PRAIRIE ISLAND NUCLEAR GENERATING PLANT

CORE OPERATING LIMITS REPORT

Unit 2 - Cycle 14

Revision 2

Note: This report is not part of the Technical Specifications.
This report is referenced in Technical Specifications.

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Revision 2

This report provides the values of the limits for Unit 2 Cycle 14 as required by Technical Specification Section 6.7.A.6. These values have been established using NRC approved methodology and are established such that all applicable limits of the plant safety analysis are met.

Heat Flux Hot Channel Factor Limits

$F_Q^{RTP} = 2.45$

K(Z) values are provided in Figure 1.

V(Z) values are provided in Figures 2a through 2u.

Reference Technical Specification Sections: 3.10.B.1 and 3.10.B.2

Nuclear Enthalpy Rise Hot Channel Factor Limits

$F_{\Delta H}^{RTP} = 1.70$

PFDH = 0.3

If the nuclear enthalpy rise hot channel factor exceeds its limit in Technical Specification 3.10.B.1, reduce the high neutron flux trip setpoint by 3.33% for each percent that the measured nuclear enthalpy rise hot channel factor exceeds the 3.10.B.1 limit.

Reference Technical Specification Sections: 3.10.B.1, 3.10.B.2 and 3.10.B.3

Linear Heat Generation Rate

The 95% probability level ECCS analysis calculation utilized a peak linear heat generation rate of 14.2 kw/ft.

The Appendix K ECCS analysis calculation utilized a peak linear heat generation rate of 15.5 kw/ft for the F_Q limit of 2.45.

Reference Technical Specification Section: 3.10.B

Axial Flux Difference Limits

The axial flux difference limits are provided in Figure 3.

The Axial Flux Difference target band is ±5%.

Reference Technical Specification Sections: 3.10.B.4 through 3.10.B.9

Shutdown Rod Insertion Limits

The shutdown rods shall be fully withdrawn.

Reference Technical Specification Section: 3.10.D

Control Rod Insertion Limits

The control rod banks shall be limited in physical insertion as shown in Figures 4, 5 and 6.

Reference Technical Specification Sections: 3.10.D and 3.10.G

Reactor Coolant Flow Limit

The reactor coolant system flow shall be ≥ 178,000 gpm.

Reference Technical Specification Section: 3.10.J

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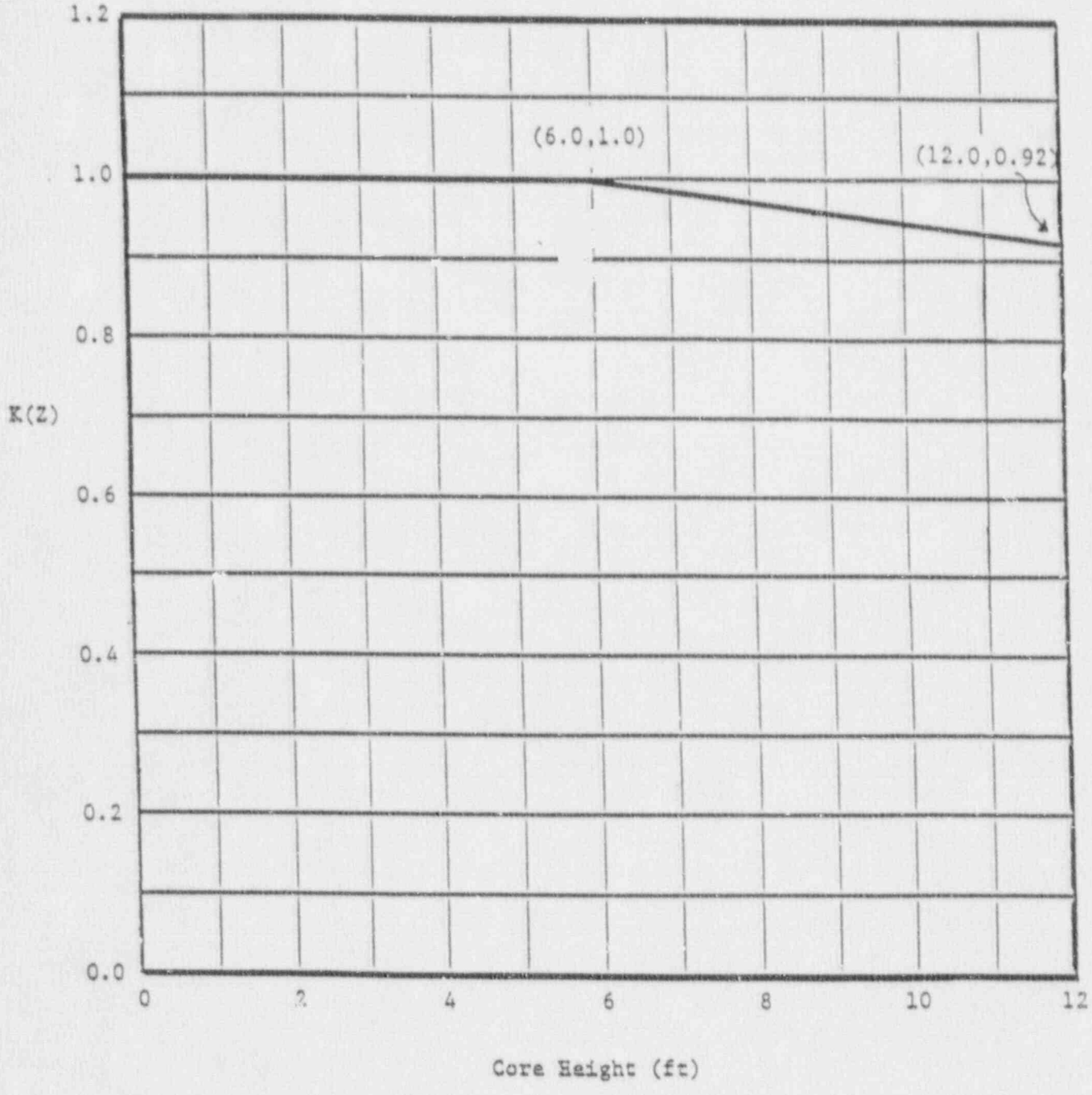
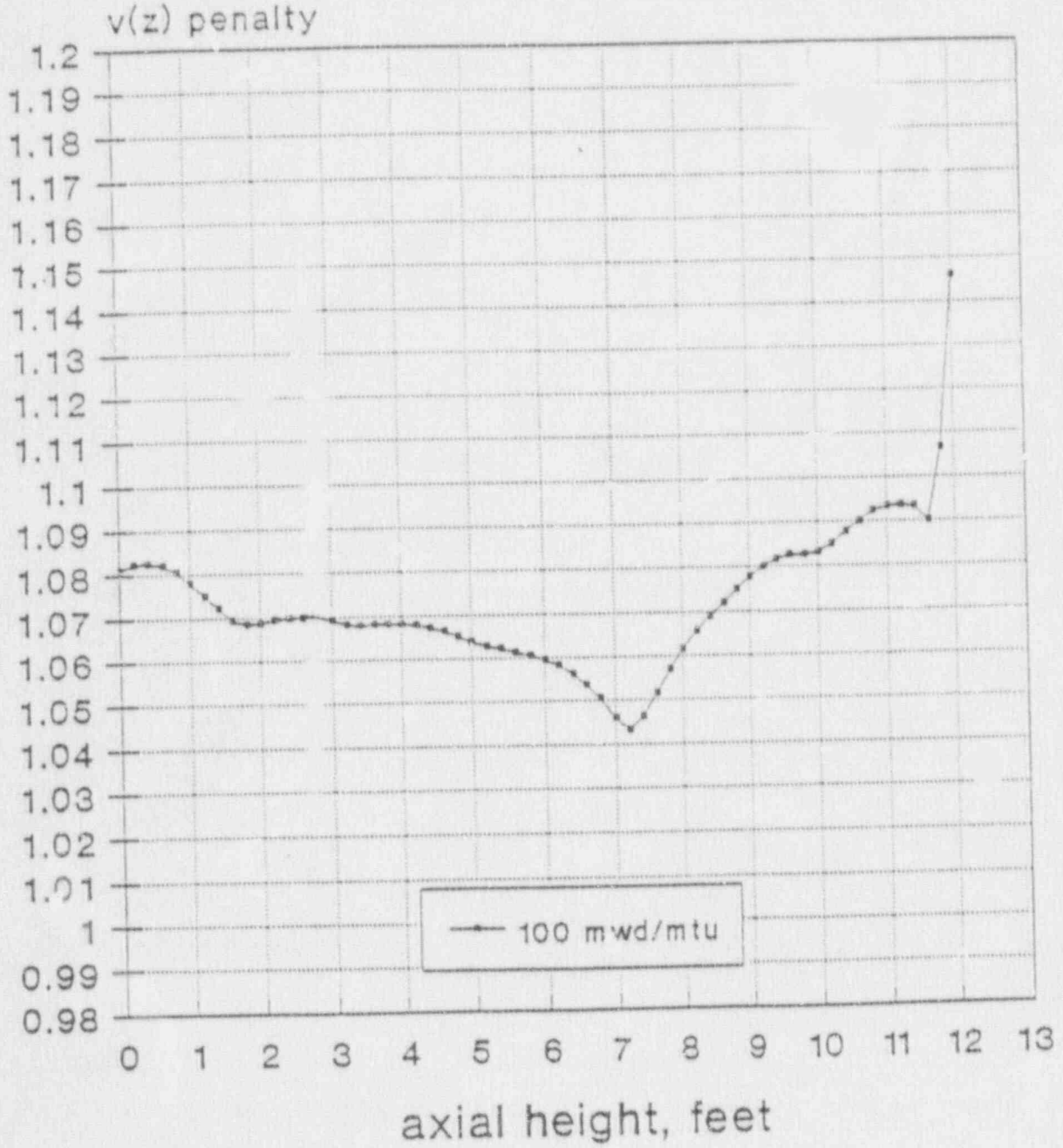


Figure 1 HOT CHANNEL FACTOR NORMALIZED
OPERATING ENVELOPE

FIGURE 2a

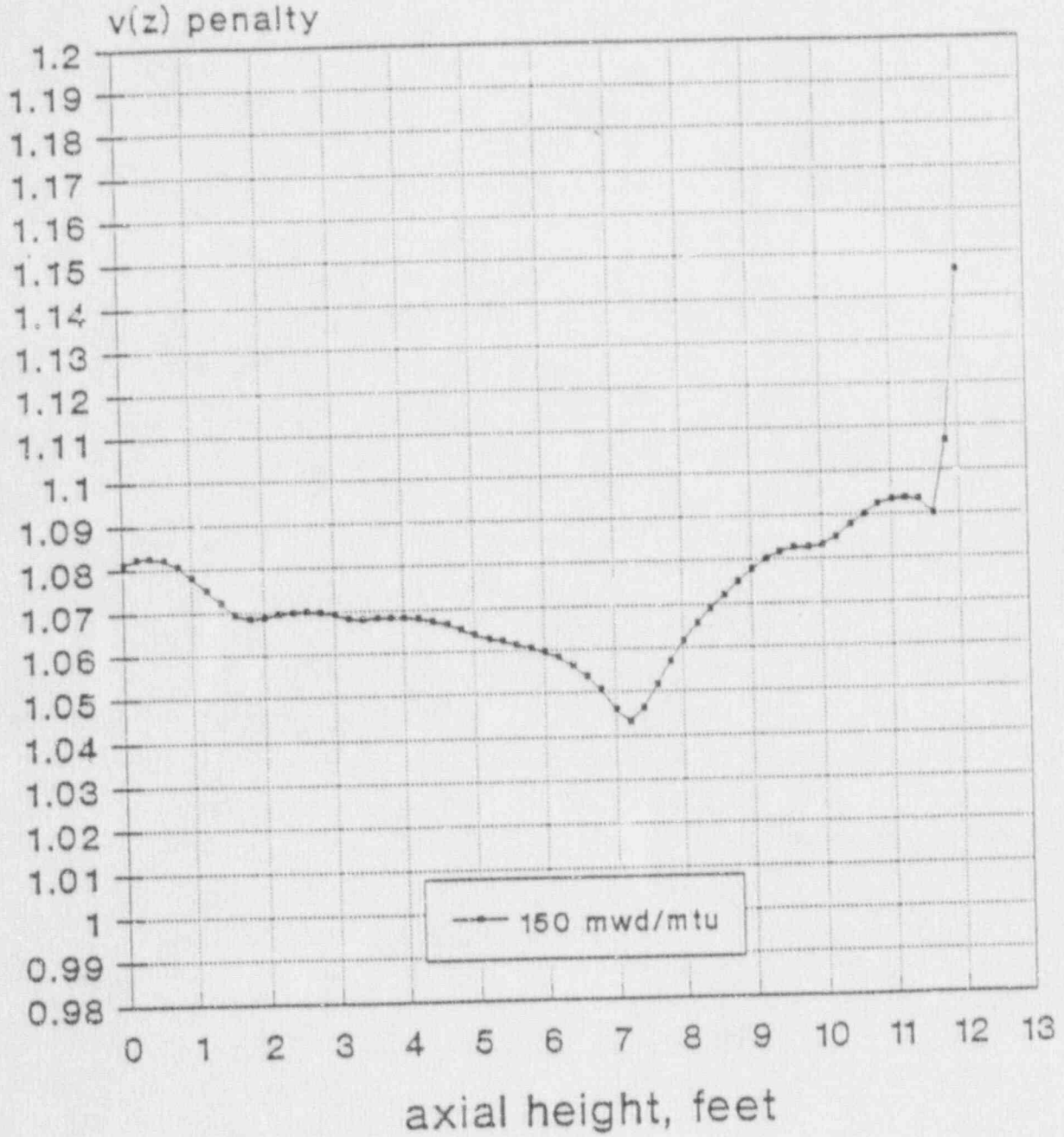
V(z) as a Function of Core Height
Unit 2 Cycle 14 (100 mwd/mtu)



