

McGuire Nuclear Station COLR

McGuire Unit 1 Cycle 8

Core Operating Limits Report

December 1992

Revision 3

Duke Power Company

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McGuire 1 Cycle 8 Core Operating Limits Report**REVISION LOG**

<u>Revision</u>	<u>Effective Date</u>	<u>Effective Pages</u>
Original Issue (Rev. 0)	19 November 1991	Pages 4 - 267, 269, 271 and 273
Revision 1	22 July 1992	Pages 1 - 3A, 268, 270 and 272
Revision 2	24 September 1992	Pages 1 - 3A, 13 - 21, 49 - 57, 85 - 93, 121 - 129, 157 - 165, 193 - 201, 229 - 255, 258, 262, 264, 266, 268, 270, and 272
Revision 3	8 December 1992	Pages 1 - 3A, 11, 12, 258 and A1-A30

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Insertion Sheet for Revision 3

Remove Pages

Pages 1 - 3A, 11, 12, 258

Insert Rev. 3 Pages

Pages 1- 3A, 11, 12 and 258. Insert
pages A1-A30 after page 273.

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

$$2.5.1 \quad F_Q^{RTP} = 2.32$$

2.5.2 $K(Z)$ is provided in Figure 4 for Mark-BW fuel.

2.5.3 $K(Z)$ is provided in Figure 5 for OFA fuel.

The following parameters are required for core monitoring per the Surveillance Requirements of Specification 3/4.2.2:

$$2.5.4 \quad [F_Q^L(X,Y,Z)]^{OP} = F_Q^D(X,Y,Z) * M_Q(X,Y,Z) / (UMT * MT * TILT)$$

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.

$F_Q^D(X,Y,Z)$ = the design power distribution for F_Q . $F_Q^D(X,Y,Z)$ is provided in Tables 1 and A1.

$M_Q(X,Y,Z)$ = the 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 Tables 2 and A2.

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

NE-2011PA.

$$2.5.5 \quad [F_Q^L(X,Y,Z)]^{RPS} = F_Q^D(X,Y,Z) * (M_C(X,Y,Z) / (UMT * MT * TILT))$$

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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.

$F_Q^D(X,Y,Z)$ = the design power distributions for F_Q . $F_Q^D(X,Y,Z)$ is provided in Table 1 and A1.

$M_C(X,Y,Z)$ = the 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 Tables 3 and A3.

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.

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

2.5.6 KSLOPE = 0.078

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

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

$$[F_{\Delta H}(X,Y)]^{LCO} = \text{MARP}(X,Y) * [1.0 + (1/\text{RRH}) * (1.0 - P)]$$

2.6.1 McGuire 1 Cycle 8 Operating Limit Maximum Allowable Radial Peaks, (MARP(X,Y)), are provided in Table 4.

The following parameters are required for core monitoring per the Surveillance Requirements of Specification 3/4.2.3:

$$[F_{\Delta H}(X,Y)]^{L}_{\text{SURV}} = F_{\Delta H}^D(X,Y) * M_{\Delta H}(X,Y) / (\text{UMR} * \text{TILT}), \text{ as identified in}$$

DPC-NE-2011PA.

where

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

TILT = Factor to account for a peaking increase due to an allowable quadrant power tilt ratio, (TILT = 1.02).

2.6.2 $F_{\Delta H}^D(X,Y)$ = the design power distribution for $F_{\Delta H}$. $F_{\Delta H}^D(X,Y)$ is provided in Tables 5 and A5.

2.6.3 $M_{\Delta H}(X,Y)$ = the margin remaining in core location X,Y to the DNB limit from the transient power distribution. $M_{\Delta H}(X,Y)$ is provided in Tables 6 and A6.

2.6.4 $\text{RRH} = 3.34$ when $0.0 < P \leq 1.0$,

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

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

2.6.5 $\text{TRH} = 0.04$

Appendix A

Appendix A contains full power $F_{Q\text{-design}}(X,Y,Z)$, $F_{\Delta H\text{-design}}(X,Y)$, $M_Q(X,Y,Z)$, $M_C(X,Y,Z)$ and $M_{\Delta H}(X,Y)$ monitoring factors generated at EOC conditions with the ARO parked position defined at 222 SWD. The EOC monitoring factors described previously were generated with an ARO parked position of 226 EFPD.

Table A1

CORE OPERATING LIMITS REPORT

F-SUB-Q DESIGN

FQD (3-D) AT: 100% POWER 340 EFPD THIS IS THE 18-TH LEVEL OF 18

WHERE: LEVEL 18 = TOP OF CORE
LEVEL 1 = BOTTOM OF CORE

	H	G	F	E	D	C	B	A
8 *	.6636	.8502	.7937	.8543	.7744	.7896	.6668	.6176
9 *	.8494	.8310	.8652	.8040	.8453	.7430	.7465	.5844
10 *	.7903	.8646	.8185	.8498	.8353	.8042	.7033	.6121
11 *	.8544	.8040	.8502	.8431	.8372	.7528	.7309	.5182
12 *	.7786	.8459	.8349	.8373	.7134	.7626	.6039	
13 *	.7895	.7431	.8042	.7529	.7626	.6761	.5260	
14 *	.6689	.7464	.7032	.7308	.6036	.5262		
15 *	.6176	.5844	.6120	.5184				

FQD (3-D) AT: 100% POWER 340 EFPD THIS IS THE 17-TH LEVEL OF 18

WHERE: LEVEL 18 = TOP OF CORE
LEVEL 1 = BOTTOM OF CORE

	H	G	F	E	D	C	B	A
8 *	.9655	1.2234	1.1585	1.2278	1.1362	1.1744	1.0095	.9601
9 *	1.2123	1.1409	1.2423	1.0970	1.2158	1.0944	1.1065	.8570
10 *	1.1536	1.2415	1.1819	1.1733	1.1566	1.1842	1.0685	.9574
11 *	1.2280	1.0969	1.1738	1.1586	1.2077	1.1286	1.1031	.7638
12 *	1.1424	1.2166	1.1561	1.2078	1.0505	1.1248	.9274	
13 *	1.1741	1.0945	1.1842	1.1287	1.1248	.9712	.7677	
14 *	1.0128	1.1065	1.0683	1.1030	.9269	.7679		
15 *	.9600	.8570	.9572	.7640				

Table A1 (Cont.)

CORE OPERATING LIMITS REPORT

F-SUB-Q DESIGN

FQD (3-D) AT: 100% POWER 340 EFPD THIS IS THE 16-TH LEVEL OF 18

WHERE: LEVEL 18 = TOP OF CORE
LEVEL 1 = BOTTOM OF CORE

	H	G	F	E	D	C	B	A
8 *	1.0664	1.3749	1.2771	1.3749	1.2498	1.2895	1.1222	1.0971
9 *	1.3737	1.2331	1.3899	1.1778	1.3620	1.2009	1.2591	.9572
10 *	1.2716	1.3890	1.2857	1.2526	1.2521	1.3427	1.1986	1.0988
11 *	1.3751	1.1777	1.2531	1.2459	1.3574	1.2605	1.2622	.8538
12 *	1.2567	1.3629	1.2516	1.3575	1.1564	1.2801	1.0442	
13 *	1.2892	1.2010	1.3427	1.2606	1.2801	1.0719	.8450	
14 *	1.1258	1.2590	1.1984	1.2620	1.0436	.8452		
15 *	1.0970	.9573	1.0986	.8539				

FQD (3-D) AT: 100% POWER 340 EFPD THIS IS THE 15-TH LEVEL OF 18

WHERE: LEVEL 18 = TOP OF CORE
LEVEL 1 = BOTTOM OF CORE

	H	G	F	E	D	C	B	A
8 *	1.0927	1.4258	1.3056	1.4206	1.3734	1.3115	1.1476	1.1418
9 *	1.4245	1.2520	1.4357	1.1905	1.4066	1.2204	1.3087	.9865
10 *	1.3000	1.4347	1.3023	1.2591	1.2702	1.3951	1.2336	1.1466
11 *	1.4209	1.1904	1.2596	1.2596	1.4050	1.2960	1.3157	.8790
12 *	1.2804	1.4076	1.2697	1.4051	1.1783	1.3320	1.0749	
13 *	.3112	1.2206	1.3951	1.2961	1.3319	1.0982	.8608	
14 *	1.1513	1.3086	1.2333	1.3156	1.0743	.8610		
15 *	.1417	.9865	1.1464	.8792				

Table A1 (Cont.)

