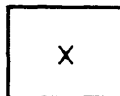
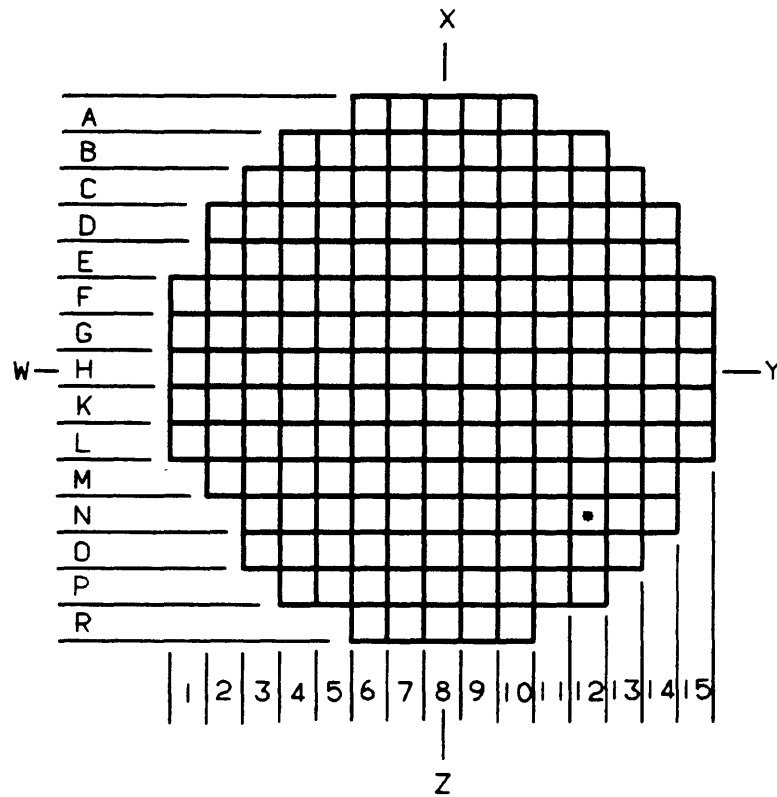


WORTH-HZP (% $\Delta k/k$ )		Group	No. of rods	Function
BOC	EOC			
SEE TABLE 3.2-7		1	8	Safety
		2	8	Safety
		3	8	Safety
		4	8	Safety
		5	12	Control
		6	8	Control
		7 (TRANSIENT)	9	Control



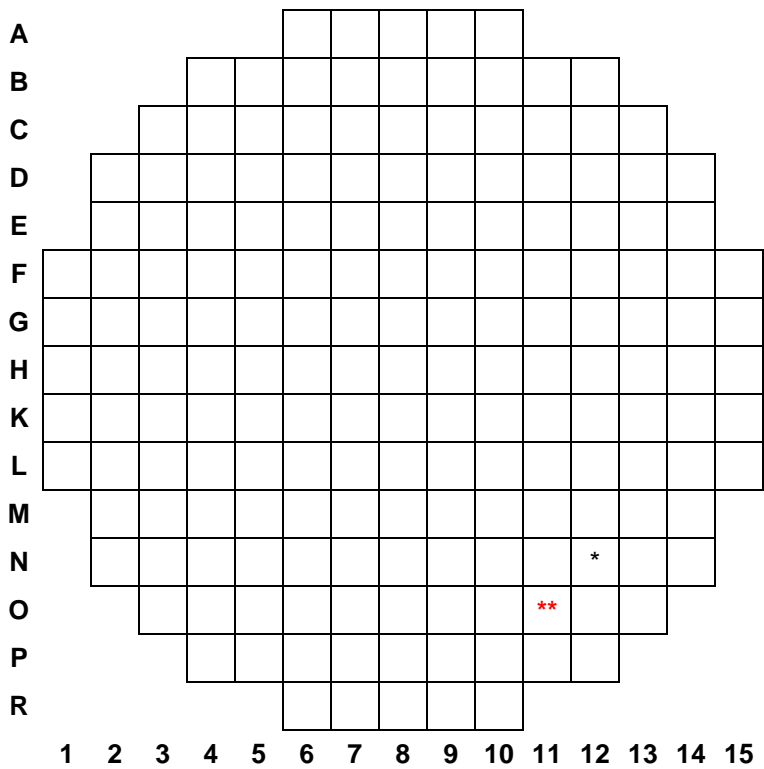
Group Number

TOTAL # **61**



- | <u>RODS IN</u>                      | <u>HZP WORTH OF EJECTED ROD (<math>\% \Delta k/k</math>)</u> |
|-------------------------------------|--------------------------------------------------------------|
| 1. GROUPS 5-7, 0% WD                | SEE TABLE 3.2-4                                              |
| 2. GROUP 8 AT HFP NOMINAL POSITION. |                                                              |
| • BOC AND EOC EJECTED ROD           |                                                              |

