
9*	1.7989	1.9493	1.7287	1.9207	1.7087	1.8197	1.6701	2.5449
10*	2.1489	1.7287	1.9243	1.7531	1.9219	1.7069	1.9421	2.0332
11*	1.8020	1.9196	1.7502	2.1938	1.7374	1.8862	1.6837	2.9671
12*	2.1869	1.7125	1.9254	1.7394	1.9663	1.7012	2.6322	
13*	1.7022	1.8229	1.7106	1.8873	1.7003	2.3354	3.8532	
14*	2.0064	1.6728	1.9445	1.6837	2.6234	3.8438		
15 *	3.2255	2.5470	2.0346	2.9699				

AT 118% POWER, 4 EFPD, THIS IS LEVEL 6 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8*	2.1439	1.6637	2.0073	1.6734	2.0393	1.5897	1.8783	3.0387
9*	1.6637	1.8079	1.6060	1.7852	1.5825	1.6898	1.5555	2.3813
10*	2.0073	1.6068	1.7909	1.6294	1.7756	1.5800	1.7928	1.8955
11*	1.6734	1.7852	1.6277	2.0381	1.5955	1.7269	1.5416	2.7663
12*	2.0393	1.5865	1.7796	1.5971	1.8041	1.5610	2.4423	
13*	1.5897	1.6916	1.5833	1.7278	1.5594	2.1577	3.6018	
14*	1.8783	1.5578	1.7948	1.5424	2.4347	3.5905		
15 *	3.0387	2.3849	1.8978	2.7712				

AT 118% POWER, 4 EFPD, THIS IS LEVEL 5 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8*	1.9567	1.5088	1.8307	1.5211	1.8664	1.4576	1.7335	2.8149
9*	1.5088	1.6490	1.4606	1.6311	1.4461	1.5477	1.4236	2.1999
10*	1.8307	1.4607	1.6361	1.4836	1.6227	1.4434	1.6388	1.7374
11*	1.5211	1.6311	1.4815	1.8504	1.4407	1.5686	1.3941	2.5347
12*	1.8664	1.4495	1.6244	1.4421	1.6211	1.3985	2.2076	
13*	1.4576	1.5500	1.4466	1.5693	1.3973	1.9505	3.3101	
14*	1.7335	1.4262	1.6413	1.3948	2.2015	3.2999		
15 *	2.8149	2.2030	1.7394	2.5367				

AT 118% POWER, 4 EFPD, THIS IS LEVEL 4 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8*	1.8871	1.4491	1.7716	1.4652	1.8101	1.4196	1.6907	2.7580
9*	1.4491	1.5858	1.4090	1.5731	1.4023	1.4998	1.3873	2.1562
10*	1.7716	1.4090	1.5770	1.4316	1.5693	1.3998	1.5924	1.7031
11*	1.4652	1.5731	1.4297	1.7945	1.3910	1.5186	1.3546	2.4945
12*	1.8101	1.4061	1.5717	1.3923	1.5639	1.3517	2.1547	
13*	1.4196	1.5020	1.4023	1.5201	1.3511	1.8885	3.2219	
14*	1.6907	1.3882	1.5940	1.3546	2.1474	3.2151		
15 *	2.7580	2.1592	1.7050	2.4965				

Catawba 1 Cycle 9 Core Operating Limits Report

CNEI-0400-24

Appendix A

Page 193 of 204

Revision 6

Table 4 (continued)
M-sub-C Values (F-sub-Q RPS Margin) - Power Escalation

AT 118% POWER, 4 EFPD, THIS IS LEVEL 3 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8*	1.8378	1.4069	1.7188	1.4162	1.7511	1.3861	1.6586	2.7286
9*	1.4069	1.5442	1.3673	1.5248	1.3630	1.4568	1.3611	2.1430
10*	1.7188	1.3679	1.5263	1.3861	1.5232	1.3617	1.5662	1.6975
11*	1.4162	1.5241	1.3849	1.7356	1.3641	1.4899	1.3377	2.4788
12*	1.7511	1.3666	1.5254	1.3653	1.5319	1.3302	2.1257	
13*	1.3861	1.4588	1.3647	1.4913	1.3291	1.8661	3.2009	
14*	1.6586	1.3635	1.5678	1.3377	2.1185	3.1911		
15 *	2.7286	2.1459	1.7003	2.4827				

AT 118% POWER, 4 EFPD, THIS IS LEVEL 2 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8*	1.9702	1.5270	1.8299	1.5145	1.8426	1.4614	1.7883	2.9765
9*	1.5270	1.6402	1.4594	1.6084	1.4465	1.5357	1.4792	2.3795
10*	1.8299	1.4601	1.6092	1.4697	1.6026	1.4464	1.7044	1.9344
11*	1.5145	1.6100	1.4683	1.8171	1.4529	1.6037	1.5013	2.7712
12*	1.8426	1.4498	1.6051	1.4549	1.6580	1.4749	2.3388	
13*	1.4614	1.5387	1.4491	1.6053	1.4735	2.0603	3.5469	
14*	1.7883	1.4820	1.7072	1.5021	2.3319	3.5389		
15 *	2.9765	2.3831	1.9368	2.7736				

AT 118% POWER, 4 EFPD, THIS IS LEVEL 1 OF 18
(LEVEL 18 = TOP OF CORE, LEVEL 1 = BOTTOM)

	H	G	F	E	D	C	B	A
8*	2.8462	2.3237	2.6395	2.2589	2.6133	2.0162	2.6438	4.3771
9*	2.3237	2.3849	1.9630	2.3494	1.9445	2.2285	2.1779	3.6418
10*	2.6395	1.9654	2.3546	1.9641	2.3252	1.9604	2.5438	3.1978
11*	2.2589	2.3511	1.9679	2.5624	1.9827	2.3901	2.3590	4.3234
12*	2.6133	1.9506	2.3302	1.9852	2.4723	2.2324	3.5436	
13*	2.0162	2.2333	1.9641	2.3919	2.2324	3.1238	5.3727	
14*	2.6438	2.1824	2.5479	2.3607	3.5397	5.3727		
15 *	4.3771	3.6499	3.2010	4.3293				

