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Dominion℠

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U.S. Nuclear Regulatory Commission
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DOMINION NUCLEAR CONNECTICUT, INC.
MILLSTONE POWER STATION UNIT 3
CORE OPERATING LIMITS REPORT, CYCLE 14

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 14 Core Operating Limits Report (COLR).

The MPS3 COLR has been revised to incorporate the following:

- Editorial changes to increment the cycle number from 13 to 14.
- Cycle 14-specific changes to the W(Z) values.
- Cycle 14-specific changes to the burnup range for W(Z) values.
- Administrative change related to $F^{RTP}_{\Delta H}$.
- Clarification of a footnote related to the refueling boron concentration.

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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ENCLOSURE 1

CORE OPERATING LIMITS REPORT, CYCLE 14

DOMINION NUCLEAR CONNECTICUT, INC.
MILLSTONE POWER STATION UNIT 3

TECHNICAL REQUIREMENTS MANUAL

APPENDIX 8.1

CORE OPERATING LIMITS REPORT

MILLSTONE UNIT 3

CYCLE 14

CORE OPERATING LIMITS REPORT

TECHNICAL REQUIREMENTS MANUAL
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CORE OPERATING LIMITS REPORT

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Millstone Unit 3

Cycle 14

Core Operating Limits Report

1.0 Core Operating Limits Report

This Core Operating Limits Report (COLR) for Millstone Unit 3 Cycle 14 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, ≤ 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)

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

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

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)

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

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

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 14 burnup dependent RAOC W(Z) values are valid over the range of burnup from 0 to 21,900 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 14 burnup dependent BL W(Z) values are valid over the range of burnup from 0 to 21,900 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 14 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 $F^{RTP}_{\Delta H} = 1.586$ 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).

