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Dominion®

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

Serial No. 08-0632
NSS&L/MLC R0
Docket No. 50-423
License No. NPF-65

DOMINION NUCLEAR CONNECTICUT, INC.
MILLSTONE POWER STATION UNIT 3
CORE OPERATING LIMITS REPORT, CYCLE 13

NOV 14 2008

In accordance with the Millstone Power Station Unit 3 (MPS3) Technical Specifications (TSs), Section 6.9.1.6.d, Dominion Nuclear Connecticut, Inc., hereby submits, as Enclosure 1, the Cycle 13 Core Operating Limits Report (COLR).

The MPS3 COLR has been revised to incorporate the following:

- Changes specific to Cycle 13 operation
- Revisions to overtemperature ΔT parameters, overpower ΔT parameters, and reactor core safety limits.
- Changes in plant parameters and analytical methods references due to incorporation of License Amendment 242 for a Stretch Power Uprate
- Editorial changes

The COLR has been incorporated into the MPS3 Technical Requirements Manual.

If you have any questions or require additional information, please contact Mr. William D. Bartron at (860) 444-4301.

Sincerely,

A. J. Jordan
Site Vice President - Millstone

A001
NRR

Enclosures: (1)

Commitments made in this letter: None.

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Serial No. 08-0632
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ENCLOSURE 1

CORE OPERATING LIMITS REPORT, CYCLE 13

DOMINION NUCLEAR CONNECTICUT, INC.
MILLSTONE POWER STATION UNIT 3

TECHNICAL REQUIREMENTS MANUAL

APPENDIX 8.1

CORE OPERATING LIMITS REPORT

MILLSTONE UNIT 3

CYCLE 13

CORE OPERATING LIMITS REPORT

TECHNICAL REQUIREMENTS MANUAL
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CORE OPERATING LIMITS REPORT

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Cycle 13

Core Operating Limits Report

1.0 Core Operating Limits Report

This Core Operating Limits Report (COLR) for Millstone Unit 3 Cycle 13 has been prepared in accordance with the requirements of Technical Specification 6.9.1.6.a. The Technical Specifications affected by this report are listed below.

2.1.1	Safety Limits
2.2.1	Limiting Safety System Settings
3/4.1.1.1.1	Shutdown Margin – MODE 1 and 2
3/4.1.1.1.2	Shutdown Margin – MODES 3, 4 and 5 Loops Filled
3/4.1.1.2	Shutdown Margin – MODE 5 Loops Not Filled
3/4.1.1.3	Moderator Temperature Coefficient
3/4.1.3.5	Shutdown Rod Insertion Limit
3/4.1.3.6	Control Rod Insertion Limits
3/4.2.1.1	Axial Flux Difference
3/4.2.2.1	Heat Flux Hot Channel Factor
3/4.2.3.1	RCS Total Flow Rate and Nuclear Enthalpy Rise Hot Channel Factor
3/4.2.5	DNB Parameters
3/4.3.5	Shutdown Margin Monitor Alarm Setpoint
3/4.9.1.1	Refueling Boron Concentration

2.0 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 the NRC-approved methodologies specified in Technical Specification 6.9.1.6.b.

2.1 Safety Limits (Specification 2.1.1)

2.1.1 Reactor Core

The combination of THERMAL POWER, Reactor Coolant System highest loop average temperature, and pressurizer pressure shall not exceed the limits shown in Figure 1.

2.2 Limiting Safety System Settings (Specification 2.2.1)

2.2.1 Overtemperature ΔT

2.2.1.1 $K_1 \leq 1.20$

2.2.1.2 $K_2 \geq 0.025$ / °F

2.2.1.3 $K_3 \geq 0.00113$ / psi

2.2.1.4 $\tau_1 \geq 8$ seconds

2.2.1.5 $\tau_2 \leq 3$ seconds

2.2.1.6 $\tau_4 \geq 20$ seconds

2.2.1.7 $\tau_5 \leq 4$ seconds

2.2.1.8 T' is loop specific indicated T_{avg} at RATED THERMAL POWER, ≤ 587.1°F

2.2.1.9 P' is nominal pressurizer pressure, ≥ 2250 psia

2.2.1.10 $f_1(\Delta I)$ is a function of the indicated difference between top and bottom detectors of the power range neutron ion chambers; with nominal gains to be selected based on measured instrument response during plant startup tests calibrations such that:

(1) For $q_t - q_b$ between -18% and +10%, $f_1(\Delta I) \geq 0$, where q_t and q_b are percent RATED THERMAL POWER in the upper and lower halves of the core, respectively, and $q_t + q_b$ is the total THERMAL POWER in percent RATED THERMAL POWER;

(2) For each percent that the magnitude of $q_t - q_b$ exceeds -18%, the ΔT Trip Setpoint shall be automatically reduced by ≥ 3.75% of its value at RATED THERMAL POWER.

(3) For each percent that the magnitude of $q_t - q_b$ exceeds +10%, the ΔT Trip Setpoint shall be automatically reduced by ≥ 2.14% of its value at RATED THERMAL POWER.

2.2.2 Overpower ΔT

2.2.2.1 $K_4 \leq 1.10$

2.2.2.2 Deleted

2.2.2.3 $K_6 \geq 0.0015$ / °F when T > T" and $K_6 \leq 0$ / °F when T≤ T"

2.2.2.4 $\tau_1 \geq 8$ seconds

2.2.2.5 $\tau_2 \leq 3$ seconds

2.2.2.6 Deleted

2.2.2.7 T" is loop specific indicated T_{avg} at RATED THERMAL POWER, $\leq$ 587.1°F

2.3 Shutdown Margin - MODE 1 and 2 (Specification 3/4.1.1.1.1)

2.3.1 The SHUTDOWN MARGIN shall be greater than or equal to 1.3% Δk/k.

2.4 Shutdown Margin - MODE 3, 4 and 5 Loops Filled (Specification 3/4.1.1.1.2)

2.4.1 The SHUTDOWN MARGIN shall be greater than or equal to the limits shown in Figures 2, 3 and 4.

2.5 Shutdown Margin - MODE 5 Loops Not Filled (Specification 3/4.1.1.2)

2.5.1 The SHUTDOWN MARGIN shall be greater than or equal to the limits shown in Figure 5 or the limits shown in Figure 4 with the chemical and volume control system (CVCS) aligned to preclude reactor coolant system boron concentration reduction.

2.6 Moderator Temperature Coefficient (Specification 3/4.1.1.3)

2.6.1 The BOL/ARO/0% - 70% RTP MTC shall be less positive than + 0.5 x 10^{-4} Δk/k/°F. Above 70% RTP, the MTC limit is a linear ramp to 0 Δk/k/°F at 100% RTP.

2.6.2 The EOL/ARO/RTP MTC shall be less negative than - 5.65 x 10^{-4} Δk/k/°F.

2.6.3 The 300 ppm/ARO/RTP MTC should be less negative than or equal to - 4.9 x 10^{-4} Δk/k/°F,

where: BOL stands for Beginning Of Cycle Life

ARO stands for All Rods Out

HZP stands for Hot Zero Power

EOL stands for End Of Cycle Life

RTP stands for Rated Thermal Power.

2.7 Shutdown Rod Insertion Limit (Specification 3/4.1.3.5)

2.7.1 The shutdown rods shall be at least 220 steps withdrawn (inclusive).

2.8 Control Rod Insertion Limits (Specification 3/4.1.3.6)

2.8.1 The control rod banks shall be limited in physical insertion as shown in Figure 6, and

2.8.2 Control bank A shall be at least 220 steps withdrawn.

2.9 Axial Flux Difference (Specification 3/4.2.1.1)

2.9.1 The Axial Flux Difference (AFD) limits are provided in Figure 7.

2.9.2 The AFD target band during base load operation is ± 5%.

2.9.3 The minimum allowable (nuclear design) power level for base load operation (APL^{ND}) is 80% of Rated Thermal Power.