Table 5
F-delta-H/M-delta-H Values - Normal Operations

AT 100% POWER, 4 EFPD

	H	G	F	E	D	C	B	A
8	* 1.0590	* 1.3440	* 1.1220	* 1.3250	* 1.0880	* 1.3300	* 1.1370	* .7040
	* 1.4007	* 1.1241	* 1.3546	* 1.1283	* 1.3590	* 1.1121	* 1.2732	* 1.9991
9	* 1.3440	* 1.2500	* 1.3700	* 1.2540	* 1.3500	* 1.2840	* 1.3290	* .8800
	* 1.1241	* 1.2063	* 1.1161	* 1.1918	* 1.1140	* 1.1602	* 1.1108	* 1.6277
10	* 1.1220	* 1.3690	* 1.2630	* 1.3460	* 1.2460	* 1.3510	* 1.1780	* 1.0570
	* 1.3546	* 1.1168	* 1.1938	* 1.1340	* 1.2134	* 1.1268	* 1.2633	* 1.3765
11	* 1.3250	* 1.2540	* 1.3470	* 1.0940	* 1.3410	* 1.2500	* 1.3290	* .7550
	* 1.1283	* 1.1908	* 1.1323	* 1.3864	* 1.1463	* 1.2189	* 1.1530	* 1.9424
12	* 1.0880	* 1.3470	* 1.2440	* 1.3390	* 1.2100	* 1.3490	* .8820	*
	* 1.3590	* 1.1163	* 1.2153	* 1.1480	* 1.2257	* 1.1189	* 1.7018	*
13	* 1.3300	* 1.2820	* 1.3480	* 1.2490	* 1.3490	* 1.0130	* .6010	*
	* 1.1121	* 1.1619	* 1.1293	* 1.2198	* 1.1190	* 1.4595	* 2.4380	*
14	* 1.1370	* 1.3280	* 1.1770	* 1.3290	* .8840	* .6020	*	*
	* 1.2732	* 1.1124	* 1.2654	* 1.1530	* 1.6964	* 2.4341	*	*
15	* .7040	* .8790	* 1.0560	* .7540	* F-DEL-H			
	* 1.9991	* 1.6277	* 1.3777	* 1.9449	* M-DEL-H			

AT 100% POWER, 100 EFPD

	H	G	F	E	D	C	B	A
8	* .9520	* 1.2170	* 1.0670	* 1.2770	* 1.0860	* 1.3650	* 1.1290	* .7040
	* 1.5526	* 1.2439	* 1.4194	* 1.1718	* 1.3632	* 1.0870	* 1.2861	* 2.0057
9	* 1.2170	* 1.2080	* 1.3800	* 1.2530	* 1.3840	* 1.2860	* 1.3300	* .8490
	* 1.2439	* 1.2553	* 1.0993	* 1.1968	* 1.0901	* 1.1609	* 1.1120	* 1.6861
10	* 1.0670	* 1.3800	* 1.2550	* 1.3790	* 1.2550	* 1.3840	* 1.1520	* 1.0310
	* 1.4194	* 1.0994	* 1.1998	* 1.1076	* 1.2069	* 1.1017	* 1.2887	* 1.4092
11	* 1.2770	* 1.2520	* 1.3800	* 1.1100	* 1.3670	* 1.2310	* 1.2780	* .7200
	* 1.1718	* 1.1967	* 1.1073	* 1.3663	* 1.1186	* 1.2342	* 1.1909	* 2.0321
12	* 1.0860	* 1.3820	* 1.2530	* 1.3650	* 1.1920	* 1.3130	* .8390	*
	* 1.3632	* 1.0915	* 1.2088	* 1.1202	* 1.2421	* 1.1469	* 1.7773	*
13	* 1.3650	* 1.2840	* 1.3820	* 1.2300	* 1.3110	* .9630	* .5890	*
	* 1.0870	* 1.1620	* 1.1033	* 1.2352	* 1.1469	* 1.5286	* 2.4743	*
14	* 1.1290	* 1.3280	* 1.1510	* 1.2780	* .8420	* .5900	*	*
	* 1.2861	* 1.1127	* 1.2901	* 1.1918	* 1.7732	* 2.4743	*	*
15	* .7040	* .8490	* 1.0300	* .7190	* F-DEL-H			
	* 2.0057	* 1.6880	* 1.4105	* 2.0349	* M-DEL-H			

Table 5 (continued)
F-delta-H/M-delta-H Values - Normal Operations

AT 100% POWER, 200 EFPD

	H	G	F	E	D	C	B	A
8	* .9060 *	* 1.1560 *	* 1.0470 *	* 1.2460 *	* 1.0870 *	* 1.3720 *	* 1.1140 *	* .7090 *
	* 1.6001 *	* 1.3143 *	* 1.4495 *	* 1.2029 *	* 1.3652 *	* 1.0836 *	* 1.3039 *	* 1.9979 *
9	* 1.1560 *	* 1.1830 *	* 1.3820 *	* 1.2460 *	* 1.3860 *	* 1.2770 *	* 1.3110 *	* .8320 *
	* 1.3143 *	* 1.2857 *	* 1.1017 *	* 1.2065 *	* 1.0910 *	* 1.1701 *	* 1.1280 *	* 1.7168 *
10	* 1.0470 *	* 1.3820 *	* 1.2500 *	* 1.3860 *	* 1.2550 *	* 1.3850 *	* 1.1310 *	* 1.0120 *
	* 1.4495 *	* 1.1016 *	* 1.2094 *	* 1.1037 *	* 1.2123 *	* 1.1014 *	* 1.3126 *	* 1.4376 *
11	* 1.2460 *	* 1.2450 *	* 1.3840 *	* 1.1170 *	* 1.3770 *	* 1.2090 *	* 1.2470 *	* .7020 *
	* 1.2029 *	* 1.2074 *	* 1.1053 *	* 1.3597 *	* 1.1116 *	* 1.2539 *	* 1.2205 *	* 2.0834 *
12	* 1.0870 *	* 1.3840 *	* 1.2530 *	* 1.3760 *	* 1.1720 *	* 1.2870 *	* .8150 *	
	* 1.3652 *	* 1.0925 *	* 1.2136 *	* 1.1125 *	* 1.2603 *	* 1.1682 *	* 1.8286 *	
13	* 1.3720 *	* 1.2760 *	* 1.3830 *	* 1.2090 *	* 1.2860 *	* .9300 *	* .5890 *	
	* 1.0836 *	* 1.1712 *	* 1.1030 *	* 1.2540 *	* 1.1691 *	* 1.5791 *	* 2.4739 *	
14	* 1.1140 *	* 1.3100 *	* 1.1300 *	* 1.2460 *	* .8170 *	* .5890 *		
	* 1.3039 *	* 1.1288 *	* 1.3135 *	* 1.2205 *	* 1.8221 *	* 2.4698 *		
15	* .7090 *	* .8310 *	* 1.0110 *	* .7020 *	F-DEL-H			
	* 1.9979 *	* 1.7168 *	* 1.4376 *	* 2.0843 *	M-DEL-H			