TMI-1 UFSAR



RODS IN

Groups 1-7, 0% WD

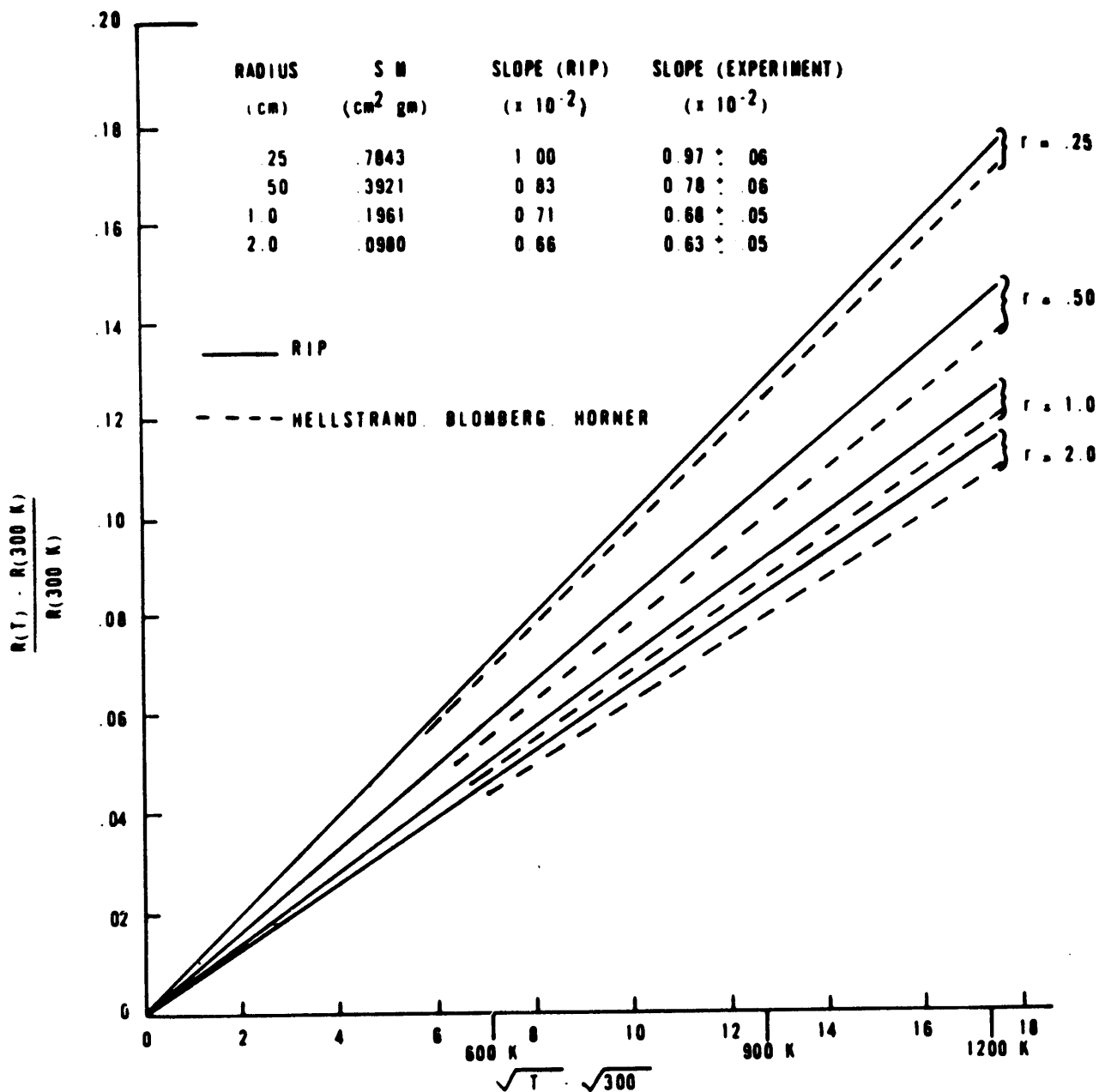
HZP WORTH OF STUCK ROD (%Δk / k)