2.10 Heat Flux Hot Channel Factor - $F_Q(Z)$ (Specification 3/4.2.2.1)

$$F_Q(Z) \leq \frac{F^{RTP}_Q}{P} \times K(Z) \qquad \text{for } P > 0.5$$

$$F_Q(Z) \leq \frac{F^{RTP}_Q}{0.5} \times K(Z) \qquad \text{for } P \leq 0.5$$

where: $P = \dfrac{\text{THERMAL POWER}}{\text{RATED THERMAL POWER}}$

2.10.1 $F^{RTP}_Q = 2.60$.

2.10.2 K(Z) is provided in Figure 8.

2.11 Heat Flux Hot Channel Factor Surveillance - $F_Q(Z)$ (Specification 3/4.2.2.1.2)

$$F_Q(Z) \leq \frac{F^{RTP}_Q \times K(Z)}{P \times W(Z)} \qquad \text{for } P > 0.5$$

$$F_Q(Z) \leq \frac{F^{RTP}_Q \times K(Z)}{0.5 \times W(Z)} \qquad \text{for } P \leq 0.5$$

where: $P = \dfrac{\text{THERMAL POWER}}{\text{RATED THERMAL POWER}}$

2.11.1 $F^{RTP}_{Q} = 2.60$.

2.11.2 K(Z) is provided in Figure 8.

2.11.3 W(Z) values for RAOC operation are provided in Table 1. Note that the W(Z) values at Axial Mesh 1 are at the top of the core. The Cycle 13 burnup dependent RAOC W(Z) values are valid over the range of burnup from 0 to 21,350 MWD/MTU.

2.11.4 W(Z) values for Base Load (BL) operation are provided in Table 2. Note that the W(Z) values at Axial Mesh 1 are at the top of the core. The Cycle 13 burnup dependent BL W(Z) values are valid over the range of burnup from 0 to 21,350 MWD/MTU.

2.11.5 W(Z) values for Part Power operation are provided in Table 3. Note that the W(Z) values at Axial Mesh 1 are at the top of the core. The Cycle 13 burnup dependent Part Power W(Z) values are valid over the range of burnup from 0 to 150 MWD/MTU.

2.11.6 The factors in Table 4 shall be used for surveillance requirements 4.2.2.1.2 and 4.2.2.1.4. A 2% factor shall be used outside of the burnup range shown in Table 4.

2.12 RCS Total Flow Rate and Nuclear Enthalpy Rise Hot Channel Factor - $F^{N}_{\Delta H}$ (Specification 3/4.2.3.1)

2.12.1 The RCS Total Flow Rate shall be greater than or equal to 379,200 gpm.

2.12.2 $F^{N}_{\Delta H} \leq F^{RTP}_{\Delta H} \times (1 + PF_{\Delta H} \times [1 - P])$

where: $P = \dfrac{\text{THERMAL POWER}}{\text{RATED THERMAL POWER}}$

2.12.2.1 $F^{RTP}_{\Delta H} = 1.587$ for Robust Fuel Assemblies (RFA) and (RFA-2)

2.12.2.2 $PF_{\Delta H} = 0.3$ for $P < 1.0$.

2.13 DNB Parameters (Specification 3/4.2.5)

2.13.1 Indicated Reactor Coolant System T_{avg} shall be maintained ≤ 593.5°F.

2.13.2 Indicated Pressurizer Pressure shall be maintained ≥ 2204 psia *.

2.14 Shutdown Margin Monitor Alarm Setpoint (Specification 3/4.3.5)**

2.14.1 The Shutdown Margin Monitor (SMM) minimum count rate and Alarm Ratio Setting to meet LIMITING CONDITION FOR OPERATION (LCO) 3.3.5 shall be as shown below.

Tech. Spec. LCO	SMM Alarm Ratio Setting	Min. Count Rate (counts/sec)
3.3.5.a	1.50	1.0
	1.25	0.6
3.3.5.b.1	1.50	0.50
	1.25	0.35
3.3.5.b.2	1.50	0.35
	1.25	0.25

The combination of the SMM Alarm Ratio setting and minimum count rate accounts for the time lag between the indicated and actual count rates, as well as other uncertainties. The specified SMM Alarm Ratio setting ensures that the assumption that an alarm is generated at flux doubling in the Boron Dilution Event analysis remains valid. The count rate is displayed on the SMM.

2.15 Refueling Boron Concentration (Specification 3/4.9.1.1)

2.15.1 The boron concentration of all filled portions of the Reactor Coolant System and the refueling cavity shall be maintained at a boron concentration of greater than or equal to 2600 ppm. ***

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* Limit not applicable during either a THERMAL POWER ramp in excess of 5% of RATED THERMAL POWER per minute or a THERMAL POWER step in excess of 10% of RATED THERMAL POWER.

** Section 2.14 was prepared by Dominion based on boron dilution analyses performed by Westinghouse.

*** This boron concentration bounds the condition of $k_{eff} \leq 0.95$ (all rods in less the most reactive two rods) and subcriticality ($k_{eff} \leq 1.0$ with all rods out) during the Cycle 12/13 refueling outage.