AT 100% POWER, 300 EFPD

	H	G	F	E	D	C	B	A
8	* .8840 *	* 1.1200 *	* 1.0280 *	* 1.2150 *	* 1.0810 *	* 1.3590 *	* 1.1010 *	* .7240 *
	* 1.6410 *	* 1.3381 *	* 1.4743 *	* 1.2335 *	* 1.3744 *	* 1.0937 *	* 1.3219 *	* 1.9282 *
9	* 1.1200 *	* 1.1550 *	* 1.3600 *	* 1.2240 *	* 1.3740 *	* 1.2580 *	* 1.2980 *	* .8380 *
	* 1.3381 *	* 1.2956 *	* 1.1208 *	* 1.2277 *	* 1.0991 *	* 1.1878 *	* 1.1414 *	* 1.7116 *
10	* 1.0280 *	* 1.3610 *	* 1.2310 *	* 1.3850 *	* 1.2410 *	* 1.3690 *	* 1.1180 *	* 1.0110 *
	* 1.4743 *	* 1.1201 *	* 1.2321 *	* 1.1108 *	* 1.2273 *	* 1.1136 *	* 1.3301 *	* 1.4434 *
11	* 1.2150 *	* 1.2240 *	* 1.3840 *	* 1.1150 *	* 1.3770 *	* 1.1910 *	* 1.2320 *	* .7070 *
	* 1.2335 *	* 1.2286 *	* 1.1124 *	* 1.3634 *	* 1.1118 *	* 1.2731 *	* 1.2370 *	* 2.0791 *
12	* 1.0810 *	* 1.3710 *	* 1.2400 *	* 1.3750 *	* .1550 *	* 1.2680 *	* .8120 *	
	* 1.3744 *	* 1.1014 *	* 1.2283 *	* 1.1128 *	* 1.2791 *	* 1.1864 *	* 1.8412 *	
13	* 1.3590 *	* 1.2580 *	* 1.3680 *	* 1.1910 *	* 1.2670 *	* .9210 *	* .6050 *	
	* 1.0937 *	* 1.1888 *	* 1.1151 *	* 1.2731 *	* 1.1871 *	* 1.5687 *	* 2.3624 *	
14	* 1.1010 *	* 1.2970 *	* 1.1180 *	* 1.2320 *	* .8140 *	* .6060 *		
	* 1.3219 *	* 1.1414 *	* 1.3304 *	* 1.2371 *	* 1.8346 *	* 2.3586 *		
15	* .7240 *	* .8380 *	* 1.0110 *	* .7070 *	F-DEL-H			
	* 1.9282 *	* 1.7116 *	* 1.4437 *	* 2.0797 *	M-DEL-H			

Table 5 (continued)
F-delta-H/M-delta-H Values - Normal Operations

AT 100% POWER, 400 EFPD

	H	G	F	E	D	C	B	A
8	* .8790 *	* 1.0980 *	* 1.0130 *	* 1.1850 *	* 1.0680 *	* 1.3340 *	* 1.0930 *	* .7490 *
	* 1.6516 *	* 1.3627 *	* 1.4821 *	* 1.2538 *	* 1.4044 *	* 1.1252 *	* 1.3237 *	* 1.8918 *
9	* 1.0980 *	* 1.1270 *	* 1.3260 *	* 1.1930 *	* 1.3580 *	* 1.2320 *	* 1.2870 *	* .8590 *
	* 1.3627 *	* 1.3274 *	* 1.1576 *	* 1.2457 *	* 1.1199 *	* 1.2229 *	* 1.1630 *	* 1.6640 *
10	* 1.0130 *	* 1.3260 *	* 1.2000 *	* 1.3580 *	* 1.2120 *	* 1.3490 *	* 1.1130 *	* 1.0310 *
	* 1.4821 *	* 1.1581 *	* 1.2484 *	* 1.1368 *	* 1.2399 *	* 1.1392 *	* 1.3514 *	* 1.4367 *
11	* 1.1850 *	* 1.1920 *	* 1.3570 *	* 1.1020 *	* 1.3550 *	* 1.1740 *	* 1.2270 *	* .7310 *
	* 1.2538 *	* 1.2458 *	* 1.1373 *	* 1.3548 *	* 1.1302 *	* 1.2714 *	* 1.2458 *	* 2.0321 *
12	* 1.0680 *	* 1.3570 *	* 1.2110 *	* 1.3540 *	* 1.1360 *	* 1.2540 *	* .8280 *	
	* 1.4044 *	* 1.1207 *	* 1.2410 *	* 1.1310 *	* 1.2746 *	* 1.2029 *	* 1.7747 *	
13	* 1.3340 *	* 1.2320 *	* 1.3490 *	* 1.1740 *	* 1.2540 *	* .9300 *	* .6380 *	
	* 1.1252 *	* 1.2234 *	* 1.1396 *	* 1.2715 *	* 1.2030 *	* 1.5563 *	* 2.2506 *	
14	* 1.0930 *	* 1.2870 *	* 1.1130 *	* 1.2280 *	* .8310 *	* .6390 *		
	* 1.3237 *	* 1.1636 *	* 1.3514 *	* 1.2458 *	* 1.7686 *	* 2.2472 *		
15	* .7490 *	* .8590 *	* 1.0310 *	* .7300 *	F-DEL-H			
	* 1.8918 *	* 1.6651 *	* 1.4367 *	* 2.0322 *	M-DEL-H			

AT 75% POWER, 4 EFPD

	H	G	F	E	D	C	B	A
8	* 1.0150 *	* 1.3080 *	* 1.1140 *	* 1.3410 *	* 1.1010 *	* 1.3630 *	* 1.1620 *	* .7130 *
	* 1.6988 *	* 1.3927 *	* 1.6185 *	* 1.3213 *	* 1.5920 *	* 1.3089 *	* 1.5129 *	* 2.3531 *
9	* 1.3080 *	* 1.2510 *	* 1.3780 *	* 1.2680 *	* 1.3730 *	* 1.3080 *	* 1.3620 *	* .8920 *
	* 1.3927 *	* 1.4371 *	* 1.3466 *	* 1.3899 *	* 1.3238 *	* 1.3685 *	* 1.3066 *	* 1.9277 *
10	* 1.1140 *	* 1.3770 *	* 1.2720 *	* 1.3610 *	* 1.2610 *	* 1.3730 *	* 1.1940 *	* 1.0730 *
	* 1.6185 *	* 1.3465 *	* 1.4000 *	* 1.3598 *	* 1.4256 *	* 1.3358 *	* 1.4918 *	* 1.6299 *
11	* 1.3410 *	* 1.2670 *	* 1.3620 *	* 1.0700 *	* 1.3430 *	* 1.2470 *	* 1.3380 *	* .7580 *
	* 1.3213 *	* 1.3892 *	* 1.3627 *	* 1.7173 *	* 1.4113 *	* 1.4981 *	* 1.4001 *	* 2.3281 *
12	* 1.1010 *	* 1.3700 *	* 1.2580 *	* 1.3410 *	* 1.1070 *	* 1.3180 *	* .8680 *	
	* 1.5920 *	* 1.3258 *	* 1.4285 *	* 1.4123 *	* 1.5033 *	* 1.3728 *	* 2.1139 *	
13	* 1.3630 *	* 1.3060 *	* 1.3710 *	* 1.2450 *	* 1.3190 *	* .9650 *	* .5760 *	
	* 1.3089 *	* 1.3706 *	* 1.3381 *	* 1.4989 *	* 1.3729 *	* 1.8022 *	* 3.0582 *	
14	* 1.1620 *	* 1.3590 *	* 1.1930 *	* 1.3370 *	* .8700 *	* .5780 *		
	* 1.5129 *	* 1.3085 *	* 1.4935 *	* 1.4004 *	* 2.1093 *	* 3.0498 *		
15	* .7130 *	* .8910 *	* 1.0710 *	* .7570 *	F-DEL-H			
	* 2.3531 *	* 1.9298 *	* 1.6314 *	* 2.3314 *	M-DEL-H			