CORE OPERATING LIMITS REPORT

F-SUB-Q DESIGN

FQD (3-D) AT: 100% POWER 340 MWPD THIS IS THE 14-TH LEVEL OF 16

WHERE: LEVEL 16 = TOP OF CORE
LEVEL 1 = BOTTOM OF CORE

	H	G	F	E	D	C	B	A

8 *	1.0973	1.4423	1.3101	1.4330	1.2740	1.3101	1.1490	1.1537
9 *	1.4410	1.2520	1.4484	1.1871	1.4177	1.2184	1.3222	.9921
10 *	1.3045	1.4474	1.2994	1.2513	1.2684	1.4102	1.2400	1.1602
11 *	1.4333	1.1870	1.2519	1.2565	1.4178	1.3030	1.3315	.8825
12 *	1.2810	1.4187	1.2679	1.4180	1.1781	1.3471	1.0791	
13 *	1.3099	1.2185	1.4102	1.3031	1.3471	1.1016	.8589	
14 *	1.1528	1.3221	1.2398	1.3313	1.0786	.8591		
15 *	1.1536	.9922	1.1600	.8827				

FQD (3-D) AT: 100% POWER 340 MWPD THIS IS THE 13-TH LEVEL OF 16

WHERE: LEVEL 16 = TOP OF CORE
LEVEL 1 = BOTTOM OF CORE

	H	G	F	E	D	C	B	A

8 *	1.0979	1.4508	1.3113	1.4384	1.2718	1.3065	1.1468	1.1570
9 *	1.4495	1.2504	1.4542	1.1831	1.4217	1.2141	1.3268	.9920
10 *	1.3057	1.4533	1.2957	1.2447	1.2647	1.4161	1.2407	1.1642
11 *	1.4387	1.1830	1.2452	1.2522	1.4228	1.3045	1.3372	.8807
12 *	1.2787	1.4227	1.2642	1.4230	1.1751	1.3529	1.0776	
13 *	1.3063	1.2142	1.4161	1.3046	1.3528	1.1004	.8539	
14 *	1.1505	1.3267	1.2404	1.3370	1.0771	.8541		
15 *	1.1569	.9921	1.1640	.8809				

Table A1 (Cont.)

CORE OPERATING LIMITS REPORT

F-SUB-Q DESIGN

FQD (3-D) AT: 100% POWER 340 EFPD THIS IS THE 12-TH LEVEL OF 18

WHERE: LEVEL 18 = TOP OF CORE
LEVEL 1 = BOTTOM OF CORE

	H	G	F	E	D	C	B	A

*								
8 *	1.0995	1.4598	1.3143	1.4448	1.2717	1.3057	1.1461	1.1598
*								
9 *	1.4585	1.2511	1.4612	1.1819	1.4268	1.2122	1.3315	.9920
*								
10 *	1.3087	1.4602	1.2949	1.2416	1.2636	1.4223	1.2422	1.1674
*								
11 *	1.4451	1.1818	1.2421	1.2508	1.4285	1.3070	1.3424	.8788
*								
12 *	1.2786	1.4278	1.2631	1.4287	1.1740	1.3584	1.0766	
*								
13 *	1.3054	1.2124	1.4223	1.3071	1.3584	1.1000	.8497	
*								
14 *	1.1498	1.3314	1.2419	1.3422	1.0761	.8499		
*								
15 *	1.1597	.9920	1.1672	.8790				

FQD (3-D) AT: 100% POWER 340 EFPD THIS IS THE 11-TH LEVEL OF 18

WHERE: LEVEL 18 = TOP OF CORE
LEVEL 1 = BOTTOM OF CORE

	H	G	F	E	D	C	B	A

*								
8 *	1.1031	1.4714	1.3201	1.4540	1.2742	1.3078	1.1479	1.1644
*								
9 *	1.4701	1.2546	1.4709	1.1834	1.4247	1.2133	1.3384	.9935
*								
10 *	1.3144	1.4700	1.2970	1.2416	1.2655	1.4310	1.2459	1.1721
*								
11 *	1.4543	1.1833	1.2421	1.2520	1.4369	1.3118	1.3496	.8783
*								
12 *	1.2812	1.4357	1.2649	1.4371	1.1756	1.3662	1.0774	
*								
13 *	1.3076	1.2134	1.4310	1.3119	1.3661	1.1014	.8470	
*								
14 *	1.1516	1.3383	1.2456	1.3494	1.0769	.8472		
*								
15 *	1.1643	.9935	1.1719	.8784				

Table A1 (Cont.)

CORE OPERATING LIMITS REPORT

F-SUB-Q DESIGN

PQD (3-D) AT: 100% POWER 340 RFPD THIS IS THE 10-TH LEVEL OF 18

WHERE: LEVEL 18 = TOP OF CORE
LEVEL 1 = BOTTOM OF CORE

	H	G	F	E	D	C	B	A

8 *	1.1085	1.4855	1.3280	1.4658	1.2789	1.3124	1.1519	1.1711
9 *	1.4842	1.2601	1.4833	1.1869	1.4454	1.2166	1.3479	.9965
10 *	1.3224	1.4823	1.3012	1.2438	1.2698	1.4424	1.2517	1.1789
11 *	1.4661	1.1868	1.2443	1.2555	1.4480	1.3188	1.3592	.8790
12 *	1.2859	1.4464	1.2692	1.4403	1.1794	1.3764	1.0799	
13 *	1.3122	1.2168	1.4423	1.3189	1.3763	1.1046	.8455	
14 *	1.1556	1.3478	1.2515	1.3590	1.0793	.8457		
15 *	1.1710	.9965	1.1787	.8791				

PQD (3-D) AT: 100% POWER 340 RFPD THIS IS THE 9-TH LEVEL OF 18

WHERE: LEVEL 18 = TOP OF CORE
LEVEL 1 = BOTTOM OF CORE

	H	G	F	E	D	C	B	A

8 *	1.1152	1.5018	1.3377	1.4799	1.2853	1.3190	1.1577	1.1798
9 *	1.5005	1.2672	1.4878	1.1921	1.4585	1.2218	1.3597	1.0009
10 *	1.3320	1.4968	1.3070	1.2475	1.2760	1.4562	1.2594	1.1876
11 *	1.4802	1.1920	1.2481	1.2605	1.4616	1.3277	1.3710	.8809
12 *	1.2923	1.4595	1.2755	1.4617	1.1850	1.3889	1.0838	
13 *	1.3187	1.2220	1.4562	1.3278	1.3888	1.1091	.8450	
14 *	1.1614	1.3596	1.2591	1.3708	1.0833	.8452		
15 *	1.1797	1.0010	1.1874	.8810				

Table A1 (Cont.)

CORE OPERATING LIMITS REPORT

F-SUB-Q DESIGN

FQD (3-D) AT: 100% POWER 340 RFPD THIS IS THE 6-TH LEVEL OF 18

WHERE: LEVEL 18 = TOP OF CORE
LEVEL 1 = BOTTOM OF CORE

	H	G	F	E	D	C	B	A
8 *	1.1232	1.5201	1.3489	1.4961	1.2932	1.3273	1.1652	1.1905
9 *	1.5187	1.2757	1.5143	1.1987	1.4739	1.2468	1.3777	1.0067
10 *	1.3432	1.5134	1.3140	1.2526	1.2840	1.4725	1.2687	1.1982
11 *	1.4963	1.1986	1.2531	1.2670	1.4775	1.3384	1.3851	.8839
12 *	1.3002	1.4749	1.2835	1.4777	1.1924	1.4037	1.0892	
13 *	1.3270	1.2289	1.4725	1.3385	1.4037	1.1150	.8453	
14 *	1.1690	1.3736	1.2685	1.3849	1.0886	.8455		
15 *	1.1904	1.0067	1.1980	.8840				

FQD (3-D) AT: 100% POWER 340 RFPD THIS IS THE 7-TH LEVEL OF 18

WHERE: LEVEL 18 = TOP OF CORE
LEVEL 1 = BOTTOM OF CORE

	H	G	F	E	D	C	B	A
8 *	1.1325	1.5404	1.3618	1.5145	1.3027	1.3377	1.1748	1.2034
9 *	1.5390	1.2856	1.5330	1.2068	1.4917	1.2378	1.3904	1.0140
10 *	1.3560	1.5320	1.3225	1.2592	1.2942	1.4915	1.2801	1.2110
11 *	1.5148	1.2067	1.2598	1.2752	1.4961	1.3512	1.4017	.8882
12 *	1.3098	1.4927	1.2936	1.4963	1.2018	1.4211	1.0962	
13 *	1.3374	1.2380	1.4915	1.3513	1.4211	1.1225	.8468	
14 *	1.1787	1.3903	1.2799	1.4015	1.0956	.8470		
15 *	1.2033	1.0140	1.2109	.8884				

Table A1 (Cont.)