LINEARLY INTERPOLATE BETWEEN AXIAL HEIGHT AND EXPOSURE STEPS

FIGURE 2b

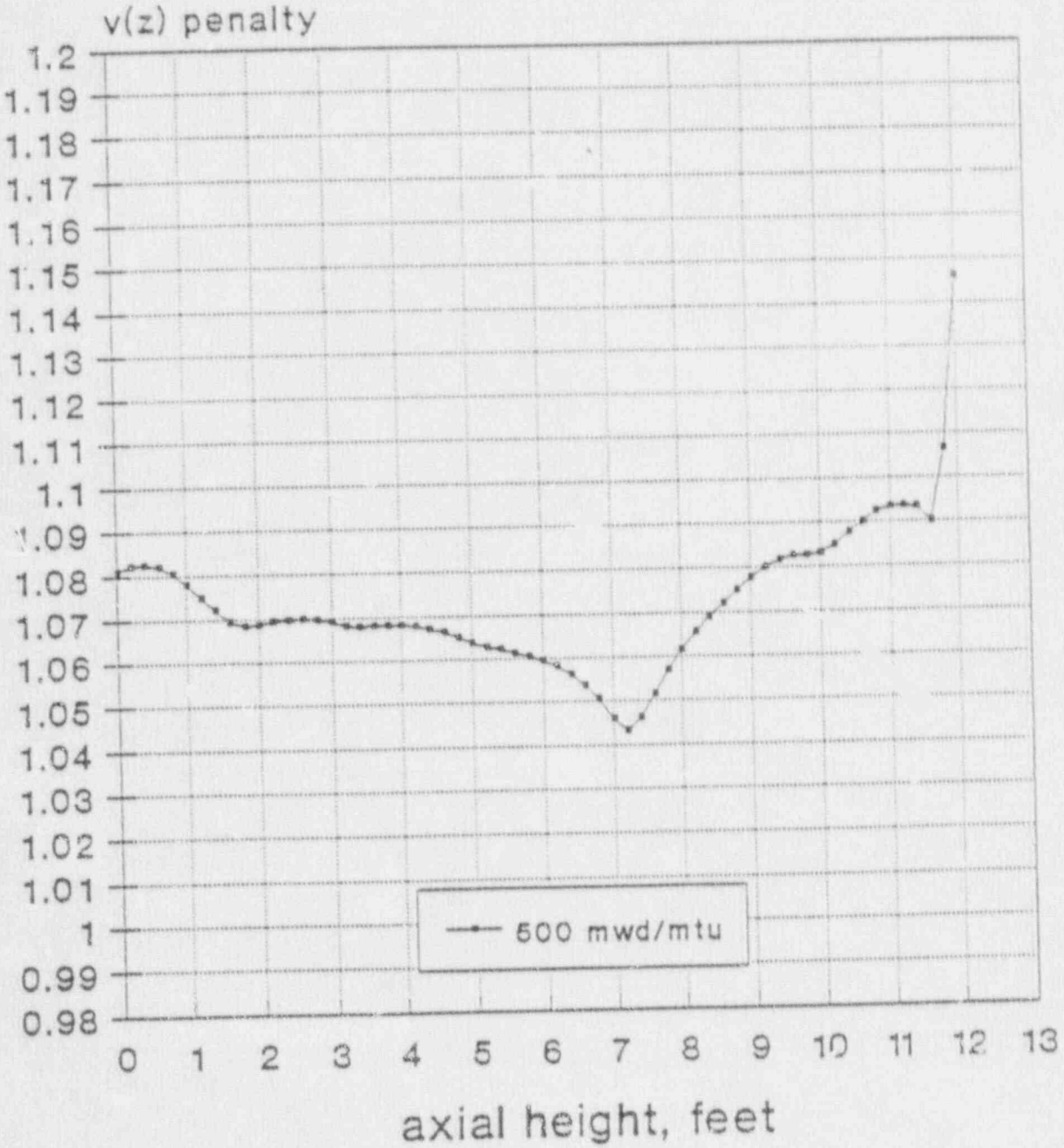
V(z) as a Function of Core Height
Unit 2 Cycle 14 (150 mwd/mtu)



LINEARLY INTERPOLATE BETWEEN AXIAL HEIGHT AND EXPOSURE STEPS

FIGURE 2c

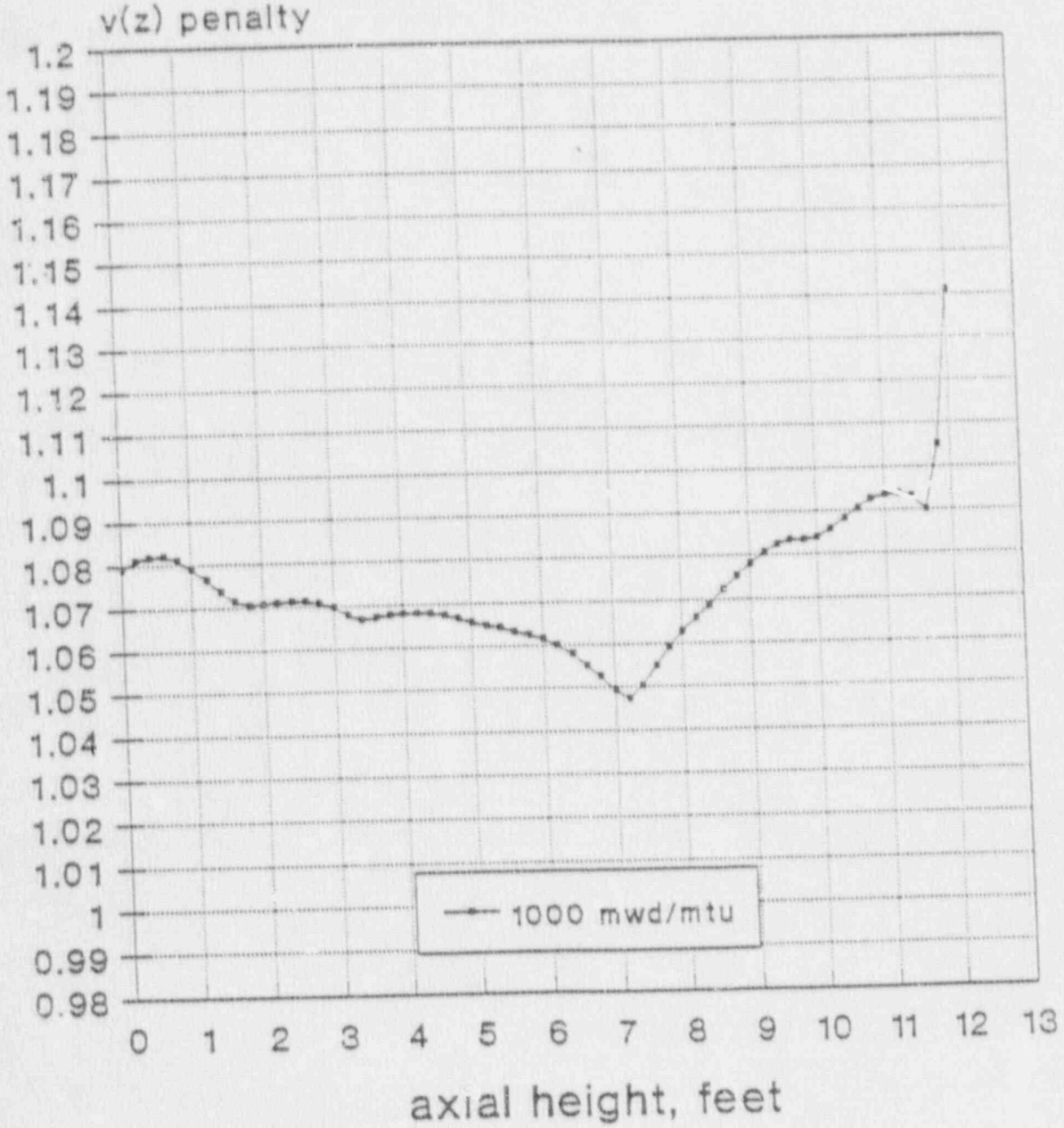
V(z) as a Function of Core Height
Unit 2 Cycle 14 (500 mwd/mtu)



LINEARLY INTERPOLATE BETWEEN AXIAL HEIGHT AND EXPOSURE STEPS

FIGURE 2d

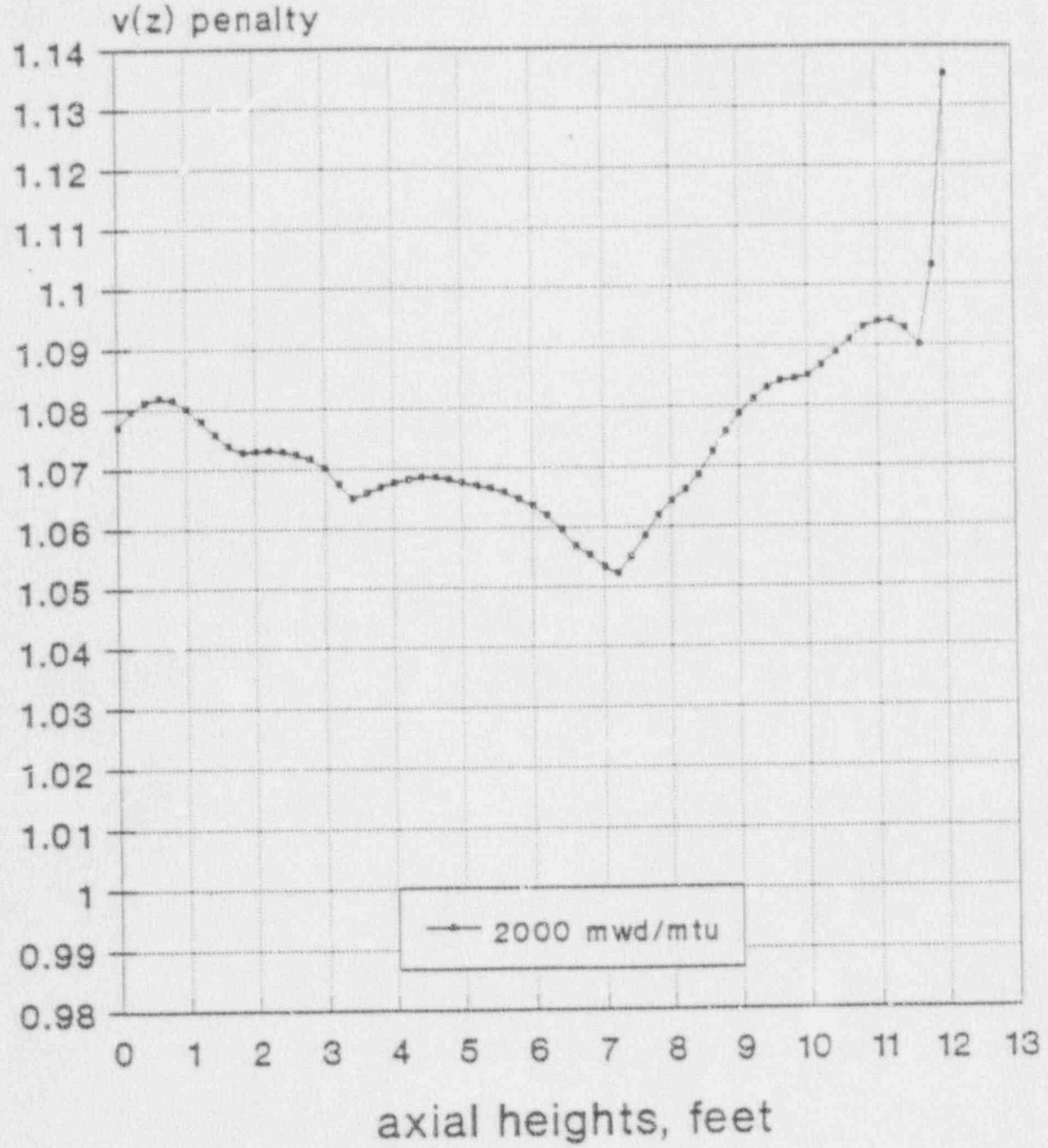
V(z) as a Function of Core Height
Unit 2 Cycle 14 (1000 mwd/mtu)