Figure 1 Reactor Core Safety Limit

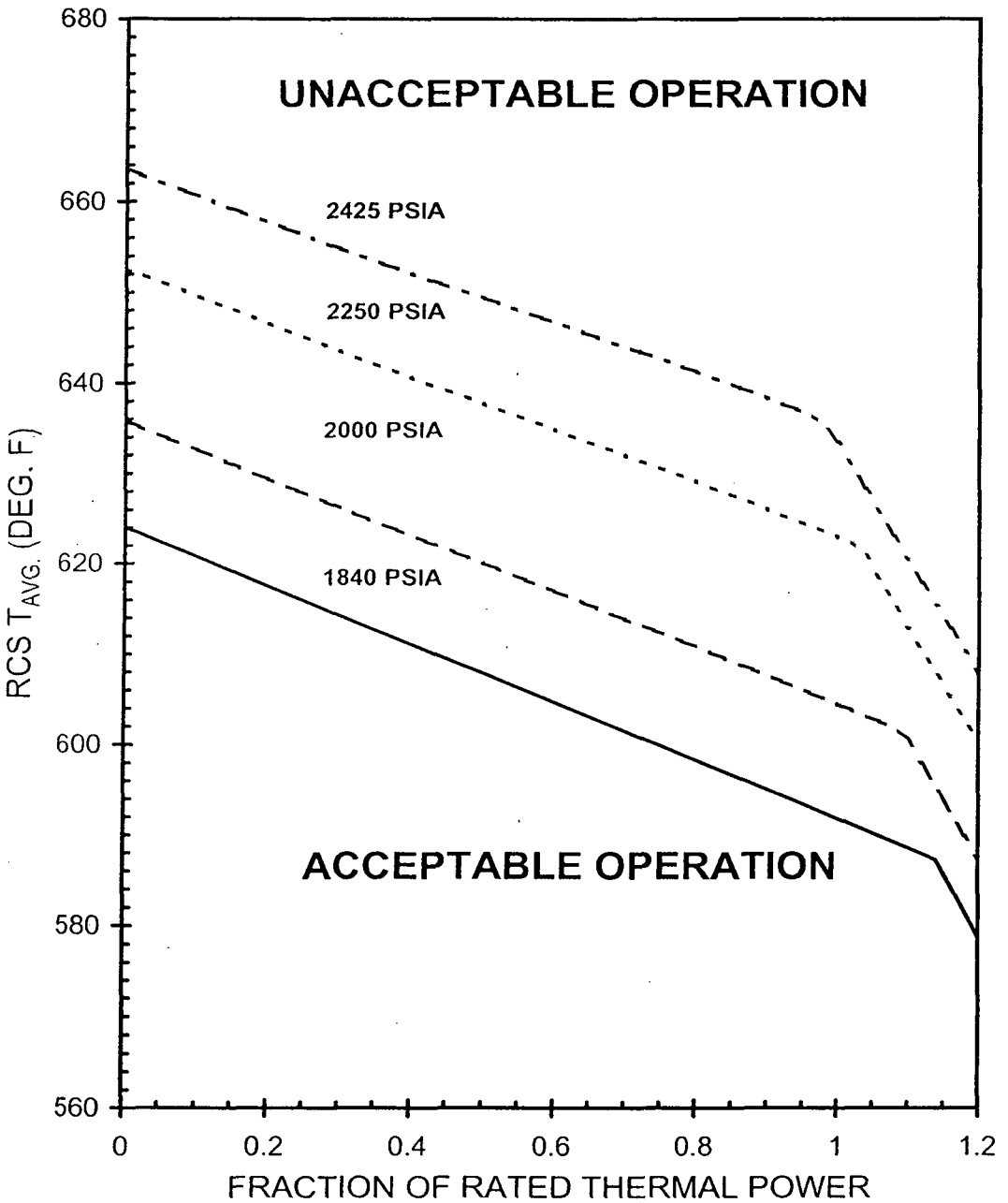

Figure 2 Required Shutdown Margin for MODE 3

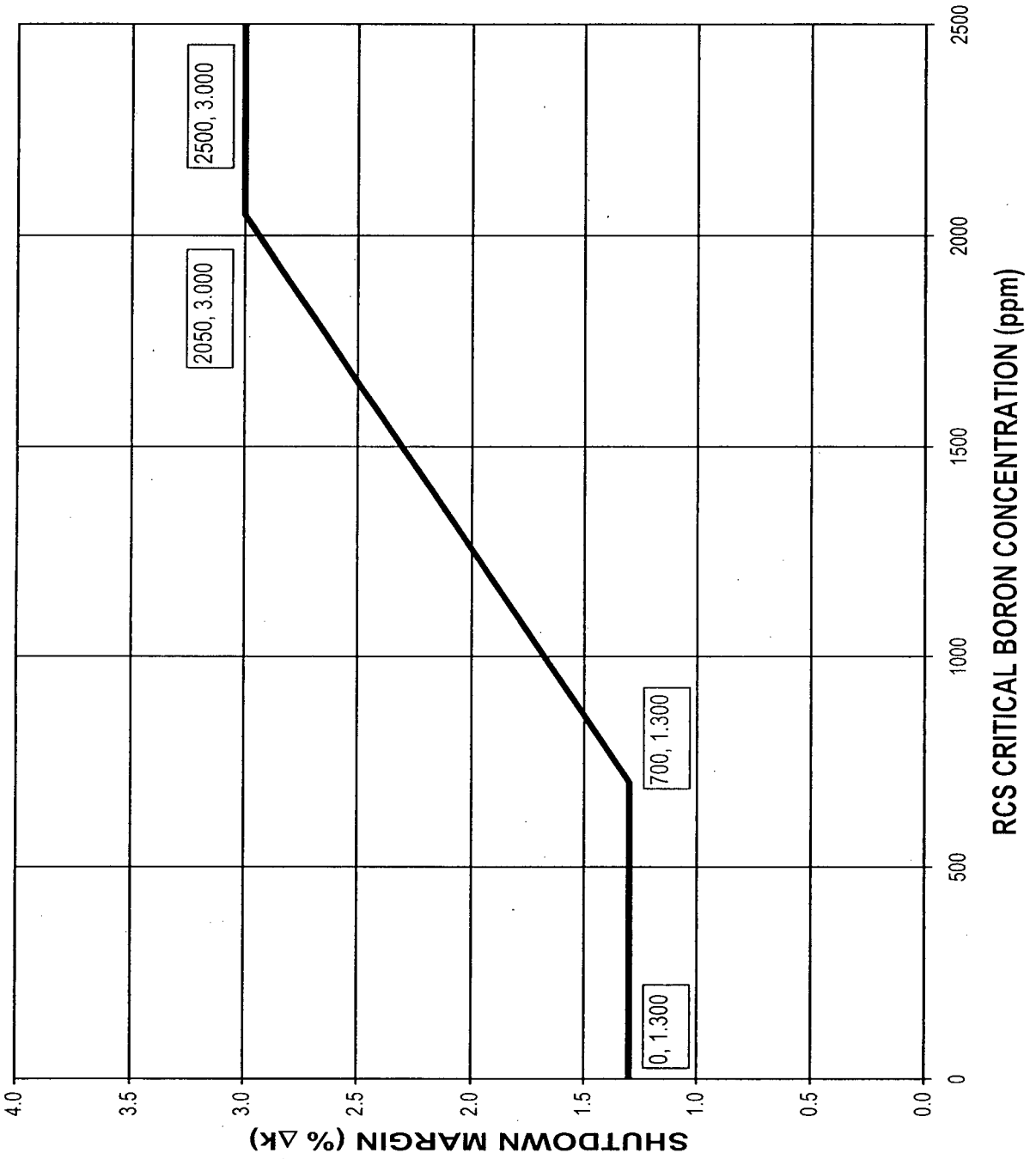

Figure 3 Required Shutdown Margin for MODE 4

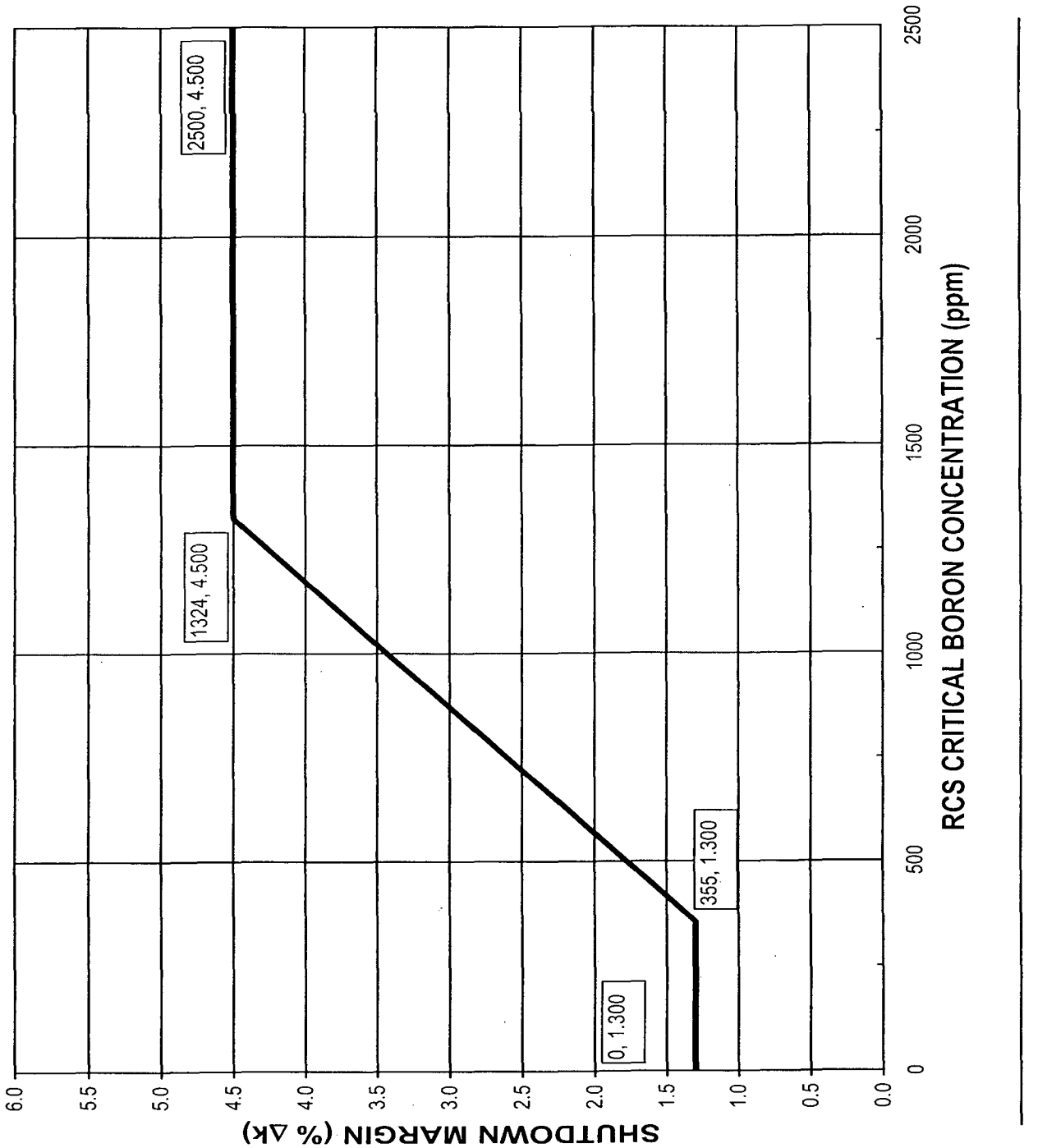

Figure 4 Required Shutdown Margin for MODE 5 with RCS Loops Filled

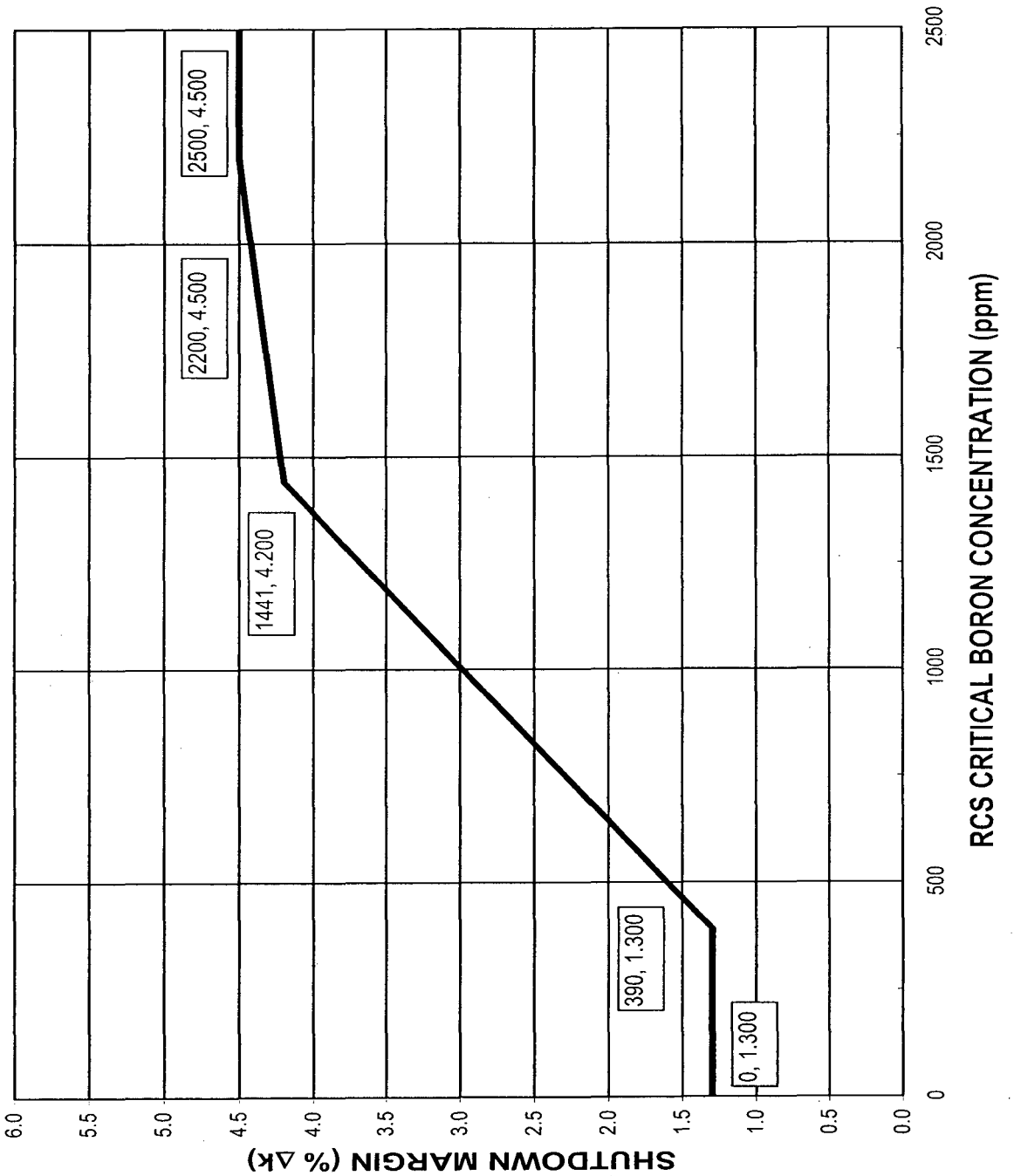

Figure 5 Required Shutdown Margin for MODE 5 with RCS Loops Not Filled

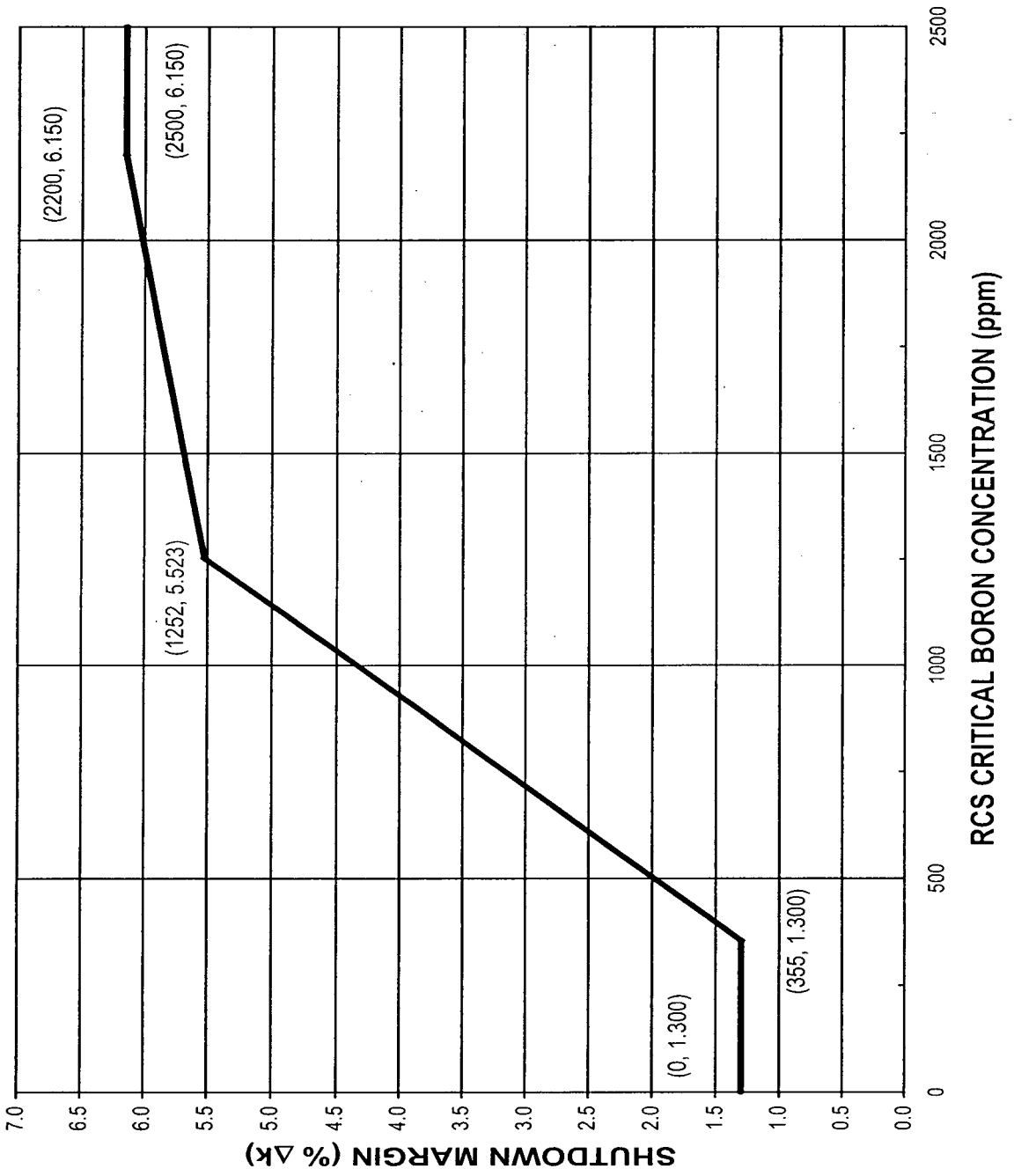

Figure 6 Control Rod Bank Insertion Limits versus Thermal Power

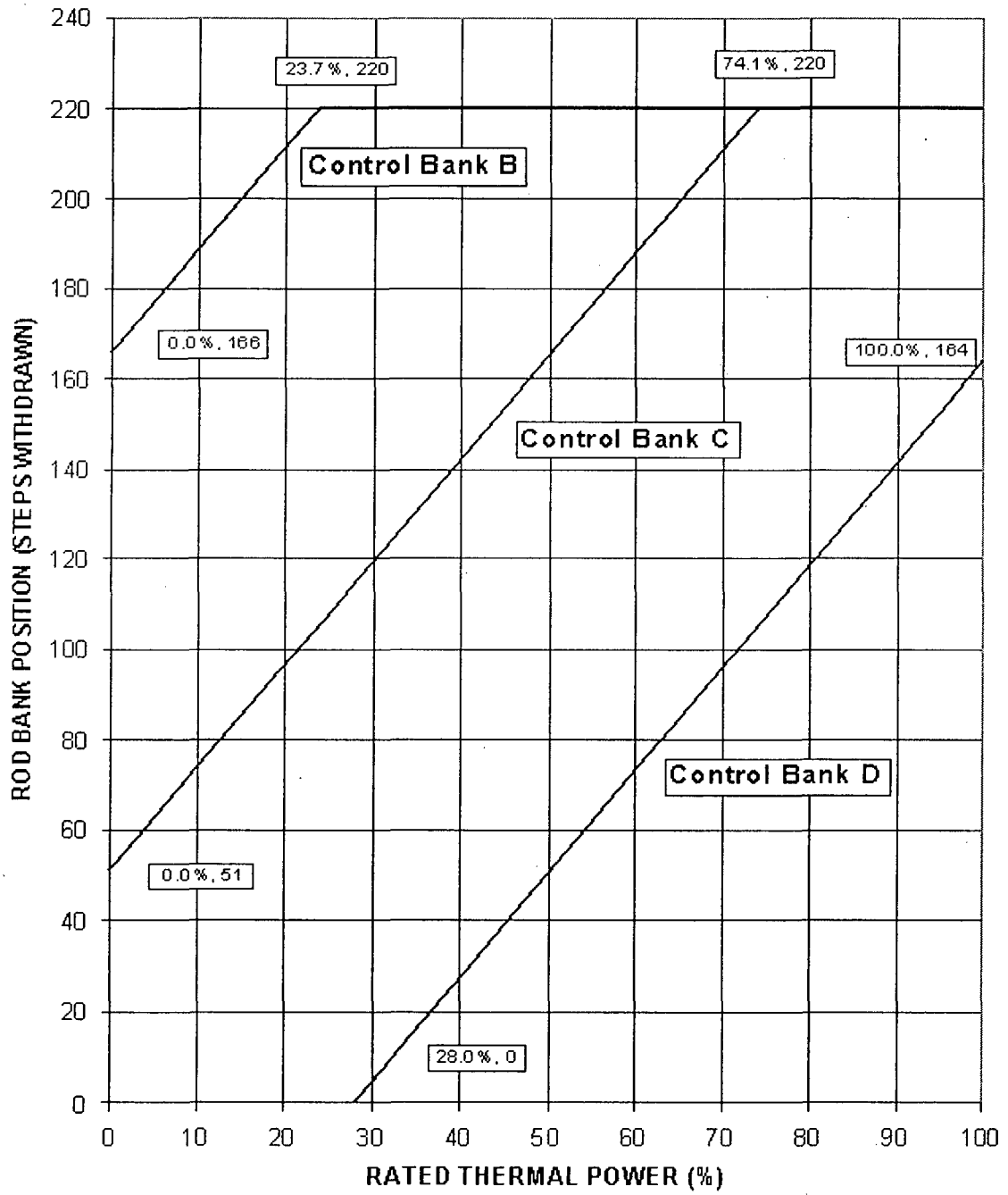

Figure 7 Axial Flux Difference Limits as a Function of Rated Thermal Power

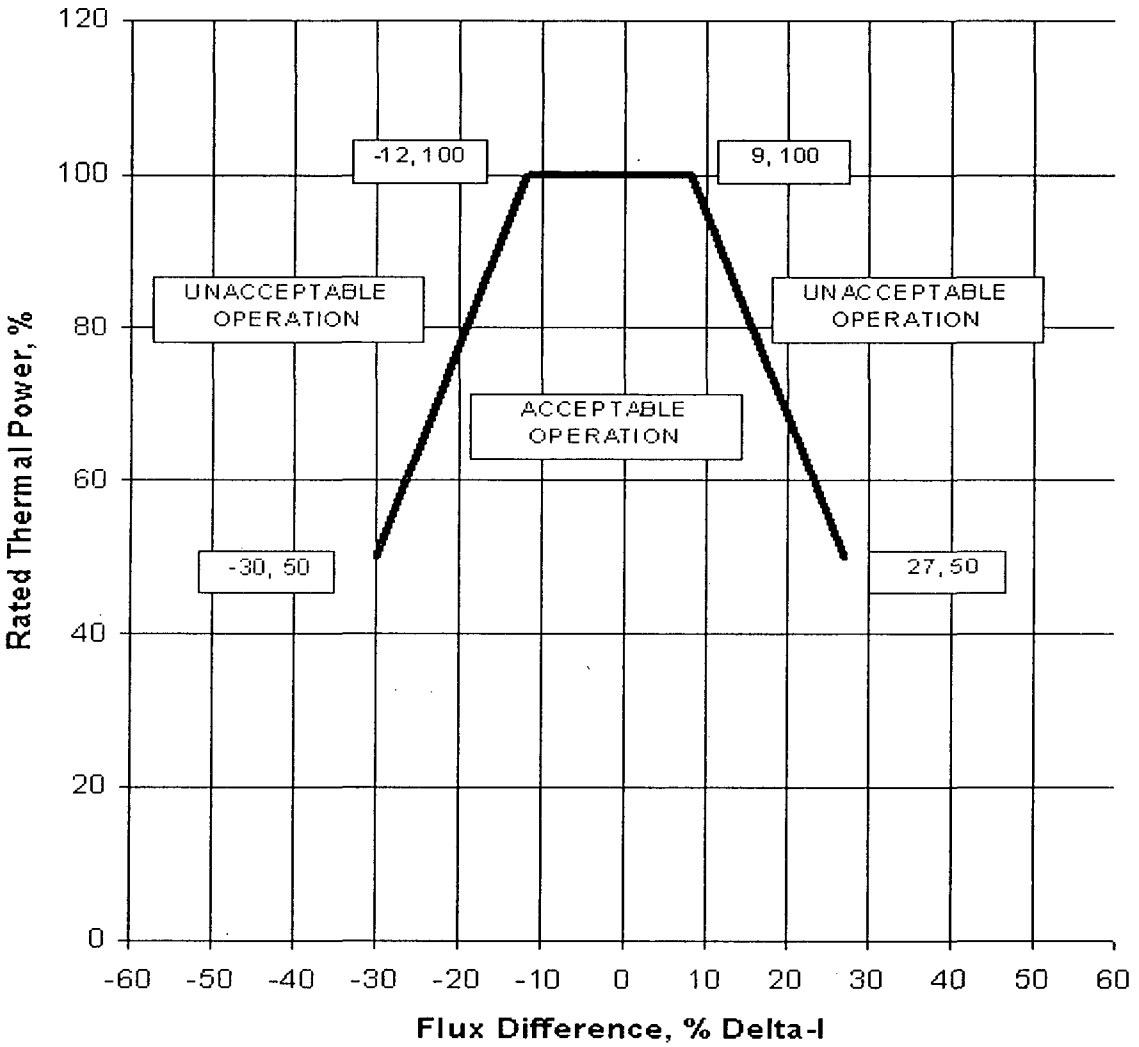

Figure 8 K(Z) - Normalized $F_Q(Z)$ as a Function of Core Height

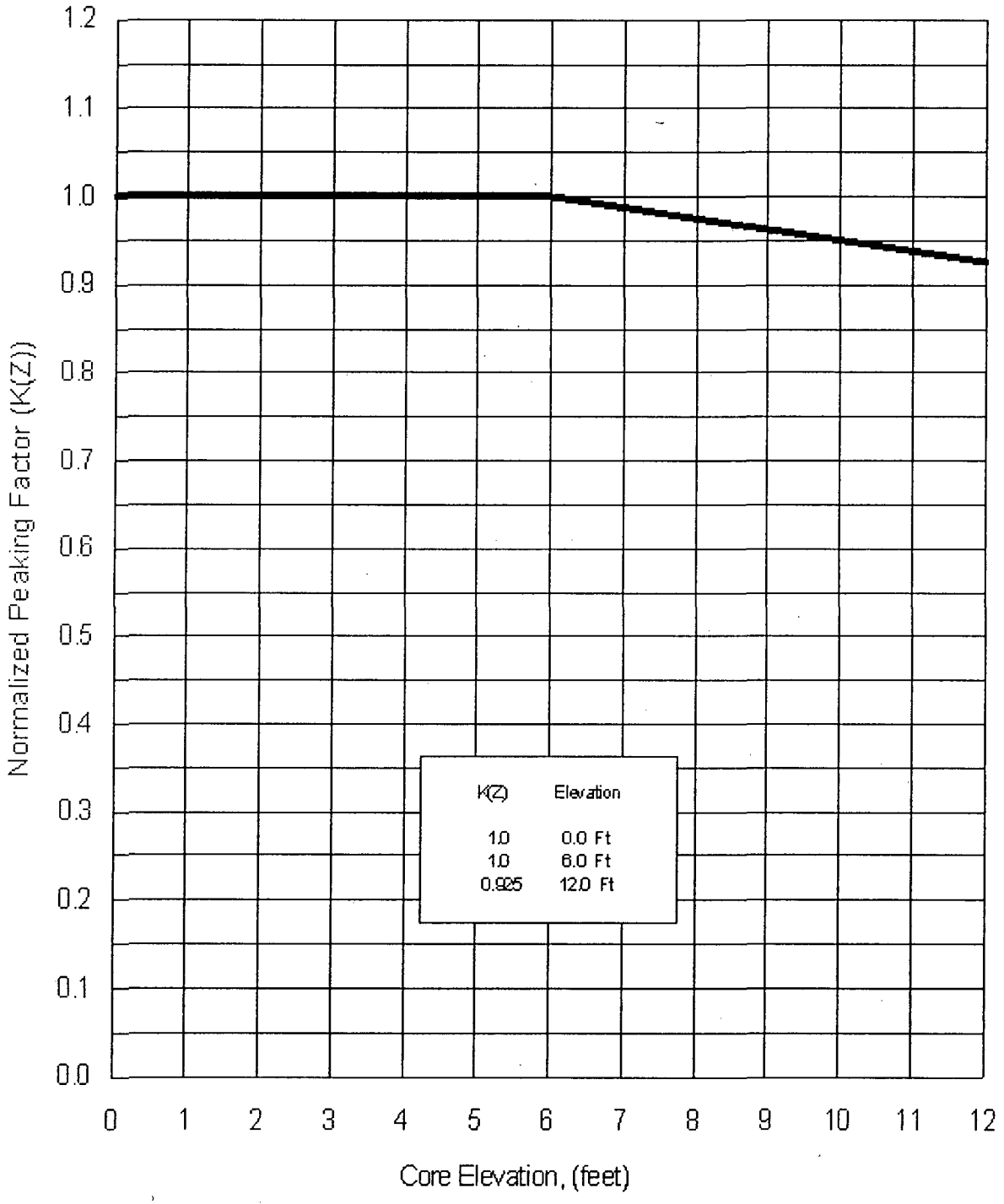

Table 1 RAOC W(Z) Function, Millstone Unit 3 - Cycle 13
-12/+9 AFD at 100% RTP

		Burnup Step (MWD/MTU)			
Mesh No.	Height *	150	6000	12000	18000
1	12.0000	1.0000	1.0000	1.0000	1.0000
2	11.8333	1.0000	1.0000	1.0000	1.0000
3	11.6667	1.0000	1.0000	1.0000	1.0000
4	11.5000	1.0000	1.0000	1.0000	1.0000
5	11.3333	1.0000	1.0000	1.0000	1.0000