CORE OPERATING LIMITS REPORT

F-SUB-Q DESIGN

PQD (3-D) AT: 100% POWER 340 EFPD THIS IS THE 6-TH LEVEL OF 18

WHERE: LEVEL 18 = TOP OF CORE
LEVEL 1 = BOTTOM OF CORE

	H	G	F	E	D	C	B	A
8 *	1.1433	1.5628	1.3768	1.5355	1.3146	1.3511	1.1874	1.2189
9 *	1.5614	1.2975	1.5541	1.2172	1.5126	1.2498	1.4103	1.0232
10 *	1.3709	1.5531	1.3332	1.2682	1.3072	1.5138	1.2942	1.2263
11 *	1.5358	1.2171	1.2688	1.2857	1.5180	1.3666	1.4213	.8941
12 *	1.3217	1.5137	1.3067	1.5181	1.2141	1.4415	1.1053	
13 *	1.3508	1.2499	1.5138	1.3667	1.4415	1.1322	.8498	
14 *	1.1912	1.4102	1.2939	1.4211	1.1048	.8500		
15 *	1.2188	1.0232	1.2261	.8942				

PQD (3-D) AT: 100% POWER 340 EFPD THIS IS THE 5-TH LEVEL OF 18

WHERE: LEVEL 18 = TOP OF CORE
LEVEL 1 = BOTTOM OF CORE

	H	G	F	E	D	C	B	A
8 *	1.1554	1.5866	1.3944	1.5587	1.3295	1.3688	1.2035	1.2362
9 *	1.5852	1.3121	1.5772	1.2307	1.5364	1.2657	1.4328	1.0340
10 *	1.3864	1.5762	1.3471	1.2812	1.3243	1.5390	1.3112	1.2431
11 *	1.5590	1.2306	1.2817	1.2996	1.5427	1.3851	1.4432	.9014
12 *	1.3368	1.5375	1.3237	1.5429	1.2301	1.4644	1.1169	
13 *	1.3685	1.2658	1.5390	1.3852	1.4644	1.1444	.8549	
14 *	1.2074	1.4328	1.3110	1.4430	1.1163	.8551		
15 *	1.2361	1.0340	1.2429	.9015				

Table A1 (Cont.)

CORE OPERATING LIMITS REPORT

F-SUB-Q DESIGN

FQD (3-D) AT: 100% POWER 340 RFPD THIS IS THE 4-TH LEVEL OF 18

WHERE: LEVEL 18 = TOP OF CORE
LEVEL 1 = BOTTOM OF CORE

	H	G	F	E	D	C	B	A
8 *	1.1660	1.6062	1.4126	1.5798	1.3469	1.3906	1.2221	1.2502
9 *	1.6048	1.3287	1.5980	1.2475	1.5588	1.2851	1.4532	1.0436
10 *	1.4068	1.5970	1.3646	1.2993	1.3449	1.5620	1.3291	1.2557
11 *	1.5801	1.2474	1.2999	1.3169	1.5657	1.4043	1.4619	.9076
12 *	1.3542	1.5598	1.3443	1.5659	1.2490	1.4845	1.1286	
13 *	1.3903	1.2853	1.5619	1.4044	1.4844	1.1573	.8611	
14 *	1.2260	1.4531	1.3288	1.4617	1.1280	.7513		
15 *	1.2501	1.0436	1.2555	.9078				

FQD (3-D) AT: 100% POWER 340 RFPD THIS IS THE 3-TH LEVEL OF 18

WHERE: LEVEL 18 = TOP OF CORE
LEVEL 1 = BOTTOM OF CORE

	H	G	F	E	D	C	B	A
8 *	1.1632	1.5993	1.4204	1.5777	1.3568	1.4065	1.2320	1.2400
9 *	1.5979	1.3380	1.5953	1.2586	1.5589	1.2987	1.4498	1.0388
10 *	1.4143	1.5943	1.3774	1.3170	1.3591	1.5632	1.3344	1.2428
11 *	1.5780	1.2595	1.3176	1.3296	1.5653	1.4112	1.4547	.9012
12 *	1.3642	1.5599	1.3585	1.5655	1.2611	1.4793	1.1274	
13 *	1.4062	1.2989	1.5602	1.4113	1.4793	1.1594	.8598	
14 *	1.2360	1.4497	1.3341	1.4545	1.1269	.8600		
15 *	1.2399	1.0388	1.2426	.9013				

Table A1 (Cont.)

CORE OPERATING LIMITS REPORT

F-SUB-Q DESIGN

FQD (3-D) AT: 100% POWER 340 EFPD THIS IS THE 2-TH LEVEL OF 18

WHERE: LEVEL 18 = TOP OF CORE
LEVEL 1 = BOTTOM OF CORE

	H	G	F	E	D	C	B	A
8 *	1.1030	1.4944	1.3648	1.4816	1.3104	1.3625	1.1838	1.1417
9 *	1.4931	1.2937	1.4978	1.2242	1.4658	1.2592	1.3536	.9733
10 *	1.3590	1.4968	1.3364	1.2888	1.3169	1.4611	1.2724	1.1396
11 *	1.4818	1.2241	1.2893	1.2907	1.4695	1.3505	1.3508	.8413
12 *	1.3176	1.4668	1.3163	1.4697	1.2197	1.3789	1.0637	
13 *	1.3622	1.2594	1.4611	1.3506	1.3789	1.1025	.8136	
14 *	1.1877	1.3535	1.2721	1.3506	1.0631	.8136		
15 *	1.1416	.9734	1.1394	.8414				

FQD (3-D) AT: 100% POWER 340 EFPD THIS IS THE 1-TH LEVEL OF 18

WHERE: LEVEL 18 = TOP OF CORE
LEVEL 1 = BOTTOM OF CORE

	H	G	F	E	D	C	B	A
8 *	.8426	1.1279	1.0563	1.1231	1.0188	1.0518	.9025	.7973
9 *	1.1269	1.0142	1.1346	.9640	1.1132	.9833	1.0256	.7119
10 *	1.0518	1.1339	1.0427	1.0146	1.0267	1.1035	.9608	.7910
11 *	1.1233	.9640	1.0150	1.0091	1.1129	1.0311	1.0043	.6107
12 *	1.0244	1.1139	1.0263	1.1130	.9494	1.0444	.7854	
13 *	1.0516	.9834	1.1035	1.0312	1.0443	.8279	.6027	
14 *	.9054	1.0255	.9606	1.0041	.7850	.6029		
15 *	.7972	.7120	.7909	.6108				

Table A2

CORE OPERATING LIMITS REPORT

M-SUB-Q VALUES (F-SUB-Q OF MARGIN)

MQ (3-D) AT: 100% POWER 340 EFPD THIS IS THE 18-TH LEVEL OF 18

WHERE: LEVEL 18 = TOP OF CORE
LEVEL 1 = BOTTOM OF CORE

	H	G	F	E	D	C	B	A
8 *	1.7319	1.3603	1.4588	1.3376	1.4580	1.4184	1.6656	1.7887
9 *	1.3615	1.3979	1.3477	1.4270	1.3549	1.5252	1.5060	1.8997
10 *	1.4751	1.3466	1.4190	1.3699	1.3907	1.4460	1.6433	1.8530
11 *	1.3373	1.4271	1.3693	1.3693	1.3687	1.5241	1.5781	2.2354
12 *	1.4501	1.3539	1.3913	1.3686	1.5807	1.4812	1.8781	
13 *	1.4187	1.5250	1.4460	1.5240	1.4812	1.6617	2.1323	
14 *	1.6602	1.5061	1.6437	1.5783	1.8791	2.1317		
15 *	1.7888	1.8996	1.8533	2.2349				

