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

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DOMINION NUCLEAR CONNECTICUT, INC.
MILLSTONE POWER STATION UNIT 2
CORE OPERATING LIMITS REPORT, CYCLE 17

In accordance with the Millstone Unit 2 Technical Specifications, Section 6.9.1.8.d, Dominion Nuclear Connecticut, Inc., hereby submits, as Enclosure 1, the Cycle 17 Core Operating Limits Report (COLR).

The Millstone Unit 2 COLR has been revised to incorporate changes for Cycle 17 operation. The changes are administrative in nature, which include cycle number changes in the headers and footers of each page. No technical changes to the COLR were required to support Cycle 17 since Cycles 16 and 17 are very similar regarding core design. No revision was required to the operating limits in order to produce acceptable Safety Analysis results.

The COLR has been incorporated into the Millstone Unit 2 Technical Requirements Manual.

If you have any questions or require additional information, please contact Mr. David W. Dodson at (860) 447-1791, extension 2346.

Very truly yours,

J. Alan Price
Site Vice President - Millstone

A001

Enclosures: (1)

Commitments made in this letter: None.

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Serial No. 05-377
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Enclosure 1

Core Operating Limits Report, Cycle 17

Millstone Power Station Unit 2
Dominion Nuclear Connecticut, Inc. (DNC)

1. CORE OPERATING LIMITS REPORT

This Core Operating Limits Report for Millstone 2 has been prepared in accordance with the requirements of Technical Specification 6.9.1.8. The Technical Specifications affected by this report are listed below:

Section	Specification	
2.1	3/4.1.1.1	SHUTDOWN MARGIN – (SDM)
2.3	3/4.1.1.4	Moderator Temperature Coefficient (MTC)
2.4	3/4.1.3.6	Regulating CEA Insertion Limits
2.5	3/4.2.1	Linear Heat Rate
2.6	3/4.2.3	TOTAL UNRODDED INTEGRATED RADIAL PEAKING FACTOR -- F_r^T
2.7	3/4.2.6	DNB Margin

Terms appearing in capitalized type are DEFINED TERMS as defined in Section 1.0 of the Technical Specifications.

2. 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 Section 3.

2.1 SHUTDOWN MARGIN – (SDM) (Specification 3/4.1.1.1)

The SHUTDOWN MARGIN shall be ≥ 3.6% ΔK/K

2.3 Moderator Temperature Coefficient (Specification 3/4.1.1.4)

The moderator temperature coefficient shall be:

a. Less positive than 0.7×10^{-4} ΔK/K/°F whenever THERMAL POWER is ≤70% of RATED THERMAL POWER,

b. Less positive than 0.4×10^{-4} ΔK/K/°F whenever THERMAL POWER is > 70% of RATED THERMAL POWER,

c. Less negative than -3.2×10^{-4} ΔK/K/°F at RATED THERMAL POWER

2.4 Regulating CEA Insertion Limits (Specification 3/4.1.3.6)

The regulating CEA groups shall be limited to the withdrawal sequence and to the insertion limits shown in Figure 2.4-1. CEA insertion between the Long Term Steady State Insertion Limits and the Transient Insertion Limits is restricted to:

a. ≤ 4 hours per 24 hour interval,

b. ≤ 5 Effective Full Power Days per 30 Effective Full Power Day interval, and

c. ≤ 14 Effective Full Power Days per 365 Effective Full Power Day interval.

2.5 Linear Heat Rate (Specification 3/4.2.1)

The linear heat rate, including heat generated in the fuel, clad and moderator, shall not exceed:

a. 15.1 kw/ft whenever the reactor coolant flow rate (determined per Specification 3/4.2.6.1) is ≥ 360,000 gpm.

b. 15.0 kw/ft whenever the reactor coolant flow rate (determined per Specification 3/4.2.6.1) is < 360,000 gpm and ≥ 354,600 gpm.

c. 14.9 kw/ft whenever the reactor coolant flow rate (determined per Specification 3/4.2.6.1) is < 354,600 gpm and ≥ 349,200 gpm.