6	11.1667	1.0000	1.0000	1.0000	1.0000
7	11.0000	1.0000	1.0000	1.0000	1.0000
8	10.8333	1.0000	1.0000	1.0000	1.0000
9	10.6667	1.0000	1.0000	1.0000	1.0000
10	10.5000	1.3936	1.4312	1.3316	1.2860
11	10.3333	1.3683	1.4075	1.3111	1.2697
12	10.1667	1.3430	1.3830	1.2894	1.2523
13	10.0000	1.3162	1.3571	1.2671	1.2339
14	9.8333	1.2893	1.3301	1.2432	1.2188
15	9.6667	1.2603	1.3013	1.2230	1.2149
16	9.5000	1.2295	1.2710	1.2177	1.2108
17	9.3333	1.2112	1.2479	1.2112	1.2053
18	9.1667	1.2030	1.2345	1.2037	1.1999
19	9.0000	1.1943	1.2217	1.1964	1.1983
20	8.8333	1.1929	1.2124	1.1941	1.2009
21	8.6667	1.1946	1.2064	1.1939	1.2025
22	8.5000	1.1950	1.2010	1.1958	1.2059
23	8.3333	1.1939	1.1947	1.1971	1.2105
24	8.1667	1.1925	1.1887	1.1977	1.2156
25	8.0000	1.1915	1.1855	1.1984	1.2208
26	7.8333	1.1910	1.1819	1.1979	1.2244
27	7.6667	1.1903	1.1765	1.1962	1.2263
28	7.5000	1.1881	1.1704	1.1943	1.2274
29	7.3333	1.1844	1.1655	1.1912	1.2270
30	7.1667	1.1797	1.1590	1.1864	1.2246
31	7.0000	1.1737	1.1515	1.1803	1.2205
32	6.8333	1.1668	1.1431	1.1730	1.2149
33	6.6667	1.1589	1.1336	1.1644	1.2077
34	6.5000	1.1509	1.1231	1.1546	1.1991
35	6.3333	1.1444	1.1161	1.1442	1.1893