MQ (3-D) AT: 100% POWER 340 EFPD THIS IS THE 17-TH LEVEL OF 18

WHERE: LEVEL 18 = TOP OF CORE
LEVEL 1 = BOTTOM OF CORE

	H	G	F	E	D	C	B	A
8 *	1.4662	1.1656	1.2417	1.1478	1.2250	1.1743	1.3546	1.4143
9 *	1.1667	1.2561	1.1585	1.2903	1.1598	1.2760	1.2488	1.5927
10 *	1.2470	1.1593	1.2137	1.2239	1.2382	1.2105	1.3308	1.4557
11 *	1.1476	1.2904	1.2234	1.2276	1.1676	1.2519	1.2873	1.8688
12 *	1.2184	1.1590	1.2387	1.1675	1.3192	1.2355	1.5067	
13 *	1.1745	1.2758	1.2105	1.2518	1.2355	1.4241	1.8002	
14 *	1.3503	1.2488	1.3311	1.2874	1.5074	1.7997		
15 *	1.4144	1.5926	1.4559	1.8685				

Table A2 (Cont.)

CORE OPERATING LIMITS REPORT

M-SUB-Q VALUES (F-SUB-Q OF MARGIN)

MQ (3-D) AT: 100% POWER 340 EFPD THIS IS THE 16-TH LEVEL OF 18

WHERE: LEVEL 18 = TOP OF CORE
LEVEL 1 = BOTTOM OF CORE

	H	G	F	E	D	C	B	A

8 *	1.4337	1.1196	1.2117	1.1038	1.1938	1.1456	1.3046	1.3293
9 *	1.1206	1.2504	1.1185	1.2896	1.1139	1.2458	1.1788	1.5253
10 *	1.2169	1.1192	1.1969	1.2030	1.2294	1.1514	1.2678	1.3605
11 *	1.1036	1.2897	1.2325	1.2266	1.1198	1.2032	1.2127	1.7919
12 *	1.1873	1.1131	1.2299	1.1197	1.2855	1.1699	1.4376	
13 *	1.1458	1.2456	1.1515	1.2032	1.1700	1.3858	1.7590	
14 *	1.3004	1.1789	1.2681	1.2129	1.4383	1.7585		
15 *	1.3294	1.5252	1.3607	1.7915				

MQ (3-D) AT: 100% POWER 340 EFPD THIS IS THE 15-TH LEVEL OF 18

WHERE: LEVEL 18 = TOP OF CORE
LEVEL 1 = BOTTOM OF CORE

	H	G	F	E	D	C	B	A

8 *	1.4517	1.1186	1.1809	1.0998	1.1605	1.1150	1.2621	1.3127
9 *	1.1196	1.2277	1.1139	1.2638	1.1094	1.2127	1.1655	1.4623
10 *	1.1860	1.1147	1.1695	1.2222	1.2066	1.1461	1.2140	1.3366
11 *	1.0996	1.2639	1.2217	1.2081	1.1197	1.1642	1.2027	1.7123
12 *	1.1842	1.1086	1.2071	1.1196	1.2562	1.1639	1.3906	
13 *	1.1152	1.2126	1.1461	1.1641	1.1639	1.3476	1.7221	
14 *	1.2580	1.1653	1.2142	1.2029	1.3913	1.7216		
15 *	1.3128	1.4623	1.3368	1.7119				

Table A2 (Cont.)

CORE OPERATING LIMITS REPORT

M-SUB-Q VALUES (F-SUB-Q OF MARGIN)

MQ (3-D) AT: 100% POWER 340 RFPD THIS IS THE 14-TH LEVEL OF 18

WHERE: LEVEL 18 = TOP OF CORE
LEVEL 1 = BOTTOM OF CORE

	H	G	F	E	D	C	B	A
8 *	1.5172	1.1573	1.1968	1.1275	1.1757	1.1314	1.2772	1.3439
9 *	1.1583	1.2557	1.1378	1.2828	1.1373	1.2293	1.1917	1.4707
10 *	1.2019	1.1386	1.1839	1.2444	1.2349	1.1679	1.2154	1.3608
11 *	1.1273	1.2829	1.2439	1.2398	1.1606	1.1836	1.2397	1.7114
12 *	1.1693	1.1366	1.2354	1.1604	1.2891	1.2047	1.4174	
13 *	1.1317	1.2291	1.1679	1.1835	1.2047	1.2769	1.7698	
14 *	1.2730	1.1918	1.2156	1.2399	1.4182	1.7693		
15 *	1.3440	1.4706	1.3610	1.7111				

MQ (3-D) AT: 100% POWER 340 RFPD THIS IS THE 13-TH LEVEL OF 18

WHERE: LEVEL 18 = TOP OF CORE
LEVEL 1 = BOTTOM OF CORE

	H	G	F	E	D	C	B	A
8 *	1.5974	1.1972	1.2214	1.1688	1.2224	1.1784	1.3289	1.3975
9 *	1.1983	1.2933	1.1719	1.3324	1.1790	1.2778	1.2365	1.5240
10 *	1.2266	1.1727	1.2253	1.2844	1.2697	1.1965	1.2499	1.4066
11 *	1.1686	1.3325	1.2838	1.2904	1.2166	1.2301	1.2763	1.7578
12 *	1.2158	1.1782	1.2703	1.2164	1.3624	1.2668	1.4833	
13 *	1.1786	1.2776	1.1965	1.2300	1.2669	1.4472	1.8646	
14 *	1.3246	1.2366	1.2502	1.2765	1.4840	1.8641		
15 *	1.3976	1.5239	1.4068	1.7574				

Table A2 (Cont.)

CORE OPERATING LIMITS REPORT

M-SUB-Q VALUES (F-SUB-Q OF MARGIN)

MQ (3-D) AT: 100% POWER 340 EFPD THIS IS THE 12-TH LEVEL OF 18

WHERE: LEVEL 18 = TOP OF CORE
LEVEL 1 = BOTTOM OF CORE

	H	G	F	E	D	C	B	A
8 *	1.6511	1.2346	1.2636	1.2151	1.2619	1.2370	1.3941	1.4569
9 *	1.2357	1.3412	1.2119	1.3954	1.2253	1.3389	1.2861	1.5938
10 *	1.2690	1.2127	1.2792	1.3376	1.3114	1.2310	1.2978	1.4584
11 *	1.2149	1.3955	1.3371	1.3414	1.2518	1.2703	1.3031	1.8237
12 *	1.2750	1.2245	1.3119	1.2517	1.4212	1.3084	1.5329	
13 *	1.2373	1.3387	1.2310	1.2702	1.3085	1.5040	1.9393	
14 *	1.3896	1.2862	1.2981	1.3033	1.5337	1.9387		
15 *	1.4570	1.5938	1.4586	1.8233				

MQ (3-D) AT: 100% POWER 340 EFPD THIS IS THE 11-TH LEVEL OF 18

WHERE: LEVEL 18 = TOP OF CORE
LEVEL 1 = BOTTOM OF CORE

	H	G	F	E	D	C	B	A
8 *	1.7177	1.2705	1.3278	1.2677	1.3570	1.3096	1.4744	1.5206
9 *	1.2716	1.4054	1.2605	1.4765	1.2776	1.4158	1.3402	1.6812
10 *	1.3335	1.2613	1.3507	1.4107	1.3755	1.2740	1.3619	1.5157
11 *	1.2675	1.4767	1.4102	1.4021	1.2910	1.3191	1.3408	1.9132
12 *	1.3496	1.2767	1.3761	1.2908	1.4901	1.3509	1.5952	
13 *	1.3099	1.4156	1.2740	1.3190	1.3509	1.5722	2.0308	
14 *	1.4696	1.3402	1.3621	1.3409	1.5960	2.0303		
15 *	1.5207	1.6811	1.5160	1.9129				

Table A2 (Cont.)