During operation with the linear heat rate being monitored by the Excore Detector Monitoring System, the AXIAL SHAPE INDEX shall remain within the limits of Figure 2.5-1.

During operation with the linear heat rate being monitored by the Incore Detector Monitor System, the alarm setpoints shall be adjusted to less than or equal to the limit when the following factors are appropriately included in the setting of the alarms:

1. A measurement-calculational uncertainty factor of 1.07,
2. An engineering uncertainty factor of 1.03, and
3. A THERMAL POWER measurement uncertainty factor of 1.02.

2.6 TOTAL UNRODDED INTEGRATED RADIAL PEAKING FACTOR -- F_r^T (Specification 3/4.2.3)

The calculated value of F_r^T at RATED THERMAL POWER shall be:

≤ 1.690 whenever the reactor coolant flow rate is ≥ 360,000 gpm.

≤ 1.664 whenever the reactor coolant flow rate is < 360,000 gpm and ≥ 354,600 gpm.

≤ 1.639 whenever the reactor coolant flow rate is < 354,600 gpm and ≥ 349,200 gpm.

2.6.1. The Power Dependent F_r^T limits, whenever the reactor coolant flow rate is ≥ 360,000 gpm, are shown in Figure 2.6-1.

2.6.2. The Power Dependent F_r^T limits, whenever the reactor coolant flow rate is < 360,00 gpm and ≥ 354,600 gpm, are shown in Figure 2.6-2.

2.6.3. The Power Dependent F_r^T limits, whenever the reactor coolant flow rate is < 354,600 gpm and ≥ 349,200 gpm, are shown in Figure 2.6-3.

2.7 DNB Margin (Specification 3/4.2.6)

The DNB margin shall be preserved by maintaining the cold leg temperature, pressurizer pressure, reactor coolant flow rate, and AXIAL SHAPE INDEX within the following limits:

Parameter	Limits
Four Reactor Coolant Pumps Operations	
a. Cold Leg Temperature	≤ 549°F
b. Pressurizer Pressure	> 2225 psia*
c. Reactor Coolant Flow Rate	≥ 360,000 gpm with Linear Heat Rate and F_r^T limits as specified in Sections 2.5 and 2.6. or ≥ 354,600 gpm with Linear Heat Rate and F_r^T limit reductions as specified in Sections 2.5 and 2.6. or ≥ 349,200 gpm with Linear Heat Rate and F_r^T limit reductions as specified in Sections 2.5 and 2.6.
d. AXIAL SHAPE INDEX	FIGURE 2.7-1

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

3. 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 EMF-96-029(P)(A) Volumes 1 and 2, "Reactor Analysis System for PWRs Volume 1 - Methodology Description, Volume 2 - Benchmarking Results," Siemens Power Corporation, January 1997.

3.2 ANF-84-73 Revision 5 Appendix B(P)(A), "Advanced Nuclear Fuels Methodology for Pressurized Water Reactors: Analysis of Chapter 15 Events," Advanced Nuclear Fuels, July 1990.

3.3 XN-NF-92-21(P)(A) Revision 1, "Application of Exxon Nuclear Company PWR Thermal Margin Methodology to Mixed Core Configurations," Exxon Nuclear Company, September 1983.

3.4 XN-75-32(P)(A) Supplements 1 through 4, "Computational Procedure for Evaluating Fuel Rod Bowing," Exxon Nuclear Company, October 1983.

3.5 EMF-2328(P)(A), "PWR Small Break LOCA Evaluation Model S-RELAP5 Based," Framatome ANP, March 2001.

3.6 EMF-2087(P)(A), "SEM/PWR-98: ECCS Evaluation Model for PWR LBLOCA Applications," Siemens Power Corporation, June 1999.

3.7 XN-NF-78-44(NP)(A), "A Generic Analysis of the Control Rod Ejection Transient for Pressurized Water Reactors," Exxon Nuclear Company, October 1983.

