Pacific Gas and Electric Company®

Paula Gerfen
Site Vice President

Diablo Canyon Power Plant
Mail code 104/6/605
P.O. Box 56
Avila Beach, CA 93424

805.545.4596
Internal: 691.4596
Fax: 805.545.4234

January 6, 2020

PG&E Letter DCL-20-001

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555-0001

Docket No. 50-323, OL-DPR-82
Diablo Canyon Power Plant Unit 2
Core Operating Limits Report for Unit 2 Cycle 22

Dear Commissioners and Staff:

In accordance with Diablo Canyon Power Plant (DCPP) Technical Specification 5.6.5.d, enclosed is the Core Operating Limits Report (COLR) for DCPP Unit 2, Cycle 22.

Pacific Gas and Electric Company makes no new or revised regulatory commitments (as defined by NEI 99-04) in this letter.

If there are any questions regarding the COLR, please contact Mr. Shannon Conner at (805) 545-6171.

Sincerely,

Paula Gerfen

rntt/4231/50943730-04
Enclosure
cc: Diablo Distribution
cc/enc: Scott A. Morris, NRC Region IV Administrator
Christopher W. Newport, NRC Senior Resident Inspector
Balwant K. Singal, NRC Senior Project Manager

DIABLO CANYON POWER PLANT
CORE OPERATING LIMITS REPORT
UNIT 2 CYCLE 22
EFFECTIVE DATE October 10, 2019

TITLE: COLR for Diablo Canyon Unit 2

10/10/19

EFFECTIVE DATE

CLASSIFICATION: QUALITY RELATED

1. CORE OPERATING LIMITS REPORT

1.1 This Core Operating Limits Report (COLR) for Diablo Canyon Unit 2 Cycle 22 has been prepared in accordance with the requirements of Technical Specification (TS) 5.6.5.

1.2 The Technical Specifications affected by this report are listed below:

- 3.1.1 - Shutdown Margin (MODE 2 with $k_{eff} < 1.0$, MODES 3, 4, and 5)
- 3.1.3 - Moderator Temperature Coefficient
- 3.1.4 - Rod Group Alignment Limits
- 3.1.5 - Shutdown Bank Insertion Limits
- 3.1.6 - Control Bank Insertion Limits
- 3.1.8 - PHYSICS TESTING Exceptions - MODE 2
- 3.2.1 - Heat Flux Hot Channel Factor - $F_Q(Z)$
- 3.2.2 - Nuclear Enthalpy Rise Hot Channel Factor - $F^N_{\Delta H}$
- 3.2.3 - Axial Flux Difference - (AFD)
- 3.4.1 - RCS Pressure, Temperature, and Flow Departure from Nucleate Boiling (DNB) Limits
- 3.9.1 - Boron Concentration

2. OPERATING LIMITS

The cycle-specific parameter limits for the TS listed in Section 1 are presented in the following subsections. These limits have been developed using the NRC-approved methodologies specified in TS 5.6.5.

2.1 Shutdown Margin (SDM) (TS 3.1.1, 3.1.4, 3.1.5, 3.1.6, 3.1.8)

The SDM limit for MODE 1, MODE 2, MODE 3 and MODE 4 is:

2.1.1 The shutdown margin shall be greater than or equal to 1.6% Δk/k.

2.1.2 In Modes 3 or 4 the shutdown margin with Safety Injection blocked shall be greater than or equal to 1.6% Δk/k calculated at a temperature of 200°F.

The SDM limit for MODE 5 is:

2.1.3 The shutdown margin shall be greater than or equal to 1.6% Δk/k. This limit addresses the concerns of NSAL-02-014 (Reference 6.3) and the boron dilution analysis for RCS filled conditions.

In order to address RCS drained conditions for the boron dilution analysis, a minimum boron concentration of 1800 ppm shall be maintained whenever the RCS level is at or below the reactor vessel flange elevation (114 feet).

2.2 Moderator Temperature Coefficient (MTC) (TS 3.1.3)

The MTC limit for MODES 1, 2, and 3 is:

2.2.1 The MTC shall be less negative than -3.9×10^{-4} Δk/k/°F for all rods withdrawn, end of cycle life (EOL), RATED THERMAL POWER condition.

