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SCE&G®
A SCANA COMPANY

May 25, 2008

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

Dear Sir / Madam:

Subject: VIRGIL C. SUMMER NUCLEAR STATION
DOCKET NO. 50-395
OPERATING LICENSE NO. NPF-12
CORE OPERATING LIMITS REPORT (COLR)
FOR CYCLE 18

In accordance with Section 6.9.1.11 of the Virgil C. Summer Nuclear Station Technical Specifications, South Carolina Electric & Gas Company (SCE&G) hereby submits the Cycle 18 Core Operating Limits Report (COLR).

Should you have any questions, please call Mr. Bruce Thompson at (803) 931-5042.

Very truly yours,

Jeffrey B. Archie

JEF/JBA/dr
Attachment

NOTE: Attachment is on file in FileNet

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VIRGIL C. SUMMER NUCLEAR STATION

CORE OPERATING LIMITS REPORT

FOR

CYCLE 18

REVISION 0

APRIL 2008

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1.0 Core Operating Limits Report

This Core Operating Limits Report (COLR) for V. C. Summer Station Cycle 18 has been prepared in accordance with the requirements of Technical Specification 6.9.1.11.

The Technical Specifications affected by this report are listed below:

3.1.1.3	Moderator Temperature Coefficient
3.1.3.5	Shutdown Rod Insertion Limits
3.1.3.6	Control Rod Insertion Limits
3.2.1	Axial Flux Difference
3.2.2	Heat Flux Hot Channel Factor
3.2.3	RCS Flow Rate and Nuclear Enthalpy Rise Hot Channel Factor
3.3.3.11	Power Distribution Measurement Uncertainty

2.0 Operating Limits

The cycle-specific parameter limits for the specifications listed in Section 1.0 are presented in the subsections which follow. These limits have been developed using the NRC-approved methodologies specified in Technical Specification 6.9.1.11.

2.1 Moderator Temperature Coefficient (Specification 3.1.1.3):

2.1.1 The Moderator Temperature Coefficient (MTC) limits are:

The BOL/ARO-MTC shall be less positive than the limits shown in Figure 1.

The EOL/ARO/RTP-MTC shall be less negative than $-5x10^{-4}$ Δk/k/°F (-50 pcm/°F).

where: BOL stands for Beginning of Cycle Life

ARO stands for All Rods Out

RTP stands for RATED THERMAL POWER

EOL stands for End of Cycle Life

2.1.2 The MTC Surveillance limit is:

The 300 ppm/ARO/RTP-MTC should be less negative than or equal to $-4.1x10^{-4}$ Δk/k/°F (-41 pcm/°F).

2.1.3 The Revised Predicted near-EOL 300 ppm MTC shall be calculated using the following algorithm from Reference 2:

Revised Predicted MTC = Predicted MTC + AFD Correction*+ Predictive Correction**

*AFD Correction is 0.05 pcm/°F/%ΔAFD.

**Predictive Correction is -3 pcm/°F.

If the Revised Predicted MTC is less negative than the SR 4.1.1.3b limit of $-4.1x10^{-4}$ Δk/k/°F, and all of the benchmark data contained in the surveillance procedure are met, then an MTC measurement in accordance with SR 4.1.1.3b is not required.

2.2 Shutdown Rod Insertion Limits (Specification 3.1.3.5):

The shutdown rods shall be withdrawn to at least 230 steps.

2.3 Control Rod Insertion Limits (Specification 3.1.3.6):

Control Bank A and B rods shall be withdrawn to at least 230 steps. Control Bank C and D Rod Insertion Limits are specified by Figure 2. Control rod overlap is 102 steps.

2.4 Axial Flux Difference (Specification 3.2.1):

2.4.1 The Axial Flux Difference (AFD) Limits for RAOC operation for Cycle18 are shown in Figure 3.

2.4.2 The Axial Flux Difference (AFD) target band during base load operations for Cycle18 is: BOL - EOL (0 – 22,800 MWD/MTU): ±5% about a measured target value.

2.4.3 The minimum allowable power level for base load operation, APL^{ND}, is 75% of RATED THERMAL POWER.

2.5 Heat Flux Hot Channel Factor - $F_Q(z)$ (Specification 3.2.2):

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

$$F_Q(Z) \le \frac{F_Q^{RTP}}{0.5} \times K(Z) \qquad \text{for} P \le 0.5 \qquad \text{where: } P = \frac{\text{Thermal Power}}{\text{Rated Thermal Power}}$$

2.5.1 $F_Q^{RTP} = 2.45$

2.5.2 K(z) is provided in Figure 4.

2.5.3 Elevation dependent W(z) values for RAOC operation at 150, 3000, 10000, and 20000 MWD/MTU are shown in Tables 1 through 4, respectively. This information is sufficient to determine W(z) versus core height in the range of 0 MWD/MTU to EOL burnup through the use of three point interpolation. Table 5 shows FQ margin decreases for RAOC operation that are greater than 2% per 31 Effective Full Power Days (EFPD). These values shall be used to increase $F_Q^M(z)$ as per Surveillance Requirement 4.2.2.2e. A 2% penalty factor shall be used at all burnups that are outside the range of Table 5.

2.5.4 Elevation dependent $W(z)_{BL}$ values for Baseload operation between 75 and 100% of rated thermal power with the item 2.4.2 specified target band about a measured target value at 150, 3000, 10000, and 20000 MWD/MTU are shown in Tables 6 through 9, respectively. This information is sufficient to determine $W(z)_{BL}$ versus core height for burnups in the range of 0 MWD/MTU to EOL burnup through the use of three point interpolation. Table 10 shows FQ margin decreases for base load operation that are greater than 2% per 31 Effective Full Power Days (EFPD). These values shall be used to increase $F_Q^M(z)$ as per Surveillance.

