Northeast
Nuclear Energy

Rope Ferry Rd. (Route 156), Waterford, CT 06385

Millstone Nuclear Power Station
Northeast Nuclear Energy Company
P.O. Box 128
Waterford, CT 06385-0128
(860) 447-1791
Fax (860) 444-4277

The Northeast Utilities System

MAY 15 2000

Docket No. 50-336
B18111

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

Millstone Nuclear Power Station, Unit No. 2
Core Operating Limits Report - Cycle 14, Revision 0

In accordance with the Millstone Unit No. 2 Technical Specifications, Section 6.9.1.8.d, Northeast Nuclear Energy Company (NNECO) hereby submits, as Attachment 1, Revision 0 of the Cycle 14 Core Operating Limits Report (COLR).

The Millstone Unit No. 2 COLR has been revised to incorporate the following changes for Cycle 14 operation:

a. 100% power limit for Total Unrodded Integrated Radial Peaking Factor (F_r^T) will be increased from 1.67 to 1.69 (this change also effects the power dependent F_r^T limit curve, Figure 2.6-1).

b. The excore detector linear heat rate limits shall be restored to the original Cycle 13 limits (Figure 2.5-1).

The COLR has been incorporated into the Millstone Unit No. 2 Technical Requirements Manual.

There are no regulatory commitments contained within this letter.

A001

If you have any additional questions concerning this submittal, please contact Mr. Ravi G. Joshi at (860) 440-2080.

Very truly yours,

NORTHEAST NUCLEAR ENERGY COMPANY

Stephen E. Scace - Director
Nuclear Oversight and Regulatory Affairs

cc: H. J. Miller, Region I Administrator
J. I. Zimmerman, NRC Project Manager, Millstone Unit No. 2
D. P. Beaulieu, Senior Resident Inspector, Millstone Unit No. 2

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Attachment 1

Millstone Nuclear Power Station, Unit No. 2

Core Operating Limits Report - Cycle 14, Revision 0

May 2000

2.0 - CORE OPERATING LIMITS REPORT, CYCLE 14

2.0 - CORE OPERATING LIMITS REPORT, CYCLE 14

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 -- T_{avg} > 200°F
2.2	3/4.1.1.2	SHUTDOWN MARGIN -- $T_{avg} \leq$ 200°F
2.3	3/4.1.1.4	Moderator Temperature Coefficient
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 Technical Specification 6.9.1.8.b.

2.1 SHUTDOWN MARGIN -- T_{avg} > 200°F (Specification 3/4.1.1.1)

The SHUTDOWN MARGIN shall be $\geq$ 3.6% $\Delta K/K$

2.2 SHUTDOWN MARGIN -- $T_{avg} \leq$ 200°F (Specification 3/4.1.1.2)

The SHUTDOWN MARGIN shall be $\geq$ 3.6% $\Delta K/K$

2.3 Moderator Temperature Coefficient (Specification 3/4.1.1.4)

The moderator temperature coefficient shall be:

a. Less positive than $0.7x10^{-4}$ $\Delta K/K/°F$ whenever THERMAL POWER is $\leq$ 70% of RATED THERMAL POWER,

b. Less positive than $0.4X10^{-4}$ $\Delta K/K/°F$ whenever THERMAL POWER is > 70% of RATED THERMAL POWER,

c. Less negative than $-2.8x10^{-4}$ $\Delta K/K/°F$ 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. $\leq$ 4 hours per 24 hour interval,

b. $\leq$ 5 Effective Full Power Days per 30 Effective Full Power Day interval, and

c. $\leq$ 14 Effective Full Power Days per calendar year.

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 14.6 kw/ft.

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 shall be $\leq$ 1.69.

2.6.1. The Power Dependent F_r^T limits are shown in Figure 2.6-1.

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
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.