LINEARLY INTERPOLATE BETWEEN AXIAL HEIGHTS AND EXPOSURE STEPS

FIGURE 2e

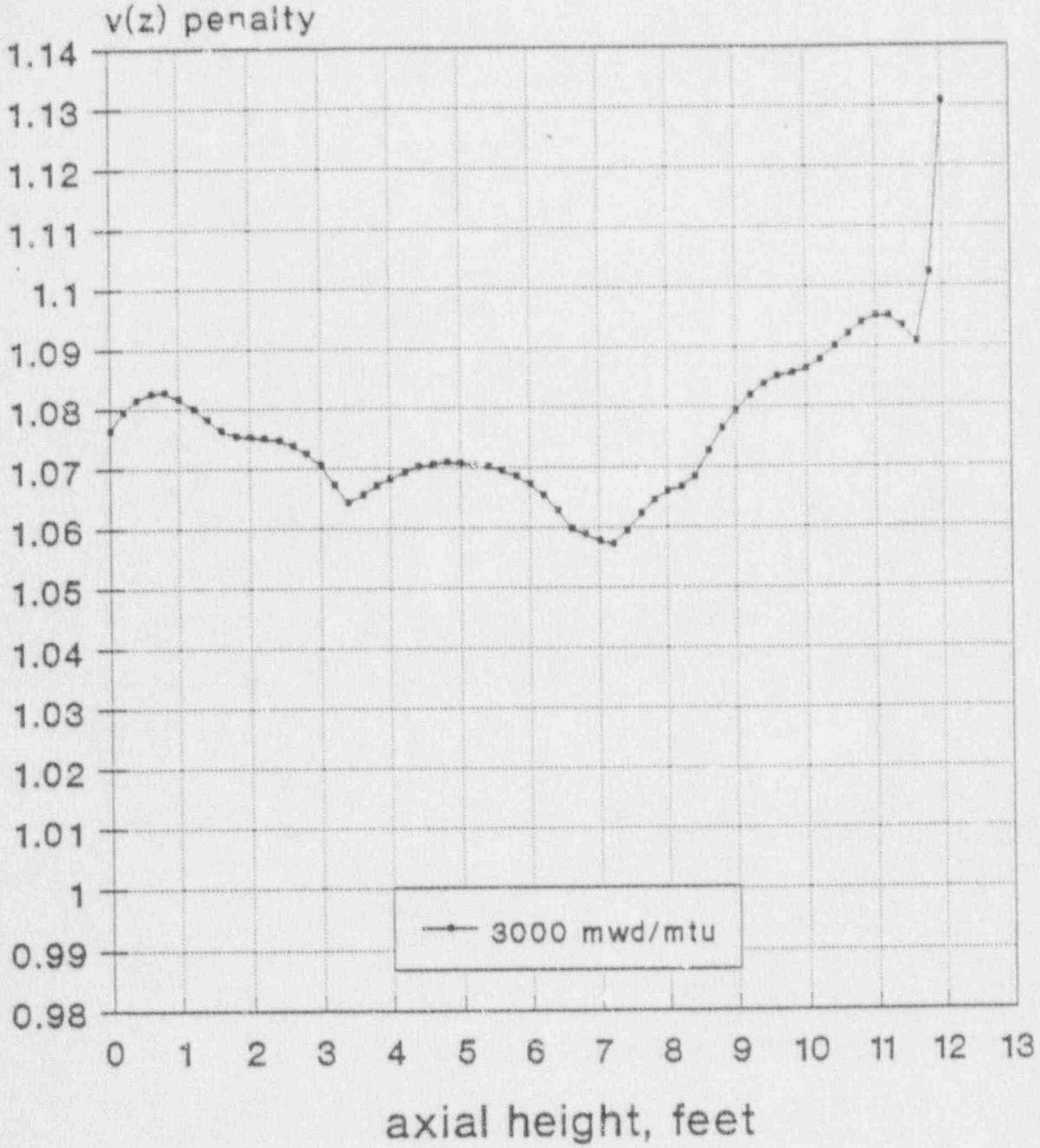
V(z) as a Function of Core Height
Unit 2 Cycle 14 (2000 mwd/mtu)



LINEARLY INTERPOLATE BETWEEN AXIAL HEIGHTS AND EXPOSURE STEPS

FIGURE 2f

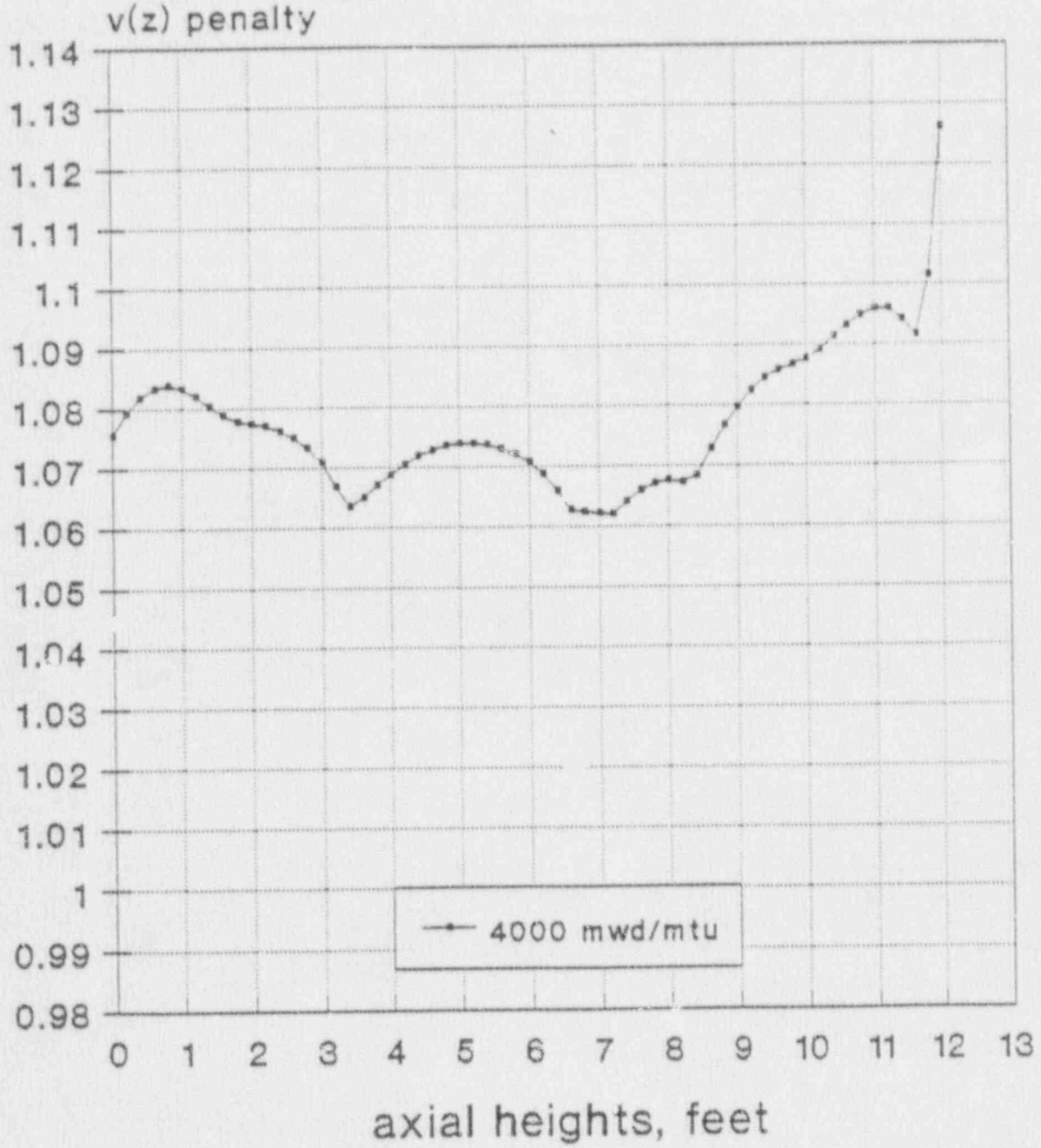
V(z) as a Function of Core Height
Unit 2 Cycle 14 (3000 mwd/mtu)



LINEARLY INTERPOLATE BETWEEN AXIAL HEIGHTS AND EXPOSURE STEPS

FIGURE 2g

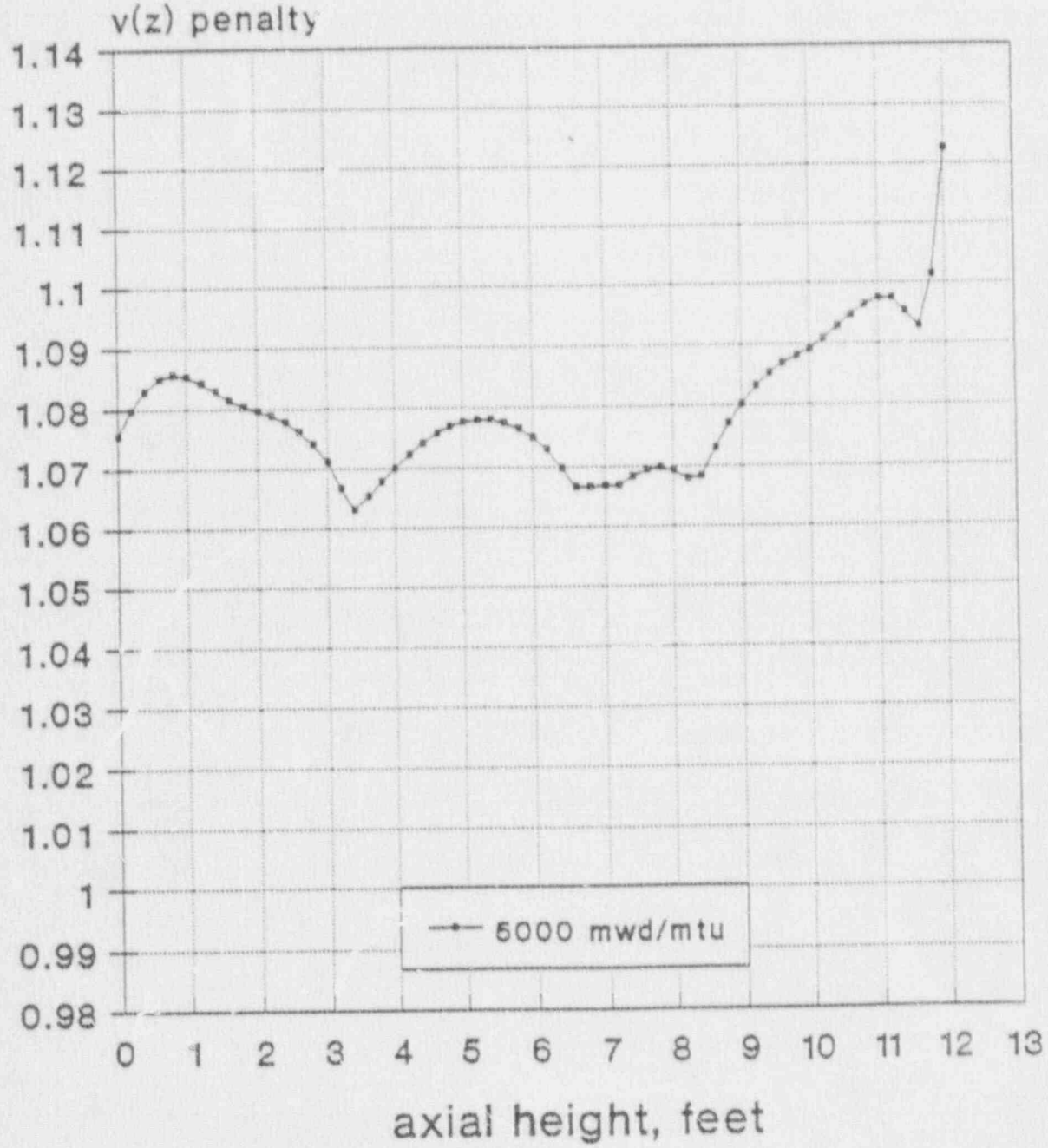
V(z) as a Function of Core Height
Unit 2 Cycle 14 (4000 mwd/mtu)