2.6 RCS Flow Rate and Nuclear Enthalpy Rise Hot Channel Factor - $F_{\Delta H}^N$ (Specification 3.2.3):

$$R = \frac{F_{\Delta H}^N}{F_{\Delta H}^{RTP} \times \left(1 + PF_{\Delta H}^N \times (1 - P)\right)} \quad \text{where:} \quad P = \frac{\text{Thermal Power}}{\text{Rated Thermal Power}}$$

2.6.1 $F_{\Delta H}^{RTP} = 1.62$

2.6.2 $PF_{\Delta H} = 0.3$

2.6.3 The Acceptable Operation Region from the combination of Reactor Coolant System total flow and R is provided in Figure 5.

2.7 Power Distribution Measurement Uncertainty (Specifications 3.2.2 and 3.2.3):

If the Power Distribution Monitoring System is OPERABLE, as defined in Technical Specification 3.3.3.11, the uncertainty, $U_{F\Delta H}$, to be applied to the Nuclear Enthalpy Rise Hot Channel Factor $F^N_{\Delta H}$ shall be calculated by the following formula:

$$U_{F\Delta H} = 1.0 + \frac{U_{\Delta H}}{100.0}$$

where: $U_{\Delta H}$ = Uncertainty for enthalpy rise as defined in equation (5-19) in Reference 1.

If the Power Distribution Monitoring System is OPERABLE, as defined in Technical Specification 3.3.3.11, the uncertainty, U_{FQ}, to be applied to the Heat Flux Hot Channel Factor $F_Q(z)$ shall be calculated by the following formula:

$$U_{FQ} = \left(1.0 + \frac{U_Q}{100.0}\right) \cdot U_e$$

where: U_Q = Uncertainty for power peaking factor as defined in equation (5-19) in Reference 1.

U_e = Engineering uncertainty factor.

= 1.03

If the Power Distribution Monitoring System is INOPERABLE, as defined in Technical Specification 3.3.3.11, the uncertainty, $U_{F\Delta H}$, to be applied to the Nuclear Enthalpy Rise Hot Channel Factor $F^N_{\Delta H}$ shall be calculated by the following formula:

$$U_{F\Delta H} = U_{F\Delta Hm}$$

where: $U_{F\Delta Hm}$ = Base $F_{\Delta H}$ measurement uncertainty.

= 1.04

If the Power Distribution Monitoring System is INOPERABLE, as defined in Technical Specification 3.3.3.11, the uncertainty, U_{FQ}, to be applied to the Heat Flux Hot Channel Factor $F_Q(z)$ shall be calculated by the following formula:

$$U_{FQ} = U_{qu} \cdot U_e$$

where: U_{qu} = Base F_Q measurement uncertainty.

= 1.05

U_e = Engineering uncertainty factor.

= 1.03

3.0 References

1) WCAP-12473-A (Non-Proprietary), "BEACON Core Monitoring and Operations Support System," August, 1994.

2) WCAP-13749-P-A, "Safety Evaluation Supporting the Conditional Exemption of the Most Negative EOL Moderator Temperature Coefficient," March 1997, (W Proprietary).

Figure 1. Moderator Temperature Coefficient Versus Power Level
V.C. Summer – Cycle 18