Table 5 (continued)
F-delta-H/M-delta-H Values - Normal Operations

AT 75% POWER, 100 EFPD

	H	G	F	E	D	C	B	A
8	* .9080	* 1.1870	* 1.0660	* 1.2960	* 1.1040	* 1.4040	* 1.1570	* .7140
	* 1.8922	* 1.5142	* 1.6804	* 1.3747	* 1.5985	* 1.2801	* 1.5305	* 2.3628
9	* 1.1870	* 1.2120	* 1.4010	* 1.2710	* 1.4110	* 1.3140	* 1.3640	* .8620
	* 1.5142	* 1.4854	* 1.3223	* 1.4019	* 1.2956	* 1.3703	* 1.3108	* 2.0042
10	* 1.0660	* 1.4010	* 1.2710	* 1.4000	* 1.2740	* 1.4100	* 1.1710	* 1.0460
	* 1.6804	* 1.3223	* 1.4076	* 1.3216	* 1.4177	* 1.3053	* 1.5249	* 1.6742
11	* 1.2960	* 1.2700	* 1.4000	* 1.0840	* 1.3630	* 1.2250	* 1.2840	* .7220
	* 1.3747	* 1.4028	* 1.3244	* 1.6906	* 1.3763	* 1.5189	* 1.4467	* 2.4428
12	* 1.1040	* 1.4090	* 1.2710	* 1.3610	* 1.0810	* 1.2670	* .8210	*
	* 1.5985	* 1.2974	* 1.4208	* 1.3782	* 1.5283	* 1.4118	* 2.2157	*
13	* 1.4040	* 1.3120	* 1.4070	* 1.2240	* 1.2670	* .9050	* .5600	*
	* 1.2801	* 1.3723	* 1.3080	* 1.5201	* 1.4119	* 1.8958	* 3.1241	*
14	* 1.1570	* 1.3620	* 1.1700	* 1.2840	* .8230	* .5600	*	*
	* 1.5305	* 1.3126	* 1.5261	* 1.4479	* 2.2104	* 3.1189	*	*
15	* .7140	* .8610	* 1.0450	* .7210	F-DEL-H			
	* 2.3628	* 2.0061	* 1.6758	* 2.4461	M-DEL-H			

AT 75% POWER, 200 EFPD

	H	G	F	E	D	C	B	A
8	* .8570	* 1.1390	* 1.0480	* 1.2690	* 1.1110	* 1.4190	* 1.1470	* .7220
	* 1.9941	* 1.6008	* 1.7075	* 1.4076	* 1.5916	* 1.2771	* 1.5181	* 2.3492
9	* 1.1390	* 1.1910	* 1.4100	* 1.2700	* 1.4180	* 1.3100	* 1.3500	* .8470
	* 1.6008	* 1.5183	* 1.3233	* 1.4107	* 1.2960	* 1.3815	* 1.3327	* 2.0214
10	* 1.0480	* 1.4100	* 1.2710	* 1.4150	* 1.2760	* 1.4160	* 1.1520	* 1.0270
	* 1.7075	* 1.3232	* 1.4165	* 1.3144	* 1.4158	* 1.3048	* 1.5575	* 1.7154
11	* 1.2690	* 1.2690	* 1.4120	* 1.0930	* 1.3680	* 1.2000	* 1.2540	* .7040
	* 1.4076	* 1.4122	* 1.3162	* 1.6804	* 1.3650	* 1.5448	* 1.4761	* 2.4894
12	* 1.1110	* 1.4160	* 1.2740	* 1.3640	* 1.0590	* 1.2170	* .7910	*
	* 1.5916	* 1.2978	* 1.4169	* 1.3670	* 1.5532	* 1.4422	* 2.2893	*
13	* 1.4190	* 1.3090	* 1.4140	* 1.1990	* 1.2160	* .8580	* .5530	*
	* 1.2771	* 1.3826	* 1.3066	* 1.5453	* 1.4438	* 1.9219	* 3.0580	*
14	* 1.1470	* 1.3490	* 1.1510	* 1.2530	* .7930	* .5540	*	*
	* 1.5181	* 1.3346	* 1.5588	* 1.4762	* 2.2827	* 3.0550	*	*
15	* .7220	* .8460	* 1.0270	* .7030	F-DEL-H			
	* 2.3492	* 2.0237	* 1.7169	* 2.4929	M-DEL-H			

Table 5 (continued)
F-delta-H/M-delta-H Values - Normal Operations

AT 75% POWER, 300 EFPD

	H	G	F	E	D	C	B	A
8	* .8240	* 1.1030	* 1.0360	* 1.2440	* 1.1120	* 1.4150	* 1.1410	* .7410
	* 2.0529	* 1.6568	* 1.7325	* 1.4397	* 1.5963	* 1.2887	* 1.5333	* 2.3128
9	* 1.1030	* 1.1650	* 1.3940	* 1.2540	* 1.4210	* 1.2980	* 1.3420	* .8580
	* 1.6568	* 1.5547	* 1.3149	* 1.4276	* 1.2977	* 1.3772	* 1.3357	* 2.0121
10	* 1.0360	* 1.3940	* 1.2550	* 1.4170	* 1.2670	* 1.4070	* 1.1430	* 1.0320
	* 1.7325	* 1.3148	* 1.4377	* 1.3273	* 1.4272	* 1.3179	* 1.5527	* 1.7064
11	* 1.2440	* 1.2530	* 1.4150	* 1.0920	* 1.3610	* 1.1790	* 1.2390	* .7100
	* 1.4397	* 1.4287	* 1.3282	* 1.6444	* 1.3638	* 1.5324	* 1.4795	* 2.4563
12	* 1.1120	* 1.4180	* 1.2650	* 1.3590	* 1.0330	* 1.1810	* .7820	*
	* 1.5963	* 1.3013	* 1.4284	* 1.3655	* 1.5359	* 1.4669	* 2.2487	*
13	* 1.4150	* 1.2970	* 1.4050	* 1.1790	* 1.1810	* .8310	* .5610	*
	* 1.2887	* 1.3782	* 1.3191	* 1.5325	* 1.4680	* 1.9423	* 2.9919	*
14	* 1.1410	* 1.3410	* 1.1430	* 1.2390	* .7850	* .5620	*	*
	* 1.5333	* 1.3357	* 1.5539	* 1.4796	* 2.2434	* 2.9870	*	*
15	* .7410	* .8580	* 1.0320	* .7100	F-DEL-H			
	* 2.3128	* 2.0121	* 1.7065	* 2.4564	M-DEL-H			