LINEARLY INTERPOLATE BETWEEN AXIAL HEIGHTS AND EXPOSURE STEPS

FIGURE 2h

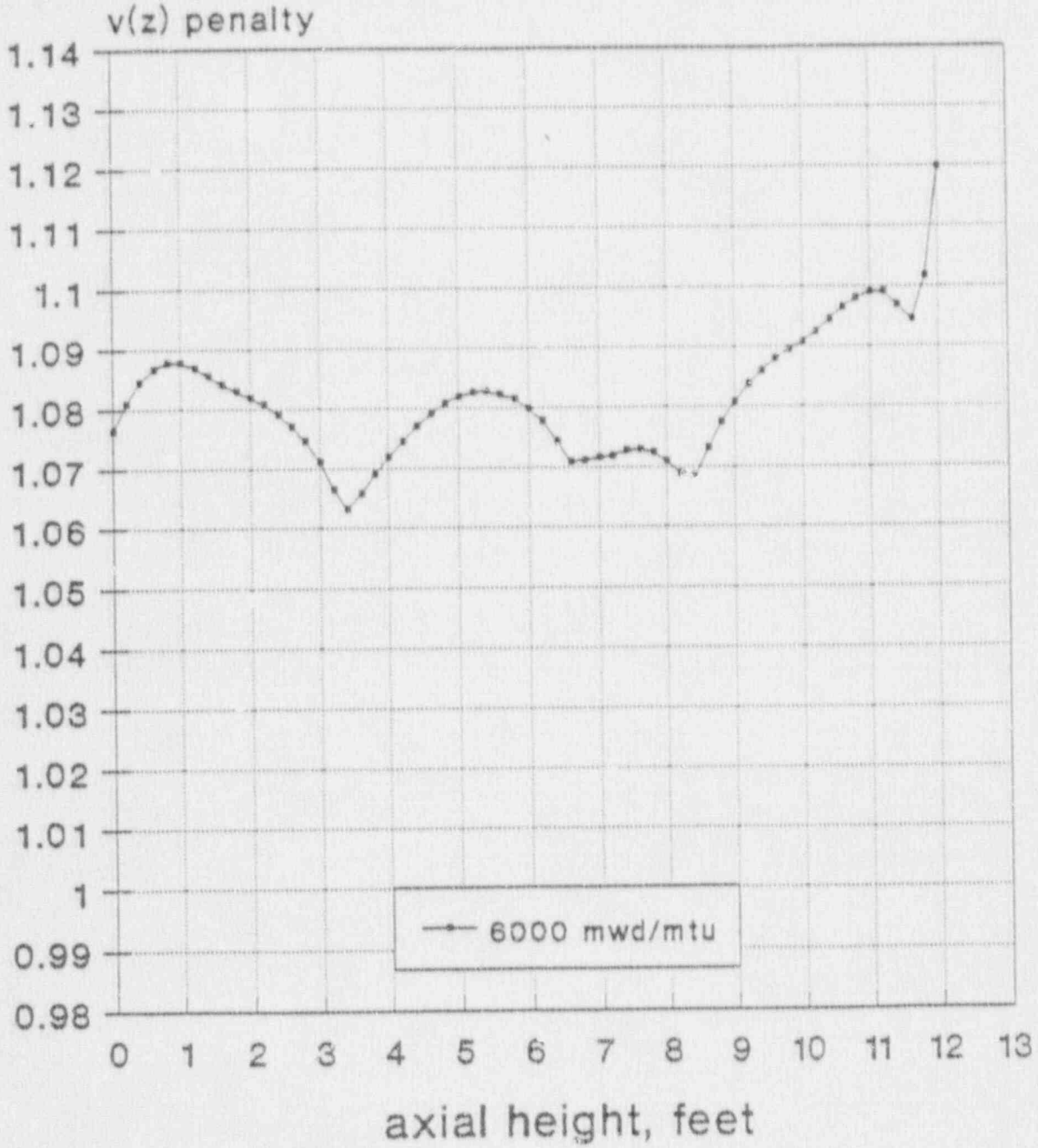
V(z) as a Function of Core Height
Unit 2 Cycle 14 (5000 mwd/mtu)



LINEARLY INTERPOLATE BETWEEN AXIAL HEIGHTS AND EXPOSURE STEPS

FIGURE 2i

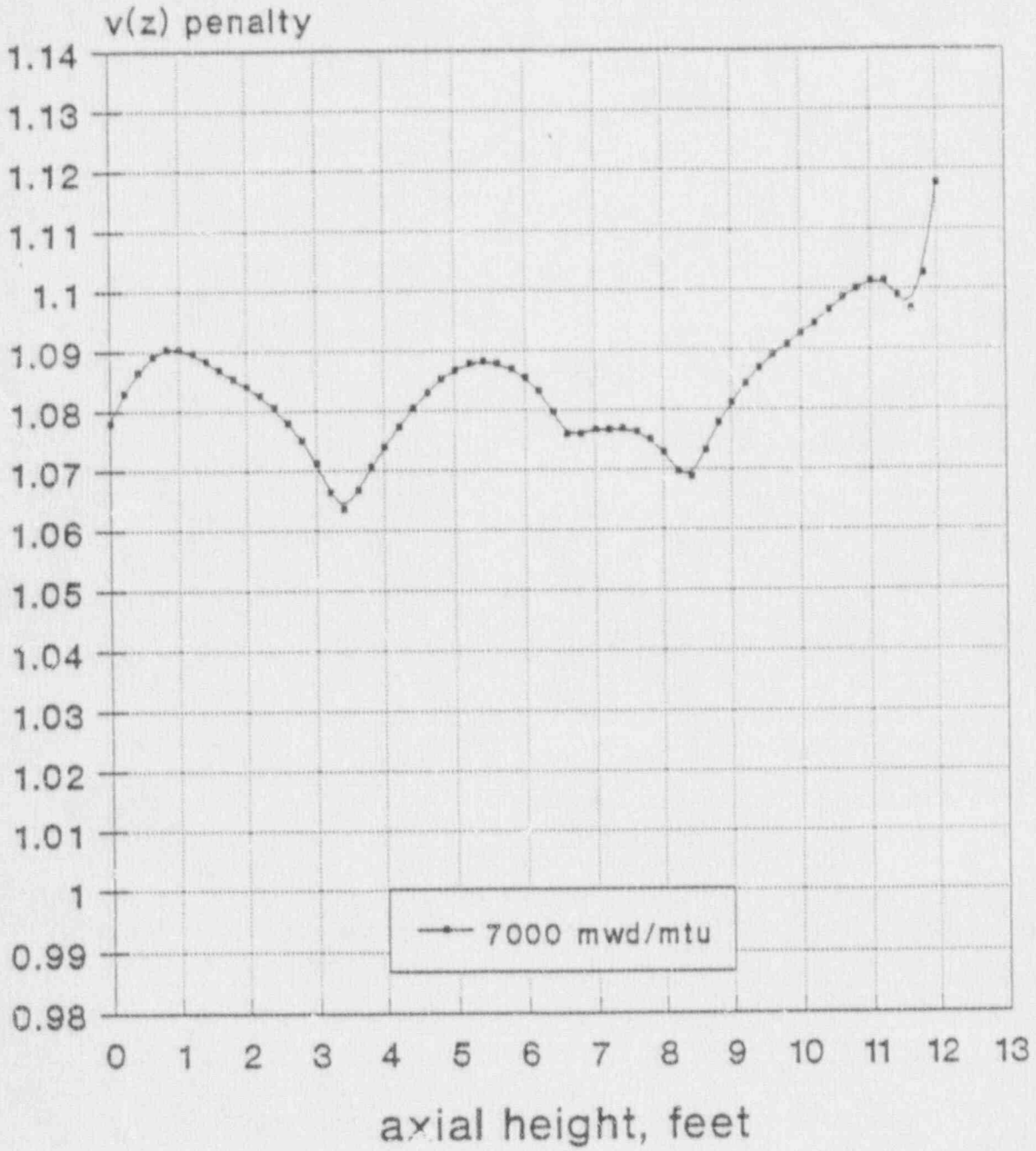
V(z) as a Function of Core Height
Unit 2 Cycle 14 (6000 mwd/mtu)



LINEARLY INTERPOLATE BETWEEN AXIAL HEIGHTS AND EXPOSURE STEPS

FIGURE 2j

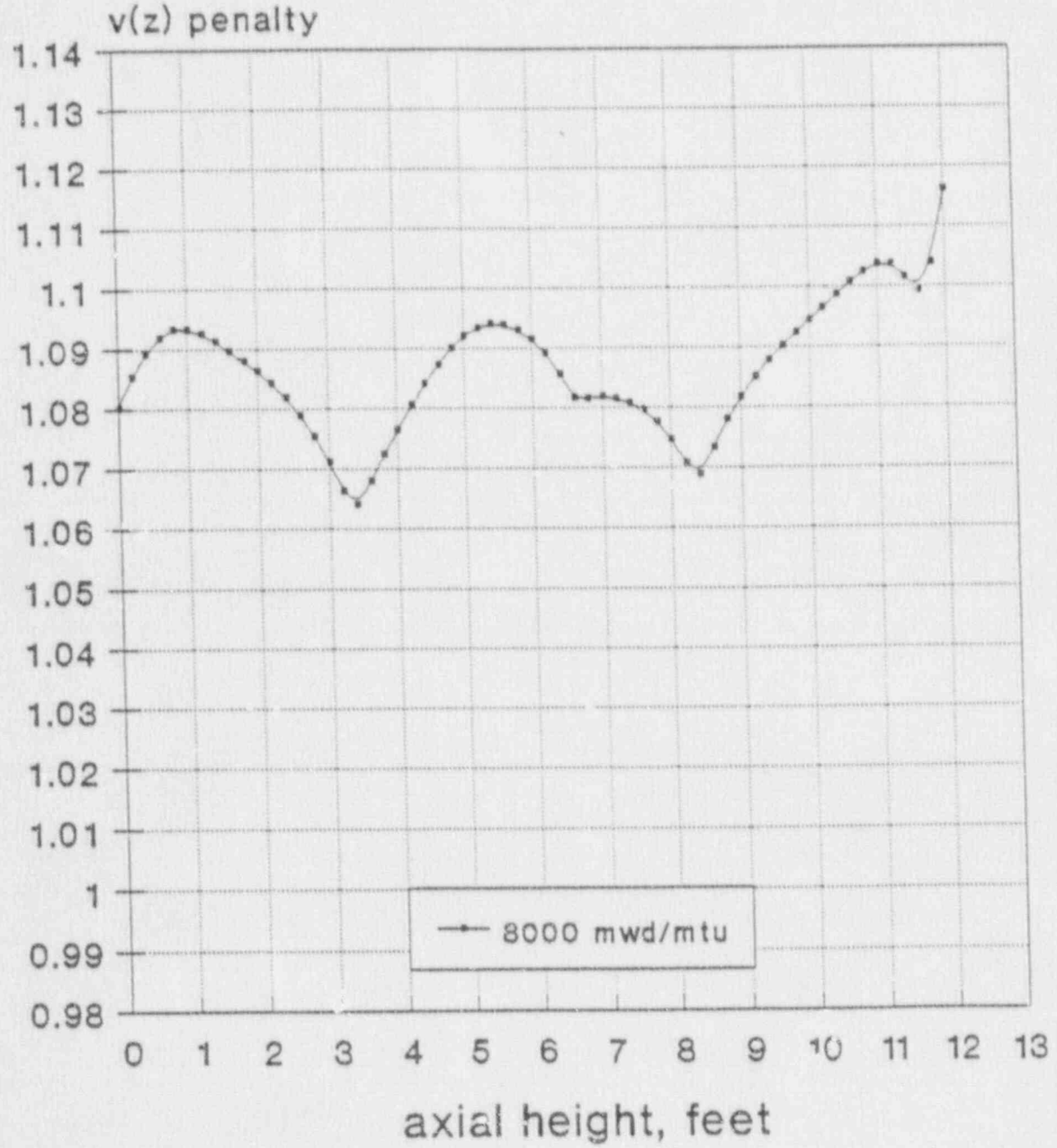
V(z) as a Function of Core Height
Unit 2 Cycle 14 (7000 mwd/mtu)



LINEARLY INTERPOLATE BETWEEN AXIAL HEIGHTS AND EXPOSURE STEPS

FIGURE 2k

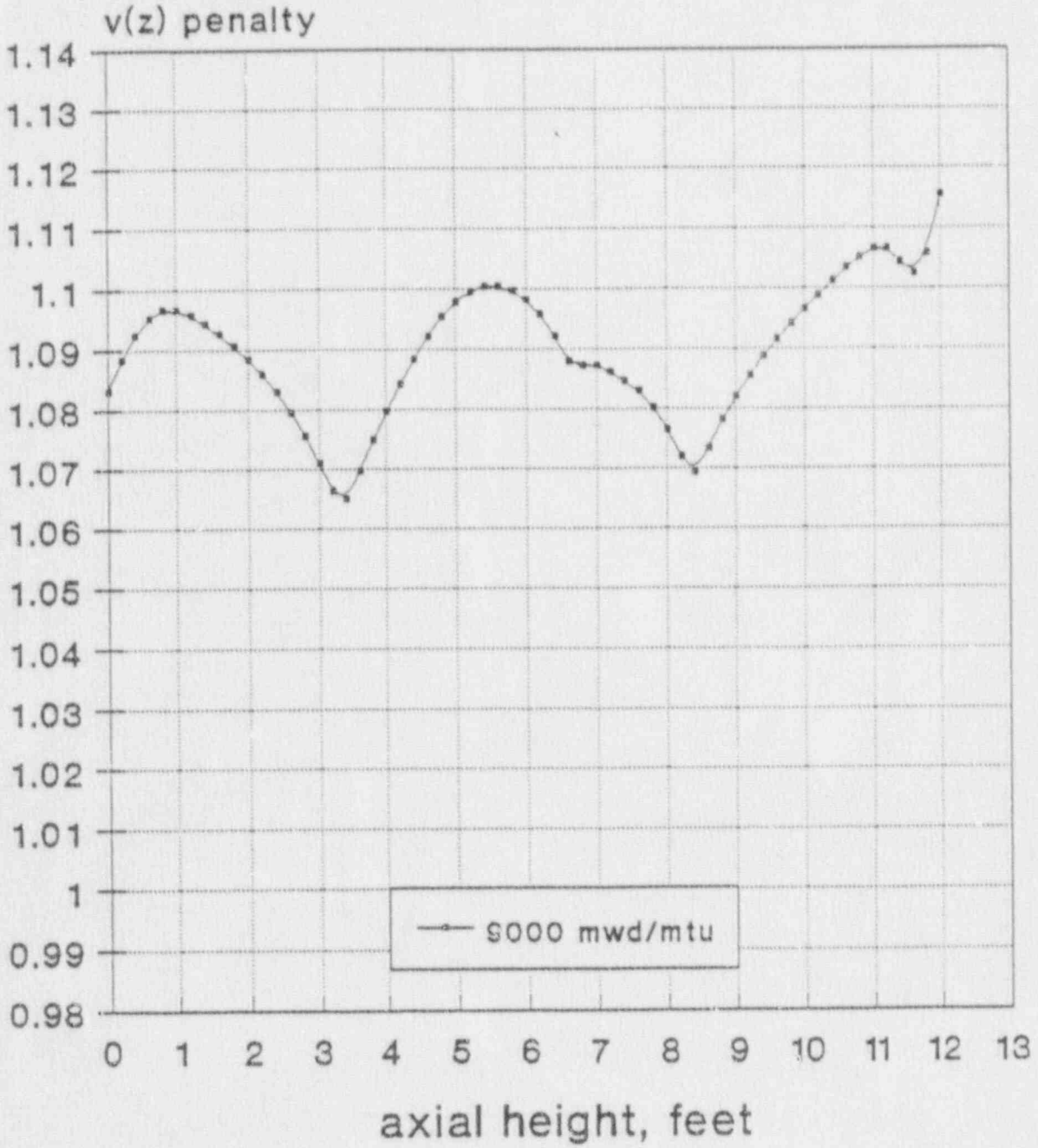
V(z) as a Function of Core Height
Unit 2 Cycle 14 (8000 mwd/mtu)