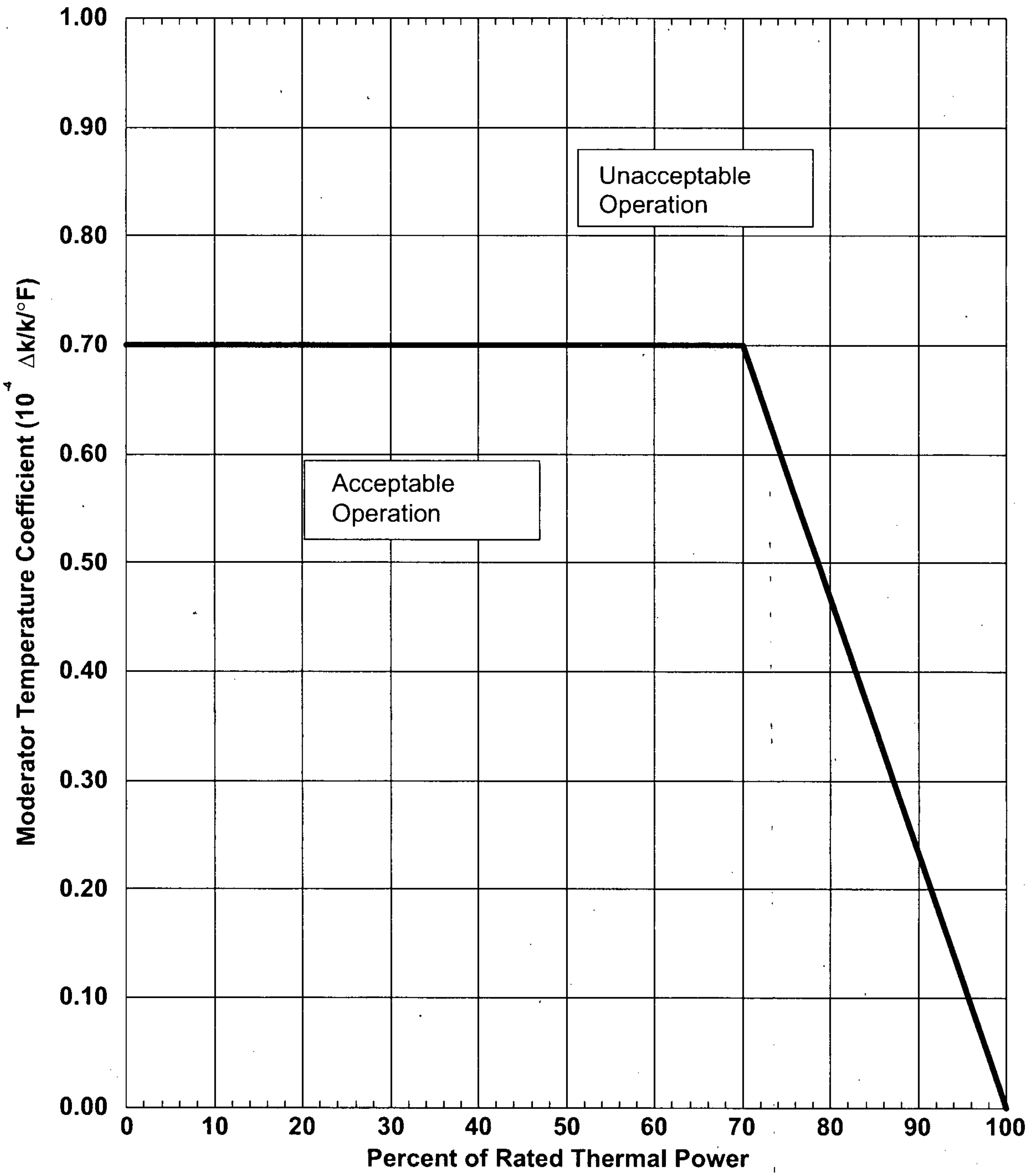


Figure 2. Rod Group Insertion Limits Versus Thermal Power for Three Loop Operation
V. C. Summer - Cycle 18

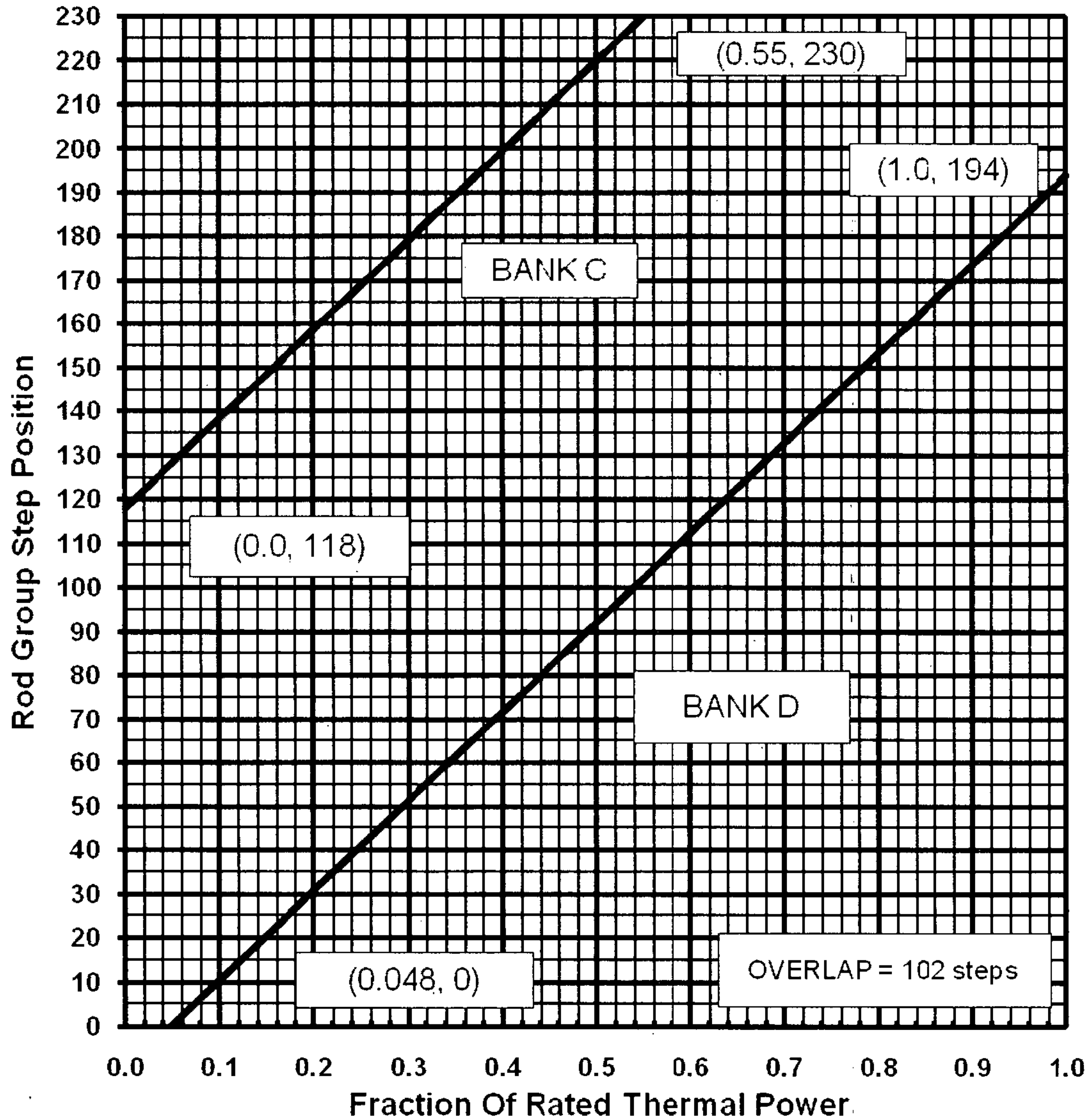


Figure 3. Axial Flux Difference Limits as a Function of Rated Thermal Power V. C. Summer – Cycle 18