3.8 XN-NF-621(P)(A) Revision 1, "Exxon Nuclear DNB Correlation for PWR Fuel Designs," Exxon Nuclear Company, September 1983.

3.9 XN-NF-82-06(P)(A) Revision 1 and Supplements 2, 4, and 5, "Qualification of Exxon Nuclear Fuel for Extended Burnup," Exxon Nuclear Company, October 1986.

3.10 ANF-88-133(P)(A) and Supplement 1, "Qualification of Advanced Nuclear Fuels PWR Design Methodology for Rod Burnups of 62 GWd/MTU," Advanced Nuclear Fuels Corporation, December 1991.

3.11 XN-NF-85-92(P)(A) "Exxon Nuclear Uranium Dioxide/Gadolinia Irradiation Examination and Thermal Conductivity Results," Exxon Nuclear Company, November 1988.

3.12 ANF-89-151(P)(A), "ANF-RELAP Methodology for Pressurized Water Reactors: Analysis of Non-LOCA Chapter 15 Events," Advanced Nuclear Fuels Corporation, May 1992.

3.13 EMF-1961(P)(A) Revision 0, "Statistical Setpoint/Transient Methodology for Combustion Engineering Type Reactors," Siemens Power Corporation, July 2000.

3.14 EMF-2310(P)(A), "SRP Chapter 15 Non-LOCA Methodology for Pressurized Water Reactors," Framatome ANP, May 2001.

3.15 EMF-92-153(P)(A), and Supplement 1, "HTP: Departure from Nucleate Boiling Correlation for High Thermal Performance Fuel," Siemens Power Corporation, March 1994.