CORE OPERATING LIMITS REPORT

M-SUB-Q VALUES (F-SUB-Q OF MARGIN)

MQ (3-D) AT: 100% POWER 340 EFPD THIS IS THE 10-TH LEVEL OF 18

WHERE: LEVEL 18 = TOP OF CORE
LEVEL 1 = BOTTOM OF CORE

	H	G	F	E	D	C	B	A

8 *	1.8012	1.3294	1.4609	1.3362	1.4982	1.4448	1.6240	1.5994
9 *	1.3306	1.5460	1.3267	1.6310	1.3453	1.5612	1.4085	1.8474
10 *	1.4671	1.3276	1.4905	1.5560	1.5107	1.3341	1.4919	1.5896
11 *	1.3359	1.6311	1.5554	1.5364	1.3431	1.4355	1.3980	2.0964
12 *	1.4901	1.3444	1.5113	1.3430	1.6205	1.3973	1.7317	
13 *	1.4451	1.5610	1.3341	1.4354	1.3973	1.7025	2.2063	
14 *	1.6188	1.4086	1.4922	1.3982	1.7326	2.2057		
15 *	1.5996	1.8474	1.5898	2.0960				

MQ (3-D) AT: 100% POWER 340 EFPD THIS IS THE 9-TH LEVEL OF 18

WHERE: LEVEL 18 = TOP OF CORE
LEVEL 1 = BOTTOM OF CORE

	H	G	F	E	D	C	B	A

8 *	1.8175	1.3589	1.5178	1.3746	1.5746	1.5324	1.7379	1.6837
9 *	1.3601	1.6007	1.3598	1.6943	1.3952	1.6543	1.4794	1.9885
10 *	1.5243	1.3606	1.5493	1.6220	1.5913	1.3970	1.6030	1.5745
11 *	1.3744	1.6945	1.6213	1.6114	1.3987	1.5343	1.4716	2.2657
12 *	1.5660	1.3942	1.5920	1.3985	1.7225	1.4614	1.8597	
13 *	1.5327	1.6541	1.3970	1.5342	1.4614	1.8226	2.3733	
14 *	1.7323	1.4795	1.6034	1.4718	1.8607	2.3726		
15 *	1.6839	1.9884	1.6748	2.2653				

Table A2 (Cont.)

CORE OPERATING LIMITS REPORT

M-SUB-Q VALUES (F-SUB-Q OF MARGIN)

MQ (3-D) AT: 100% POWER 340 EFPD THIS IS THE 8-TH LEVEL OF 18

WHERE: LEVEL 18 = TOP OF CORE
LEVEL 1 = BOTTOM OF CORE

	H	G	F	E	D	C	B	A

8 *	1.7356	1.2925	1.4464	1.3093	1.5075	1.4667	1.6556	1.6021
9 *	1.2936	1.5298	1.2946	1.6221	1.3291	1.5840	1.4164	1.8901
10 *	1.4546	1.2955	1.4824	1.5533	1.5209	1.3356	1.5382	1.6047
11 *	1.3091	1.6222	1.8527	1.5414	1.3338	1.4693	1.4203	2.1671
12 *	1.4993	1.3282	1.5215	1.3337	1.6464	1.4070	1.7967	
13 *	1.4670	1.5838	1.3356	1.4691	1.4070	1.7585	2.2938	
14 *	1.6502	1.4165	1.5385	1.4205	1.7977	2.2931		
15 *	1.6022	1.8901	1.6049	2.1667				

MQ (3-D) AT: 100% POWER 340 EFPD THIS IS THE 7-TH LEVEL OF 18

WHERE: LEVEL 18 = TOP OF CORE
LEVEL 1 = BOTTOM OF CORE

	H	G	F	E	D	C	B	A

8 *	1.6642	1.2328	1.3874	1.2510	1.4438	1.3922	1.5631	1.5084
9 *	1.2339	1.4678	1.2365	1.5584	1.2670	1.5051	1.3318	1.7864
10 *	1.3934	1.2373	1.4240	1.4933	1.4579	1.2687	1.4547	1.5104
11 *	1.2507	1.5585	1.4927	1.4786	1.2706	1.4037	1.3426	2.0519
12 *	1.4359	1.2662	1.4585	1.2705	1.5744	1.3385	1.7130	
13 *	1.3924	1.5049	1.2687	1.4036	1.3386	1.6818	2.1875	
14 *	1.5581	1.3319	1.4551	1.3428	1.7139	2.1869		
15 *	1.5085	1.7864	1.5106	2.0515				

Table A2 (Cont.)

CORE OPERATING LIMITS REPORT

M-SUB-Q VALUES (F-SUB-Q OF MARGIN)

MQ (3-D) AT: 100% POWER 340 EFPD THIS IS THE 6-TH LEVEL OF 18

WHERE: LEVEL 18 = TOP OF CORE
LEVEL 1 = BOTTOM OF CORE

	H	G	F	E	D	C	B	A

*								
8 *	1.6015	1.1797	1.3286	1.1822	1.3660	1.3160	1.4770	1.4218
9 *	1.1807	1.4126	1.1766	1.4829	1.1925	1.4232	1.2532	1.6908
10 *	1.3343	1.1776	1.3629	1.4288	1.3854	1.1920	1.5726	1.4231
11 *	1.1020	1.4830	1.4282	1.4202	1.2124	1.3326	1.2613	1.9451
12 *	1.3586	1.1917	1.3859	1.2123	1.5107	1.2720	1.6181	
13 *	1.3163	1.4230	1.1921	1.3325	1.2721	1.5977	2.0759	
14 *	1.4722	1.2532	1.3729	1.2618	1.6190	2.0753		
15 *	1.4219	1.6907	1.4233	1.9447				

MQ (3-D) AT: 100% POWER 340 EFPD THIS IS THE 5-TH LEVEL OF 18

WHERE: LEVEL 18 = TOP OF CORE
LEVEL 1 = BOTTOM OF CORE

	H	G	F	E	D	C	B	A

*								
8 *	1.5304	1.1102	1.2446	1.1051	1.2800	1.2708	1.3819	1.3321
9 *	1.1112	1.3281	1.1011	1.3906	1.1142	1.3325	1.1711	1.5907
10 *	1.2499	1.1018	1.2796	1.3418	1.2982	1.1144	1.2871	1.3359
11 *	1.1049	1.3907	1.3412	1.3352	1.1365	1.2514	1.1835	1.8392
12 *	1.2730	1.1134	1.2987	1.1363	1.4361	1.1926	1.5284	
13 *	1.2310	1.3323	1.1144	1.2513	1.1926	1.5062	1.9698	
14 *	1.3774	1.1712	1.2874	1.1837	1.5292	1.9693		
15 *	1.3322	1.5907	1.3361	1.8388				

Table A2 (Cont.)

CORE OPERATING LIMITS REPORT

M-SUB-Q VALUES (F-SUB-Q OF MARGIN)

MQ (3-D) AT: 100% POWER 340 EFPD THIS IS THE 4-TH LEVEL OF 18

WHERE: LEVEL 18 = TOP OF CORE
LEVEL 1 = BOTTOM OF CORE

	H	G	F	E	D	C	B	A

8 *	1.4186	1.0321	1.1605	1.0322	1.1977	1.1495	1.2932	1.2527
9 *	1.0330	1.2372	1.0273	1.2991	1.0401	1.2449	1.0960	1.4992
10 *	1.1654	1.0280	1.1945	1.2505	1.2079	1.0387	1.2036	1.2560
11 *	1.0321	1.2992	1.2499	1.2416	1.0525	1.1630	1.1047	1.7343
12 *	1.1912	1.0394	1.2084	1.0524	1.3225	1.1077	1.4285	
13 *	1.1497	1.2447	1.0387	1.1629	1.1078	1.4055	1.8511	
14 *	1.2890	1.0961	1.2038	1.1049	1.4293	1.8506		
15 *	1.2528	1.4992	1.2562	1.7340				

MQ (3-D) AT: 100% POWER 340 EFPD THIS IS THE 3-TH LEVEL OF 18

WHERE: LEVEL 18 = TOP OF CORE
LEVEL 1 = BOTTOM OF CORE

	H	G	F	E	D	C	B	A

8 *	1.3508	.9863	1.1017	.9878	1.1379	1.0887	1.2305	1.2122
9 *	.9872	1.1715	.9821	1.2305	.9944	1.1799	1.0523	1.4461
10 *	1.1065	.9828	1.1305	1.1782	1.1412	.9990	1.1472	1.2165
11 *	.9876	1.2306	1.1778	1.1716	1.0007	1.1021	1.0597	1.6745
12 *	1.1317	.9937	1.1416	1.0005	1.2400	1.0553	1.3635	
13 *	1.0889	1.1797	.9930	1.1021	1.0554	1.3340	1.7695	
14 *	1.2265	1.0524	1.1474	1.0598	1.3642	1.7690		
15 *	1.2123	1.4461	1.2166	1.6742				

Table A2 (Cont.)