2.2.2 The MTC 300 ppm surveillance limit is -3.0×10^{-4} Δk/k/°F (all rods withdrawn, RATED THERMAL POWER condition).

2.2.3 The MTC 60 ppm surveillance limit is -3.72×10^{-4} Δk/k/°F (all rods withdrawn, RATED THERMAL POWER condition).

2.3 Shutdown Bank Insertion Limits (TS 3.1.5)

2.3.1 Each shutdown bank shall be withdrawn to at least 225 steps.

2.4 Control Bank Insertion Limits (TS 3.1.6)

2.4.1 The control banks shall be limited in physical insertion as shown in Figure 1.

2.4.2 The control banks shall be withdrawn and inserted in the prescribed sequence, in accordance with plant operating procedures. For example for withdrawal, the sequence is control bank A, control bank B, control bank C, and control bank D. The insertion sequence is the reverse of the withdrawal sequence.

2.4.3 A 128 step tip-to-tip relationship between each sequential control bank shall be maintained.

2.5 Heat Flux Hot Channel Factor - $F_Q(Z)$ (TS 3.2.1)

2.5.1 $$F_Q(Z) < \frac{F_Q^{RTP}}{P} * K(Z) \quad \text{for } P > 0.5$$

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

where: $$P = \frac{THERMAL\ POWER}{RATED\ THERMAL\ POWER}$$

$F_Q^{RTP} = 2.58$

K(Z) = 1.0

<u>NOTE</u>: The W(Z) data is appropriate for use only if the predicted axial offset is within ±3% of the measured value.

2.5.2 The W(Z) data for Relaxed Axial Offset Control (RAOC) operation provided in Tables 2A, 2B, and 2C are sufficient to determine the RAOC W(Z) versus core height for burnups through the end of full power reactivity plus a power coast down of up to 950 MWD/MTU.

For W(Z) data at a desired burnup not listed in the table, but less than the maximum listed burnup, values at 3 or more burnup steps should be used to interpolate the W(Z) data to the desired burnup with a polynomial type fit that uses the W(Z) data for the nearest three burnup steps.

For W(Z) data at a desired burnup outside of the listed burnup steps, a linear extrapolation of the W(Z) data for the nearest two burnup steps can be used. If data are listed for only 2 burnup steps, a linear fit can be used for both interpolation and extrapolation.

The W(Z) values are generated assuming that they will be used for full power surveillance. When using a flux map instead of the Power Distribution Monitoring System (PDMS) for part power surveillance, the W(Z) values must be increased by the factor 1/P (P > 0.5) or 1/0.5 (P ≤ 0.5), where P is the core relative power during the surveillance, to account for the increase in the $F_Q(Z)$ limit at reduced power levels.

Table 1 shows F_Q margin decreases that are greater than 2% per 31 Effective Full Power Days (EFPD). These values shall be used to increase F_Q^W (Z) per SR 3.2.1.2. A 2% penalty factor shall be used at all cycle burnups that are outside the range of Table 1.

2.5.3 $F_Q(Z)$ shall be evaluated to determine if it is within its limits by verifying that $F_Q^C(Z)$ and $F_Q^W(Z)$ satisfy the following:

a. Using the moveable incore detectors to obtain a power distribution map in MODE 1.

b. Increasing the measured $F_Q(Z)$ component of the power distribution map by 3% to account for manufacturing tolerances and further increasing the value by 5% to account for measurement uncertainties.

c. Satisfying the following relationship:

$$F_Q^C(Z) < \frac{F_Q^{RTP} * K(Z)}{P} \quad \text{for } P > 0.5$$

$$F_Q^C(Z) \le \frac{F_Q^{RTP} * K(Z)}{0.5} \quad \text{for } P \le 0.5$$

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

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

where:

$F_Q^C(Z)$ is the measured $F_Q(Z)$ increased by the allowances for manufacturing tolerances and measurement uncertainty.