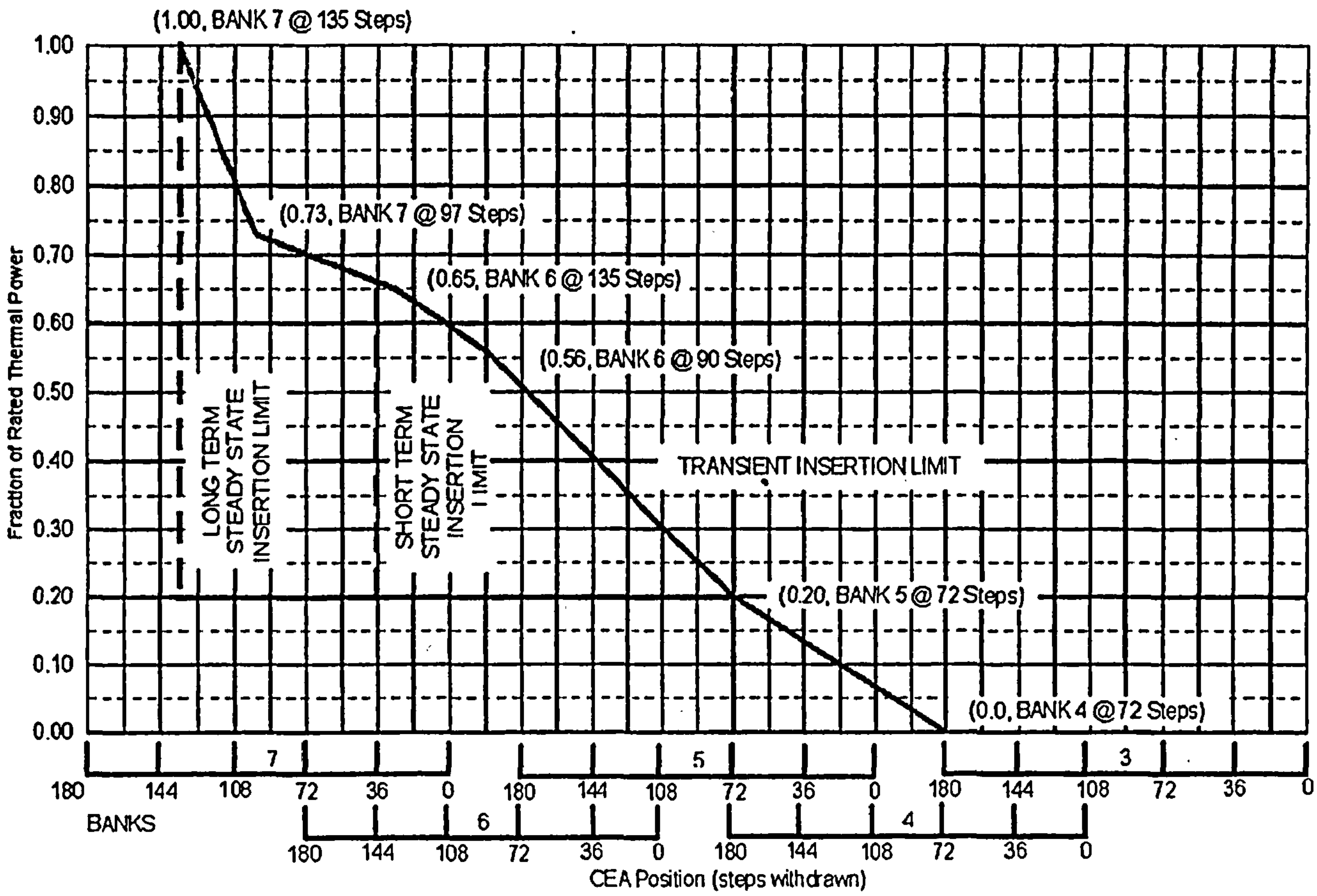


FIGURE 2.4-1
CEA Insertion Limit vs. THERMAL POWER With Four Reactor Coolant Pumps Operating