CORE OPERATING LIMITS REPORT

M-SUB-Q VALUES (F-SUB-Q OF MARGIN)

MQ (3-D) AT: 100% POWER 340 EFPD THIS IS THE 2-TH LEVEL OF 18

WHERE: LEVEL 18 = TOP OF CORE
LEVEL 1 = BOTTOM OF CORE

	H	G	F	E	D	C	B	A
8 *	1.3740	1.0173	1.1078	1.0165	1.1405	1.0886	1.2417	1.2767
9 *	1.0182	1.1701	1.0101	1.2255	1.0223	1.1787	1.0910	1.4973
10 *	1.1126	1.0107	1.1266	1.1645	1.1384	1.0239	1.1640	1.2851
11 *	1.0163	1.2256	1.1640	1.1652	1.026	1.08	1.1019	1.7387
12 *	1.1343	1.0216	1.1389	1.0265	1.2340	1.0896	1.3954	
13 *	1.0880	1.1785	1.0239	1.1107	1.0897	1.3522	1.8080	
14 *	1.2377	1.0910	1.1643	1.1020	1.3961	1.8075		
15 *	1.2768	1.4973	1.2853	1.7383				

MQ (3-D) AT: 100% POWER 340 EFPD THIS IS THE 1-TH LEVEL OF 18

WHERE: LEVEL 18 = TOP OF CORE
LEVEL 1 = BOTTOM OF CORE

	H	G	F	E	D	C	B	A
8 *	1.7576	1.3156	1.3991	1.3106	1.4354	1.3800	1.5952	1.7907
9 *	1.3168	1.4591	1.3025	1.5230	1.3319	1.4779	1.4084	2.0058
10 *	1.4051	1.3033	1.4122	1.4468	1.3376	1.3243	1.5074	1.8123
11 *	1.3103	1.5232	1.4462	1.4565	1.3226	1.4203	1.4473	2.3467
12 *	1.4276	1.3150	1.4282	1.3224	1.5473	1.4029	1.8466	
13 *	1.3803	1.4777	1.3243	1.4202	1.4030	1.7577	2.3891	
14 *	1.5900	1.4085	1.5077	1.4475	1.8475	2.3885		
15 *	1.7909	2.0058	1.8126	2.3463				

Table A3

CORE OPERATING LIMITS REPORT

M-SUB-C VALUES (F-SUB-Q RPS MARGIN)

MC (3-D) AT: 118% POWER 340 EFPD THIS IS THE 18-TH LEVEL OF 18

WHERE: LEVEL 18 = TOP OF CORE
LEVEL 1 = BOTTOM OF CORE

	H	G	F	E	D	C	B	A
8 *	2.5006	1.9352	2.0721	2.0894	2.0659	2.0264	2.3726	2.4904
9 *	1.9369	2.0005	1.8896	2.0032	1.9229	2.1631	2.1252	2.6359
10 *	2.0810	1.8508	1.9779	1.9389	1.9769	2.0354	2.3033	2.5464
11 *	1.8890	2.0034	1.9381	1.9466	1.9270	2.1448	2.1849	3.0468
12 *	2.0547	1.9216	1.9777	1.9268	2.2276	2.0556	2.5939	
13 *	2.0269	2.1628	2.0354	2.1447	2.0557	2.2898	2.9103	
14 *	2.3649	2.1253	2.3038	2.1852	2.5952	2.9095		
15 *	2.4905	2.6359	2.5468	3.0462				

MC (3-D) AT: 118% POWER 340 EFPD THIS IS THE 17-TH LEVEL OF 18

WHERE: LEVEL 18 = TOP OF CORE
LEVEL 1 = BOTTOM OF CORE

	H	G	F	E	D	C	B	A
8 *	1.7688	1.3959	1.4249	1.3062	1.4060	1.3604	1.5748	1.6337
9 *	1.3971	1.4901	1.3107	1.4611	1.3266	1.4664	1.4529	1.8412
10 *	1.4310	1.3115	1.3703	1.4006	1.4545	1.4081	1.5385	1.6605
11 *	1.3060	1.4613	1.4000	1.4634	1.3773	1.4640	1.4829	2.1220
12 *	1.3984	1.3256	1.4551	1.3771	1.5455	1.4291	1.7267	
13 *	1.3607	1.4663	1.4081	1.4639	1.4291	1.6362	2.0502	
14 *	1.5697	1.4529	1.5389	1.4831	1.7415	2.0496		
15 *	1.6338	1.8412	1.6607	2.1216				

Table A3 (Cont.)

CORE OPERATING LIMITS REPORT

M-SUB-C VALUES (F-SUB-Q RPS MARGIN)

MC (3-D) AT: 118% POWER 340 RFPD THIS IS THE 16-TH LEVEL OF 18

WHERE: LEVEL 18 = TOP OF CORE
LEVEL 1 = BOTTOM OF CORE

	H	G	F	E	D	C	B	A
8 *	1.6673	1.2894	1.3052	1.1738	1.2834	1.2416	1.4198	1.4462
9 *	1.2905	1.3976	1.1812	1.3700	1.1902	1.3418	1.2799	1.6571
10 *	1.3108	1.1820	1.2692	1.3219	1.3551	1.2490	1.3757	1.4723
11 *	1.1736	1.3701	1.3214	1.4156	1.2651	1.3540	1.3160	1.9174
12 *	1.2765	1.1894	1.3556	1.2649	1.4501	1.2922	1.5845	
13 *	1.2418	1.3416	1.2490	1.3539	1.2922	1.5328	1.9323	
14 *	1.4152	1.2800	1.3760	1.3342	1.5854	1.9318		
15 *	1.4463	1.6571	1.4725	1.9170				

MC (3-D) AT: 118% POWER 340 RFPD THIS IS THE 15-TH LEVEL OF 18

WHERE: LEVEL 18 = TOP OF CORE
LEVEL 1 = BOTTOM OF CORE

	H	G	F	E	D	C	B	A
8 *	1.7159	1.3061	1.3122	1.1624	1.2870	1.2436	1.4126	1.4106
9 *	1.3072	1.4199	1.1729	1.3907	1.1172	1.3479	1.2514	1.6362
10 *	1.3178	1.1736	1.2863	1.3505	1.3704	1.2270	1.3607	1.4339
11 *	1.1622	1.3908	1.3500	1.4508	1.2768	1.3762	1.3317	1.9029
12 *	1.2800	1.1764	1.3710	1.2757	1.4896	1.2940	1.6095	
13 *	1.2438	1.3478	1.2270	1.3761	1.2940	1.5656	1.9910	
14 *	1.4080	1.2515	1.3609	1.3319	1.6103	1.9905		
15 *	1.4107	1.6362	1.4341	1.9025				

Table A3 (Cont.)