LINEARLY INTERPOLATE BETWEEN AXIAL HEIGHT AND EXPOSURE STEPS

FIGURE 2I

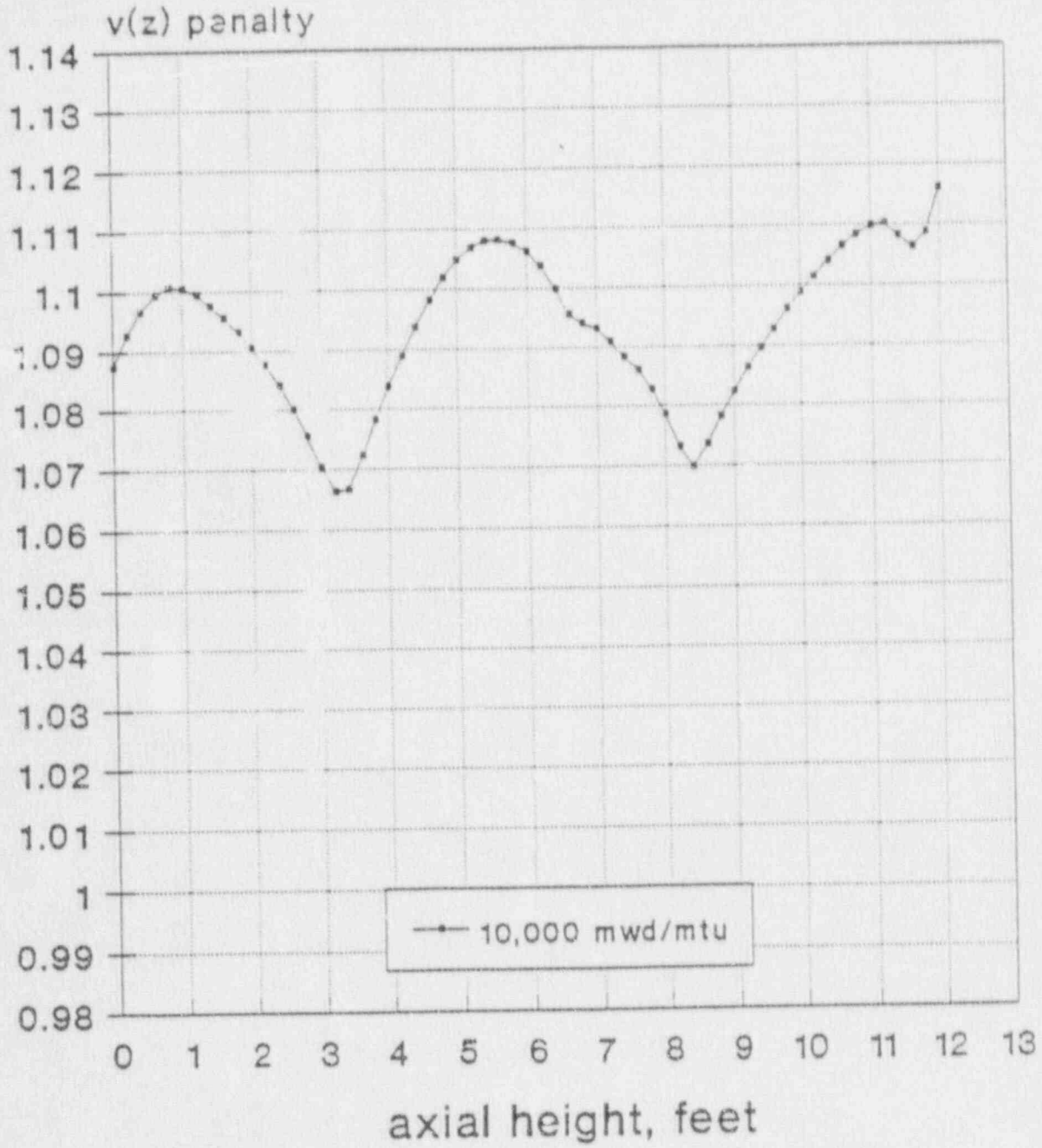
V(z) as a Function of Core Height
Unit 2 Cycle 14 (9000 mwd/mtu)



LINEARLY INTERPOLATE BETWEEN AXIAL HEIGHT AND EXPOSURE STEPS

FIGURE 2m

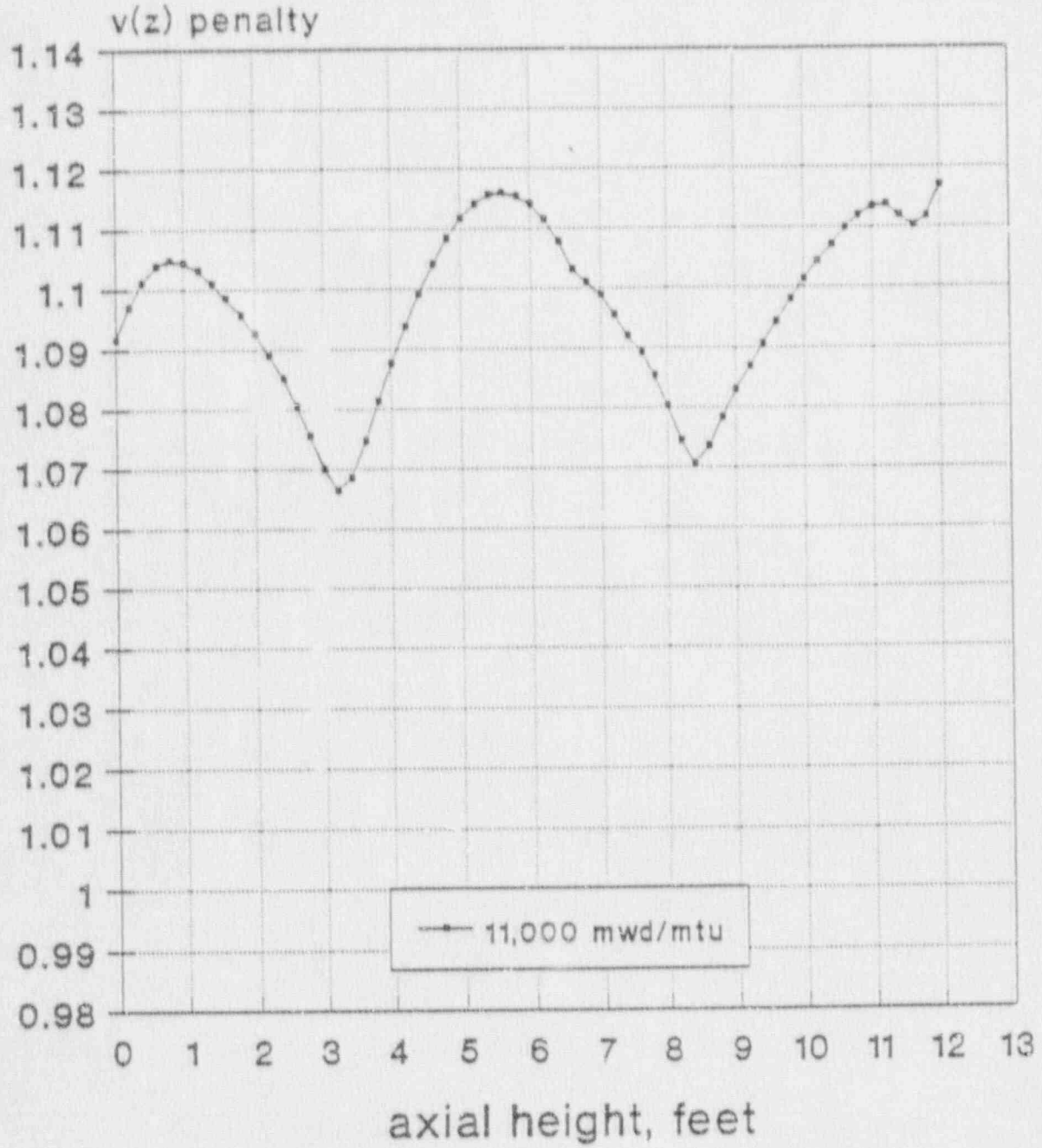
V(z) as a Function of Core Height
Unit 2 Cycle 14 (10,000 mwd/mtu)



LINEARLY INTERPOLATE BETWEEN AXIAL HEIGHT AND EXPOSURE STEPS

FIGURE 2n

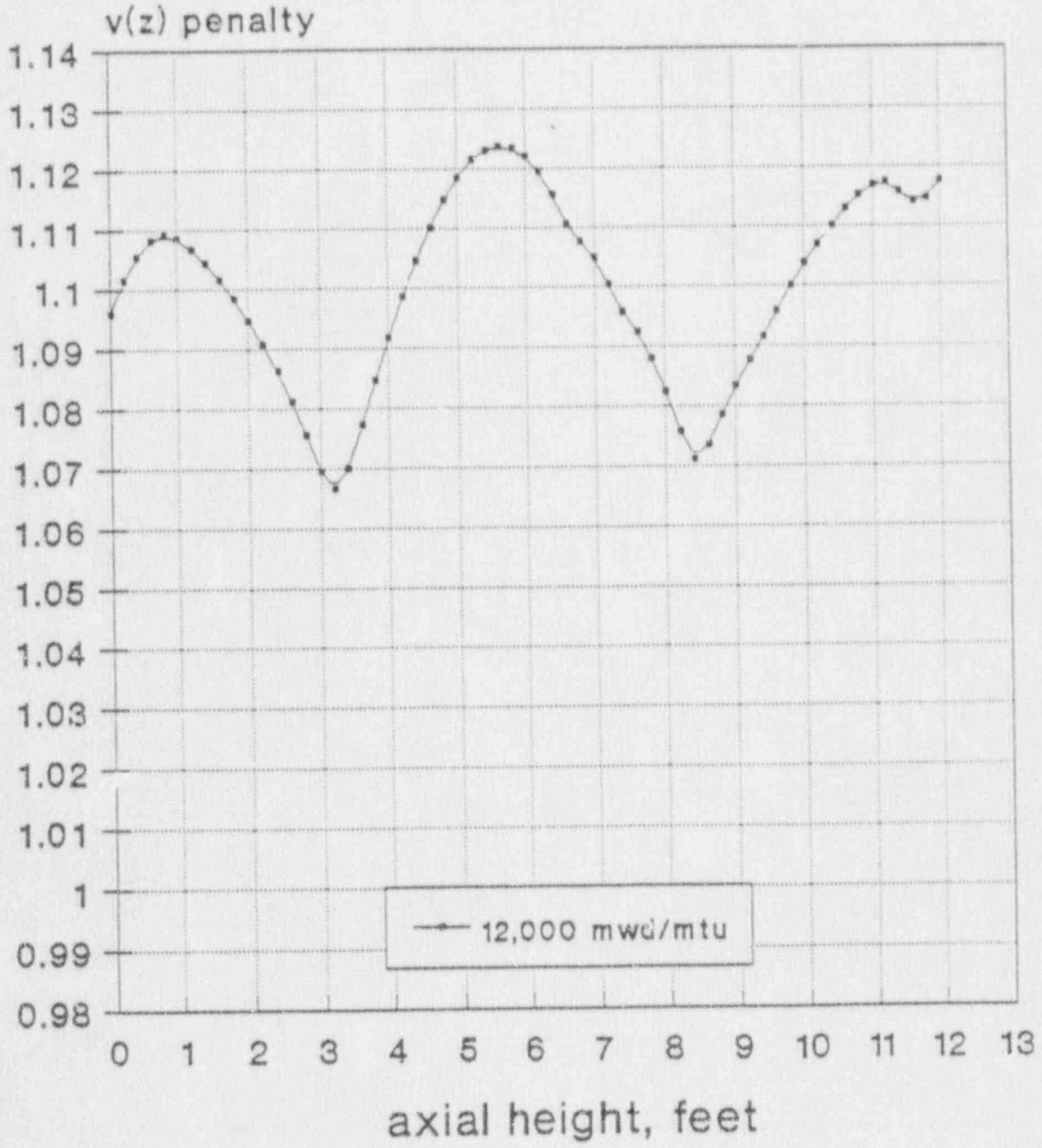
V(z) as a Function of Core Height
Unit 2 Cycle 14 (11,000 mwd/mtu)