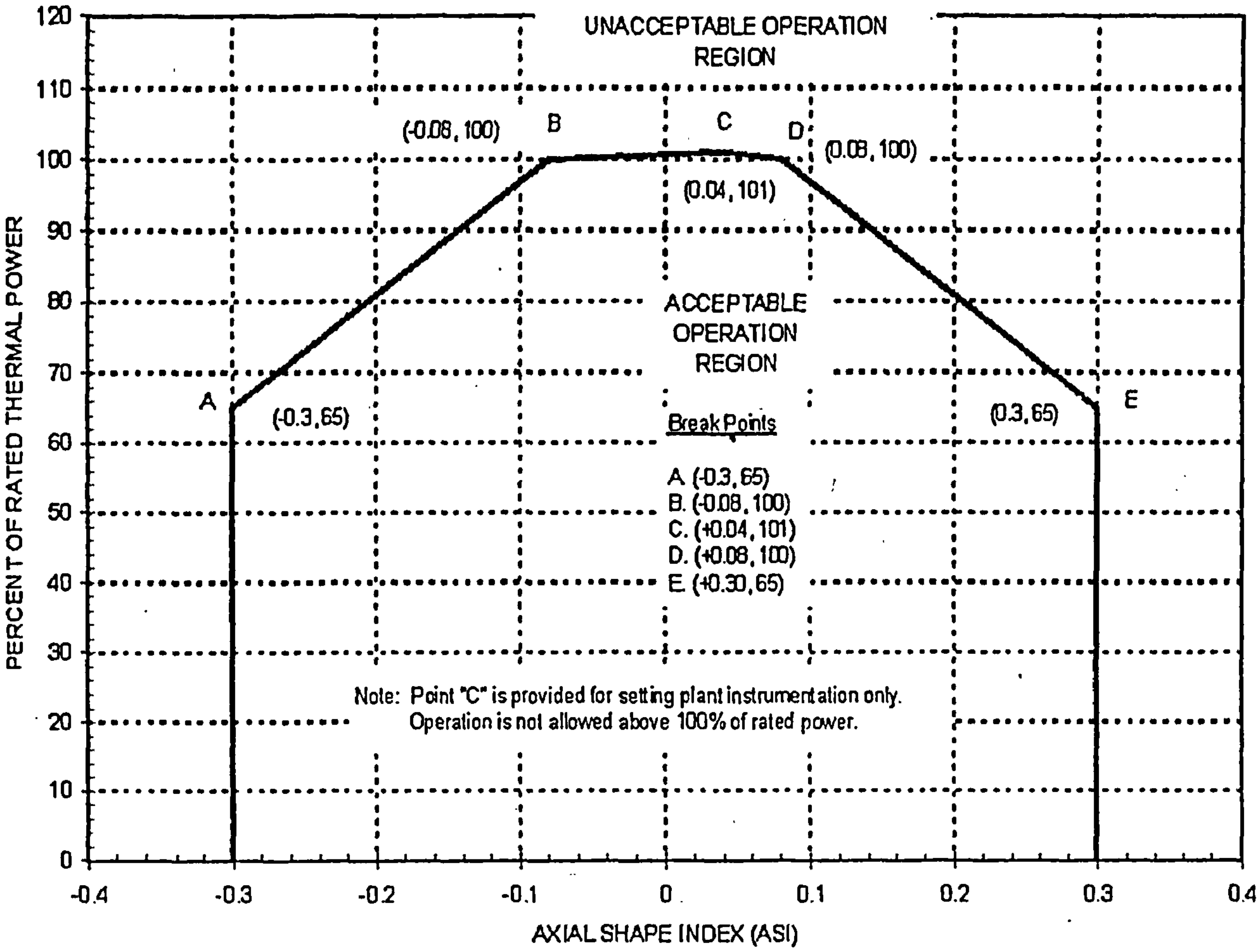
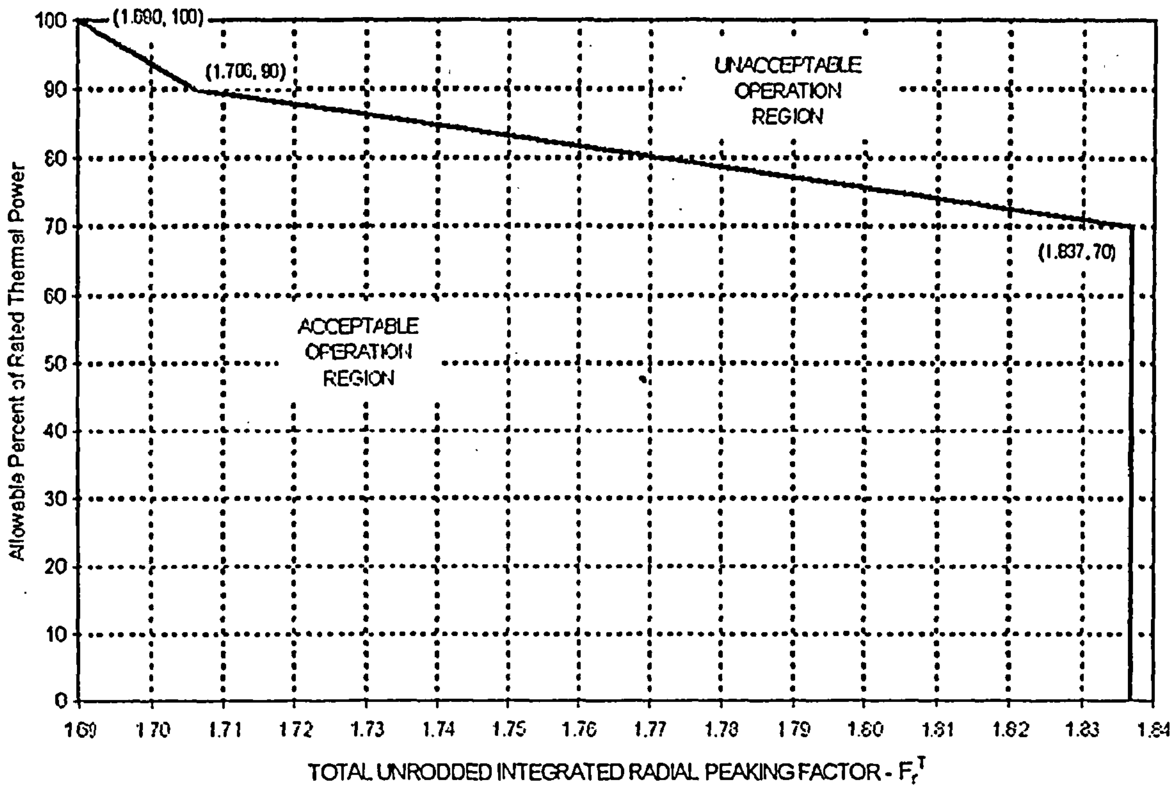