Figure 1 Reactor Core Safety Limit

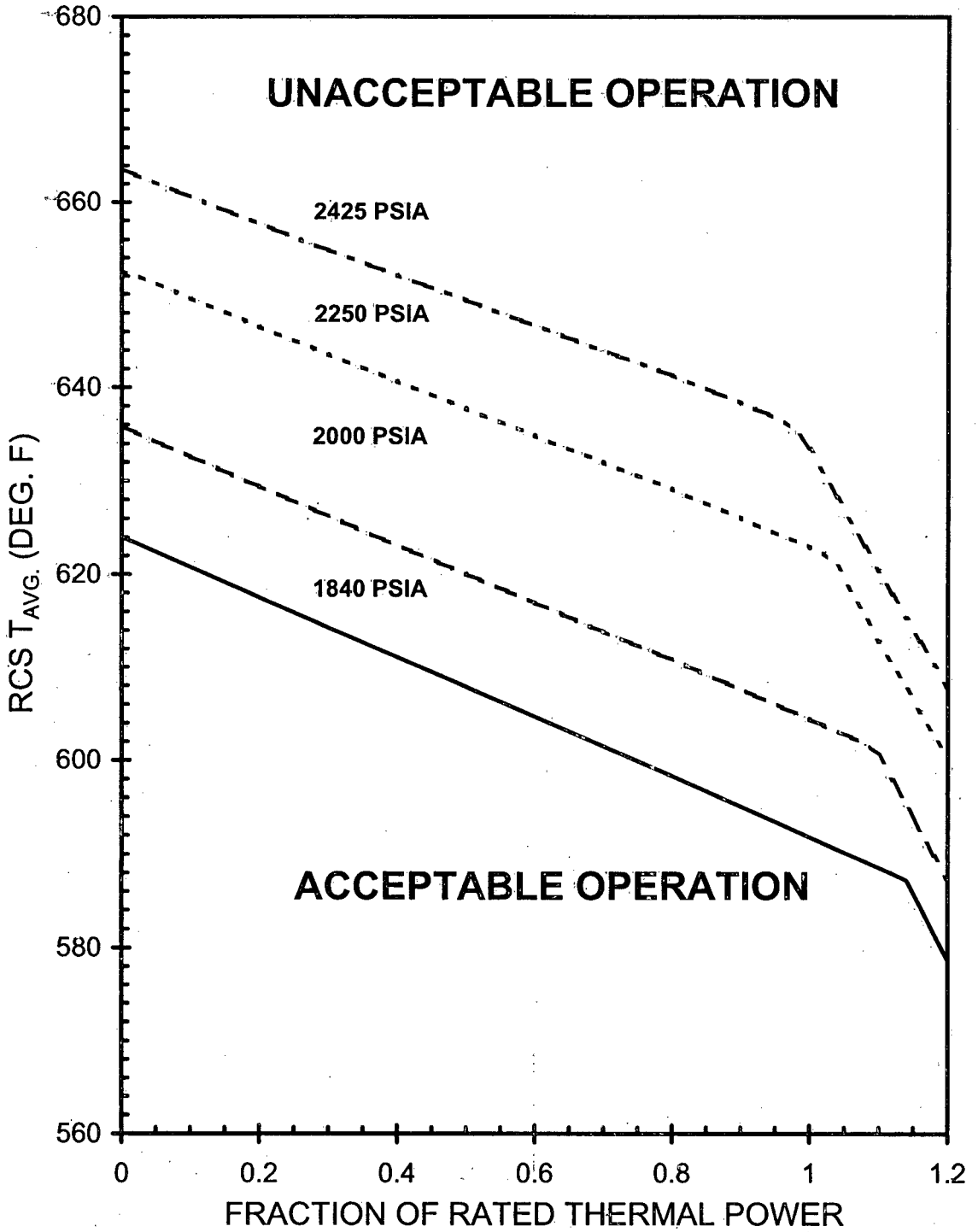

Figure 2 Required Shutdown Margin for MODE 3

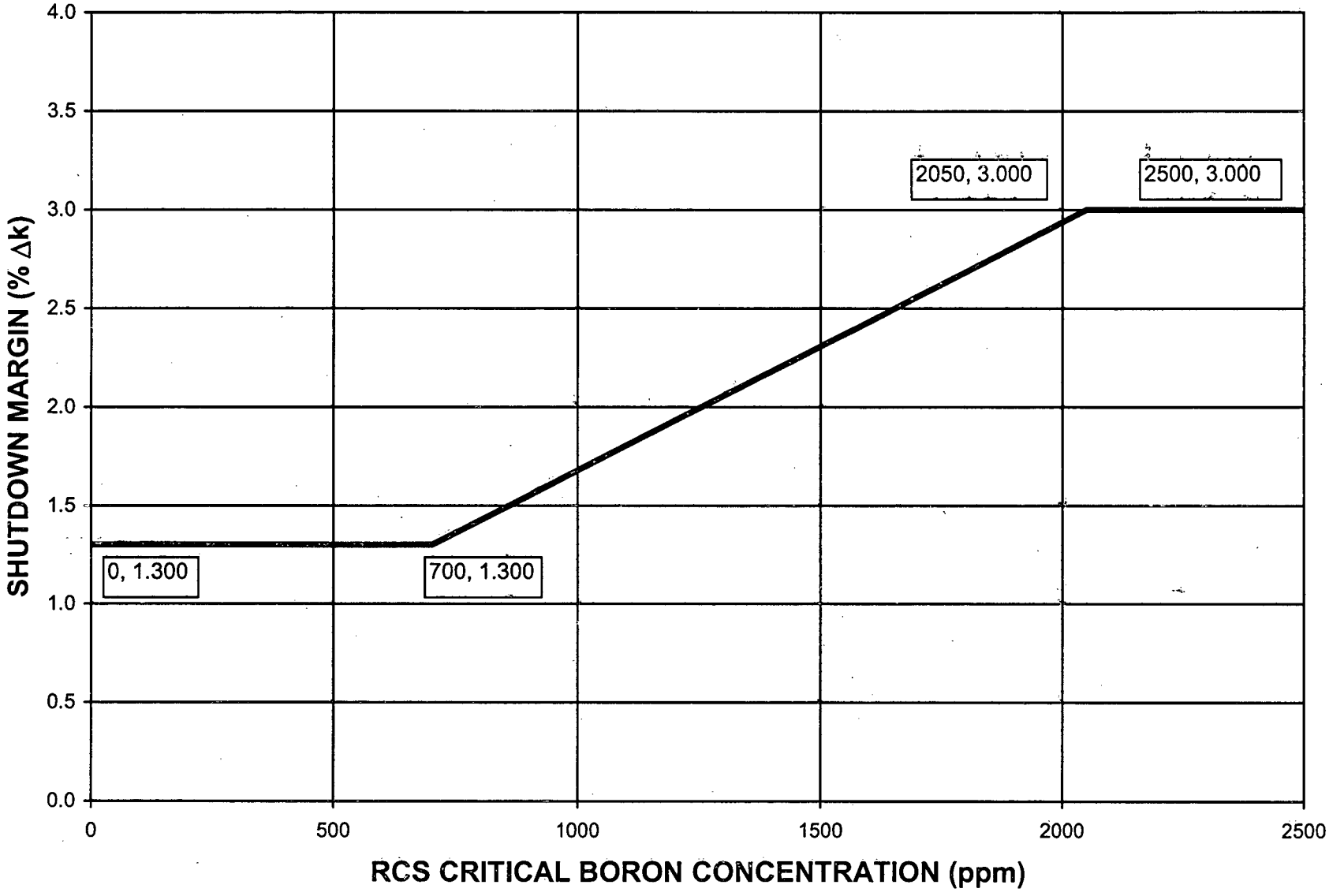

Figure 3 Required Shutdown Margin for MODE 4

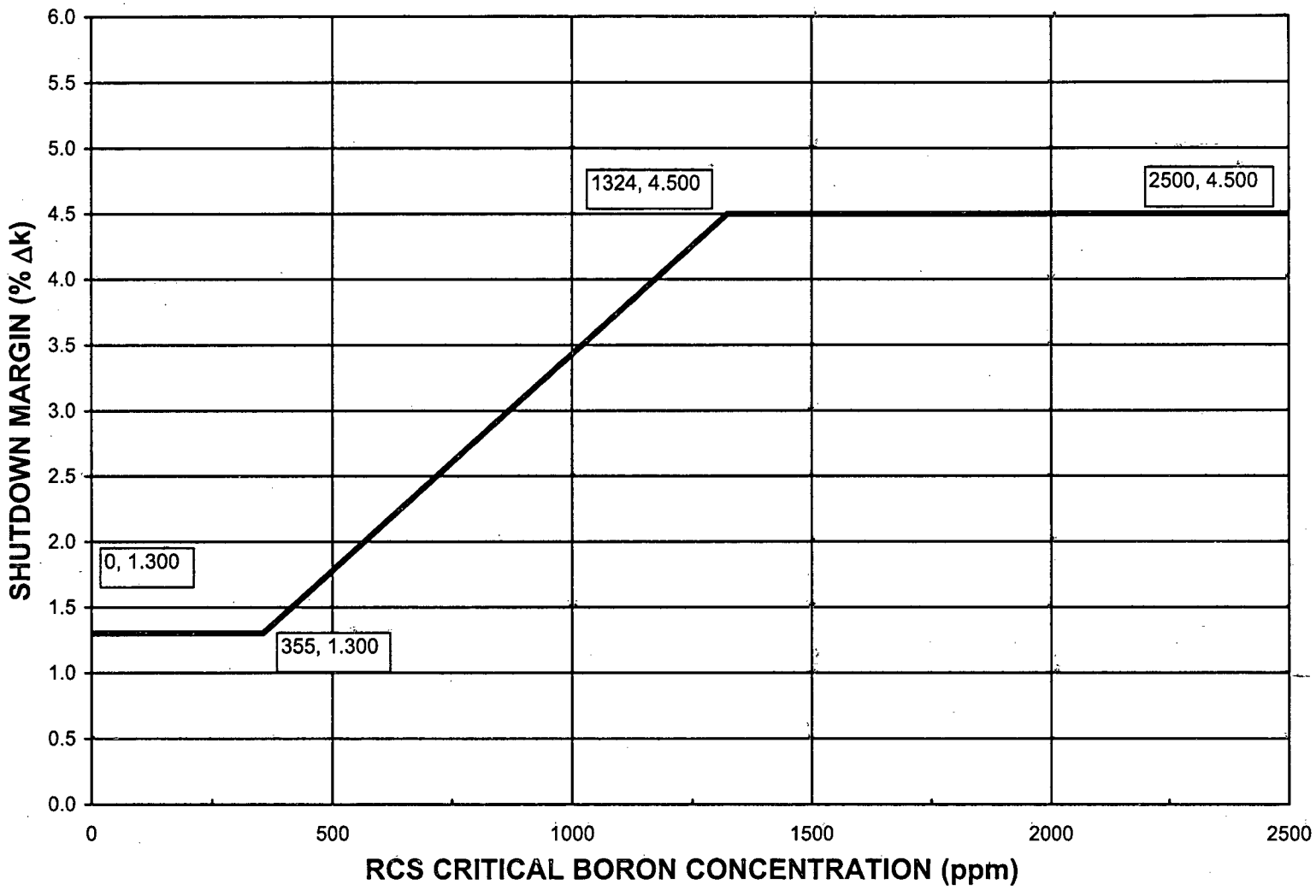

Figure 4 Required Shutdown Margin for MODE 5 with RCS Loops Filled

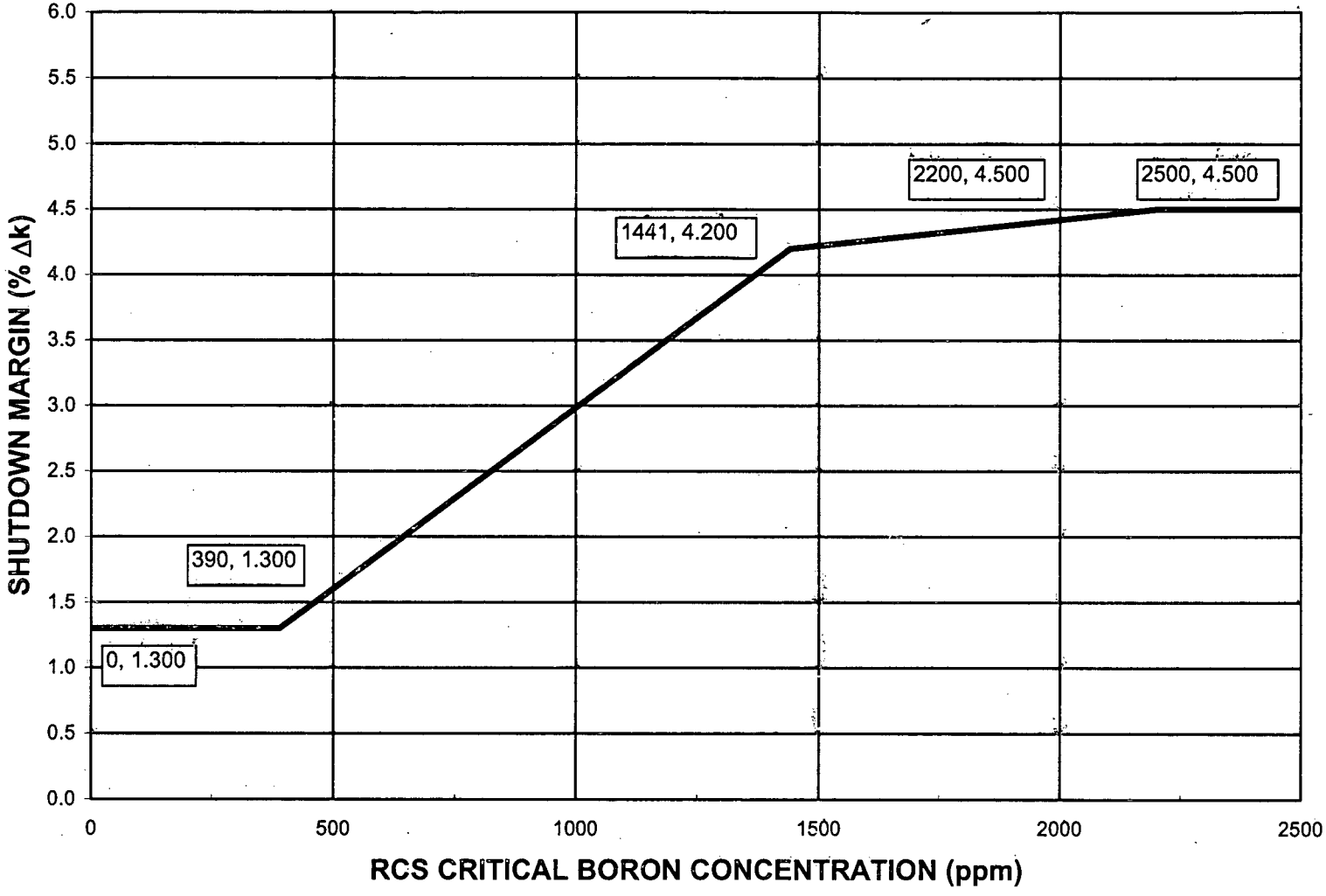

Figure 5 Required Shutdown Margin for MODE 5 with RCS Loops Not Filled

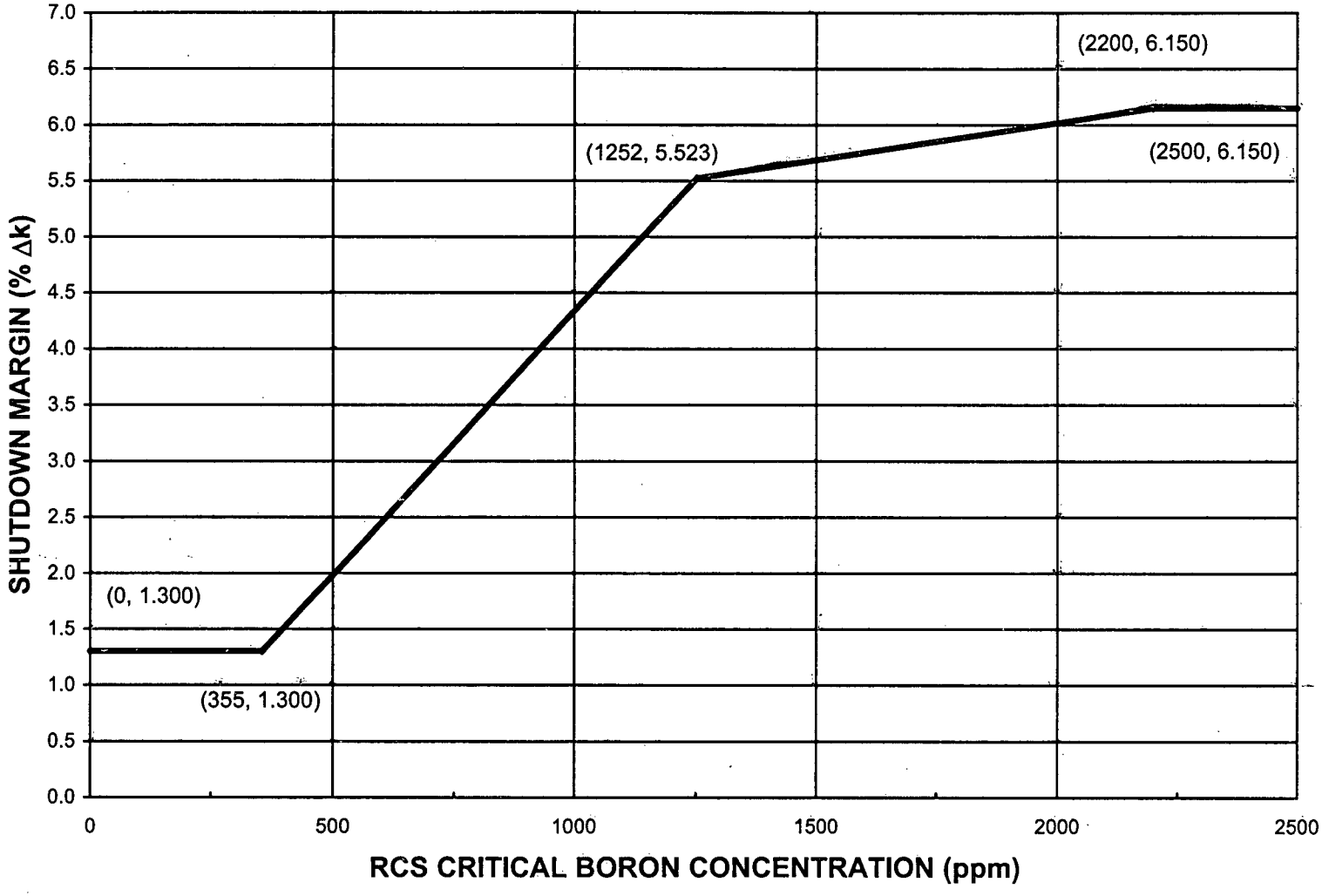

Figure 6 Control Rod Bank Insertion Limits versus Thermal Power

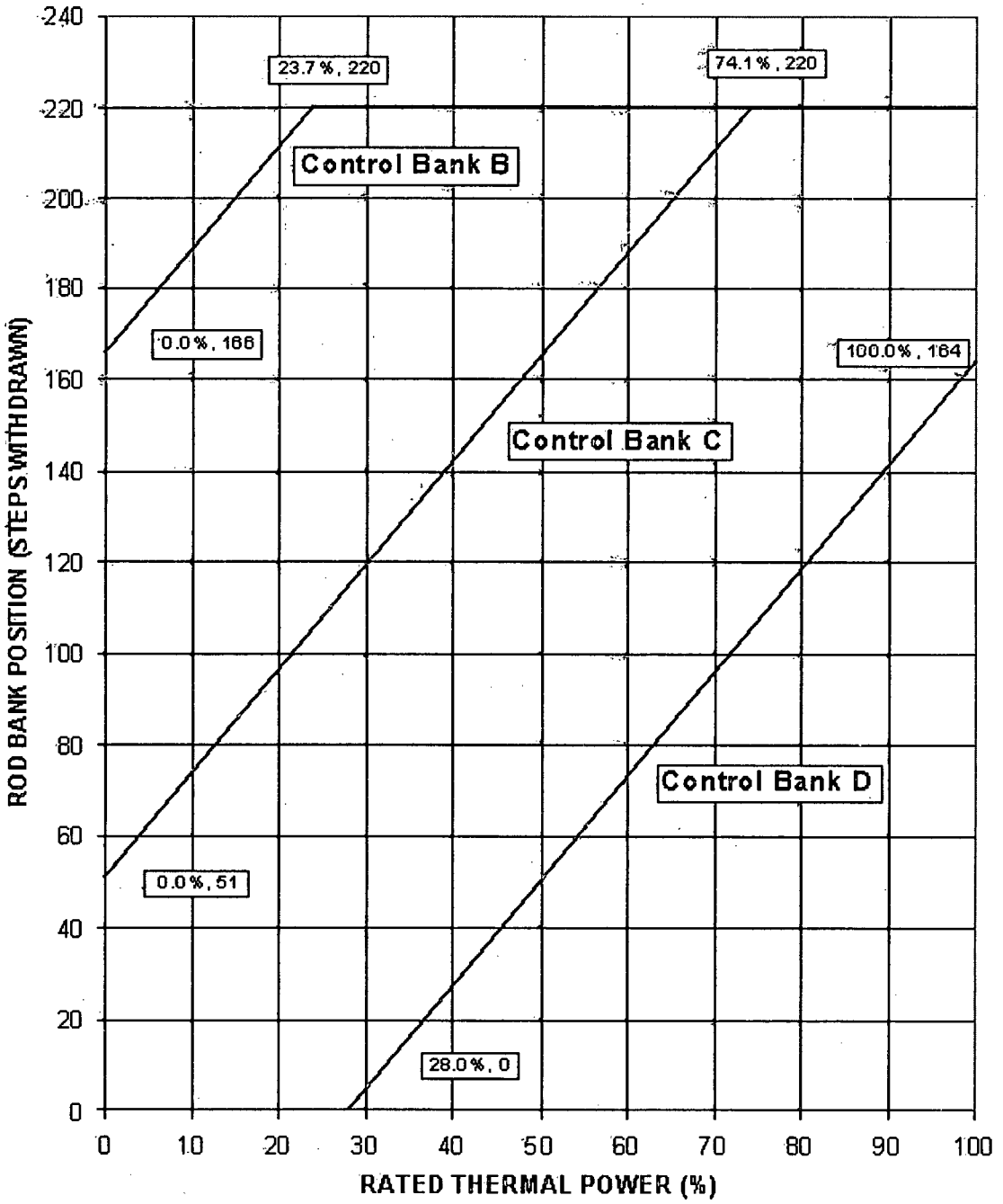

Figure 7 Axial Flux Difference Limits as a Function of Rated Thermal Power

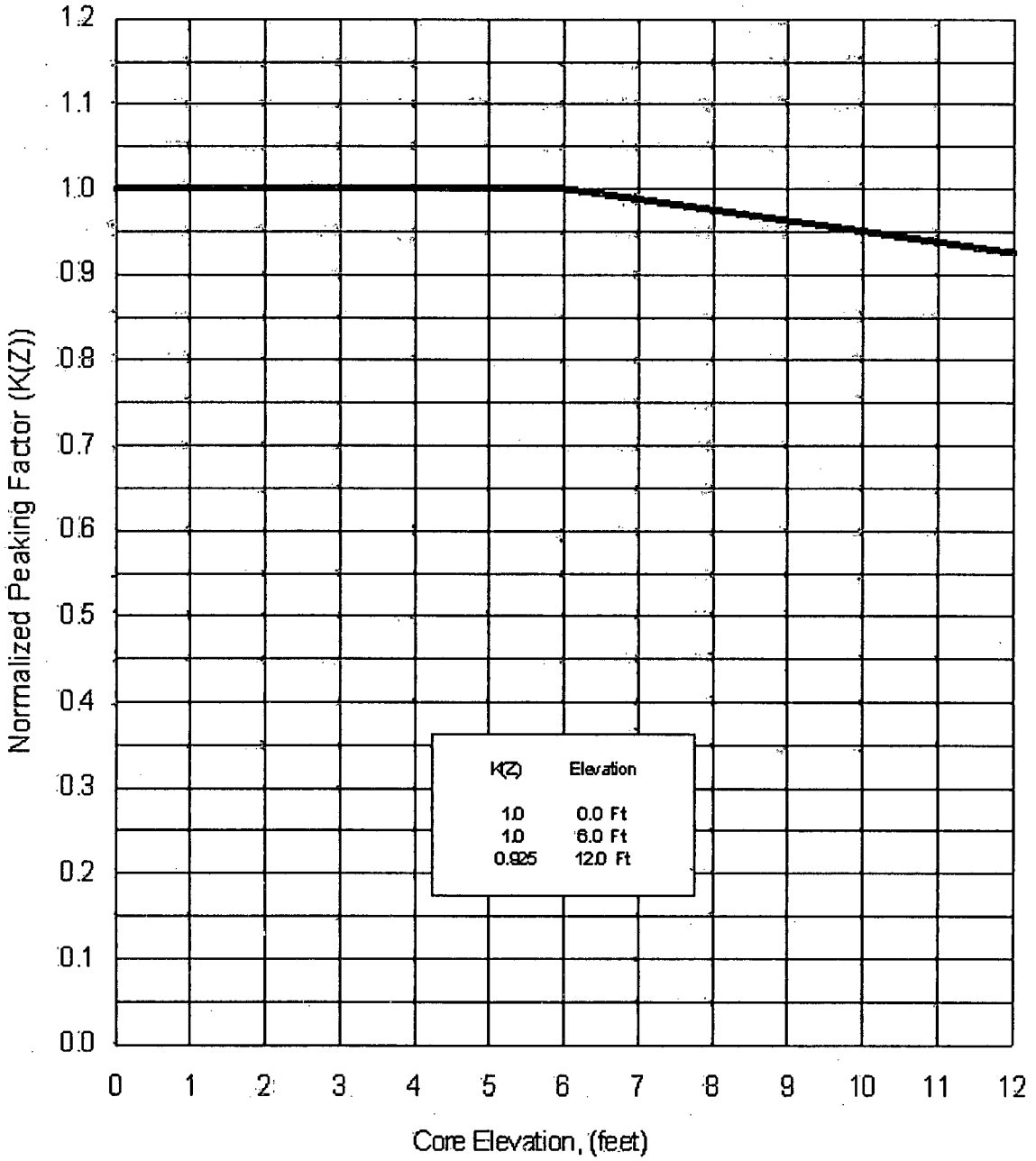

Figure 8 K(Z) - Normalized $F_Q(Z)$ as a Function of Core Height

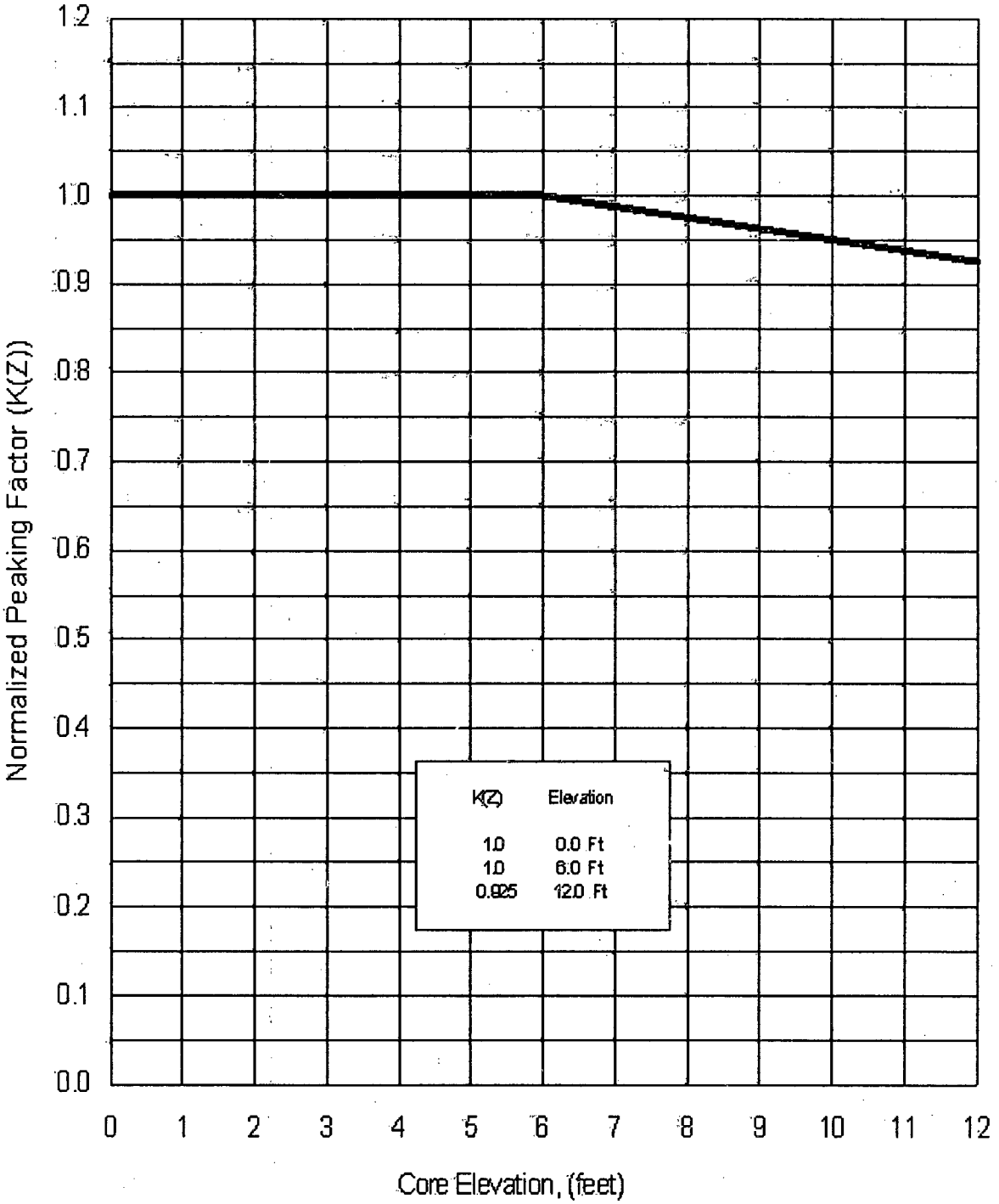

Table 1