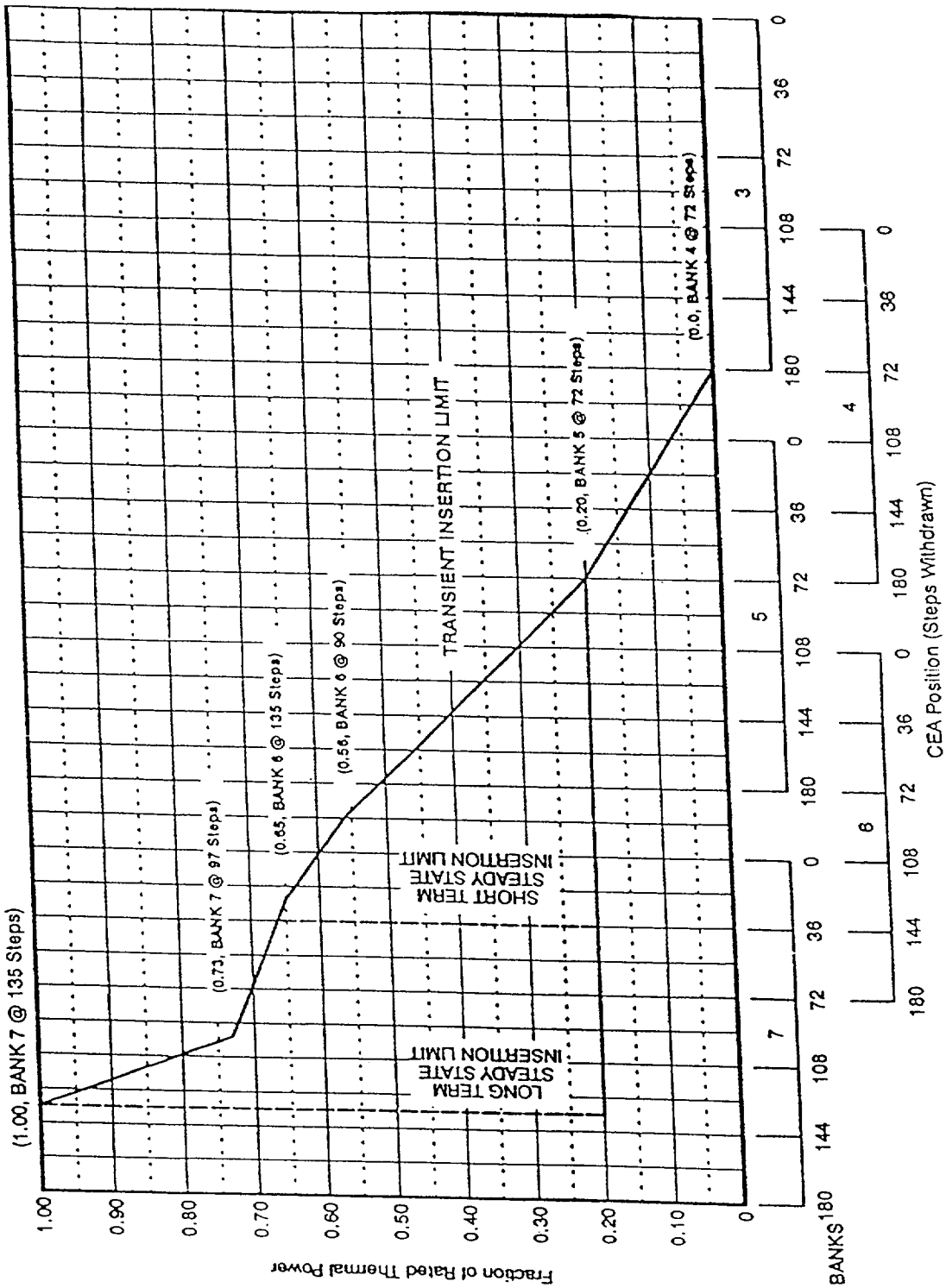

FIGURE 2.4-1
CEA Insertion Limit vs. THERMAL POWER With
Four Reactor Coolant Pumps Operating