LINEARLY INTERPOLATE BETWEEN AXIAL HEIGHT AND EXPOSURE STEPS

FIGURE 2o

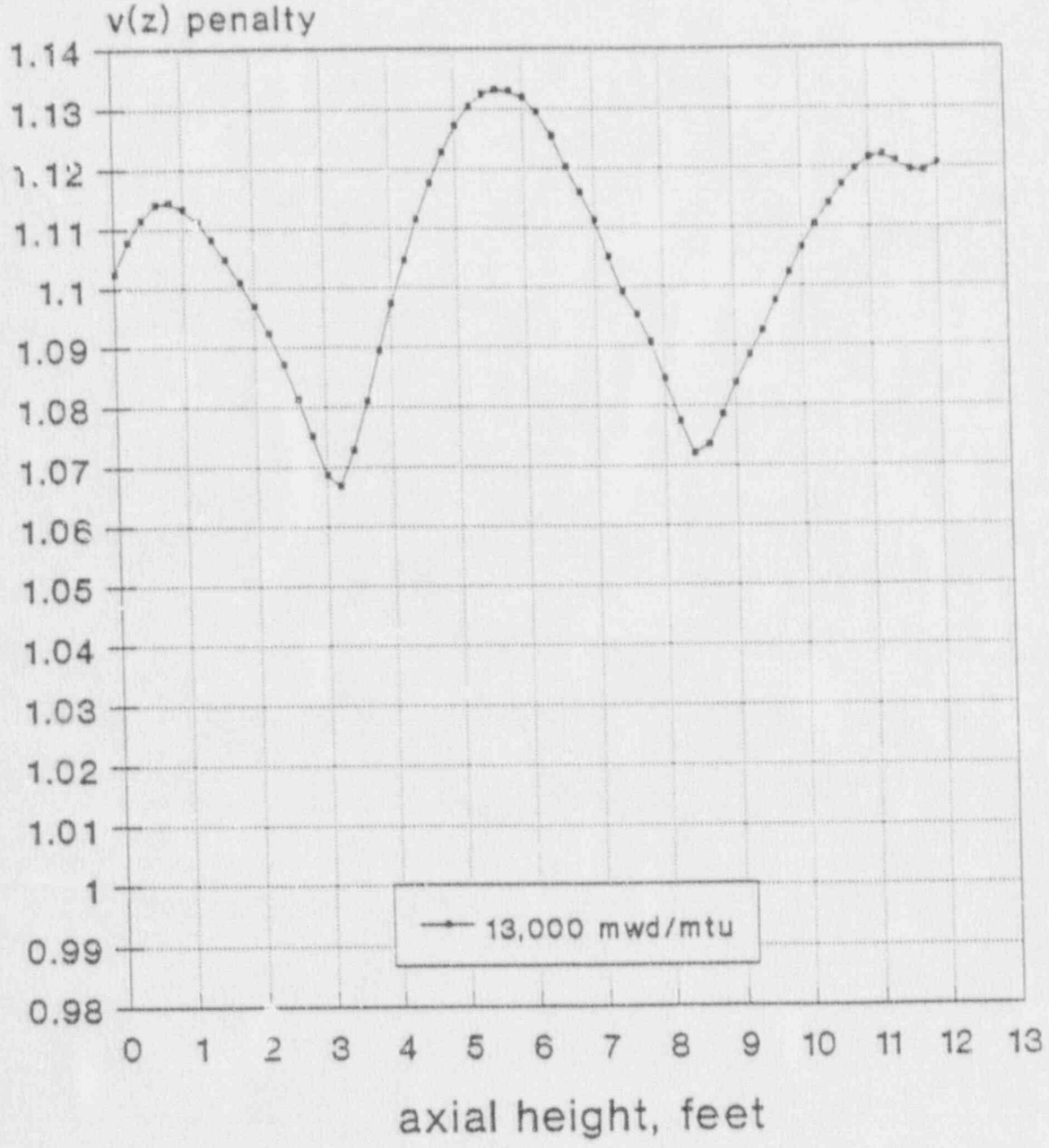
V(z) as a Function of Core Height
Unit 2 Cycle 14 (12,000 mwd/mtu)



LINEARLY INTERPOLATE BETWEEN AXIAL HEIGHT AND EXPOSURE STEPS

FIGURE 2p

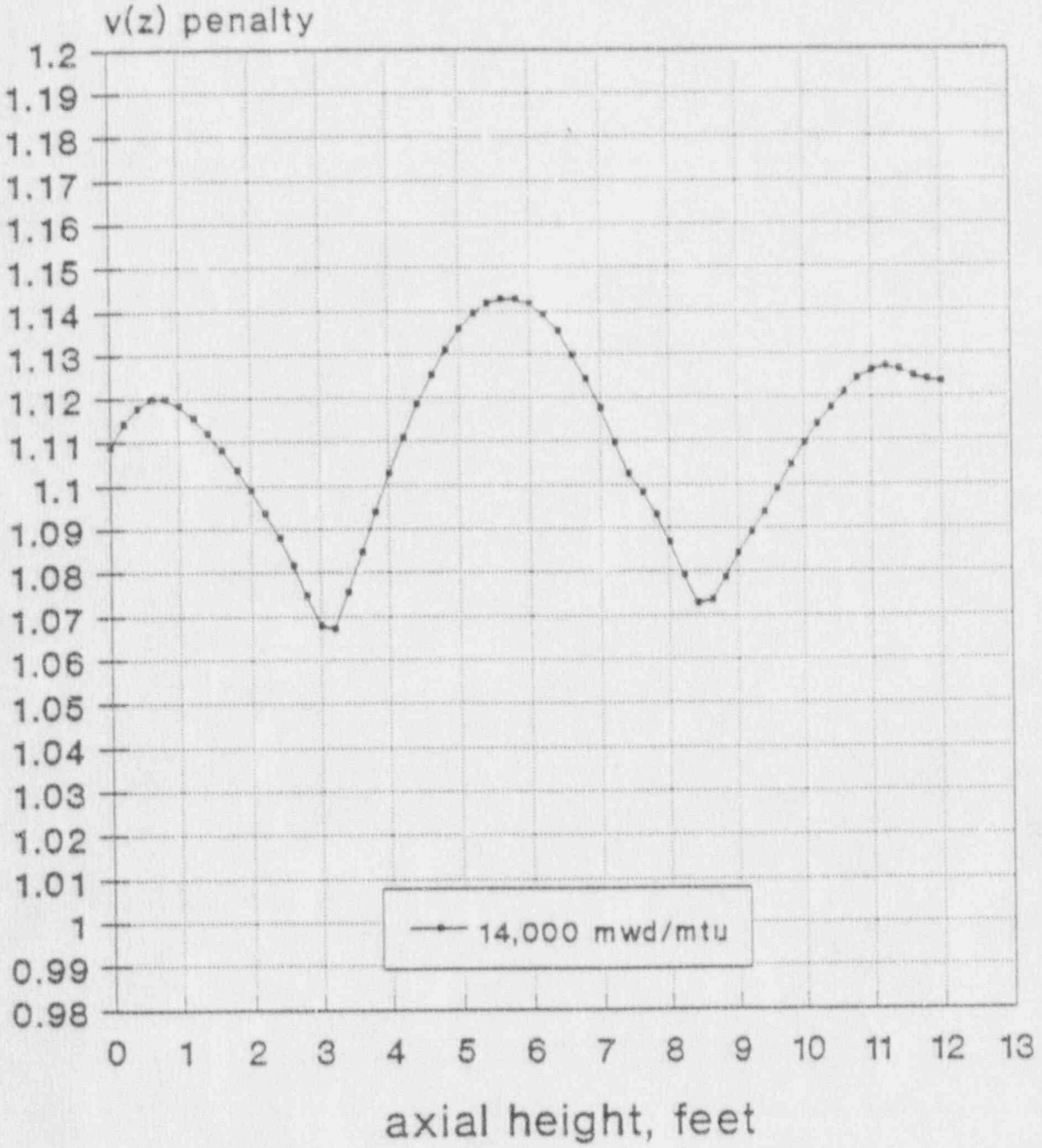
V(z) as a Function of Core Height
Unit 2 Cycle 14 (13,000 mwd/mtu)



LINEARLY INTERPOLATE BETWEEN AXIAL HEIGHT AND EXPOSURE STEPS

FIGURE 2q

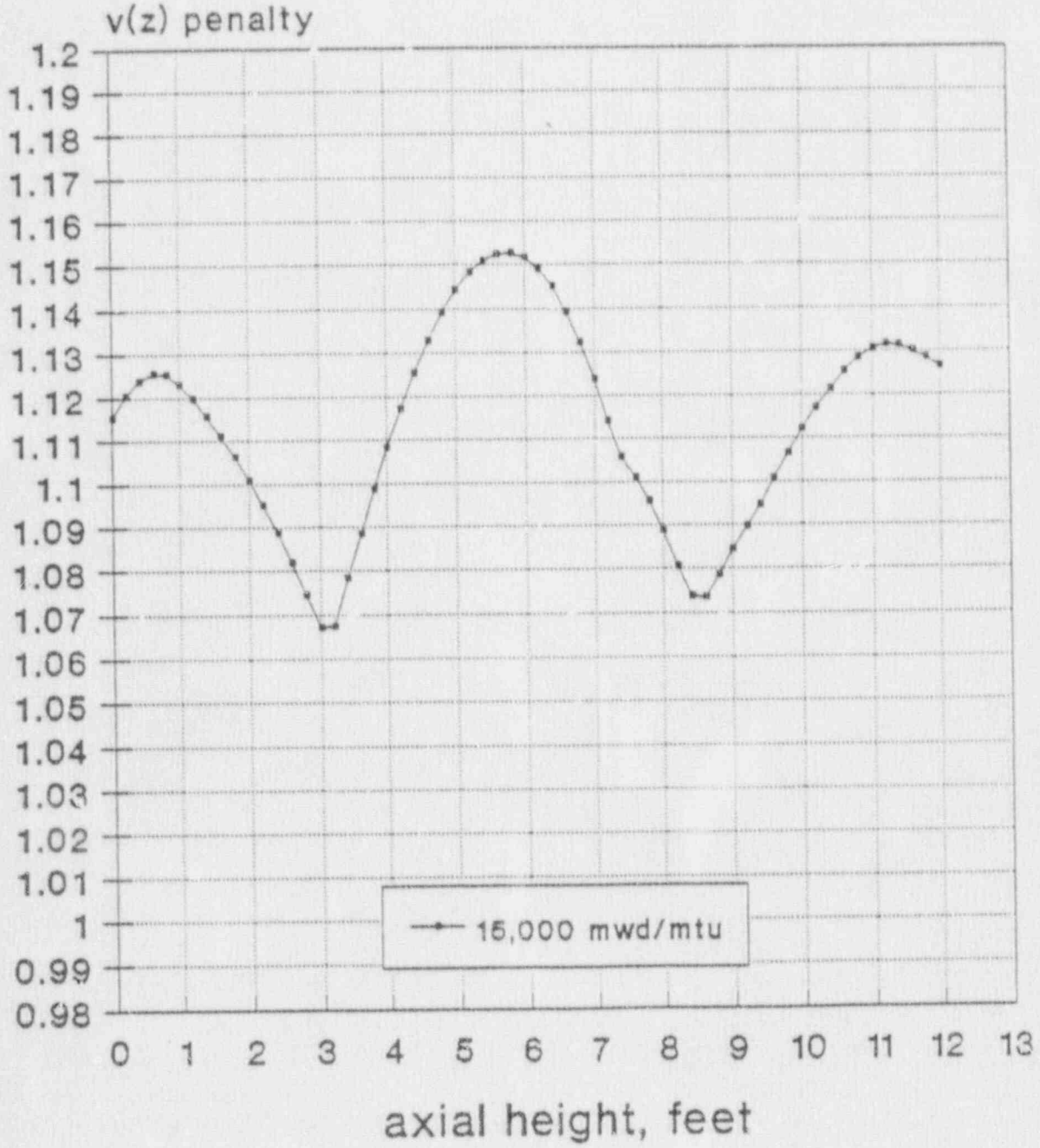
V(z) as a Function of Core Height
Unit 2 Cycle 14 (14,000 mwd/mtu)