CORE OPERATING LIMITS REPORT

M-SUB-C VALUES (F-SUB-Q RPS MARGIN)

MC (3-D) AT: 118% POWER 340 RFPD THIS IS THE 14-TH LEVEL OF 18

WHERE: LEVEL 18 = TOP OF CORE
LEVEL 1 = BOTTOM OF CORE

	H	G	F	E	D	C	B	A

8 *	1.7937	1.3788	1.3780	1.2073	1.3461	1.2978	1.4665	1.4442
9 *	1.3801	1.5024	1.2217	1.4673	1.2208	1.4107	1.2845	1.6883
10 *	1.3839	1.2225	1.3576	1.4316	1.4424	1.2663	1.4075	1.4679
11 *	1.2070	1.4674	1.4310	1.5366	1.3443	1.4529	1.3748	1.9749
12 *	1.3388	1.2199	1.4430	1.3441	1.5896	1.3570	1.7027	
13 *	1.2981	1.4105	1.2664	1.4528	1.3570	1.6609	2.1273	
14 *	1.4617	1.2846	1.4078	1.3750	1.7036	2.1267		
15 *	1.4443	1.6882	1.4682	1.9745				

MC (3-D) AT: 118% POWER 340 RFPD THIS IS THE 13-TH LEVEL OF 18

WHERE: LEVEL 18 = TOP OF CORE
LEVEL 1 = BOTTOM OF CORE

	H	G	F	E	D	C	B	A

8 *	1.9319	1.3784	1.4584	1.2917	1.4440	1.3890	1.5636	1.5243
9 *	1.3797	1.5588	1.2989	1.5848	1.3015	1.5103	1.3587	1.7875
10 *	1.4646	1.2997	1.4633	1.5335	1.5168	1.3293	1.4912	1.5435
11 *	1.2915	1.5849	1.5328	1.5723	1.4226	1.5043	1.4161	2.0866
12 *	1.4362	1.3006	1.5174	1.4324	1.7373	1.4555	1.8069	
13 *	1.3893	1.5101	1.3293	1.5042	1.4555	1.7904	2.2842	
14 *	1.5587	1.3587	1.4915	1.4163	1.8078	2.2836		
15 *	1.5245	1.7875	1.5438	2.0862				

Table A3 (Cont.)

CORE OPERATING LIMITS REPORT

M-SUB-C VALUES (F-SUB-Q RPS MARGIN)

MC (3-D) AT: 118% POWER 340 RFPD THIS IS THE 12-TH LEVEL OF 18

WHERE: LEVEL 18 = TOP OF CORE
LEVEL 1 = BOTTOM OF CORE

	H	G	F	E	D	C	B	A

8 *	1.9610	1.4302	1.5713	1.4017	1.5718	1.5086	1.6866	1.6254
9 *	1.4314	1.6686	1.3978	1.7359	1.4091	1.6385	1.4559	1.9171
10 *	1.5780	1.3987	1.5912	1.6625	1.6256	1.4132	1.6015	1.6458
11 *	1.4014	1.7360	1.6618	1.3672	1.4556	1.5715	1.4886	2.2261
12 *	1.5633	1.4082	1.6263	1.4554	1.8286	1.5336	1.8956	
13 *	1.5089	1.6382	1.4132	1.5714	1.5336	1.8879	2.3966	
14 *	1.6811	1.4560	1.6018	1.4888	1.8966	2.3960		
15 *	1.6255	1.9170	1.6461	2.2257				

MC (3-D) AT: 118% POWER 340 RFPD THIS IS THE 11-TH LEVEL OF 18

WHERE: LEVEL 18 = TOP OF CORE
LEVEL 1 = BOTTOM OF CORE

	H	G	F	E	D	C	B	A

8 *	2.1293	1.5654	1.7526	1.5343	1.7226	1.6411	1.8228	1.7399
9 *	1.5668	1.8576	1.5524	1.9141	1.5353	1.7893	1.5657	2.0543
10 *	1.7601	1.5534	1.7832	1.8591	1.8014	1.5484	1.7355	1.7618
11 *	1.5340	1.9143	1.8584	1.8387	1.5716	1.7084	1.6138	2.4143
12 *	1.7132	1.5342	1.8022	1.5714	1.9426	1.6301	2.0450	
13 *	1.6414	1.7891	1.5484	1.7083	1.6301	2.0205	2.5852	
14 *	1.8169	1.5658	1.7359	1.6141	2.0461	2.5844		
15 *	1.7401	2.0542	1.7621	2.4139				

Table A3 (Cont.)

CORE OPERATING LIMITS REPORT

M-SUB-C VALUES (F-SUB-Q RPS MARGIN)

MC (3-D) AT: 118% POWER 340 RFPD THIS IS THE 10-TH LEVEL OF 18

WHERE: LEVEL 18 = TOP OF CORE
LEVEL 1 = BOTTOM OF CORE

	H	G	F	E	D	C	B	A

8 *	2.4321	1.7806	2.0161	1.7191	1.9367	1.8322	2.0152	1.8959
9 *	1.7822	2.1381	1.7657	2.1657	1.7144	2.0024	1.7205	2.2539
10 *	2.0248	1.7668	2.0204	2.1364	2.0571	1.7426	1.9235	1.9283
11 *	1.7188	2.1659	2.1355	2.0970	1.7634	1.9213	1.8009	2.6709
12 *	1.9262	1.7133	2.0579	1.7632	2.1767	1.8060	2.2810	
13 *	1.8326	2.0022	1.7426	1.9213	1.8061	2.2463	2.8827	
14 *	2.0087	1.7206	1.9239	1.8012	2.2822	2.8819		
15 *	1.8960	2.2539	1.9286	2.6704				

MC (3-D) AT: 116% POWER 340 RFPD THIS IS THE 9-TH LEVEL OF 18

WHERE: LEVEL 18 = TOP OF CORE
LEVEL 1 = BOTTOM OF CORE

	H	G	F	E	D	C	B	A

8 *	2.5307	1.9051	2.1367	1.9234	2.1880	2.0776	2.2690	2.0855
9 *	1.9068	2.2463	1.9052	2.3733	1.9442	2.2695	1.9241	2.5149
10 *	2.1459	1.9064	2.1731	2.2715	2.2228	1.9213	2.1656	2.1193
11 *	1.9230	2.3735	2.2706	2.2511	1.9348	2.1080	1.9887	2.9949
12 *	2.1761	1.9428	2.2237	1.9346	2.3868	1.9941	2.5273	
13 *	2.0780	2.2692	1.9213	2.1078	1.9942	2.4913	3.1971	
14 *	2.2617	1.9242	2.1660	1.9890	2.5286	3.1962		
15 *	2.0857	2.5148	2.1196	2.9943				

Table A3 (Cont.)

CORE OPERATING LIMITS REPORT

M-SUB-C VALUES (F-SUB-Q RPS MARGIN)

MC (3-D) AT: 118% POWER 340 EFPD THIS IS THE 8-TH LEVEL OF 18

WHERE: LEVEL 18 = TOP OF CORE
LEVEL 1 = BOTTOM OF CORE

	H	G	F	E	D	C	B	A

8 *	2.3692	1.7862	1.9958	1.8045	2.0731	1.9804	2.1633	2.0028
9 *	1.7878	2.1026	1.7853	2.2201	1.8320	2.1703	1.8598	2.3984
10 *	2.0044	1.7865	2.0344	2.1289	2.0926	1.8484	2.0846	2.0510
11 *	1.8041	2.2203	2.1280	2.1194	1.8453	2.0350	1.9253	2.8663
12 *	2.0619	1.8307	2.0935	1.8451	2.2682	1.9355	2.4592	
13 *	1.9808	2.1700	1.8484	2.0348	1.9356	2.4100	3.1034	
14 *	2.1563	1.8600	2.0850	1.9256	2.4604	3.1026		
15 *	2.0029	2.3983	2.0513	2.8657				

MC (3-D) AT: 118% POWER 340 EFPD THIS IS THE 7-TH LEVEL OF 18

WHERE: LEVEL 18 = TOP OF CORE
LEVEL 1 = BOTTOM OF CORE

	H	G	F	E	D	C	B	A

8 *	2.2097	1.6563	1.8540	1.6531	1.8966	1.8128	1.9766	1.8257
9 *	1.6578	1.9628	1.6490	2.0441	1.6764	1.9824	1.6882	2.1930
10 *	1.8620	1.6500	1.8837	1.9802	1.9481	1.6772	1.8890	1.8597
11 *	1.6528	2.0442	1.9794	1.9763	1.7093	1.8670	1.7340	2.6031
12 *	1.8863	1.6753	1.9489	1.7091	2.1101	1.7803	2.2160	
13 *	1.8132	1.9822	1.6772	1.8669	1.7804	2.2129	2.8186	
14 *	1.9702	1.6883	1.8894	1.7342	2.2172	2.8178		
15 *	1.8259	2.1930	1.8599	2.6025				

Table A3 (Cont.)