F_Q^{RTP} is the F_Q limit

K(Z) is the normalized $F_Q(Z)$ as a function of core height

P is the relative THERMAL POWER, and

$F_Q^W(Z)$ is the total peaking factor, $F_Q^C(Z)$, multiplied by W(Z) which gives the maximum $F_Q(Z)$ calculated to occur in normal operation.

W(Z) is the cycle dependent function that accounts for power distribution transients encountered during normal operation.

F_Q^{RTP} and K(Z) are specified in 2.5.1 and W(Z) is specified in 2.5.2.

2.6 Nuclear Enthalpy Rise Hot Channel Factor - $F^{N}_{\Delta H}$ (TS 3.2.2)

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

where:

$$P = \frac{THERMAL\ POWER}{RATED\ THERMAL\ POWER}$$

$F^{N}_{\Delta H}$ = Measured values of $F^{N}_{\Delta H}$ obtained by using the moveable incore detectors to obtain a power distribution map.

$F^{RTP}_{\Delta H}$ = 1.586 (prior to including 4% uncertainty)

$PF_{\Delta H}$ = 0.3 = Power Factor Multiplier

2.7 Power Distribution Measurement Uncertainty (TS 3.2.1. and TS 3.2.2):

If the PDMS is OPERABLE, 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 6.2. However, if the uncertainty is less than 4.0, the uncertainty should be set equal to 4.0. $F^{RTP}_{\Delta H}$ = 1.65 for PDMS (in the above Section 2.6 equation).

If the PDMS is OPERABLE, the uncertainty, U_{FQ}, to be applied to the Heat Flux Hot Channel Factor, $F_Q(Z)$, shall be calculated by the following formula:

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

where: U_Q = Uncertainty for power peaking factor as defined in equation (5-19) in Reference 6.2.

U_e = Engineering uncertainty factor
= 1.03

If the PDMS is INOPERABLE, the Nuclear Enthalpy Rise Hot Channel Factor, $F^{N}_{\Delta H}$, shall be calculated as specified in Section 2.6.

If the PDMS is INOPERABLE, the Heat Flux Hot Channel Factor, $F_Q(Z)$, shall be calculated as specified in Section 2.5.

2.8 Axial Flux Difference (TS 3.2.3)

2.8.1 The Axial Flux Difference (AFD) Limits are provided in Figure 2.

2.9 Boron Concentration (TS 3.9.1)

The refueling boron concentration of the Reactor Coolant System, the refueling canal, and the refueling cavity shall be maintained within the more restrictive of the following limits:

2.9.1 A k_{eff} of 0.95 or less, with the most reactive control rod assembly completely withdrawn, or

2.9.2 A boron concentration of greater than or equal to 2000 ppm.

2.10 RCS Pressure, Temperature, and Flow Departure from Nucleate Boiling (DNB) Limit (TS 3.4.1)

2.10.1 Pressurizer pressure is greater than or equal to 2175 psig.

2.10.2 RCS average temperature is less than or equal to 581.7°F.

2.10.3 RCS total flow rate is greater than or equal to 362,500 gpm.

<u>NOTE</u>: The DNB RCS T_{AVG} limit is based on the slightly lower and bounding value associated with Unit 1 in order to have the same surveillance limits for both Unit 1 and Unit 2.

3. <u>TABLES</u>

3.1 Table 1, "F_Q Margin Decreases in Excess of 2% Per 31 EFPD"

3.2 Table 2A, "Load Follow W(Z) Factors at 150 and 2000 MWD/MTU as a Function of Core Height"

3.3 Table 2B, "Load Follow W(Z) Factors at 6000 and 10000 MWD/MTU as a Function of Core Height"

3.4 Table 2C, "Load Follow W(Z) Factors at 14000 and 18000 MWD/MTU as a Function of Core Height"

4. <u>FIGURES</u>

4.1 Figure 1, "Control Bank Insertion Limits Versus Rated Thermal Power"

4.2 Figure 2, "AFD Limits as a Function of Rated Thermal Power"

5. <u>RECORDS</u>

None

6. <u>REFERENCES</u>

6.1 NF-PGE-19-063, "Diablo Canyon Unit 2 Cycle 22 Final Reload Evaluation and Core Operating Limits Report," July 2019.

6.2 WCAP-12472-P-A (Proprietary), Addendum 4, Revision 0, "BEACON Core Monitoring and Operations Support System, Addendum 4," September 2012.