RAOC W(Z) Function, Millstone Unit 3 - Cycle 14
-12/+9 AFD at 100% RTP

		Burnup Step (MWD/MTU)			
Mesh No.	Height*	150	5000	11000	18600
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	1.4306	1.4942	1.4136	1.3761
8	10.8333	1.4028	1.4769	1.4043	1.3722
9	10.6667	1.3828	1.4604	1.3919	1.3646
10	10.5000	1.3605	1.4399	1.3760	1.3536
11	10.3333	1.3349	1.4181	1.3595	1.3403
12	10.1667	1.3083	1.3944	1.3432	1.3254
13	10.0000	1.2833	1.3671	1.3266	1.3093
14	9.8333	1.2585	1.3390	1.3093	1.2920
15	9.6667	1.2320	1.3109	1.2901	1.2732
16	9.5000	1.2080	1.2830	1.2734	1.2530
17	9.3333	1.1972	1.2619	1.2629	1.2351
18	9.1667	1.1850	1.2472	1.2505	1.2233
19	9.0000	1.1733	1.2315	1.2387	1.2181
20	8.8333	1.1717	1.2189	1.2304	1.2093
21	8.6667	1.1738	1.2102	1.2253	1.2085
22	8.5000	1.1765	1.2025	1.2210	1.2145
23	8.3333	1.1779	1.1935	1.2145	1.2195