See Table 3.2-4

\* BOC Maximum Worth Stuck Rod

\*\* EOC Maximum Worth Stuck Rod

p. 3.FIG-3



p. 3.FIG-4

**GPU Nuclear**

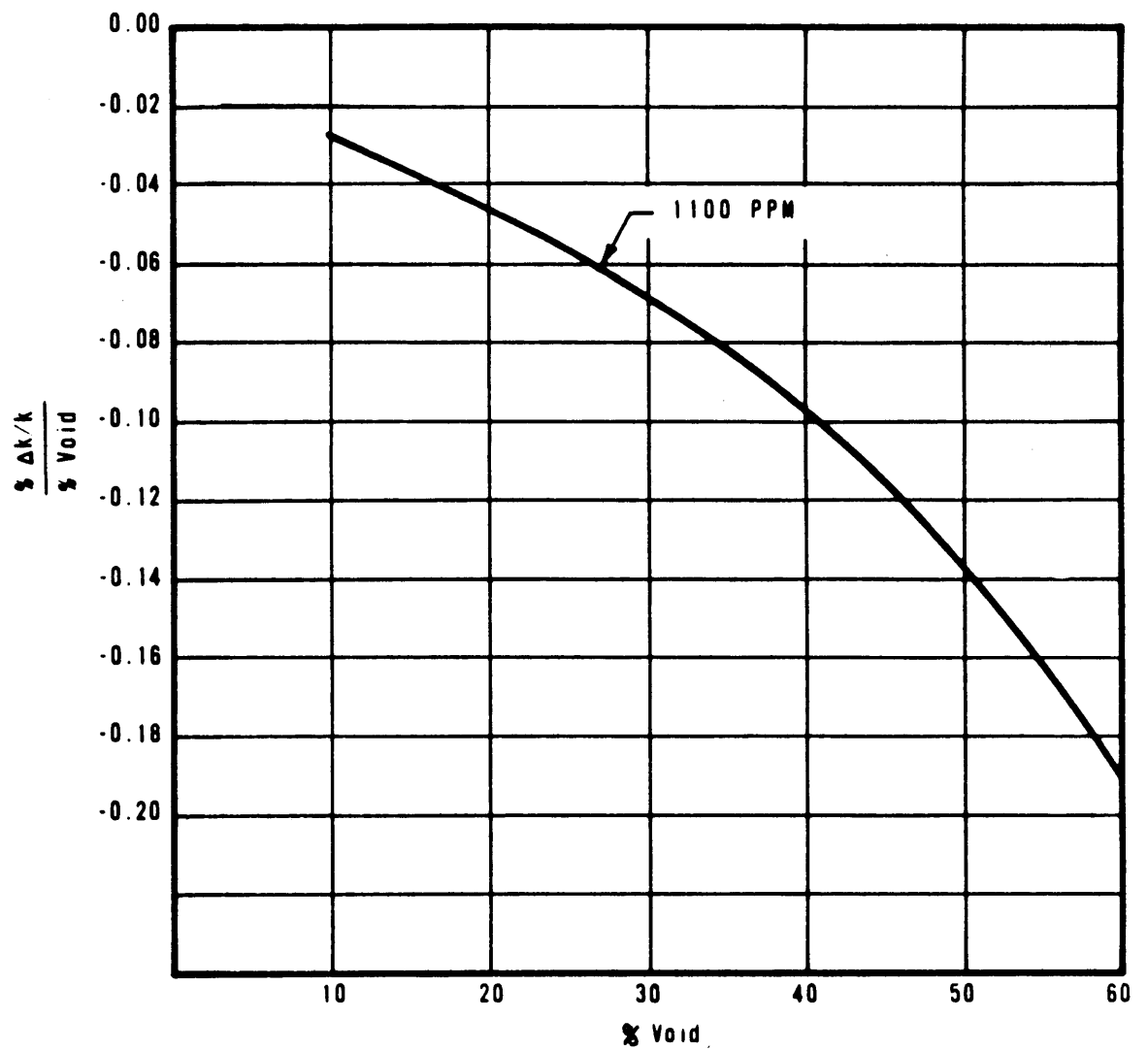
Update - 5

TMI Unit 1

7/86

Fractions of Change in the Reasonance  
 Integral as Function of  $\sqrt{T} - \sqrt{300}$  for UO<sub>2</sub>  
 Rod (T in Degrees K)