6.3 Westinghouse Nuclear Safety Advisory Letter NSAL-02-14, Revision 2, "Steam Line Break During Mode 3 for Westinghouse NSSS Plants," August 4, 2005.

7. 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:

7.1 WCAP-10216-P-A, Revision 1A, "Relaxation of Constant Axial Offset Control FQ Surveillance Technical Specification," February 1994.

7.2 WCAP-9272-P-A, "Westinghouse Reload Safety Evaluation Methodology," July 1985.

7.3 WCAP-8385, "Power Distribution Control and Load Following Procedures," September 1974. Approved by NRC Safety Evaluation dated January 31, 1978.

7.4 WCAP-10054-P-A, "Westinghouse Small Break ECCS Evaluation Model Using the NOTRUMP Code," August 1985.

7.5 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.

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

7.7 WCAP-16009-P-A, Revision 0, "Realistic Large-Break LOCA Evaluation Methodology Using the Automated Statistical Treatment of Uncertainty Method (ASTRUM)," January 2005.

7.8 WCAP-8567-P-A, "Improved Thermal Design Procedure," February 1989.

7.9 WCAP-16045-P-A, "Qualification of the Two-Dimensional Transport Code PARAGON," August 2004.

7.10 WCAP-16045-P-A, Addendum 1-A, "Qualification of the NEXUS Nuclear Data Methodology," August 2007.

Table 1: F_Q Margin Decreases in Excess of 2% Per 31 EFPD

Cycle Burnup (MWD/MTU)	Max. % Decrease in F_Q Margin
5467	2.00
5671	2.45
5876	3.02
6080	3.16
6285	3.01
6489	2.58
6693	2.43
6898	2.27
7102	2.12
7307	2.00

NOTE: All cycle burnups outside the range of this table shall use a 2% decrease in F_Q margin for compliance with SR 3.2.1.2. Linear interpolation is adequate for intermediate cycle burnups.

Table 2A: Load Follow W(Z) Factors at 150 and 2000 MWD/MTU as a Function of Core Height

HEIGHT (INCHES)	150 MWD/MTU W(Z)	HEIGHT (INCHES)	2000 MWD/MTU W(Z)
*0.0	1.5877	*0.0	1.6279
*2.4	1.5802	*2.4	1.6203
*4.8	1.5720	*4.8	1.6119
*7.2	1.5614	*7.2	1.6011
*9.6	1.5458	*9.6	1.5847
12.1	1.5252	12.1	1.5629
14.5	1.5031	14.5	1.5393
16.9	1.4787	16.9	1.5132
19.3	1.4524	19.3	1.4849
21.7	1.4245	21.7	1.4547
24.1	1.3948	24.1	1.4228
26.5	1.3646	26.5	1.3903
28.9	1.3341	28.9	1.3573
31.4	1.3018	31.4	1.3234
33.8	1.2734	33.8	1.2900
36.2	1.2584	36.2	1.2644
38.6	1.2497	38.6	1.2550
41.0	1.2397	41.0	1.2472
43.4	1.2315	43.4	1.2399
45.8	1.2244	45.8	1.2313
48.2	1.2162	48.2	1.2218
50.8	1.2068	50.8	1.2109
53.2	1.1969	53.2	1.1998
55.6	1.1860	55.6	1.1876
58.0	1.1743	58.0	1.1746
60.4	1.1622	60.4	1.1619
62.8	1.1497	62.8	1.1468
65.2	1.1438	65.2	1.1334
67.6	1.1567	67.6	1.1382
70.0	1.1679	70.0	1.1453

* Top and Bottom 8% Excluded

Table 2A: Load Follow W(Z) Factors at 150 and 2000 MWD/MTU as a Function of Core Height (Continued)