24	8.1667	1.1783	1.1854	1.2072	1.2228
25	8.0000	1.1775	1.1816	1.2024	1.2248
26	7.8333	1.1757	1.1778	1.1968	1.2254
27	7.6667	1.1728	1.1719	1.1911	1.2246
28	7.5000	1.1715	1.1653	1.1886	1.2224
29	7.3333	1.1691	1.1577	1.1857	1.2189
30	7.1667	1.1656	1.1494	1.1806	1.2143
31	7.0000	1.1610	1.1403	1.1743	1.2112
32	6.8333	1.1554	1.1297	1.1668	1.2067
33	6.6667	1.1490	1.1196	1.1582	1.2008
34	6.5000	1.1420	1.1141	1.1484	1.1936
35	6.3333	1.1350	1.1116	1.1381	1.1854
36	6.1667	1.1285	1.1097	1.1263	1.1766
37	6.0000	1.1242	1.1078	1.1128	1.1677
38	5.8333	1.1216	1.1057	1.1083	1.1589
39	5.6667	1.1198	1.1038	1.1089	1.1524
40	5.5000	1.1205	1.1036	1.1105	1.1526

* Distance from bottom of active core (feet)

Table 1 (Continued)
RAOC W(Z) Function, Millstone Unit 3 - Cycle 14
-12/+9 AFD at 100% RTP

		Burnup Step (MWD/MTU)			
Mesh No.	Height*	150	5000	11000	18600