AT 75% POWER, 400 EFPD

	H	G	F	E	D	C	B	A
8	* .7990	* 1.0780	* 1.0290	* 1.2230	* 1.1100	* 1.4060	* 1.1480	* .7790
	* 2.1015	* 1.7119	* 1.7567	* 1.4723	* 1.6082	* 1.2835	* 1.5419	* 2.2436
9	* 1.0780	* 1.1410	* 1.3680	* 1.2320	* 1.4140	* 1.2820	* 1.3450	* .8910
	* 1.7119	* 1.5946	* 1.3421	* 1.4572	* 1.2870	* 1.3988	* 1.3366	* 1.9682
10	* 1.0290	* 1.3670	* 1.2290	* 1.3970	* 1.2440	* 1.3920	* 1.1480	* 1.0670
	* 1.7567	* 1.3423	* 1.4708	* 1.3179	* 1.4502	* 1.3159	* 1.5576	* 1.6737
11	* 1.2230	* 1.2320	* 1.3960	* 1.0750	* 1.3300	* 1.1560	* 1.2360	* .7380
	* 1.4723	* 1.4579	* 1.3188	* 1.6861	* 1.3772	* 1.5804	* 1.4819	* 2.4078
12	* 1.1100	* 1.4130	* 1.2430	* 1.3280	* .9880	* 1.1410	* .7900	*
	* 1.6082	* 1.2882	* 1.4514	* 1.3783	* 1.5955	* 1.4853	* 2.2616	*
13	* 1.4060	* 1.2820	* 1.3920	* 1.1560	* 1.1410	* .8140	* .5800	*
	* 1.2835	* 1.3989	* 1.3160	* 1.5805	* 1.4853	* 1.9859	* 2.9338	*
14	* 1.1480	* 1.3450	* 1.1480	* 1.2370	* .7930	* .5810	*	*
	* 1.5419	* 1.3367	* 1.5581	* 1.4819	* 2.2537	* 2.9293	*	*
15	* .7790	* .8910	* 1.0670	* .7380	F-DEL-H			
	* 2.2436	* 1.9682	* 1.6737	* 2.4079	M-DEL-H			

Table 5 (continued)
F-delta-H/M-delta-H Values - Normal Operations

AT 50% POWER, 4 EFPD

	H	G	F	E	D	C	B	A
8	* .9760 *	* 1.2750 *	* 1.1080 *	* 1.3580 *	* 1.1140 *	* 1.3980 *	* 1.1870 *	* .7210 *
	* 2.2293 *	* 1.7887 *	* 2.1516 *	* 1.7387 *	* 2.1071 *	* 1.7164 *	* 1.9606 *	* 3.1537 *
9	* 1.2750 *	* 1.2530 *	* 1.3880 *	* 1.2830 *	* 1.3970 *	* 1.3330 *	* 1.3940 *	* .9030 *
	* 1.7887 *	* 1.8925 *	* 1.7445 *	* 1.8323 *	* 1.7429 *	* 1.7937 *	* 1.7493 *	* 2.5787 *
10	* 1.1080 *	* 1.3880 *	* 1.2830 *	* 1.3770 *	* 1.2770 *	* 1.3970 *	* 1.2120 *	* 1.0850 *
	* 2.1516 *	* 1.7443 *	* 1.8435 *	* 1.7742 *	* 1.8804 *	* 1.8004 *	* 1.9863 *	* 2.2271 *
11	* 1.3580 *	* 1.2820 *	* 1.3780 *	* 1.0470 *	* 1.3440 *	* 1.2430 *	* 1.3430 *	* .7590 *
	* 1.7387 *	* 1.8320 *	* 1.7728 *	* 2.2042 *	* 1.8160 *	* 1.9219 *	* 1.8714 *	* 3.1845 *
12	* 1.1140 *	* 1.3930 *	* 1.2740 *	* 1.3420 *	* 1.0640 *	* 1.2840 *	* .8520 *	
	* 2.1071 *	* 1.7463 *	* 1.8840 *	* 1.8177 *	* 1.9107 *	* 1.7908 *	* 2.7454 *	
13	* 1.3980 *	* 1.3310 *	* 1.3940 *	* 1.2420 *	* 1.2850 *	* .9160 *	* .5520 *	
	* 1.7164 *	* 1.7976 *	* 1.8046 *	* 1.9220 *	* 1.7908 *	* 2.3104 *	* 3.9525 *	
14	* 1.1870 *	* 1.3920 *	* 1.2110 *	* 1.3420 *	* .8550 *	* .5530 *		
	* 1.9606 *	* 1.7530 *	* 1.9882 *	* 1.8714 *	* 2.7367 *	* 3.9462 *		
15	* .7210 *	* .9020 *	* 1.0840 *	* .7580 *	F-DEL-H			
	* 3.1537 *	* 2.5815 *	* 2.2294 *	* 3.1888 *	M-DEL-H			

AT 50% POWER, 100 EFPD

	H	G	F	E	D	C	B	A
8	* .8520 *	* 1.1710 *	* 1.0710 *	* 1.3270 *	* 1.1340 *	* 1.4620 *	* 1.1900 *	* .7310 *
	* 2.5113 *	* 2.0051 *	* 2.2062 *	* 1.7896 *	* 2.0818 *	* 1.6473 *	* 1.9519 *	* 3.1238 *
9	* 1.1710 *	* 1.2220 *	* 1.4310 *	* 1.2990 *	* 1.4500 *	* 1.3560 *	* 1.4140 *	* .8830 *
	* 2.0051 *	* 1.9398 *	* 1.6948 *	* 1.8226 *	* 1.6772 *	* 1.7620 *	* 1.7032 *	* 2.6279 *
10	* 1.0710 *	* 1.4300 *	* 1.2850 *	* 1.4310 *	* 1.3000 *	* 1.4480 *	* 1.1990 *	* 1.0680 *
	* 2.2062 *	* 1.6952 *	* 1.8301 *	* 1.7077 *	* 1.8380 *	* 1.6968 *	* 1.9829 *	* 2.2347 *
11	* 1.3270 *	* 1.2980 *	* 1.4290 *	* 1.0630 *	* 1.3580 *	* 1.2130 *	* 1.2890 *	* .7270 *
	* 1.7896 *	* 1.8239 *	* 1.7110 *	* 2.1722 *	* 1.7725 *	* 1.9483 *	* 1.9142 *	* 3.2541 *
12	* 1.1340 *	* 1.4470 *	* 1.2980 *	* 1.3560 *	* 1.0060 *	* 1.1930 *	* .7940 *	
	* 2.0818 *	* 1.6804 *	* 1.8416 *	* 1.7738 *	* 1.9419 *	* 1.8115 *	* 2.8679 *	
13	* 1.4620 *	* 1.3530 *	* 1.4450 *	* 1.2120 *	* 1.1930 *	* .8160 *	* .5200 *	
	* 1.6473 *	* 1.7645 *	* 1.7004 *	* 1.9499 *	* 1.8116 *	* 2.4235 *	* 4.0374 *	
14	* 1.1900 *	* 1.4110 *	* 1.1980 *	* 1.2880 *	* .7960 *	* .5210 *		
	* 1.9519 *	* 1.7056 *	* 1.9855 *	* 1.9142 *	* 2.8615 *	* 4.0307 *		
15	* .7310 *	* .8820 *	* 1.0670 *	* .7260 *	F-DEL-H			
	* 3.1238 *	* 2.6307 *	* 2.2368 *	* 3.2586 *	M-DEL-H			