36	6.1667	1.1400	1.1143	1.1324	1.1781
37	6.0000	1.1361	1.1114	1.1208	1.1665
38	5.8333	1.1320	1.1081	1.1158	1.1579
39	5.6667	1.1285	1.1053	1.1138	1.1519
40	5.5000	1.1272	1.1051	1.1170	1.1532

* Distance from bottom of active core (feet)

Table 1 (Continued)
RAOC W(Z) Function, Millstone Unit 3 - Cycle 13
-12/+9 AFD at 100% RTP

		Burnup Step (MWD/MTU)			
Mesh No.	Height *	150	6000	12000	18000
41	5.3333	1.1281	1.1070	1.1209	1.1572
42	5.1667	1.1320	1.1104	1.1235	1.1602
43	5.0000	1.1371	1.1142	1.1258	1.1624
44	4.8333	1.1422	1.1179	1.1277	1.1639
45	4.6667	1.1467	1.1212	1.1310	1.1646
46	4.5000	1.1508	1.1243	1.1343	1.1645
47	4.3333	1.1546	1.1277	1.1375	1.1639
48	4.1667	1.1581	1.1314	1.1402	1.1626
49	4.0000	1.1612	1.1348	1.1423	1.1610
50	3.8333	1.1641	1.1379	1.1455	1.1592
51	3.6667	1.1667	1.1410	1.1507	1.1571
52	3.5000	1.1691	1.1441	1.1562	1.1549
53	3.3333	1.1715	1.1475	1.1615	1.1523
54	3.1667	1.1765	1.1510	1.1664	1.1498
55	3.0000	1.1890	1.1580	1.1714	1.1524
56	2.8333	1.2053	1.1706	1.1824	1.1635
57	2.6667	1.2214	1.1848	1.1965	1.1759
58	2.5000	1.2377	1.1997	1.2106	1.1881
59	2.3333	1.2540	1.2147	1.2245	1.2001