41	5.3333	1.1248	1.1052	1.1135	1.1554
42	5.1667	1.1315	1.1105	1.1180	1.1582
43	5.0000	1.1378	1.1151	1.1219	1.1603
44	4.8333	1.1434	1.1190	1.1257	1.1617
45	4.6667	1.1488	1.1228	1.1298	1.1622
46	4.5000	1.1538	1.1261	1.1336	1.1621
47	4.3333	1.1584	1.1293	1.1371	1.1614
48	4.1667	1.1626	1.1321	1.1402	1.1600
49	4.0000	1.1665	1.1343	1.1432	1.1582
50	3.8333	1.1701	1.1377	1.1455	1.1560
51	3.6667	1.1733	1.1426	1.1480	1.1534
52	3.5000	1.1765	1.1472	1.1526	1.1506
53	3.3333	1.1811	1.1516	1.1574	1.1479
54	3.1667	1.1882	1.1569	1.1618	1.1460
55	3.0000	1.1970	1.1639	1.1675	1.1490
56	2.8333	1.2052	1.1709	1.1734	1.1597
57	2.6667	1.2136	1.1778	1.1799	1.1715
58	2.5000	1.2278	1.1906	1.1925	1.1831
59	2.3333	1.2445	1.2044	1.2047	1.1946
60	2.1667	1.2601	1.2194	1.2169	1.2059
61	2.0000	1.2753	1.2356	1.2287	1.2169
62	1.8333	1.2901	1.2511	1.2399	1.2275