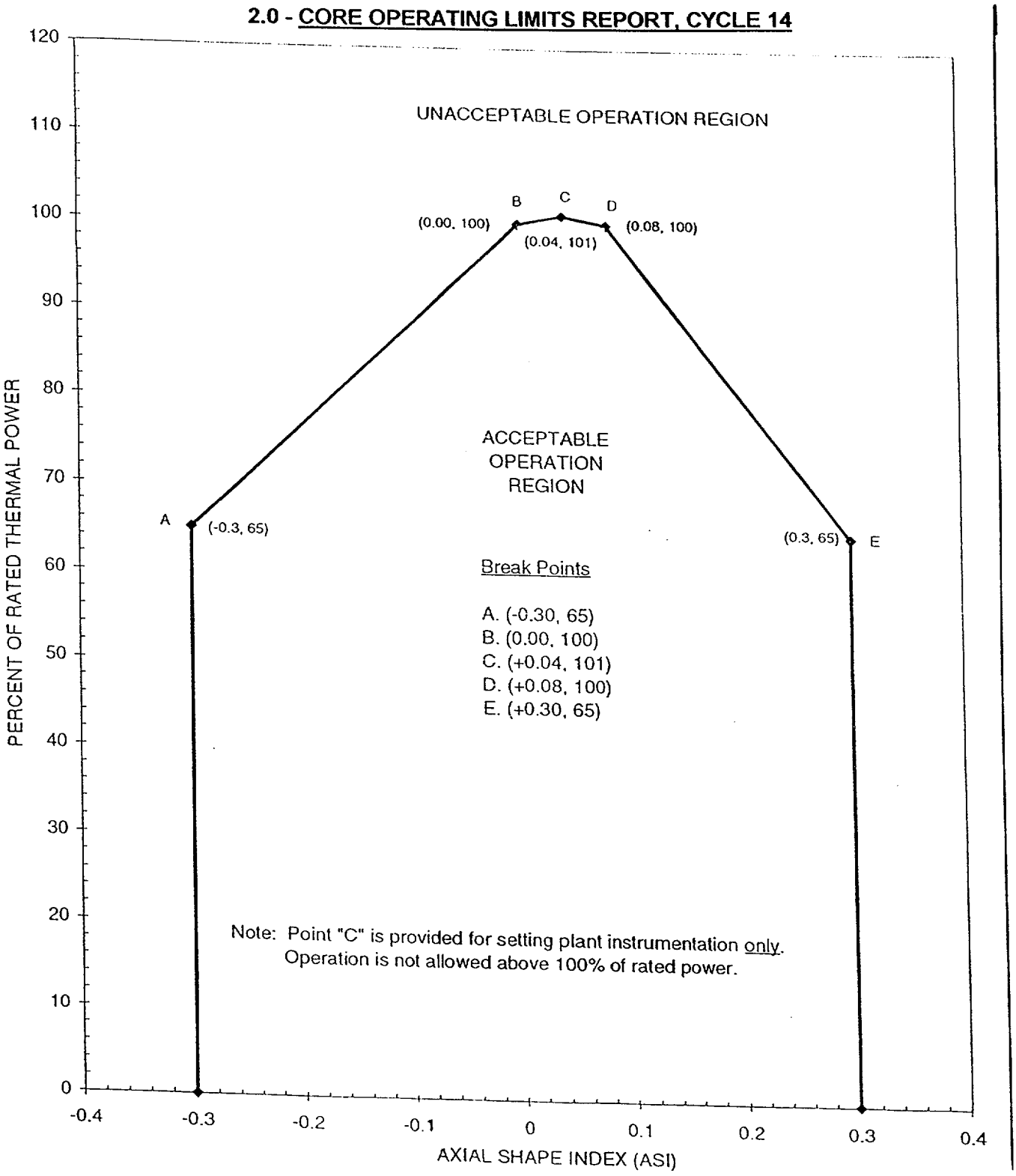

FIGURE 2.5-1
AXIAL SHAPE INDEX vs.
PERCENT OF ALLOWABLE POWER LEVEL