Table 5 (continued)
F-delta-H/M-delta-H Values - Normal Operations

AT 50% POWER, 200 EFPD

	H	G	F	E	D	C	B	A
8	* .7930 *	* 1.1190 *	* 1.0590 *	* 1.3010 *	* 1.1480 *	* 1.4780 *	* 1.1380 *	* .7280 *
	* 2.6597 *	* 2.1307 *	* 2.2411 *	* 1.8358 *	* 2.0769 *	* 1.6330 *	* 1.9720 *	* 3.1097 *
9	* 1.1190 *	* 1.1900 *	* 1.4260 *	* 1.2980 *	* 1.4680 *	* 1.3590 *	* 1.3990 *	* .8680 *
	* 2.1307 *	* 1.9827 *	* 1.6906 *	* 1.8303 *	* 1.6686 *	* 1.7653 *	* 1.7157 *	* 2.6756 *
10	* 1.0590 *	* 1.4260 *	* 1.2320 *	* 1.4530 *	* 1.3090 *	* 1.4650 *	* 1.1860 *	* 1.0550 *
	* 2.2411 *	* 1.6904 *	* 1.8372 *	* 1.6899 *	* 1.8191 *	* 1.6605 *	* 1.9722 *	* 2.2084 *
11	* 1.3010 *	* 1.2960 *	* 1.4500 *	* 1.0800 *	* 1.3660 *	* 1.1960 *	* 1.2730 *	* .7150 *
	* 1.8358 *	* 1.8321 *	* 1.6934 *	* 2.1545 *	* 1.7524 *	* 1.9587 *	* 1.8179 *	* 3.1114 *
12	* 1.1480 *	* 1.4660 *	* 1.3070 *	* 1.3620 *	* .9800 *	* 1.1420 *	* .7690 *	
	* 2.0769 *	* 1.6710 *	* 1.8218 *	* 1.7549 *	* 1.9704 *	* 1.8507 *	* 2.9563 *	
13	* 1.4780 *	* 1.3570 *	* 1.4630 *	* 1.1950 *	* 1.1420 *	* .7690 *	* .5150 *	
	* 1.6330 *	* 1.7679 *	* 1.6638 *	* 1.9603 *	* 1.8530 *	* 2.5131 *	* 4.0625 *	
14	* 1.1380 *	* 1.3970 *	* 1.1850 *	* 1.2720 *	* .7710 *	* .5160 *		
	* 1.9720 *	* 1.7168 *	* 1.9738 *	* 1.8192 *	* 2.9494 *	* 4.0626 *		
15	* .7280 *	* .8680 *	* 1.0540 *	* .7140 *	F-DEL-H			
	* 3.1097 *	* 2.6763 *	* 2.2103 *	* 3.1153 *	M-DEL-H			

AT 50% POWER, 300 EFPD

	H	G	F	E	D	C	B	A
8	* .7550 *	* 1.0770 *	* 1.0420 *	* 1.2720 *	* 1.1500 *	* 1.4730 *	* 1.1170 *	* .7350 *
	* 2.7547 *	* 2.2103 *	* 2.2783 *	* 1.8796 *	* 2.0797 *	* 1.6356 *	* 1.9908 *	* 3.0620 *
9	* 1.0770 *	* 1.1500 *	* 1.3920 *	* 1.2840 *	* 1.4840 *	* 1.3490 *	* 1.3900 *	* .8750 *
	* 2.2103 *	* 2.0346 *	* 1.7084 *	* 1.8499 *	* 1.6478 *	* 1.7758 *	* 1.7298 *	* 2.6620 *
10	* 1.0420 *	* 1.3920 *	* 1.1680 *	* 1.4450 *	* 1.3030 *	* 1.4620 *	* 1.1810 *	* 1.0630 *
	* 2.2783 *	* 1.7083 *	* 1.8633 *	* 1.6931 *	* 1.8019 *	* 1.6379 *	* 1.9580 *	* 2.1836 *
11	* 1.2720 *	* 1.2830 *	* 1.4430 *	* 1.0830 *	* 1.3590 *	* 1.1870 *	* 1.2680 *	* .7270 *
	* 1.8796 *	* 1.8513 *	* 1.6955 *	* 2.1504 *	* 1.7404 *	* 1.9440 *	* 1.8062 *	* 3.0531 *
12	* 1.1500 *	* 1.4790 *	* 1.3020 *	* 1.3560 *	* .9590 *	* 1.1150 *	* .7690 *	
	* 2.0797 *	* 1.6521 *	* 1.8039 *	* 1.7430 *	* 1.9967 *	* 1.8771 *	* 2.9247 *	
13	* 1.4730 *	* 1.3480 *	* 1.4610 *	* 1.1860 *	* 1.1150 *	* .7570 *	* .5300 *	
	* 1.6356 *	* 1.7771 *	* 1.6401 *	* 1.9450 *	* 1.8772 *	* 2.5528 *	* 3.9996 *	
14	* 1.1170 *	* 1.3890 *	* 1.1810 *	* 1.2680 *	* .7710 *	* .5310 *		
	* 1.9908 *	* 1.7306 *	* 1.9596 *	* 1.8070 *	* 2.9178 *	* 3.9930 *		
15	* .7350 *	* .8750 *	* 1.0620 *	* .7260 *	F-DEL-H			
	* 3.0620 *	* 2.6630 *	* 2.1836 *	* 3.0556 *	M-DEL-H			