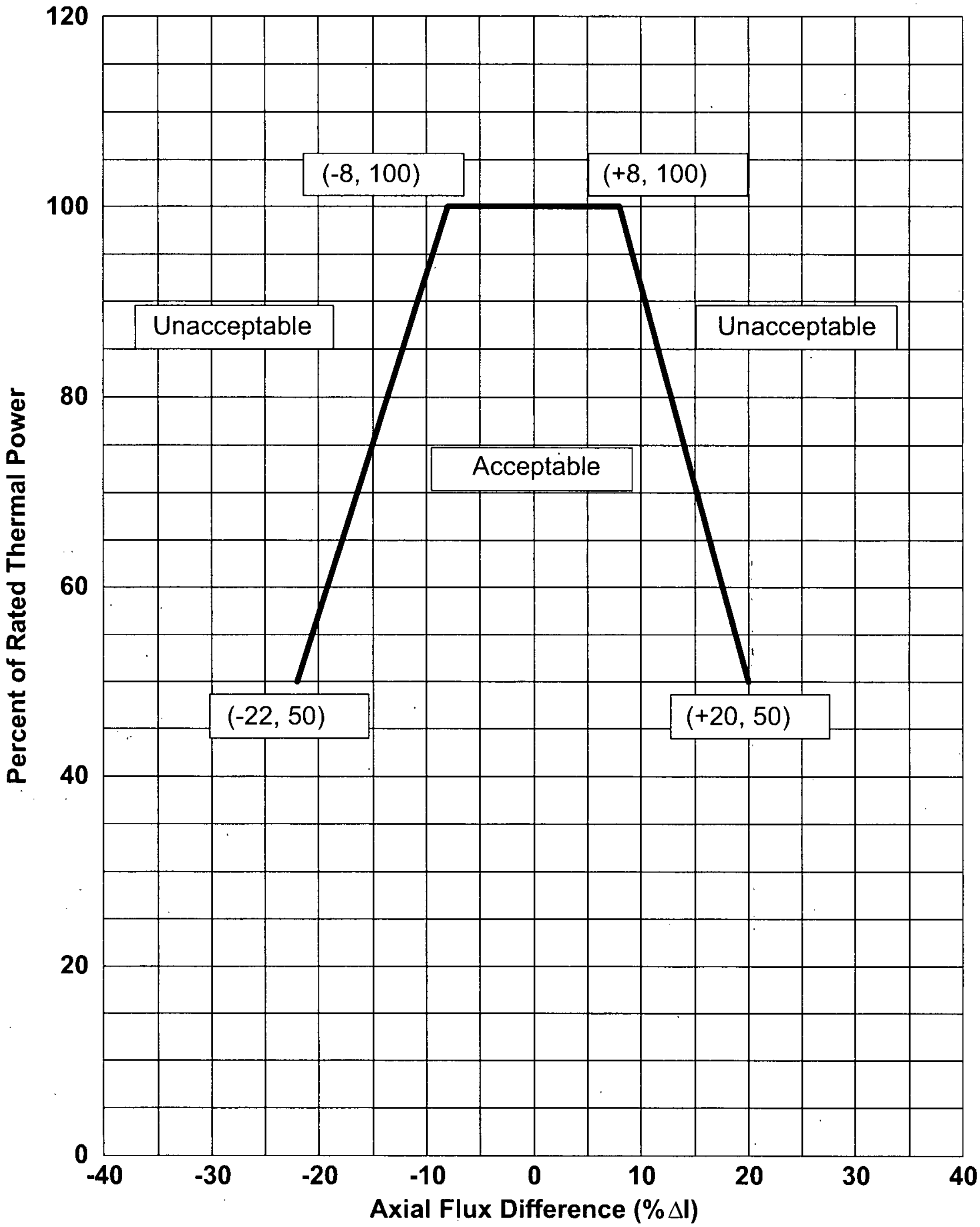


Figure 4. K(z) - Normalized $F_Q(z)$ as a Function of Core Height
V. C. Summer – Cycle 18