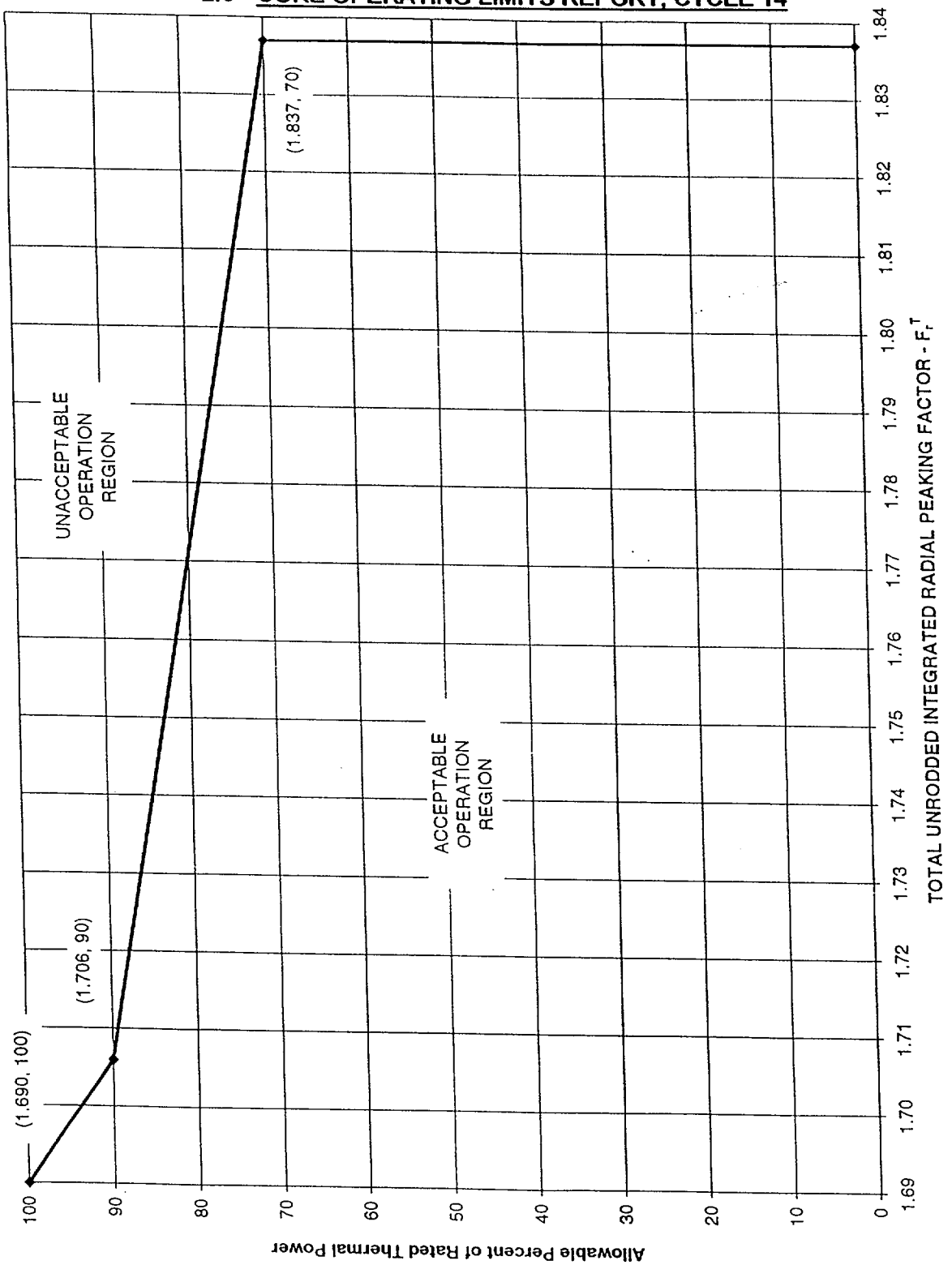

FIGURE 2.6-1
TOTAL UNRODDED INTEGRATED RADIAL PEAKING FACTOR
vs. Allowable Rated Thermal Power