HEIGHT (INCHES)	150 MWD/MTU W(Z)	HEIGHT (INCHES)	2000 MWD/MTU W(Z)
72.5	1.1787	72.5	1.1525
74.9	1.1876	74.9	1.1584
77.3	1.1954	77.3	1.1633
79.7	1.2020	79.7	1.1673
82.1	1.2076	82.1	1.1705
84.5	1.2111	84.5	1.1720
86.9	1.2131	86.9	1.1723
89.3	1.2132	89.3	1.1715
91.8	1.2105	91.8	1.1686
94.2	1.2063	94.2	1.1646
96.6	1.1991	96.6	1.1583
99.0	1.1897	99.0	1.1502
101.4	1.1781	101.4	1.1403
103.8	1.1661	103.8	1.1319
106.2	1.1518	106.2	1.1341
108.6	1.1462	108.6	1.1398
111.1	1.1442	111.1	1.1413
113.5	1.1448	113.5	1.1441
115.9	1.1421	115.9	1.1438
118.3	1.1359	118.3	1.1409
120.7	1.1317	120.7	1.1353
123.1	1.1376	123.1	1.1368
125.5	1.1434	125.5	1.1397
127.9	1.1488	127.9	1.1415
130.3	1.1542	130.3	1.1467
132.8	1.1583	132.8	1.1503
*135.2	1.1611	*135.2	1.1533
*137.6	1.1621	*137.6	1.1507
*140.0	1.1592	*140.0	1.1395
*142.4	1.1534	*142.4	1.1294
*144.8	1.1485	*144.8	1.1190

* Top and Bottom 8% Excluded

Table 2B: Load Follow W(Z) Factors at 6000 and 10000 MWD/MTU as a Function of Core Height

HEIGHT (INCHES)	6000 MWD/MTU W(Z)	HEIGHT (INCHES)	10000 MWD/MTU W(Z)
*0.0	1.4579	*0.0	1.3226
*2.4	1.4533	*2.4	1.3206
*4.8	1.4475	*4.8	1.3167
*7.2	1.4409	*7.2	1.3136
*9.6	1.4295	*9.6	1.3063
12.1	1.4133	12.1	1.2951
14.5	1.3959	14.5	1.2835
16.9	1.3766	16.9	1.2710
19.3	1.3558	19.3	1.2578
21.7	1.3339	21.7	1.2444
24.1	1.3109	24.1	1.2308
26.5	1.2874	26.5	1.2168
28.9	1.2631	28.9	1.2015
31.4	1.2377	31.4	1.1857
33.8	1.2155	33.8	1.1704
36.2	1.2032	36.2	1.1561
38.6	1.1967	38.6	1.1512
41.0	1.1909	41.0	1.1536
43.4	1.1852	43.4	1.1588
45.8	1.1797	45.8	1.1638
48.2	1.1728	48.2	1.1674
50.8	1.1647	50.8	1.1691
53.2	1.1578	53.2	1.1698
55.6	1.1519	55.6	1.1694
58.0	1.1454	58.0	1.1678
60.4	1.1388	60.4	1.1658
62.8	1.1301	62.8	1.1614
65.2	1.1244	65.2	1.1608
67.6	1.1388	67.6	1.1813
70.0	1.1513	70.0	1.1988

* Top and Bottom 8% Excluded

Table 2B: Load Follow W(Z) Factors at 6000 and 10000 MWD/MTU as a Function of Core Height (Continued)