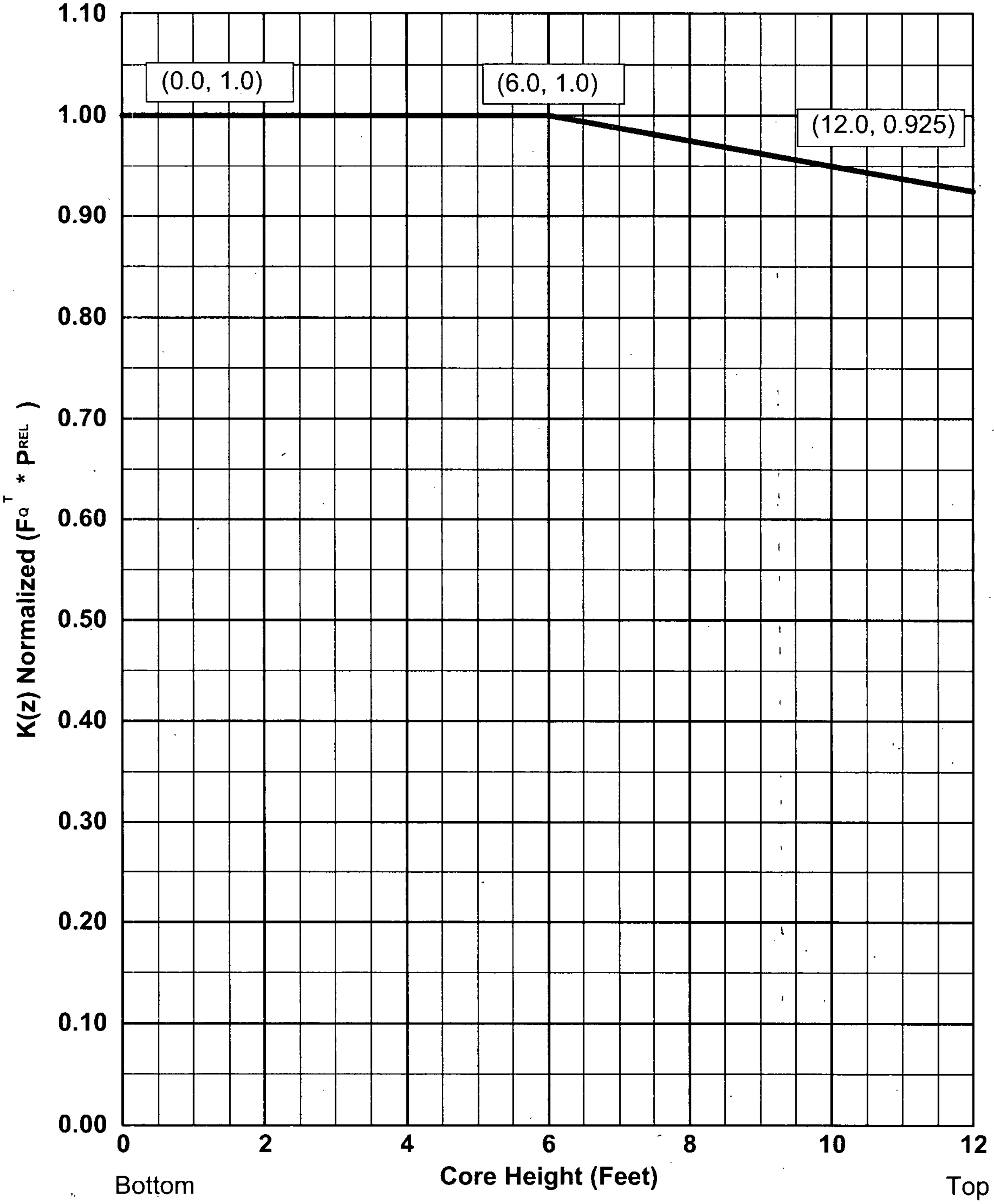


Table 1. RAOC W(z) at 150 MWD/MTU
V. C. Summer – Cycle 18

Core Height (ft)	W(z)	Core Height (ft)	W(z)
0.000	1.132	6.140	1.167
0.140	1.130	6.279	1.174
0.279	1.136	6.419	1.181
0.419	1.149	6.558	1.187
0.558	1.166	6.698	1.193
0.698	1.174	6.837	1.197
0.837	1.173	6.977	1.202
0.977	1.170	7.116	1.205
1.116	1.167	7.256	1.207
1.256	1.163	7.395	1.209
1.395	1.157	7.535	1.210
1.535	1.151	7.674	1.210
1.674	1.144	7.814	1.209
1.814	1.138	7.953	1.208
1.953	1.131	8.093	1.205
2.093	1.123	8.233	1.202
2.233	1.116	8.372	1.197
2.372	1.109	8.512	1.191
2.512	1.104	8.651	1.183
2.651	1.100	8.791	1.176
2.791	1.097	8.930	1.173
2.930	1.096	9.070	1.174
3.070	1.095	9.209	1.175
3.209	1.094	9.349	1.178
3.349	1.095	9.488	1.181
3.488	1.097	9.628	1.182
3.628	1.098	9.767	1.182
3.767	1.099	9.907	1.182
3.907	1.100	10.046	1.183
4.046	1.102	10.186	1.187
4.186	1.105	10.326	1.193
4.326	1.108	10.465	1.199
4.465	1.111	10.605	1.204
4.605	1.114	10.744	1.208
4.744	1.117	10.884	1.212
4.884	1.119	11.023	1.214
5.023	1.121	11.163	1.216
5.163	1.122	11.302	1.216
5.302	1.123	11.442	1.213
5.442	1.126	11.581	1.199
5.581	1.132	11.721	1.182
5.721	1.142	11.860	1.168
5.860	1.151	12.000	1.157
6.000	1.160		

Table 2. RAOC W(z) at 3000 MWD/MTU
V. C. Summer – Cycle 18

Core Height (ft)	W(z)	Core Height (ft)	W(z)
0.000	1.290	6.140	1.127
0.140	1.289	6.279	1.136
0.279	1.292	6.419	1.144
0.419	1.301	6.558	1.152
0.558	1.312	6.698	1.159
0.698	1.315	6.837	1.166
0.837	1.309	6.977	1.172
0.977	1.301	7.116	1.177
1.116	1.293	7.256	1.182
1.256	1.282	7.395	1.186
1.395	1.270	7.535	1.190
1.535	1.257	7.674	1.192
1.674	1.243	7.814	1.194
1.814	1.228	7.953	1.195
1.953	1.212	8.093	1.196
2.093	1.196	8.233	1.195
2.233	1.180	8.372	1.194
2.372	1.164	8.512	1.191
2.512	1.148	8.651	1.186
2.651	1.132	8.791	1.185
2.791	1.118	8.930	1.184
2.930	1.108	9.070	1.192
3.070	1.102	9.209	1.200
3.209	1.099	9.349	1.206
3.349	1.099	9.488	1.212
3.488	1.099	9.628	1.216
3.628	1.099	9.767	1.219
3.767	1.099	9.907	1.220
3.907	1.098	10.046	1.223
4.046	1.098	10.186	1.227
4.186	1.097	10.326	1.233
4.326	1.097	10.465	1.239
4.465	1.096	10.605	1.243
4.605	1.095	10.744	1.246
4.744	1.093	10.884	1.248
4.884	1.091	11.023	1.248
5.023	1.090	11.163	1.246
5.163	1.090	11.302	1.243
5.302	1.091	11.442	1.241
5.442	1.093	11.581	1.230
5.581	1.096	11.721	1.216
5.721	1.102	11.860	1.205
5.860	1.109	12.000	1.194
6.000	1.118		