CORE OPERATING LIMITS REPORT

M-SUB-C VALUES (F-SUB-Q RPS MARGIN)

MC (3-D) AT: 118% POWER 340 RFPD THIS IS THE 6-TH LEVEL OF 18

WHERE: LEVEL 18 = TOP OF CORE
LEVEL 1 = BOTTOM OF CORE

	H	G	F	E	D	C	B	A
8 *	2.0253	1.5025	1.6766	1.4969	1.7290	1.6551	1.6073	1.6667
9 *	1.5038	1.7789	1.4903	1.8654	1.5159	1.8030	1.5328	2.0082
10 *	1.6837	1.4912	1.7149	1.7993	1.7602	1.5081	1.7064	1.6867
11 *	1.4986	1.8656	1.7985	1.7990	1.5480	1.6819	1.5607	2.3543
12 *	1.7196	1.5149	1.7609	1.5478	1.9520	1.5969	2.0058	
13 *	1.6555	1.8027	1.5081	1.6817	1.5970	1.9983	2.5657	
14 *	1.8015	1.5329	1.7067	1.5610	2.0068	2.5650		
15 *	1.6668	2.0082	1.6869	2.3539				

MC (3-D) AT: 118% POWER 340 RFPD THIS IS THE 5-TH LEVEL OF 18

WHERE: LEVEL 18 = TOP OF CORE
LEVEL 1 = BOTTOM OF CORE

	H	G	F	E	D	C	B	A
8 *	1.8397	1.3571	1.5213	1.3583	1.5746	1.5154	1.6575	1.5285
9 *	1.3383	1.6157	1.3491	1.6958	1.3739	1.6416	1.3974	1.8475
10 *	1.5278	1.3500	1.5595	1.6343	1.5913	1.3651	1.5494	1.5376
11 *	1.3581	1.6960	1.6336	1.6280	1.3953	1.5232	1.4139	2.1491
12 *	1.5661	1.3729	1.5919	1.3951	1.7512	1.4386	1.8252	
13 *	1.5157	1.6413	1.3651	1.5231	1.4386	1.8126	2.3478	
14 *	1.6522	1.3975	1.5498	1.4141	1.8261	2.3471		
15 *	1.5286	1.8474	1.5379	2.1487				

Table A3 (Cont.)

CORE OPERATING LIMITS REPORT

M-SUB-C VALUES (F-SUB-Q RPS MARGIN)

MC (3-D) AT: 118% POWER 340 RFPD THIS IS THE 4-TH LEVEL OF 18

WHERE: LEVEL 18 = TOP OF CORE
LEVEL 1 = BOTTOM OF CORE

	H	G	F	E	D	C	B	A
8 *	1.6618	1.2234	1.3762	1.2293	1.4265	1.3775	1.5300	1.4176
9 *	1.2245	1.4616	1.2199	1.5380	1.2425	1.4875	1.2872	1.7164
10 *	1.3821	1.2207	1.4129	1.4787	1.4369	1.2463	1.4218	1.4203
11 *	1.2291	1.5381	1.4781	1.4701	1.2550	1.3918	1.2914	1.9838
12 *	1.4208	1.2417	1.4375	1.2548	1.5693	1.3100	1.6732	
13 *	1.3778	1.4873	1.2463	1.3917	1.3100	1.6587	2.1568	
14 *	1.5251	1.2873	1.4221	1.2916	1.6741	2.1562		
15 *	1.4177	1.7163	1.4205	1.9834				

MC (3-D) AT: 118% POWER 340 RFPD THIS IS THE 3-TH LEVEL OF 18

WHERE: LEVEL 18 = TOP OF CORE
LEVEL 1 = BOTTOM OF CORE

	H	G	F	E	D	C	B	A
8 *	1.5495	1.1408	1.2760	1.1469	1.3247	1.2728	1.4358	1.3535
9 *	1.1418	1.3528	1.1375	1.4237	1.1581	1.3766	1.2176	1.6325
10 *	1.2815	1.1383	1.3067	1.3623	1.3263	1.1613	1.3321	1.3543
11 *	1.1467	1.4238	1.3616	1.3564	1.1644	1.2876	1.2171	1.8811
12 *	1.3175	1.1573	1.3268	1.1643	1.4401	1.2291	1.5674	
13 *	1.2730	1.3764	1.1613	1.2875	1.2292	1.5467	2.0213	
14 *	1.4312	1.2177	1.3324	1.2172	1.5682	2.0207		
15 *	1.3536	1.6325	1.3545	1.8807				

Table A3 (Cont.)

CORE OPERATING LIMITS REPORT

M-SUB-C VALUES (F-SUB-Q RPS MARGIN)

MC (3-D) AT: 118% POWER 340 RFPD THIS IS THE 2-TH LEVEL OF 18

WHERE: LEVEL 18 = TOP OF CORE
LEVEL 1 = BOTTOM OF CORE

	H	G	F	E	D	C	B	A
8 *	1.5522	1.1552	1.2609	1.1582	1.3045	1.2499	1.4259	1.4063
9 *	1.1563	1.3291	1.1483	1.3948	1.1683	1.3518	1.2428	1.6645
10 *	1.2663	1.1491	1.2810	1.3250	1.3011	1.1748	1.3281	1.4099
11 *	1.1580	1.3949	1.3244	1.3277	1.1732	1.2752	1.2426	1.9197
12 *	1.2975	1.1675	1.3016	1.1730	1.4109	1.2478	1.5732	
13 *	1.2502	1.3517	1.1748	1.2751	1.2478	1.5387	2.0229	
14 *	1.4213	1.2429	1.3284	1.2428	1.5740	2.0223		
15 *	1.4064	1.6645	1.4101	1.9193				

MC (3-D) AT: 118% POWER 340 RFPD THIS IS THE 1-TH LEVEL OF 18

WHERE: LEVEL 18 = TOP OF CORE
LEVEL 1 = BOTTOM OF CORE

	H	G	F	E	D	C	B	A
8 *	1.9670	1.4764	1.5750	1.4755	1.6238	1.5663	1.7970	1.9457
9 *	1.4777	1.6403	1.4034	1.7162	1.4859	1.6771	1.5729	2.1918
10 *	1.5817	1.4643	1.5893	1.6300	1.6145	1.5010	1.6367	1.9606
11 *	1.4752	1.7164	1.6294	1.6434	1.4939	1.6124	1.6005	2.5457
12 *	1.6150	1.4848	1.6152	1.4937	1.7517	1.5717	2.0406	
13 *	1.5666	1.6769	1.5010	1.6123	1.5718	1.9575	2.6191	
14 *	1.7912	1.5730	1.6870	1.6008	2.0417	2.6184		
15 *	1.9459	2.1917	1.9609	2.5452				

Table A5

CORE OPERATING LIMITS REPORT

F-DELTA-H DESIGN

FDHD (2-D) AT: 100% POWER 340 HFPD

	H	G	F	E	D	C	B	A
8 *	1.0320	1.3798	1.2441	1.3657	1.1995	1.2349	1.0791	1.0771
9 *	1.3786	1.1875	1.3814	1.1228	1.3488	1.1459	1.2518	.9225
10 *	1.2387	1.3805	1.2241	1.1793	1.2004	1.3414	1.1659	1.0810
11 *	1.3659	1.1227	1.1798	1.1859	1.3501	1.2310	1.2566	.8112
12 *	1.2061	1.3497	1.1999	1.3503	1.1095	1.2770	.9997	
13 *	1.2347	1.1461	1.3414	1.2311	1.2770	1.0297	.7849	
14 *	1.0826	1.2517	1.1656	1.2564	.9992	.7851		
15 *	1.0770	.9225	1.0808	.8114				

Table A6

CORE OPERATING LIMITS REPORT

M-DELTA-H VALUES (F-DELTA-H MARGIN)

MH (2-D) AT: 100% POWER 340 EFPD

	H	G	F	E	D	C	B	A

8 *	1.4205	1.0755	1.1930	1.0632	1.1656	1.1180	1.2851	1.2685
9 *	1.0765	1.2184	1.0688	1.2607	1.0697	1.2128	1.1187	1.4811
10 *	1.1981	1.0695	1.1681	1.2132	1.1962	1.0882	1.2186	1.2827
11 *	1.0630	1.2608	1.2127	1.2016	1.0799	1.1783	1.1560	1.7206
12 *	1.1593	1.0690	1.1966	1.0798	1.2636	1.1260	1.4237	
13 *	1.1182	1.2126	1.0883	1.1782	1.1261	1.3776	1.7476	
14 *	1.2809	1.1198	1.2189	1.1562	1.4245	1.7472		
15 *	1.2686	1.4811	1.2829	1.7202				