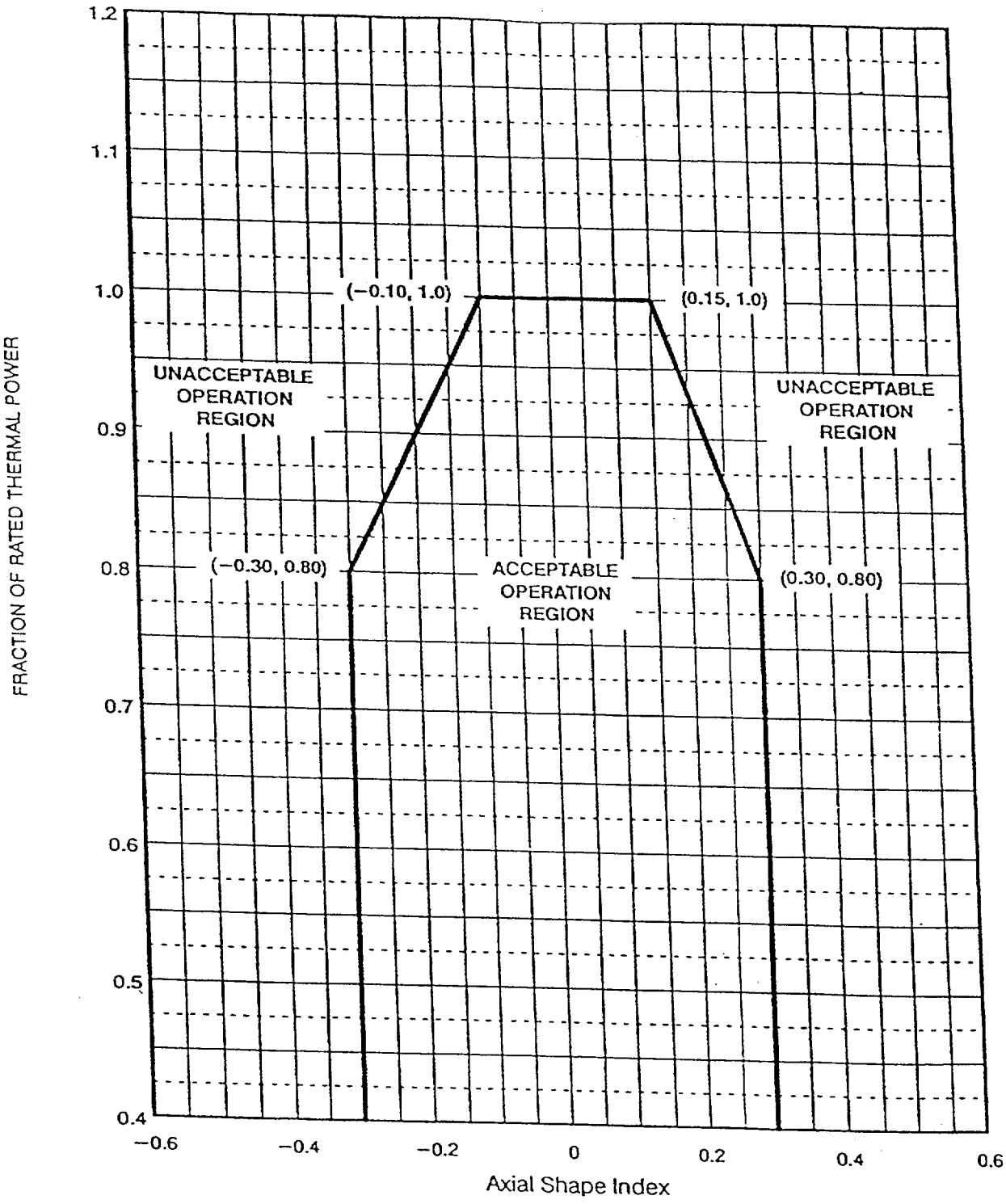

FIGURE 2.7-1
AXIAL SHAPE INDEX Operating Limits With
Four Reactor Coolant Pumps Operating