Table 3. RAOC W(z) at 10000 MWD/MTU
V. C. Summer – Cycle 18

Core Height (ft)	W(z)	Core Height (ft)	W(z)
0.000	1.284	6.140	1.116
0.140	1.283	6.279	1.125
0.279	1.286	6.419	1.132
0.419	1.294	6.558	1.139
0.558	1.304	6.698	1.146
0.698	1.306	6.837	1.152
0.837	1.302	6.977	1.157
0.977	1.295	7.116	1.162
1.116	1.288	7.256	1.166
1.256	1.278	7.395	1.170
1.395	1.266	7.535	1.173
1.535	1.253	7.674	1.175
1.674	1.239	7.814	1.176
1.814	1.224	7.953	1.177
1.953	1.209	8.093	1.177
2.093	1.193	8.233	1.177
2.233	1.178	8.372	1.175
2.372	1.162	8.512	1.172
2.512	1.145	8.651	1.168
2.651	1.131	8.791	1.164
2.791	1.121	8.930	1.164
2.930	1.112	9.070	1.168
3.070	1.104	9.209	1.175
3.209	1.098	9.349	1.182
3.349	1.097	9.488	1.188
3.488	1.096	9.628	1.194
3.628	1.096	9.767	1.200
3.767	1.095	9.907	1.204
3.907	1.095	10.046	1.206
4.046	1.095	10.186	1.209
4.186	1.095	10.326	1.215
4.326	1.095	10.465	1.223
4.465	1.094	10.605	1.229
4.605	1.094	10.744	1.234
4.744	1.093	10.884	1.239
4.884	1.093	11.023	1.242
5.023	1.092	11.163	1.243
5.163	1.091	11.302	1.244
5.302	1.090	11.442	1.242
5.442	1.090	11.581	1.231
5.581	1.091	11.721	1.218
5.721	1.094	11.860	1.207
5.860	1.099	12.000	1.196
6.000	1.107		

Table 4. RAOC W(z) at 20000 MWD/MTU
V. C. Summer – Cycle 18

Core Height (ft)	W(z)	Core Height (ft)	W(z)
0.000	1.183	6.140	1.176
0.140	1.180	6.279	1.184
0.279	1.184	6.419	1.191
0.419	1.195	6.558	1.197
0.558	1.210	6.698	1.202
0.698	1.216	6.837	1.206
0.837	1.216	6.977	1.210
0.977	1.213	7.116	1.212
1.116	1.209	7.256	1.214
1.256	1.203	7.395	1.215
1.395	1.196	7.535	1.214
1.535	1.187	7.674	1.213
1.674	1.178	7.814	1.211
1.814	1.169	7.953	1.208
1.953	1.159	8.093	1.204
2.093	1.149	8.233	1.198
2.233	1.138	8.372	1.191
2.372	1.128	8.512	1.186
2.512	1.117	8.651	1.187
2.651	1.106	8.791	1.186
2.791	1.094	8.930	1.187
2.930	1.088	9.070	1.190
3.070	1.088	9.209	1.193
3.209	1.089	9.349	1.195
3.349	1.093	9.488	1.196
3.488	1.098	9.628	1.197
3.628	1.103	9.767	1.197
3.767	1.108	9.907	1.195
3.907	1.112	10.046	1.192
4.046	1.116	10.186	1.189
4.186	1.120	10.326	1.190
4.326	1.124	10.465	1.193
4.465	1.126	10.605	1.197
4.605	1.129	10.744	1.201
4.744	1.132	10.884	1.203
4.884	1.136	11.023	1.205
5.023	1.140	11.163	1.205
5.163	1.144	11.302	1.204
5.302	1.148	11.442	1.199
5.442	1.151	11.581	1.186
5.581	1.153	11.721	1.170
5.721	1.156	11.860	1.158
5.860	1.160	12.000	1.147
6.000	1.167		

Table 5. RAOC F_Q Margin Decreases in Excess of 2% Per 31 EFPD – Cycle 18

Cycle Burnup (MWD/MTU)	Maximum Decrease in FQ Margin
1010	1.0200
1182	1.0223
1355	1.0222
1527	1.0222
1699	1.0223
1871	1.0226
2043	1.0235
2215	1.0247
2387	1.0258
2559	1.0267
2731	1.0273
2903	1.0276
3075	1.0274
3247	1.0266
3420	1.0253
3592	1.0236
3764	1.0216
3936	1.0200

Note: All cycle burnups outside the range of this table shall use a 1.0200 decrease in margin for compliance with Specification 4.2.2.2e. Linear interpolation is adequate for intermediate cycle burnups.

Table 6. BASELOAD W(z) at 150 MWD/MTU
V. C. Summer – Cycle 18

Core Height (ft)	W(z)	Core Height (ft)	W(z)
0.000	1.121	6.140	1.064
0.140	1.122	6.279	1.061
0.279	1.123	6.419	1.059
0.419	1.124	6.558	1.057
0.558	1.126	6.698	1.057
0.698	1.126	6.837	1.060
0.837	1.125	6.977	1.062
0.977	1.124	7.116	1.064
1.116	1.123	7.256	1.066
1.256	1.122	7.395	1.068
1.395	1.121	7.535	1.069
1.535	1.119	7.674	1.071
1.674	1.117	7.814	1.073
1.814	1.115	7.953	1.074
1.953	1.112	8.093	1.075
2.093	1.110	8.233	1.077
2.233	1.107	8.372	1.078
2.372	1.104	8.512	1.079
2.512	1.101	8.651	1.080
2.651	1.098	8.791	1.081
2.791	1.095	8.930	1.082
2.930	1.091	9.070	1.083
3.070	1.088	9.209	1.083
3.209	1.084	9.349	1.084
3.349	1.082	9.488	1.085
3.488	1.080	9.628	1.086
3.628	1.079	9.767	1.086
3.767	1.078	9.907	1.087
3.907	1.078	10.046	1.087
4.046	1.077	10.186	1.088
4.186	1.077	10.326	1.089
4.326	1.077	10.465	1.089
4.465	1.076	10.605	1.090
4.605	1.076	10.744	1.091
4.744	1.075	10.884	1.091
4.884	1.075	11.023	1.092
5.023	1.074	11.163	1.092
5.163	1.073	11.302	1.092
5.302	1.072	11.442	1.093
5.442	1.071	11.581	1.092
5.581	1.070	11.721	1.092
5.721	1.068	11.860	1.092
5.860	1.067	12.000	1.092
6.000	1.065		