LINEARLY INTERPOLATE BETWEEN AXIAL HEIGHT AND EXPOSURE

FIGURE 2r

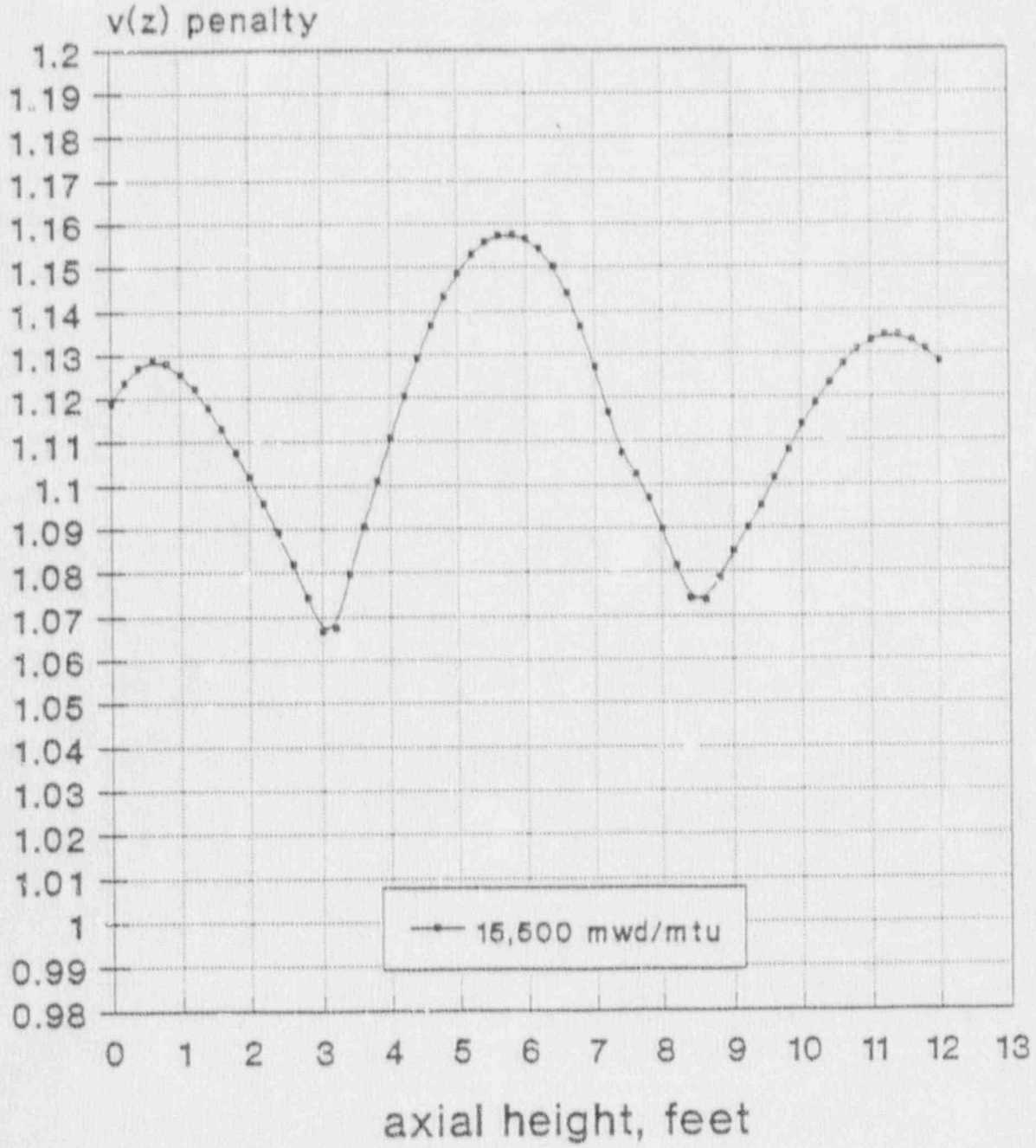
V(z) as a Function of Core Height
Unit 2 Cycle 14 (15,000 mwd/mtu)



LINEARLY INTERPOLATE BETWEEN AXIAL HEIGHT AND EXPOSURE STEPS

FIGURE 2s

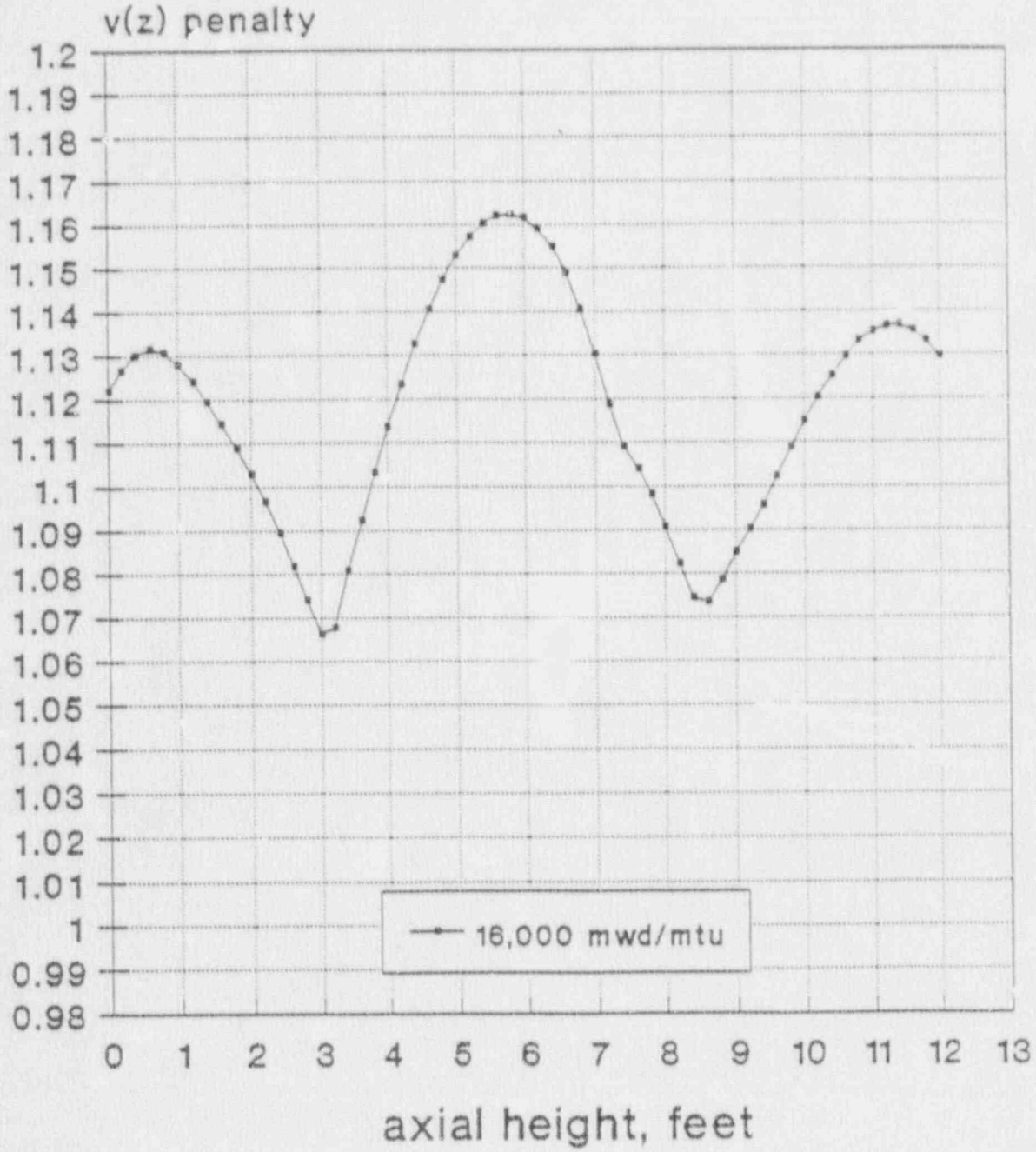
V(z) as a Function of Core Height
Unit 2 Cycle 14 (15,500 mwd/mtu)



LINEARLY INTERPOLATE BETWEEN AXIAL HEIGHT AND EXPOSURE STEPS

FIGURE 2t

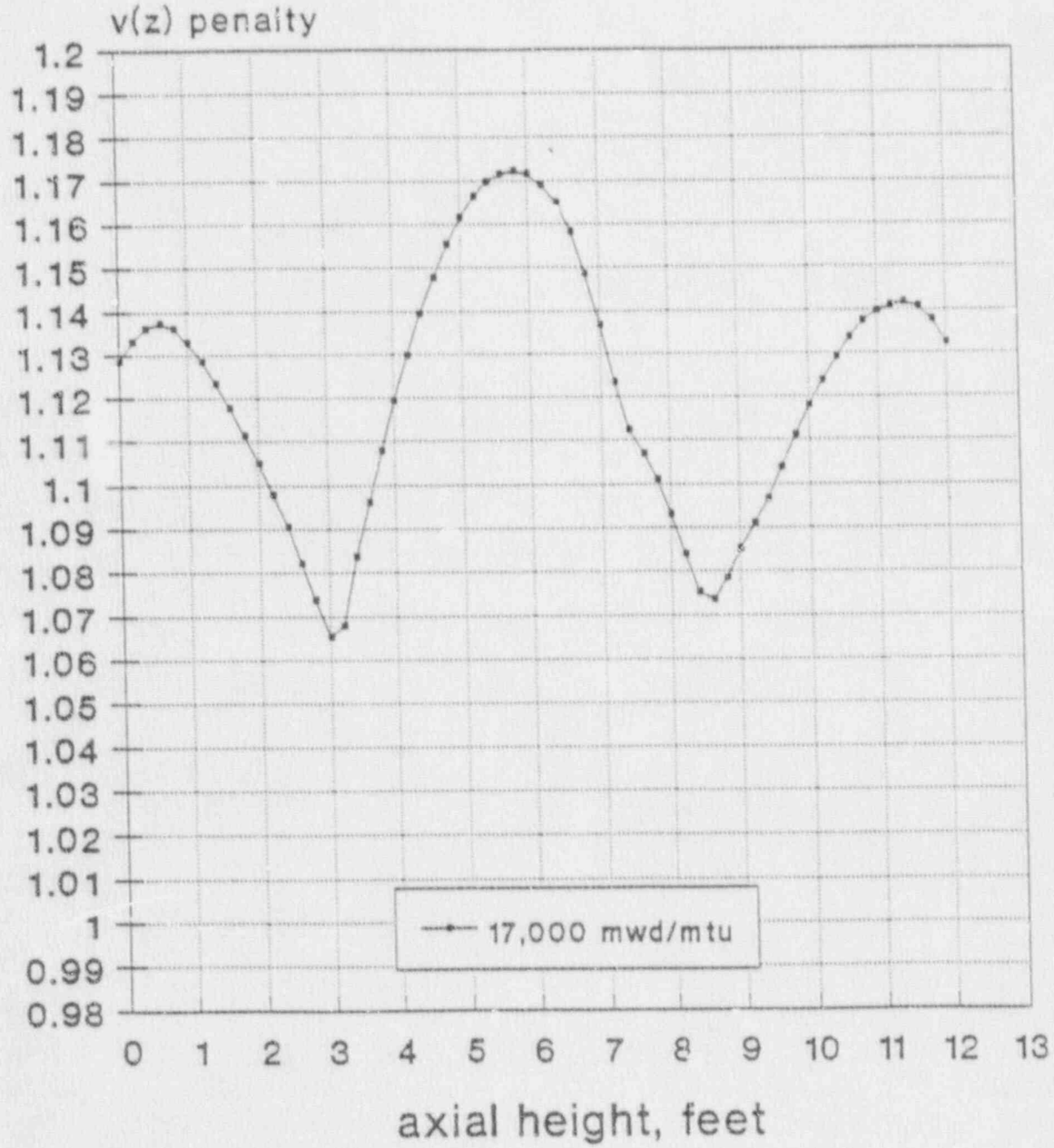
V(z) as a Function of Core Height
Unit 2 Cycle 14 (16,000 mwd/mtu)



LINEARLY INTERPOLATE BETWEEN AXIAL HEIGHT AND EXPOSURE STEPS

FIGURE 2u

V(z) as a Function of Core Height
Unit 2 Cycle 14 (17,000 mwd/mtu)