FIGURE 2.5-1
AXIAL SHAPE INDEX vs.
PERCENT OF ALLOWABLE POWER LEVEL



Note: The F_r^T limit should be reduced for reactor coolant flow rates ≥ 349,200 gpm and < 360,000 gpm (see Section 2.6).

FIGURE 2.6-1
TOTAL UNRODDED INTEGRATED RADIAL PEAKING FACTOR
vs. Allowable Rated Thermal Power
For Reactor Coolant Flow Rates ≥ 360,000 gpm

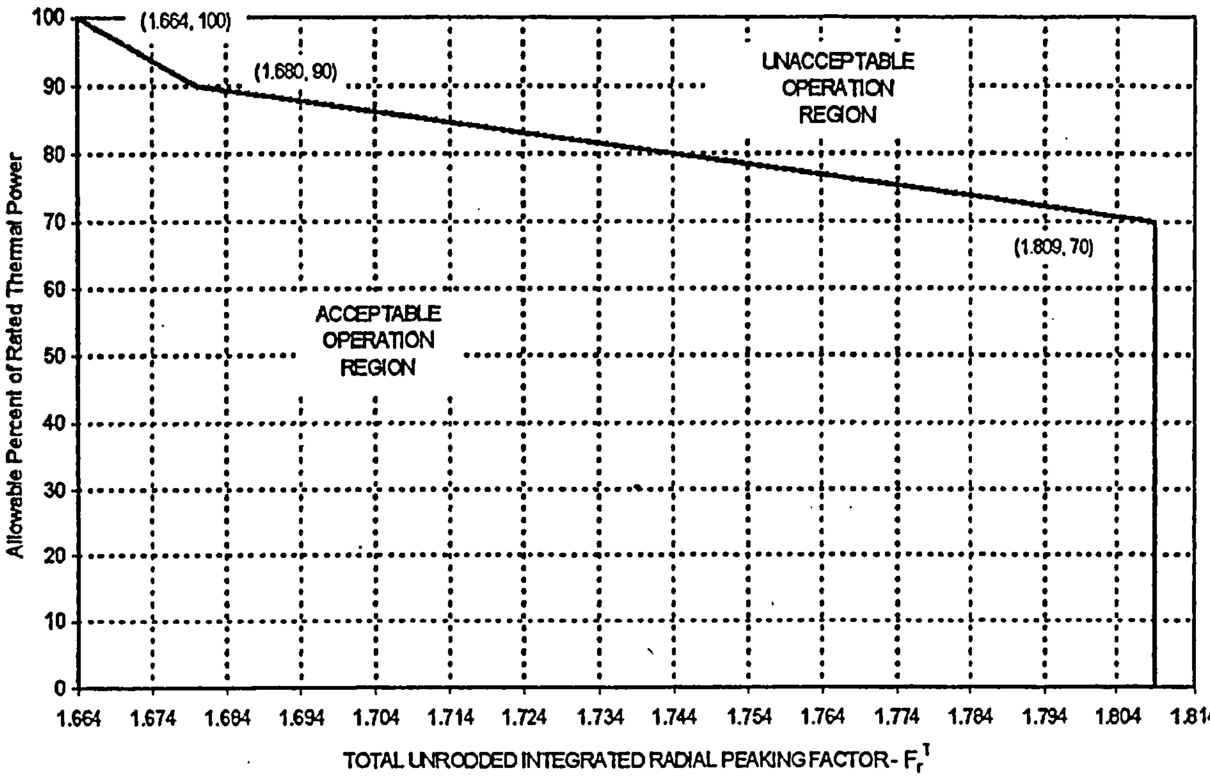


FIGURE 2.6-2
TOTAL UNRODDED INTEGRATED RADIAL PEAKING FACTOR
vs. Allowable Rated Thermal Power
For Reactor Coolant Flow Rates < 360,000 gpm and ≥ 354,600 gpm