Table 7. BASELOAD W(z) at 3000 MWD/MTU
V. C. Summer – Cycle 18

Core Height (ft)	W(z)	Core Height (ft)	W(z)
0.000	1.096	6.140	1.059
0.140	1.097	6.279	1.058
0.279	1.098	6.419	1.056
0.419	1.100	6.558	1.054
0.558	1.102	6.698	1.051
0.698	1.103	6.837	1.049
0.837	1.103	6.977	1.047
0.977	1.103	7.116	1.048
1.116	1.103	7.256	1.050
1.256	1.103	7.395	1.053
1.395	1.103	7.535	1.055
1.535	1.103	7.674	1.057
1.674	1.103	7.814	1.058
1.814	1.102	7.953	1.060
1.953	1.101	8.093	1.062
2.093	1.101	8.233	1.064
2.233	1.100	8.372	1.066
2.372	1.099	8.512	1.068
2.512	1.097	8.651	1.069
2.651	1.096	8.791	1.071
2.791	1.094	8.930	1.073
2.930	1.093	9.070	1.074
3.070	1.091	9.209	1.076
3.209	1.089	9.349	1.077
3.349	1.087	9.488	1.079
3.488	1.085	9.628	1.080
3.628	1.083	9.767	1.081
3.767	1.081	9.907	1.083
3.907	1.080	10.046	1.084
4.046	1.079	10.186	1.085
4.186	1.077	10.326	1.086
4.326	1.076	10.465	1.088
4.465	1.075	10.605	1.089
4.605	1.073	10.744	1.090
4.744	1.072	10.884	1.091
4.884	1.071	11.023	1.092
5.023	1.070	11.163	1.092
5.163	1.068	11.302	1.093
5.302	1.067	11.442	1.094
5.442	1.066	11.581	1.094
5.581	1.065	11.721	1.094
5.721	1.064	11.860	1.094
5.860	1.062	12.000	1.094
6.000	1.061		

Table 8. BASELOAD W(z) at 10000 MWD/MTU
V. C. Summer – Cycle 18

Core Height (ft)	W(z)	Core Height (ft)	W(z)
0.000	1.108	6.140	1.061
0.140	1.109	6.279	1.059
0.279	1.110	6.419	1.056
0.419	1.111	6.558	1.054
0.558	1.113	6.698	1.052
0.698	1.114	6.837	1.052
0.837	1.114	6.977	1.052
0.977	1.114	7.116	1.053
1.116	1.114	7.256	1.055
1.256	1.114	7.395	1.058
1.395	1.114	7.535	1.060
1.535	1.113	7.674	1.061
1.674	1.112	7.814	1.063
1.814	1.111	7.953	1.064
1.953	1.110	8.093	1.066
2.093	1.109	8.233	1.067
2.233	1.108	8.372	1.069
2.372	1.106	8.512	1.070
2.512	1.104	8.651	1.071
2.651	1.102	8.791	1.072
2.791	1.100	8.930	1.074
2.930	1.097	9.070	1.075
3.070	1.095	9.209	1.076
3.209	1.092	9.349	1.077
3.349	1.089	9.488	1.078
3.488	1.086	9.628	1.078
3.628	1.084	9.767	1.079
3.767	1.082	9.907	1.080
3.907	1.082	10.046	1.081
4.046	1.081	10.186	1.082
4.186	1.080	10.326	1.083
4.326	1.079	10.465	1.084
4.465	1.078	10.605	1.084
4.605	1.077	10.744	1.085
4.744	1.076	10.884	1.086
4.884	1.075	11.023	1.087
5.023	1.073	11.163	1.087
5.163	1.072	11.302	1.088
5.302	1.071	11.442	1.088
5.442	1.069	11.581	1.088
5.581	1.068	11.721	1.088
5.721	1.066	11.860	1.088
5.860	1.065	12.000	1.089
6.000	1.063		