63	1.6667	1.3039	1.2660	1.2504	1.2373
64	1.5000	1.3166	1.2798	1.2600	1.2464
65	1.3333	1.3284	1.2925	1.2686	1.2547
66	1.1667	1.3390	1.3040	1.2759	1.2617
67	1.0000	1.3478	1.3139	1.2815	1.2670
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 14

		Burnup Step (MWD/MTU)			
Mesh No.	Height*	150	5000	11000	18600
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	1.1905	1.2185	1.1860	1.1518
8	10.8333	1.1811	1.2131	1.1837	1.1505
9	10.6667	1.1750	1.2081	1.1806	1.1465
10	10.5000	1.1686	1.2029	1.1763	1.1424
11	10.3333	1.1616	1.1975	1.1728	1.1378
12	10.1667	1.1541	1.1963	1.1710	1.1360
13	10.0000	1.1461	1.1893	1.1703	1.1381
14	9.8333	1.1378	1.1793	1.1696	1.1383
15	9.6667	1.1339	1.1704	1.1689	1.1375
16	9.5000	1.1305	1.1670	1.1680	1.1372
17	9.3333	1.1248	1.1611	1.1635	1.1345
18	9.1667	1.1188	1.1537	1.1564	1.1310
19	9.0000	1.1165	1.1491	1.1506	1.1290
20	8.8333	1.1169	1.1465	1.1490	1.1235
21	8.6667	1.1212	1.1442	1.1487	1.1300
22	8.5000	1.1258	1.1405	1.1476	1.1388
23	8.3333	1.1304	1.1338	1.1443	1.1473
24	8.1667	1.1329	1.1282	1.1409	1.1541
25	8.0000	1.1360	1.1286	1.1399	1.1599
26	7.8333	1.1380	1.1301	1.1383	1.1647
27	7.6667	1.1393	1.1299	1.1368	1.1683
28	7.5000	1.1418	1.1291	1.1387	1.1708
29	7.3333	1.1435	1.1276	1.1402	1.1722
30	7.1667	1.1437	1.1252	1.1397	1.1732
31	7.0000	1.1427	1.1221	1.1383	1.1750
32	6.8333	1.1408	1.1190	1.1359	1.1754
33	6.6667	1.1378	1.1163	1.1324	1.1747
34	6.5000	1.1340	1.1138	1.1279	1.1728
35	6.3333	1.1291	1.1117	1.1227	1.1695
36	6.1667	1.1270	1.1097	1.1166	1.1656
37	6.0000	1.1243	1.1078	1.1094	1.1622
38	5.8333	1.1218	1.1057	1.1036	1.1576
39	5.6667	1.1199	1.1038	1.1028	1.1524
40	5.5000	1.1191	1.1024	1.1014	1.1498