Table 5 (continued)
F-delta-H/M-delta-H Values - Normal Operations

AT 50% POWER, 400 EFPD

	H	G	F	E	D	C	B	A
8	* .7280 *	* 1.0440 *	* 1.0250 *	* 1.2430 *	* 1.1470 *	* 1.4540 *	* 1.1030 *	* .7540 *
	* 2.7337 *	* 2.2623 *	* 2.3100 *	* 1.9225 *	* 2.0876 *	* 1.6517 *	* 1.9996 *	* 2.9702 *
9	* 1.0440 *	* 1.1060 *	* 1.3470 *	* 1.2560 *	* 1.4780 *	* 1.3340 *	* 1.3890 *	* .9030 *
	* 2.2623 *	* 2.0896 *	* 1.7408 *	* 1.8870 *	* 1.6591 *	* 1.8055 *	* 1.7345 *	* 2.6075 *
10	* 1.0250 *	* 1.3470 *	* 1.1170 *	* 1.4220 *	* 1.2870 *	* 1.4550 *	* 1.1910 *	* 1.0980 *
	* 2.3100 *	* 1.7412 *	* 1.9059 *	* 1.7038 *	* 1.8459 *	* 1.6585 *	* 1.9820 *	* 2.1668 *
11	* 1.2430 *	* 1.2550 *	* 1.4210 *	* 1.0680 *	* 1.3360 *	* 1.1800 *	* 1.2810 *	* .7640 *
	* 1.9225 *	* 1.8885 *	* 1.7051 *	* 2.1650 *	* 1.7552 *	* 1.9752 *	* 1.8198 *	* 2.9865 *
12	* 1.1470 *	* 1.4760 *	* 1.2860 *	* 1.3360 *	* .9280 *	* 1.1040 *	* .7920 *	
	* 2.0876 *	* 1.6609 *	* 1.8474 *	* 1.7565 *	* 2.0294 *	* 1.8993 *	* 2.8811 *	
13	* 1.4540 *	* 1.3340 *	* 1.4540 *	* 1.1800 *	* 1.1040 *	* .7680 *	* .5630 *	
	* 1.6517 *	* 1.8062 *	* 1.6597 *	* 1.9753 *	* 1.8994 *	* 2.5504 *	* 3.8447 *	
14	* 1.1030 *	* 1.3890 *	* 1.1910 *	* 1.2810 *	* .7950 *	* .5640 *		
	* 1.9996 *	* 1.7351 *	* 1.9820 *	* 1.8197 *	* 2.8707 *	* 3.8439 *		
15	* .7540 *	* .9030 *	* 1.0990 *	* .7630 *	F-DEL-H			
	* 2.9702 *	* 2.6076 *	* 2.1649 *	* 2.9864 *	M-DEL-H			

Table 6
F-delta-H/M-delta-H Values - Power Escalation

AT 100% POWER, 4 EFPD

	H	G	F	E	D	C	B	A
8	* 1.0550 *	* 1.3410 *	* 1.1220 *	* 1.3270 *	* 1.0890 *	* 1.3320 *	* 1.1390 *	* .7060 *
	* 1.4007 *	* 1.1241 *	* 1.3546 *	* 1.1283 *	* 1.3590 *	* 1.1121 *	* 1.2732 *	* 1.9991 *
9	* 1.3410 *	* 1.2500 *	* 1.3700 *	* 1.2550 *	* 1.3520 *	* 1.2850 *	* 1.3320 *	* .8810 *
	* 1.1241 *	* 1.2063 *	* 1.1161 *	* 1.1918 *	* 1.1140 *	* 1.1602 *	* 1.1108 *	* 1.6277 *
10	* 1.1220 *	* 1.3700 *	* 1.2630 *	* 1.3470 *	* 1.2470 *	* 1.3520 *	* 1.1790 *	* 1.0580 *
	* 1.3546 *	* 1.1168 *	* 1.1938 *	* 1.1340 *	* 1.2134 *	* 1.1268 *	* 1.2633 *	* 1.3765 *
11	* 1.3270 *	* 1.2540 *	* 1.3480 *	* 1.0920 *	* 1.3400 *	* 1.2490 *	* 1.3290 *	* .7550 *
	* 1.1283 *	* 1.1908 *	* 1.1323 *	* 1.3864 *	* 1.1463 *	* 1.2189 *	* 1.1530 *	* 1.9424 *
12	* 1.0890 *	* 1.3490 *	* 1.2440 *	* 1.3390 *	* 1.1980 *	* 1.3450 *	* .8810 *	
	* 1.3590 *	* 1.1163 *	* 1.2153 *	* 1.1480 *	* 1.2257 *	* 1.1189 *	* 1.7018 *	
13	* 1.3320 *	* 1.2830 *	* 1.3490 *	* 1.2480 *	* 1.3460 *	* 1.0090 *	* .5990 *	
	* 1.1121 *	* 1.1619 *	* 1.1293 *	* 1.2198 *	* 1.1190 *	* 1.4595 *	* 2.4380 *	
14	* 1.1390 *	* 1.3290 *	* 1.1780 *	* 1.3290 *	* .8830 *	* .6010 *		
	* 1.2732 *	* 1.1124 *	* 1.2654 *	* 1.1530 *	* 1.6964 *	* 2.4341 *		
15	* .7060 *	* .8800 *	* 1.0570 *	* .7550 *	F-DEL-H			
	* 1.9991 *	* 1.6277 *	* 1.3777 *	* 1.9449 *	M-DEL-H			

AT 75% POWER, 4 EFPD

	H	G	F	E	D	C	B	A
8	* 1.0390 *	* 1.3290 *	* 1.1150 *	* 1.3310 *	* 1.0900 *	* 1.3460 *	* 1.1470 *	* .7030 *
	* 1.6988 *	* 1.3927 *	* 1.6185 *	* 1.3213 *	* 1.5920 *	* 1.3128 *	* 1.5129 *	* 2.3531 *
9	* 1.3290 *	* 1.2500 *	* 1.3730 *	* 1.2600 *	* 1.3630 *	* 1.2960 *	* 1.3450 *	* .8820 *
	* 1.3927 *	* 1.4371 *	* 1.3466 *	* 1.3899 *	* 1.3320 *	* 1.3770 *	* 1.3130 *	* 1.9441 *
10	* 1.1150 *	* 1.3730 *	* 1.2670 *	* 1.3520 *	* 1.2550 *	* 1.3630 *	* 1.1860 *	* 1.0600 *
	* 1.6185 *	* 1.3465 *	* 1.4000 *	* 1.3644 *	* 1.4256 *	* 1.3452 *	* 1.5041 *	* 1.6469 *
11	* 1.3310 *	* 1.2590 *	* 1.3540 *	* 1.0860 *	* 1.3470 *	* 1.2530 *	* 1.3380 *	* .7530 *
	* 1.3213 *	* 1.3892 *	* 1.3628 *	* 1.7173 *	* 1.4113 *	* 1.4981 *	* 1.4150 *	* 2.3586 *
12	* 1.0900 *	* 1.3600 *	* 1.2530 *	* 1.3450 *	* 1.1730 *	* 1.3450 *	* .8760 *	
	* 1.5920 *	* 1.3343 *	* 1.4285 *	* 1.4123 *	* 1.5033 *	* 1.3728 *	* 2.1139 *	
13	* 1.3460 *	* 1.2940 *	* 1.3600 *	* 1.2520 *	* 1.3460 *	* .9980 *	* .5880 *	
	* 1.3128 *	* 1.3796 *	* 1.3477 *	* 1.4989 *	* 1.3729 *	* 1.8022 *	* 3.0582 *	
14	* 1.1470 *	* 1.3430 *	* 1.1850 *	* 1.3370 *	* .8790 *	* .5900 *		
	* 1.5129 *	* 1.3148 *	* 1.5067 *	* 1.4158 *	* 2.1093 *	* 3.0498 *		
15	* .7030 *	* .8810 *	* 1.0590 *	* .7520 *	F-DEL-H			
	* 2.3531 *	* 1.9471 *	* 1.6485 *	* 2.3619 *	M-DEL-H			