HEIGHT (INCHES)	6000 MWD/MTU W(Z)	HEIGHT (INCHES)	10000 MWD/MTU W(Z)
72.5	1.1635	72.5	1.2156
74.9	1.1742	74.9	1.2304
77.3	1.1841	77.3	1.2439
79.7	1.1928	79.7	1.2554
82.1	1.2002	82.1	1.2650
84.5	1.2060	84.5	1.2725
86.9	1.2107	86.9	1.2786
89.3	1.2140	89.3	1.2825
91.8	1.2143	91.8	1.2824
94.2	1.2132	94.2	1.2805
96.6	1.2097	96.6	1.2757
99.0	1.2041	99.0	1.2686
101.4	1.1963	101.4	1.2586
103.8	1.1865	103.8	1.2455
106.2	1.1874	106.2	1.2367
108.6	1.1935	108.6	1.2295
111.1	1.1947	111.1	1.2289
113.5	1.1955	113.5	1.2308
115.9	1.1937	115.9	1.2314
118.3	1.1900	118.3	1.2302
120.7	1.1922	120.7	1.2290
123.1	1.1978	123.1	1.2358
125.5	1.2020	125.5	1.2428
127.9	1.2052	127.9	1.2498
130.3	1.2102	130.3	1.2562
132.8	1.2125	132.8	1.2606
*135.2	1.2149	*135.2	1.2637
*137.6	1.2100	*137.6	1.2648
*140.0	1.1973	*140.0	1.2610
*142.4	1.1922	*142.4	1.2538
*144.8	1.1846	*144.8	1.2478

* Top and Bottom 8% Excluded

Table 2C: Load Follow W(Z) Factors at 14000 and 18000 MWD/MTU as a Function of Core Height

HEIGHT (INCHES)	14000 MWD/MTU W(Z)	HEIGHT (INCHES)	18000 MWD/MTU W(Z)
*0.0	1.2854	*0.0	1.3195
*2.4	1.2842	*2.4	1.3178
*4.8	1.2797	*4.8	1.3110
*7.2	1.2768	*7.2	1.3061
*9.6	1.2698	*9.6	1.2965
12.1	1.2588	12.1	1.2827
14.5	1.2480	14.5	1.2693
16.9	1.2367	16.9	1.2553
19.3	1.2250	19.3	1.2411
21.7	1.2137	21.7	1.2274
24.1	1.2027	24.1	1.2142
26.5	1.1912	26.5	1.2004
28.9	1.1782	28.9	1.1867
31.4	1.1642	31.4	1.1748
33.8	1.1554	33.8	1.1641
36.2	1.1560	36.2	1.1528
38.6	1.1622	38.6	1.1505
41.0	1.1672	41.0	1.1649
43.4	1.1715	43.4	1.1794
45.8	1.1759	45.8	1.1935
48.2	1.1824	48.2	1.2051
50.8	1.1891	50.8	1.2137
53.2	1.1937	53.2	1.2201
55.6	1.1970	55.6	1.2250
58.0	1.1990	58.0	1.2281
60.4	1.1989	60.4	1.2295
62.8	1.1996	62.8	1.2301
65.2	1.2084	65.2	1.2325
67.6	1.2290	67.6	1.2500
70.0	1.2453	70.0	1.2630

* Top and Bottom 8% Excluded

Table 2C: Load Follow W(Z) Factors at 14000 and 18000 MWD/MTU as a Function of Core Height (Continued)

HEIGHT (INCHES)	14000 MWD/MTU W(Z)	HEIGHT (INCHES)	18000 MWD/MTU W(Z)
72.5	1.2606	72.5	1.2747
74.9	1.2735	74.9	1.2845
77.3	1.2847	77.3	1.2925
79.7	1.2932	79.7	1.2978
82.1	1.2994	82.1	1.3007
84.5	1.3032	84.5	1.3015
86.9	1.3053	86.9	1.3009
89.3	1.3049	89.3	1.2974
91.8	1.2994	91.8	1.2883
94.2	1.2923	94.2	1.2779
96.6	1.2823	96.6	1.2647
99.0	1.2697	99.0	1.2487
101.4	1.2547	101.4	1.2308
103.8	1.2420	103.8	1.2264
106.2	1.2361	106.2	1.2259
108.6	1.2315	108.6	1.2229
111.1	1.2201	111.1	1.2137
113.5	1.2134	113.5	1.2067
115.9	1.2098	115.9	1.1977
118.3	1.2055	118.3	1.1899
120.7	1.2080	120.7	1.1847
123.1	1.2136	123.1	1.1906
125.5	1.2193	125.5	1.1975
127.9	1.2255	127.9	1.2108
130.3	1.2313	130.3	1.2294
132.8	1.2351	132.8	1.2443
*135.2	1.2381	*135.2	1.2493
*137.6	1.2392	*137.6	1.2541
*140.0	1.2355	*140.0	1.2478
*142.4	1.2283	*142.4	1.2407
*144.8	1.2223	*144.8	1.2339