60	2.1667	1.2700	1.2302	1.2382	1.2120
61	2.0000	1.2857	1.2465	1.2514	1.2235
62	1.8333	1.3008	1.2624	1.2641	1.2345
63	1.6667	1.3150	1.2775	1.2759	1.2448
64	1.5000	1.0000	1.0000	1.0000	1.0000
65	1.3333	1.0000	1.0000	1.0000	1.0000
66	1.1667	1.0000	1.0000	1.0000	1.0000
67	1.0000	1.0000	1.0000	1.0000	1.0000
68	0.8333	1.0000	1.0000	1.0000	1.0000
69	0.6667	1.0000	1.0000	1.0000	1.0000
70	0.5000	1.0000	1.0000	1.0000	1.0000
71	0.3333	1.0000	1.0000	1.0000	1.0000
72	0.1667	1.0000	1.0000	1.0000	1.0000
73	0.0000	1.0000	1.0000	1.0000	1.0000

* Distance from bottom of active core (feet)

Table 2 Base Load W(Z) Function
Millstone Unit 3 - Cycle 13

		Burnup Step (MWD.MTU)			
Mesh No.	Height *	150	6000	12000	18000
1	12.0000	1.0000	1.0000	1.0000	1.0000
2	11.8333	1.0000	1.0000	1.0000	1.0000
3	11.6667	1.0000	1.0000	1.0000	1.0000
4	11.5000	1.0000	1.0000	1.0000	1.0000
5	11.3333	1.0000	1.0000	1.0000	1.0000
6	11.1667	1.0000	1.0000	1.0000	1.0000
7	11.0000	1.0000	1.0000	1.0000	1.0000
8	10.8333	1.0000	1.0000	1.0000	1.0000
9	10.6667	1.0000	1.0000	1.0000	1.0000
10	10.5000	1.1682	1.1965	1.1633	1.1477
11	10.3333	1.1650	1.1896	1.1560	1.1437