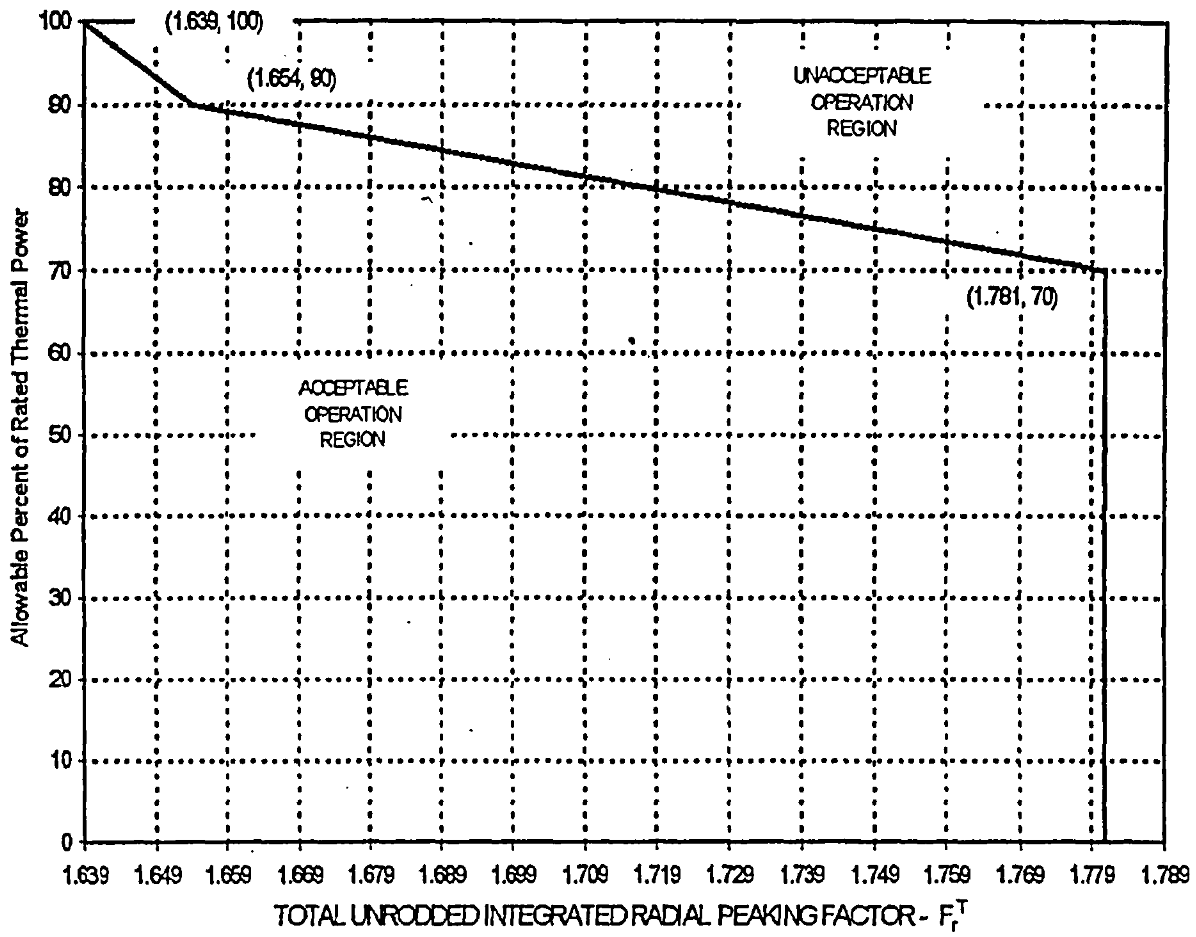


FIGURE 2.6-3
TOTAL UNRODDED INTEGRATED RADIAL PEAKING FACTOR
vs. Allowable Rated Thermal Power
For Reactor Coolant Flow Rates < 354,600 gpm and ≥ 349,200 gpm