* Top and Bottom 8% Excluded

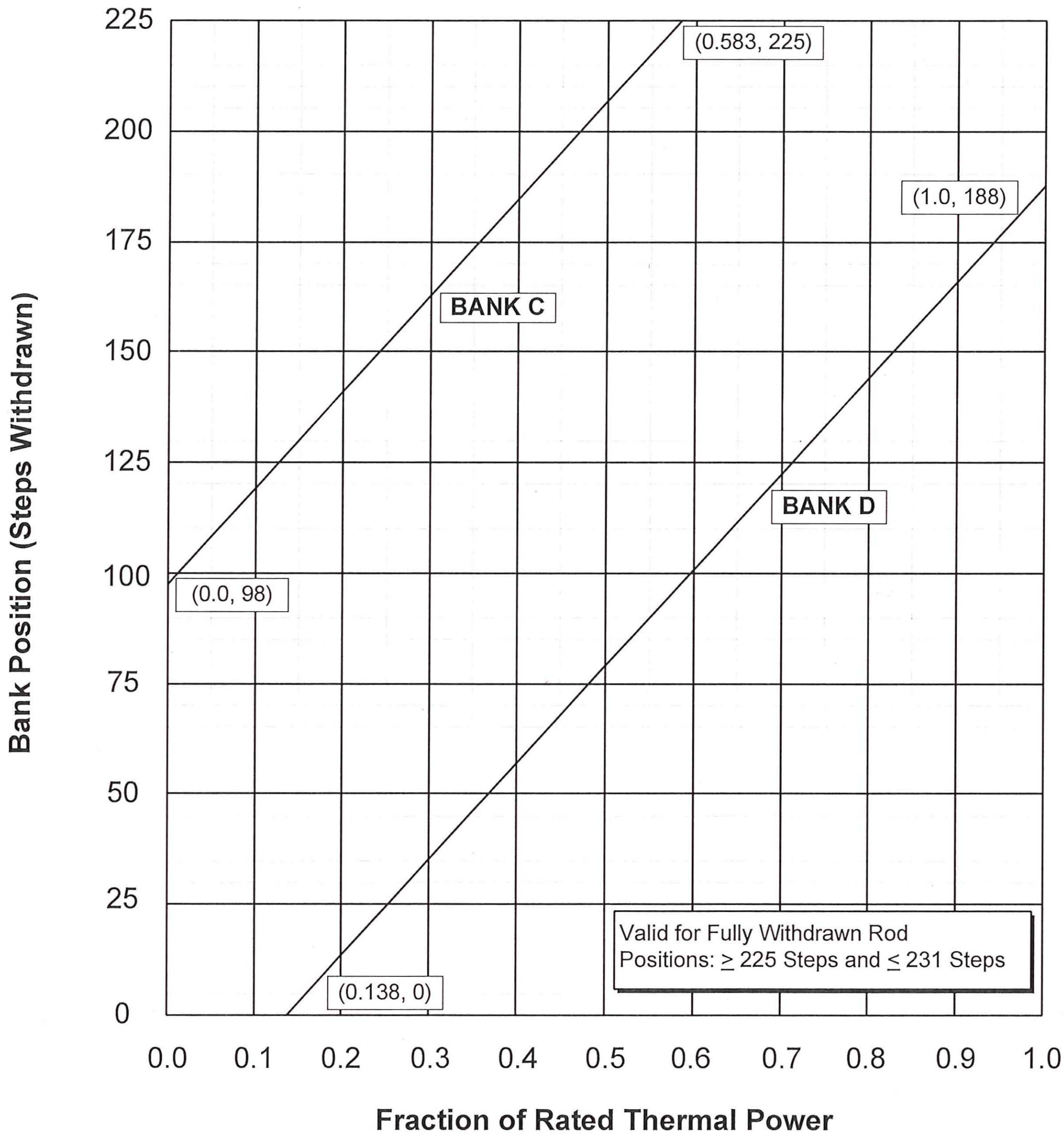

Figure 1: Control Bank Insertion Limits Versus