12	10.1667	1.1624	1.1826	1.1483	1.1390
13	10.0000	1.1566	1.1755	1.1400	1.1339
14	9.8333	1.1498	1.1682	1.1317	1.1284
15	9.6667	1.1436	1.1613	1.1236	1.1227
16	9.5000	1.1381	1.1549	1.1152	1.1168
17	9.3333	1.1317	1.1465	1.1087	1.1108
18	9.1667	1.1257	1.1377	1.1086	1.1110
19	9.0000	1.1233	1.1329	1.1120	1.1171
20	8.8333	1.1241	1.1312	1.1159	1.1212
21	8.6667	1.1297	1.1304	1.1203	1.1262
22	8.5000	1.1355	1.1289	1.1250	1.1347
23	8.3333	1.1403	1.1297	1.1289	1.1431
24	8.1667	1.1439	1.1326	1.1318	1.1499
25	8.0000	1.1465	1.1344	1.1338	1.1557
26	7.8333	1.1514	1.1353	1.1349	1.1606
27	7.6667	1.1544	1.1354	1.1352	1.1642
28	7.5000	1.1562	1.1346	1.1352	1.1668
29	7.3333	1.1569	1.1330	1.1364	1.1683
30	7.1667	1.1564	1.1306	1.1366	1.1688
31	7.0000	1.1547	1.1274	1.1357	1.1709
32	6.8333	1.1522	1.1241	1.1340	1.1717
33	6.6667	1.1490	1.1212	1.1313	1.1714
34	6.5000	1.1456	1.1184	1.1277	1.1700
35	6.3333	1.1425	1.1163	1.1238	1.1671
36	6.1667	1.1399	1.1143	1.1199	1.1636
37	6.0000	1.1362	1.1114	1.1156	1.1607
38	5.8333	1.1320	1.1080	1.1125	1.1567
39	5.6667	1.1285	1.1053	1.1111	1.1519
40	5.5000	1.1267	1.1045	1.1106	1.1496

* Distance from bottom of active core (feet)