Table 9. BASELOAD W(z) at 20000 MWD/MTU
V. C. Summer – Cycle 18

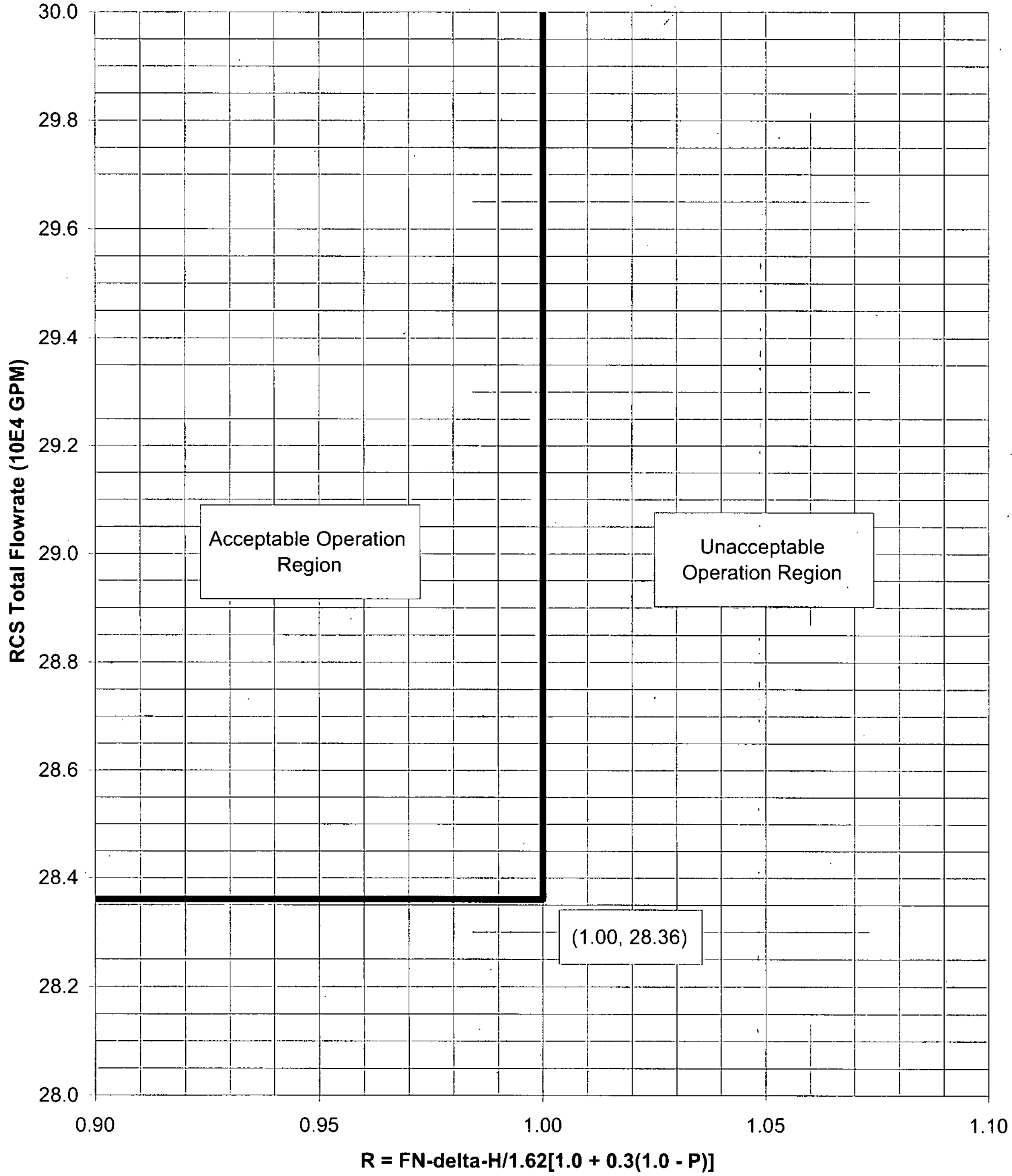
Core Height (ft)	W(z)	Core Height (ft)	W(z)
0.000	1.146	6.140	1.065
0.140	1.147	6.279	1.067
0.279	1.148	6.419	1.069
0.419	1.149	6.558	1.071
0.558	1.150	6.698	1.072
0.698	1.151	6.837	1.074
0.837	1.150	6.977	1.075
0.977	1.149	7.116	1.076
1.116	1.148	7.256	1.077
1.256	1.146	7.395	1.078
1.395	1.144	7.535	1.079
1.535	1.141	7.674	1.079
1.674	1.139	7.814	1.080
1.814	1.135	7.953	1.080
1.953	1.132	8.093	1.080
2.093	1.128	8.233	1.080
2.233	1.123	8.372	1.081
2.372	1.119	8.512	1.081
2.512	1.114	8.651	1.084
2.651	1.109	8.791	1.088
2.791	1.103	8.930	1.092
2.930	1.098	9.070	1.095
3.070	1.092	9.209	1.098
3.209	1.087	9.349	1.101
3.349	1.084	9.488	1.104
3.488	1.082	9.628	1.106
3.628	1.080	9.767	1.108
3.767	1.079	9.907	1.110
3.907	1.077	10.046	1.112
4.046	1.076	10.186	1.114
4.186	1.074	10.326	1.115
4.326	1.073	10.465	1.116
4.465	1.072	10.605	1.117
4.605	1.071	10.744	1.118
4.744	1.071	10.884	1.119
4.884	1.070	11.023	1.119
5.023	1.069	11.163	1.119
5.163	1.069	11.302	1.119
5.302	1.068	11.442	1.119
5.442	1.067	11.581	1.117
5.581	1.065	11.721	1.116
5.721	1.063	11.860	1.115
5.860	1.063	12.000	1.115
6.000	1.064		

Table 10. BASE LOAD FQ Margin Decreases in Excess of 2% Per 31 EFPD – Cycle 18

Cycle Burnup (MWD/MTU)	Maximum Decrease in FQ Margin
1182	1.0200
1355	1.0224
1527	1.0283
1699	1.0314
1871	1.0329
2043	1.0349
2215	1.0375
2387	1.0404
2559	1.0426
2731	1.0438
2903	1.0439
3075	1.0429
3247	1.0409
3420	1.0380
3592	1.0351
3764	1.0320
3936	1.0288
4108	1.0256
4280	1.0225
4452	1.0200

Note: All cycle burnups outside the range of this table shall use a 1.0200 decrease in margin for compliance with Specification 4.2.2.2e. Linear interpolation is adequate for intermediate cycle burnups.

Figure 5. RCS Total Flowrate vs. R for Three Loop Operation
V. C. Summer - Cycle 18



Measurement Uncertainty of 2.1% for Flow (includes 0.1% for feedwater venturi fouling) is included in this figure.