Table 6 (continued)
F-delta-H/M-delta-H Values - Power Escalation

AT 50% POWER, 4 EFPD								
	H	G	F	E	D	C	B	A
8	* 1.0280	* 1.3210	* 1.1070	* 1.3310	* 1.0860	* 1.3550	* 1.1500	* .6970
	* 2.2293	* 1.7887	* 2.1516	* 1.7387	* 2.1071	* 1.7164	* 1.9606	* 3.1537
9	* 1.3210	* 1.2490	* 1.3750	* 1.2630	* 1.3710	* 1.3040	* 1.3540	* .8790
	* 1.7887	* 1.8925	* 1.7445	* 1.8323	* 1.7429	* 1.7937	* 1.7493	* 2.5787
10	* 1.1070	* 1.3740	* 1.2690	* 1.3560	* 1.2620	* 1.3720	* 1.1900	* 1.0580
	* 2.1516	* 1.7443	* 1.8435	* 1.7742	* 1.8804	* 1.8004	* 1.9863	* 2.2271
11	* 1.3310	* 1.2620	* 1.3570	* 1.0850	* 1.3560	* 1.2600	* 1.3460	* .7480
	* 1.7387	* 1.8320	* 1.7728	* 2.2042	* 1.8160	* 1.9219	* 1.8714	* 3.1845
12	* 1.0860	* 1.3680	* 1.2590	* 1.3540	* 1.1730	* 1.3530	* .8740	*
	* 2.1071	* 1.7463	* 1.8840	* 1.8177	* 1.9107	* 1.7908	* 2.7454	*
13	* 1.3550	* 1.3020	* 1.3690	* 1.2590	* 1.3540	* .9960	* .5800	*
	* 1.7164	* 1.7976	* 1.8046	* 1.9220	* 1.7908	* 2.3104	* 3.9525	*
14	* 1.1500	* 1.3520	* 1.1890	* 1.3450	* .8760	* .5820	*	*
	* 1.9606	* 1.7530	* 1.9882	* 1.8714	* 2.7367	* 3.9462	*	*
15	* .6970	* .8780	* 1.0570	* .7470	F-DEL-H			
	* 3.1537	* 2.5815	* 2.2294	* 3.1888	M-DEL-H			

AT 30% POWER, 4 EFPD								
	H	G	F	E	D	C	B	A
8	* 1.0190	* 1.3130	* 1.0990	* 1.3300	* 1.0830	* 1.3630	* 1.1530	* .6930
	* 2.2293	* 1.7887	* 2.1516	* 1.7387	* 2.1071	* 1.7164	* 1.9606	* 3.1537
9	* 1.3130	* 1.2480	* 1.3760	* 1.2650	* 1.3790	* 1.3110	* 1.3620	* .8770
	* 1.7887	* 1.8925	* 1.7445	* 1.8323	* 1.7429	* 1.7937	* 1.7493	* 2.5787
10	* 1.0990	* 1.3760	* 1.2700	* 1.3590	* 1.2670	* 1.3800	* 1.1940	* 1.0560
	* 2.1516	* 1.7443	* 1.8435	* 1.7742	* 1.8804	* 1.8004	* 1.9863	* 2.2271
11	* 1.3300	* 1.2630	* 1.3610	* 1.0850	* 1.3640	* 1.2660	* 1.3520	* .7440
	* 1.7387	* 1.8320	* 1.7728	* 2.2042	* 1.8160	* 1.9219	* 1.8714	* 3.1845
12	* 1.0830	* 1.3750	* 1.2650	* 1.3620	* 1.1740	* 1.3590	* .8720	*
	* 2.1071	* 1.7463	* 1.8840	* 1.8177	* 1.9107	* 1.7908	* 2.7454	*
13	* 1.3630	* 1.3080	* 1.3760	* 1.2650	* 1.3600	* .9950	* .5730	*
	* 1.7164	* 1.7976	* 1.8046	* 1.9220	* 1.7908	* 2.3104	* 3.9525	*
14	* 1.1530	* 1.3590	* 1.1920	* 1.3520	* .8740	* .5750	*	*
	* 1.9606	* 1.7530	* 1.9882	* 1.8714	* 2.7367	* 3.9462	*	*
15	* .6930	* .8750	* 1.0550	* .7430	F-DEL-H			
	* 3.1537	* 2.5815	* 2.2294	* 3.1888	M-DEL-H			

Table 7

Maximum Allowable Radial Peaks (MARPS)

<u>Core Height</u> (ft)	<u>1.1 Axial Peak</u> MARP	<u>1.2 Axial Peak</u> MARP	<u>1.3 Axial Peak</u> MARP	<u>1.4 Axial Peak</u> MARP
0.12	1.5809	1.6266	1.6722	1.7113
1.2	1.5806	1.6259	1.6677	1.7085
2.4	1.5836	1.6265	1.6663	1.7025
3.6	1.5859	1.6263	1.6635	1.6960
4.8	1.5871	1.6240	1.6571	1.6751
6.0	1.5878	1.6196	1.6470	1.6303
7.2	1.5864	1.6130	1.6265	1.5848
8.4	1.5781	1.5956	1.5773	1.5327
9.6	1.5655	1.5612	1.5208	1.4815
10.8	1.5459	1.5152	1.4717	1.4292
12.0	1.5133	1.4693	1.4274	1.3878

<u>Core Height</u> (ft)	<u>1.5 Axial Peak</u> MARP	<u>1.6 Axial Peak</u> MARP	<u>1.7 Axial Peak</u> MARP	<u>1.8 Axial Peak</u> MARP
0.12	1.7477	1.7331	1.7054	1.6438
1.2	1.7433	1.7029	1.6789	1.6193
2.4	1.7126	1.6616	1.6433	1.5869
3.6	1.6735	1.6211	1.6011	1.5504
4.8	1.6313	1.5611	1.5622	1.5121
6.0	1.5868	1.5415	1.5238	1.4763
7.2	1.5378	1.4913	1.4766	1.4344
8.4	1.4886	1.4450	1.4296	1.3880
9.6	1.4399	1.4013	1.3882	1.3490
10.8	1.3883	1.3526	1.3433	1.3081
12.0	1.3500	1.3140	1.3078	1.2749

<u>Core Height</u> (ft)	<u>1.9 Axial Peak</u> MARP	<u>2.1 Axial Peak</u> MARP
0.12	1.5839	1.5401
1.2	1.5624	1.5154
2.4	1.5328	1.4801
3.6	1.5013	1.4395
4.8	1.4626	1.4030
6.0	1.4291	1.3619
7.2	1.3920	1.3271
8.4	1.3485	1.2824
9.6	1.3126	1.2501
10.8	1.2726	1.2091
12.0	1.2443	1.1890