Table 2 (Continued)
Base Load W(Z) Function
Millstone Unit 3 - Cycle 13

		Burnup Step (MWD.MTU)			
Mesh No.	Height *	150	6000	12000	18000
41	5.3333	1.1248	1.1039	1.1098	1.1484
42	5.1667	1.1220	1.1024	1.1086	1.1464
43	5.0000	1.1187	1.1016	1.1069	1.1436
44	4.8333	1.1149	1.1005	1.1048	1.1400
45	4.6667	1.1107	1.0990	1.1024	1.1358
46	4.5000	1.1063	1.0973	1.1002	1.1310
47	4.3333	1.1025	1.0953	1.0978	1.1256
48	4.1667	1.0985	1.0931	1.0953	1.1197
49	4.0000	1.0942	1.0909	1.0928	1.1134
50	3.8333	1.0898	1.0883	1.0900	1.1070
51	3.6667	1.0864	1.0868	1.0898	1.1003
52	3.5000	1.0855	1.0883	1.0908	1.0928
53	3.3333	1.0855	1.0889	1.0915	1.0892
54	3.1667	1.0863	1.0899	1.0923	1.0888
55	3.0000	1.0926	1.0945	1.0953	1.0913
56	2.8333	1.1027	1.1044	1.1026	1.0977
57	2.6667	1.1143	1.1186	1.1139	1.1058
58	2.5000	1.1261	1.1330	1.1255	1.1144
59	2.3333	1.1383	1.1471	1.1367	1.1227
60	2.1667	1.1503	1.1615	1.1480	1.1311
61	2.0000	1.1623	1.1756	1.1591	1.1395
62	1.8333	1.1738	1.1893	1.1698	1.1474
63	1.6667	1.1847	1.2022	1.1798	1.1550
64	1.5000	1.0000	1.0000	1.0000	1.0000
65	1.3333	1.0000	1.0000	1.0000	1.0000
66	1.1667	1.0000	1.0000	1.0000	1.0000
67	1.0000	1.0000	1.0000	1.0000	1.0000
68	0.8333	1.0000	1.0000	1.0000	1.0000
69	0.6667	1.0000	1.0000	1.0000	1.0000
70	0.5000	1.0000	1.0000	1.0000	1.0000
71	0.3333	1.0000	1.0000	1.0000	1.0000
72	0.1667	1.0000	1.0000	1.0000	1.0000
73	0.0000	1.0000	1.0000	1.0000	1.0000

* Distance from bottom of active core (feet)

Table 3
Part Power (74% RTP, 150 MWD/MTU) RAOC W(Z) Function
Millstone Unit 3 – Cycle 13

Mesh No.	Height (ft)	W(z)
1	12.0000	1.0000
2	11.8333	1.0000
3	11.6667	1.0000
4	11.5000	1.0000
5	11.3333	1.0000
6	11.1667	1.0000
7	11.0000	1.0000
8	10.8333	1.0000
9	10.6667	1.0000
10	10.5000	1.2384
11	10.3333	1.2175
12	10.1667	1.1983
13	10.0000	1.1789
14	9.8333	1.1592
15	9.6667	1.1370
16	9.5000	1.1129
17	9.3333	1.1004
18	9.1667	1.0974
19	9.0000	1.0942
20	8.8333	1.0980
21	8.6667	1.1041
22	8.5000	1.1090
23	8.3333	1.1132
24	8.1667	1.1178
25	8.0000	1.1212
26	7.8333	1.1241
27	7.6667	1.1284
28	7.5000	1.1313
29	7.3333	1.1329
30	7.1667	1.1331
31	7.0000	1.1317
32	6.8333	1.1291
33	6.6667	1.1261
34	6.5000	1.1229
35	6.3333	1.1209
36	6.1667	1.1202
37	6.0000	1.1202
38	5.8333	1.1207
39	5.6667	1.1229
40	5.5000	1.1263

Table 3 (Continued)
Part Power (74% RTP, 150 MWD/MTU) RAOC W(Z) Function
Millstone Unit 3 – Cycle 13

Mesh No.	Height (ft)	W(z)
41	5.3333	1.1312
42	5.1667	1.1376
43	5.0000	1.1459
44	4.8333	1.1545
45	4.6667	1.1623
46	4.5000	1.1707
47	4.3333	1.1792
48	4.1667	1.1875
49	4.0000	1.1949
50	3.8333	1.2020
51	3.6667	1.2085
52	3.5000	1.2148
53	3.3333	1.2223
54	3.1667	1.2327
55	3.0000	1.2454
56	2.8333	1.2594
57	2.6667	1.2736
58	2.5000	1.2883
59	2.3333	1.3099
60	2.1667	1.3313
61	2.0000	1.3525
62	1.8333	1.3737
63	1.6667	1.3941
64	1.5000	1.0000
65	1.3333	1.0000
66	1.1667	1.0000
67	1.0000	1.0000
68	0.8333	1.0000
69	0.6667	1.0000
70	0.5000	1.0000
71	0.3333	1.0000
72	0.1667	1.0000
73	0.0000	1.0000

Table 4 Burnup Penalty for Incore *

Burnup	Penalty
3691	1.020
3852	1.022
4013	1.023
4174	1.024
4335	1.025
4496	1.027
4818	1.029
5461	1.029
5783	1.027
5944	1.025
6105	1.024
6427	1.020

* Note: A penalty of 1.02 shall be used outside of the burnup range shown in Table 4.

3.0 Analytical Methods

The analytical methods used to determine the core operating limits shall be those previously reviewed and approved by the NRC, specifically those described in the following documents.

3.1 WCAP-9272-P-A, "WESTINGHOUSE RELOAD SAFETY EVALUATION METHODOLOGY," July 1985 (W Proprietary).

3.2 WCAP-10216-P-A-R1A, "RELAXATION OF CONSTANT AXIAL OFFSET CONTROL FQ SURVEILLANCE TECHNICAL SPECIFICATION," Rev. 1, February 1994 (W Proprietary).

3.3 WCAP-12945-P-A, Volume 1 (Revision 2) and Volumes 2 through 5 (Revision 1), "Code Qualification Document for Best Estimate LOCA Analysis," March 1998 (W Proprietary).

3.4 WCAP-16009-P-A, "Realistic Large-Break LOCA Evaluation Methodology Using the Automated Statistical Treatment of Uncertainty Method (ASTRUM)," January 2005 (W Proprietary).

3.5 WCAP-11946, "Safety Evaluation Supporting a More Negative EOL Moderator Temperature Coefficient Technical Specification for the Millstone Nuclear Power Station Unit 3," September 1988 (W Proprietary).

3.6 WCAP-10054-P-A, "WESTINGHOUSE SMALL BREAK ECCS EVALUATION MODEL 17 USING THE NOTRUMP CODE," August 1985 (W Proprietary).

3.7 WCAP-10079-P-A, "NOTRUMP – A NODAL TRANSIENT SMALL BREAK AND GENERAL NETWORK CODE," August 1985 (W Proprietary).

3.8 WCAP-12610-P-A, "VANTAGE+ Fuel Assembly Report," April 1995 (W Proprietary).

3.9 WCAP-8301, "LOCTA-IV Program: Loss-of-Coolant Transient Analysis," June 1974 (W Proprietary).

3.10 WCAP-10054-P-A, Addendum 2, Revision 1, "Addendum to the Westinghouse Small Break ECCS Evaluation Model Using the NOTRUMP Code: Safety Injection into the Broken Loop and COSI Condensation Model," July 1997 (W Proprietary).

3.11 WCAP-8745-P-A, "DESIGN BASES FOR THE THERMAL OVERPOWER ΔT AND THERMAL OVERTEMPERATURE ΔT TRIP FUNCTIONS," September 1986 (W Proprietary).