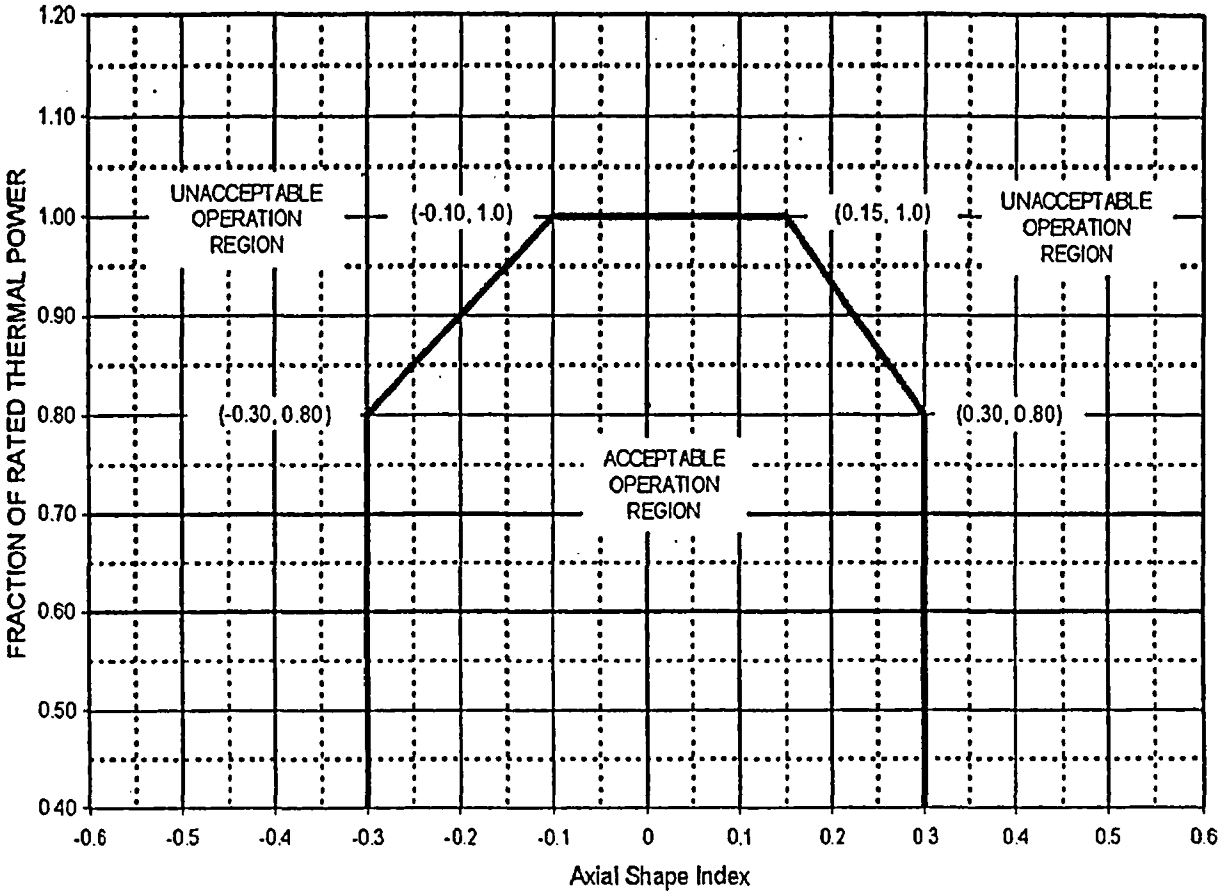


FIGURE 2.7-1
AXIAL SHAPE INDEX Operating Limits With Four Reactor Coolant Pumps Operating