LINEARLY INTERPOLATE BETWEEN AXIAL HEIGHT AND EXPOSURE STEPS

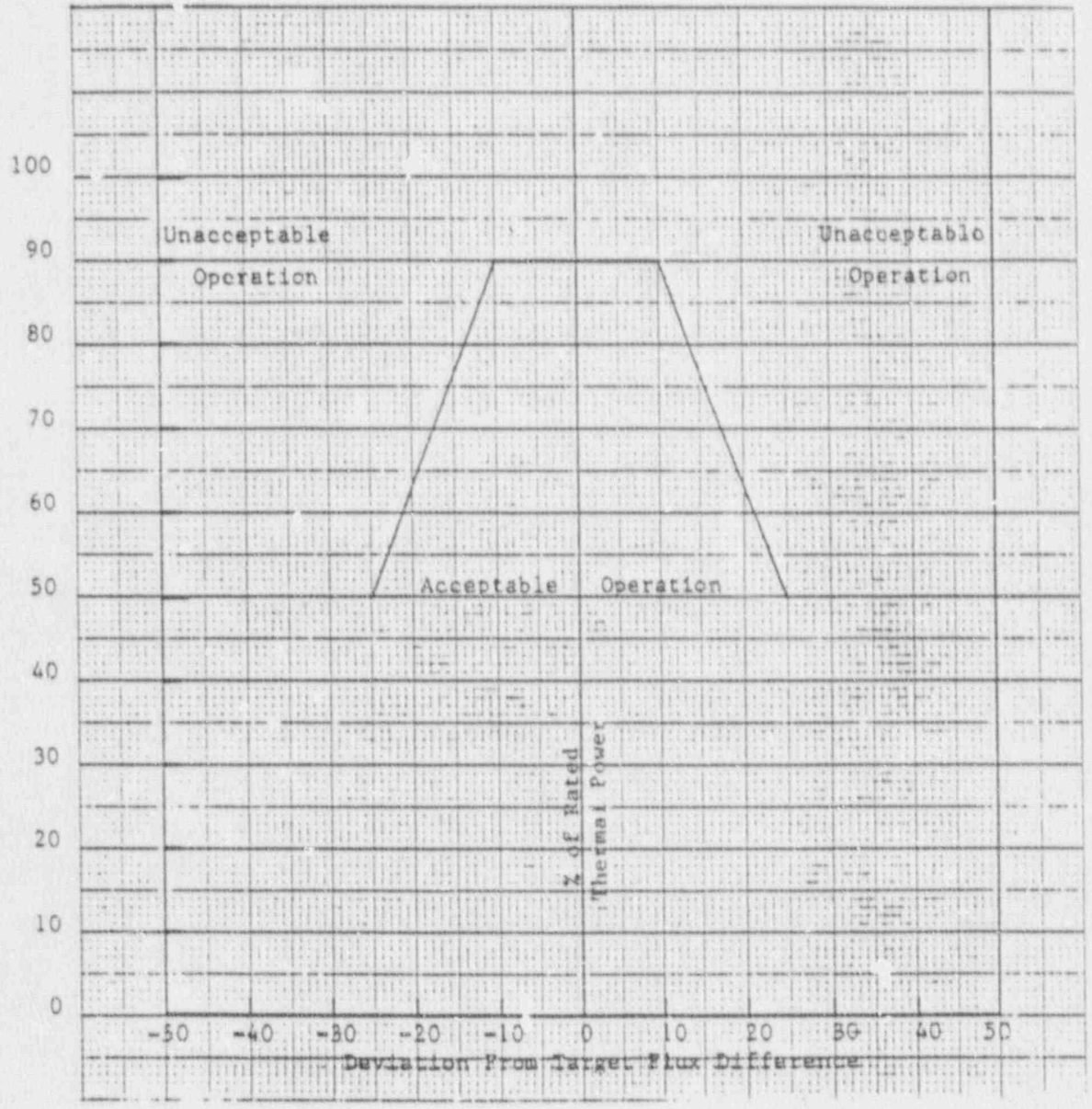


Figure 3 DEVIATION FROM TARGET FLUX DIFFERENCE
AS A FUNCTION OF THERMAL POWER

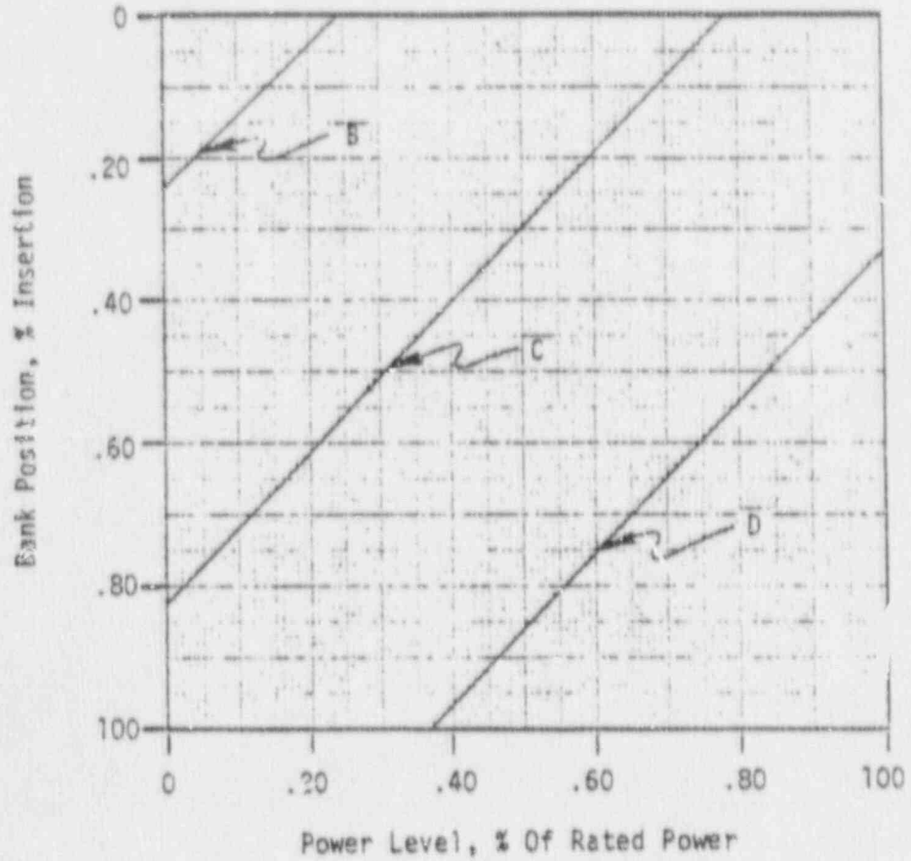


Figure 4 CONTROL BANK INSERTION LIMITS

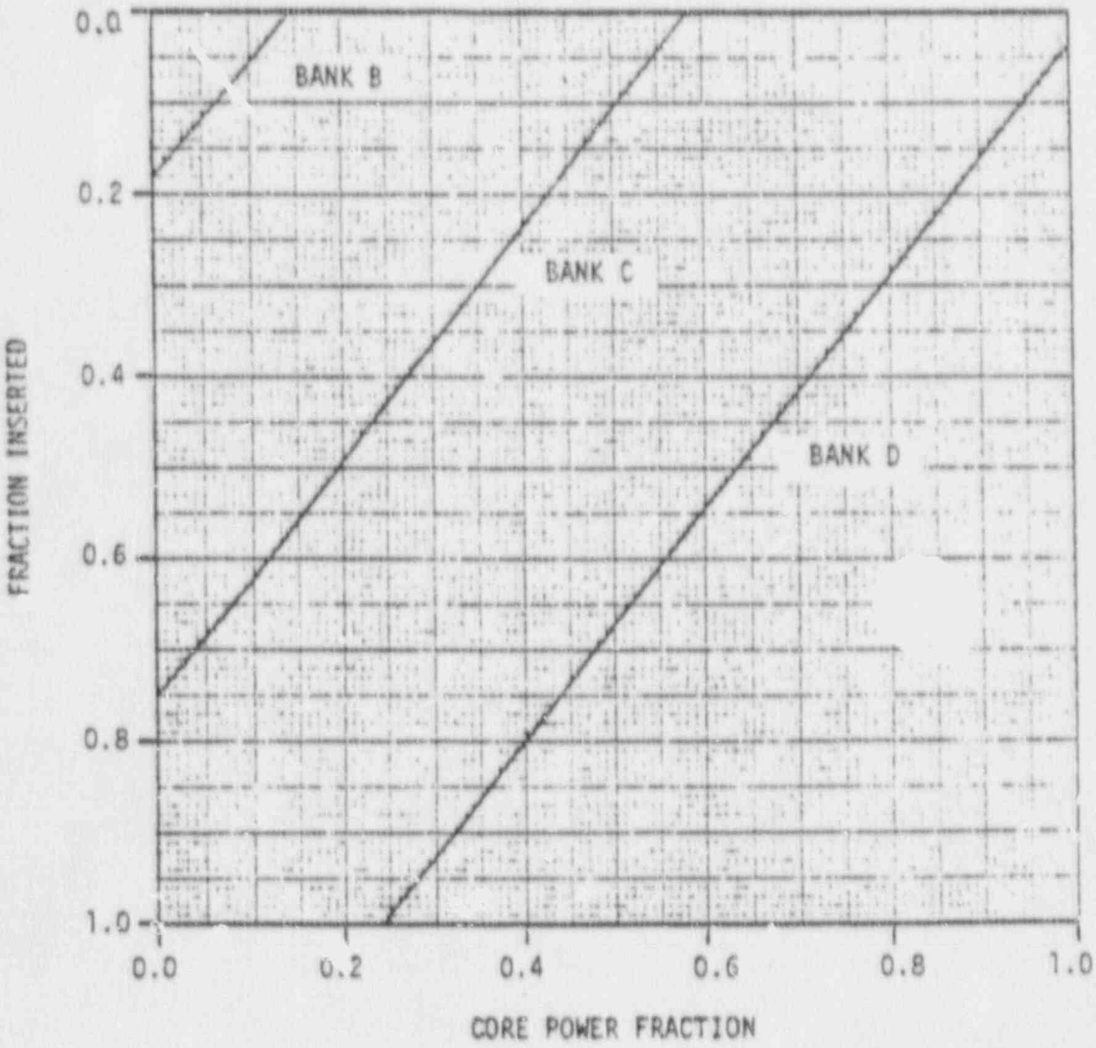


Figure 5 INSERTION LIMITS -
100 STEP OVERLAP WITH ONE
BOTTOMED ROD
(Technical Specification 3.10.G.3)

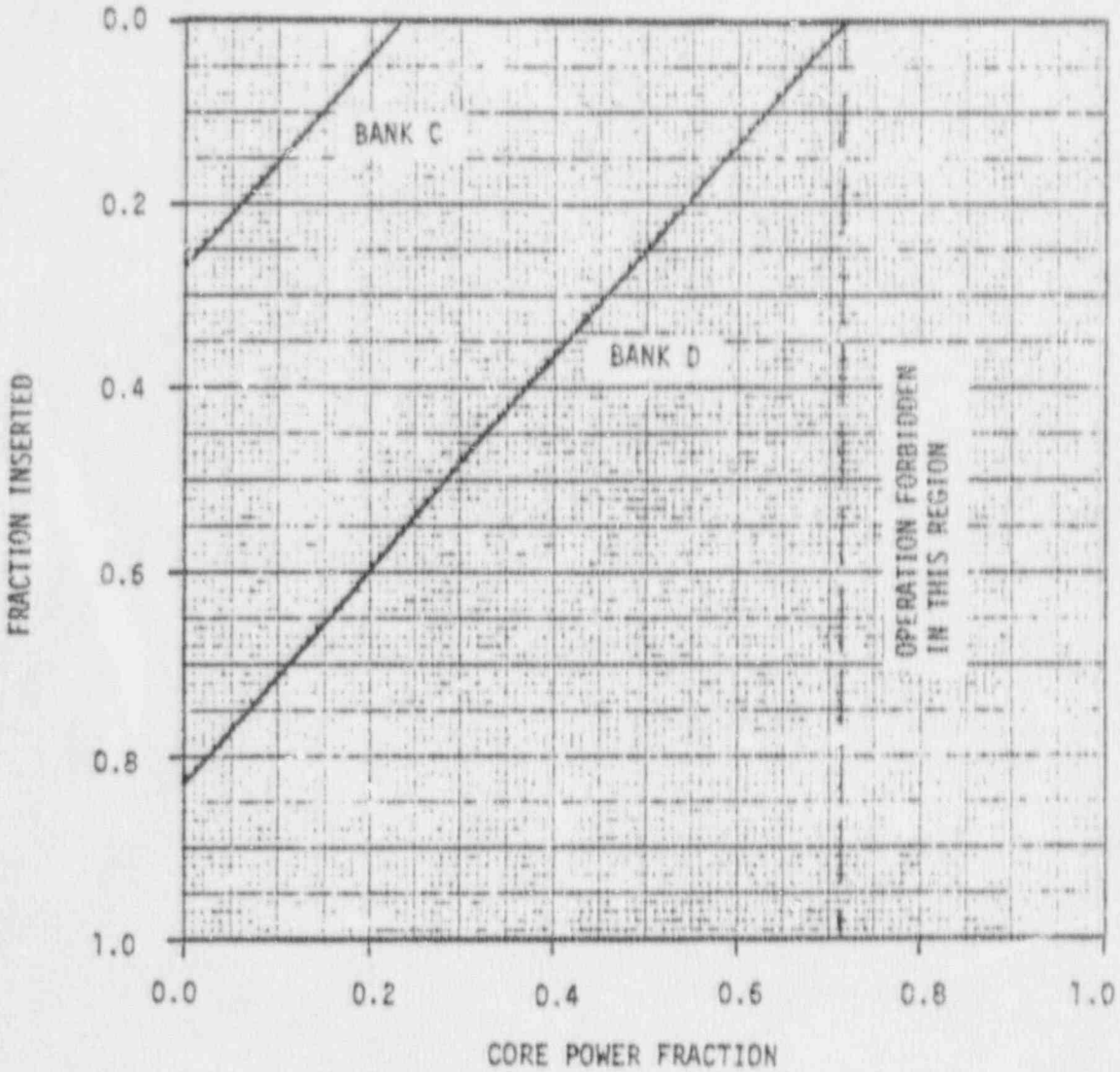


Figure 6 INSERTION LIMITS -
100 STEP OVERLAP WITH ONE
INOPERABLE ROD
(Technical Specification 3.10.C.4)