Rated Thermal Power

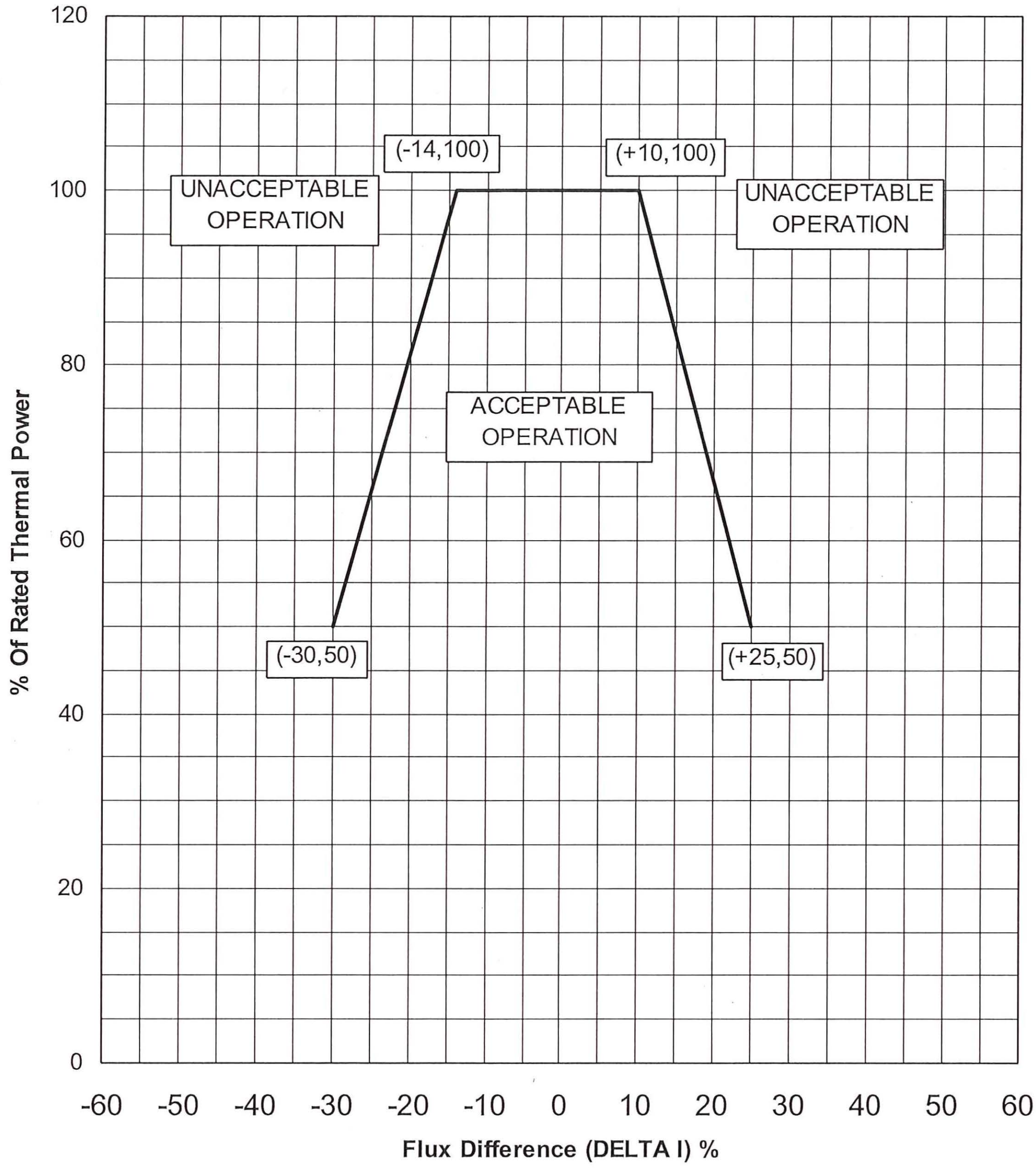

Figure 2: AFD Limits as a Function of Rated Thermal Power