* Distance from bottom of active core (feet)

Table 2 (Continued)
Base Load W(Z) Function
Millstone Unit 3 - Cycle 14

		Burnup Step (MWD/MTU)			
Mesh No.	Height*	150	5000	11000	18600
41	5.3333	1.1185	1.1008	1.0993	1.1479
42	5.1667	1.1172	1.0991	1.0970	1.1452
43	5.0000	1.1154	1.0976	1.0943	1.1417
44	4.8333	1.1132	1.0957	1.0916	1.1374
45	4.6667	1.1106	1.0938	1.0896	1.1325
46	4.5000	1.1076	1.0925	1.0873	1.1270
47	4.3333	1.1043	1.0911	1.0849	1.1210
48	4.1667	1.1007	1.0895	1.0823	1.1145
49	4.0000	1.0969	1.0876	1.0792	1.1077
50	3.8333	1.0929	1.0871	1.0782	1.1008
51	3.6667	1.0888	1.0874	1.0798	1.0936
52	3.5000	1.0874	1.0879	1.0811	1.0862
53	3.3333	1.0877	1.0880	1.0817	1.0812
54	3.1667	1.0887	1.0880	1.0826	1.0790
55	3.0000	1.0896	1.0904	1.0861	1.0861
56	2.8333	1.0920	1.0999	1.0938	1.0937
57	2.6667	1.1027	1.1143	1.1049	1.1017
58	2.5000	1.1148	1.1288	1.1162	1.1099
59	2.3333	1.1267	1.1435	1.1272	1.1180
60	2.1667	1.1389	1.1586	1.1383	1.1261
61	2.0000	1.1509	1.1736	1.1493	1.1341
62	1.8333	1.1625	1.1881	1.1599	1.1418
63	1.6667	1.1735	1.2018	1.1698	1.1491
64	1.5000	1.1838	1.2147	1.1790	1.1558
65	1.3333	1.1934	1.2264	1.1872	1.1618
66	1.1667	1.2020	1.2369	1.1943	1.1670
67	1.0000	1.2090	1.2457	1.1998	1.1706
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 14

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	1.2696
8	10.8333	1.2504
9	10.6667	1.2353
10	10.5000	1.2202
11	10.3333	1.2019
12	10.1667	1.1820
13	10.0000	1.1635
14	9.8333	1.1441
15	9.6667	1.1205
16	9.5000	1.1099
17	9.3333	1.1043
18	9.1667	1.0972
19	9.0000	1.0908
20	8.8333	1.0937
21	8.6667	1.0991
22	8.5000	1.1047
23	8.3333	1.1088
24	8.1667	1.1116
25	8.0000	1.1131
26	7.8333	1.1133
27	7.6667	1.1142
28	7.5000	1.1149
29	7.3333	1.1156
30	7.1667	1.1168
31	7.0000	1.1173
32	6.8333	1.1168
33	6.6667	1.1155
34	6.5000	1.1133
35	6.3333	1.1111
36	6.1667	1.1093
37	6.0000	1.1083
38	5.8333	1.1086
39	5.6667	1.1103
40	5.5000	1.1146

* Distance from bottom of active core (feet)

Table 3 (Continued)
Part Power (74% RTP, 150 MWD/MTU) RAOC W(Z) Function
Millstone Unit 3 – Cycle 14

Mesh No	Height (ft)*	W(z)
41	5.3333	1.1216
42	5.1667	1.1321
43	5.0000	1.1418
44	4.8333	1.1508
45	4.6667	1.1597
46	4.5000	1.1681
47	4.3333	1.1759
48	4.1667	1.1835
49	4.0000	1.1922
50	3.8333	1.2009
51	3.6667	1.2093
52	3.5000	1.2169
53	3.3333	1.2247
54	3.1667	1.2328
55	3.0000	1.2425
56	2.8333	1.2578
57	2.6667	1.2793
58	2.5000	1.3003
59	2.3333	1.3208
60	2.1667	1.3414
61	2.0000	1.3613
62	1.8333	1.3797
63	1.6667	1.3969
64	1.5000	1.4148
65	1.3333	1.4327
66	1.1667	1.4488
67	1.0000	1.4625
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

* Distance from bottom of active core (feet)

Table 4
Burnup Penalty for Incore*

Burnup	Penalty
4659	1.020
4820	1.022
4981	1.022
5142	1.022
5303	1.022
5465	1.022
5626	1.021
5787	1.021
5948	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).