Fig. 3.2-4



p. 3.FIG-5

**GPU Nuclear**

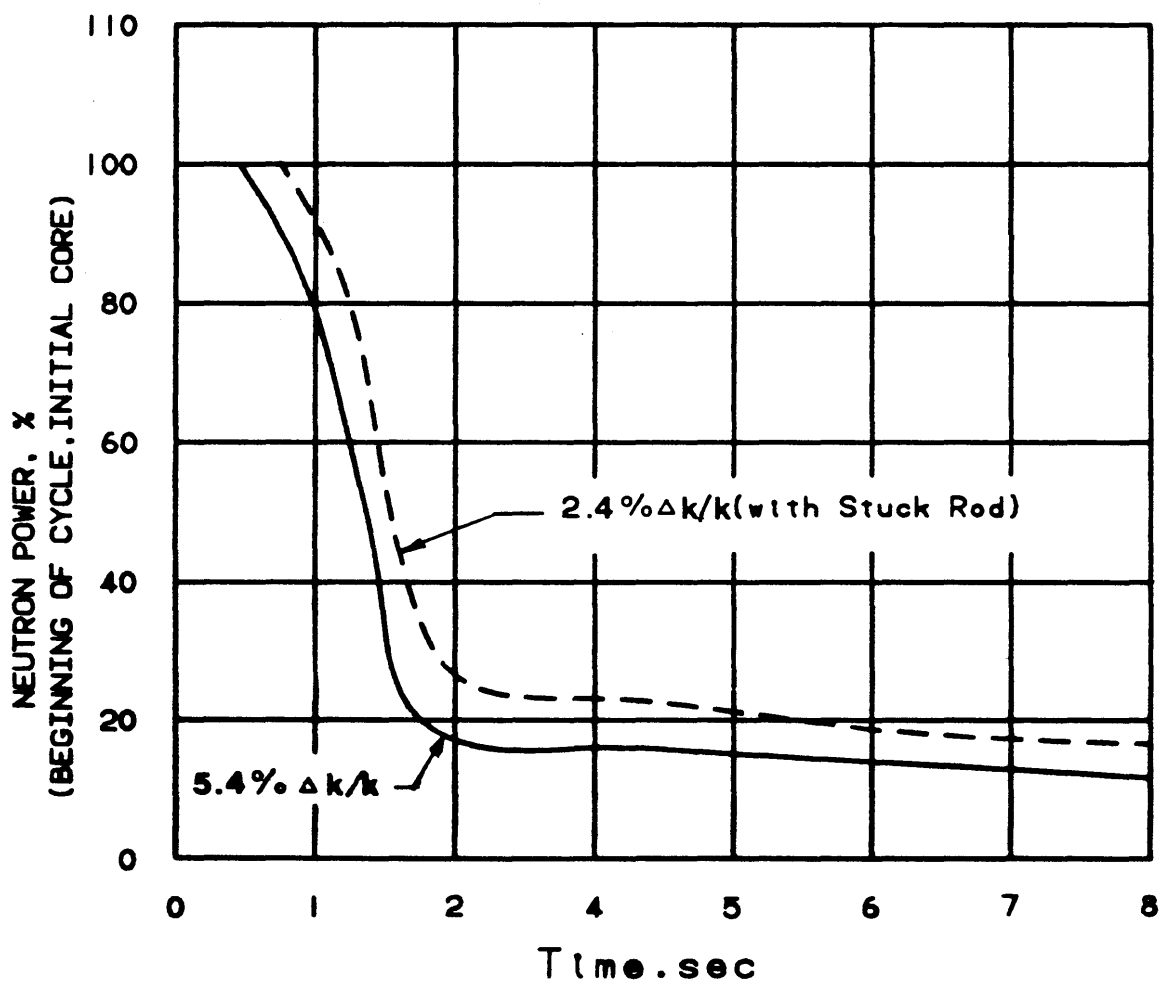
Update - 5

TMI Unit 1

7/86

Uniform Void Coefficient for 177 Assembly Core

Fig. 3.2-5



p.3.FIG-6

**GPU Nuclear**

Update - 9

TMI Unit 1

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Percent Neutron Power Versus  
Time Following Trip, BOC

Fig. 3.2-6

# TMI-1 UFSAR

## Core Loading Diagram for TMI-1 Cycle 21

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
A						21C3 G11	21F2 D05	21E2 H02	21F2 D11	21C3 G05					
B				22B O11	21D P12	23F F	23G F	22E O04	23G F	23F F	21D P04	22B O05			
C			21F2 N04	23F F	23H F	23E F	22A2 O10	23B F	22A2 O06	23E F	23H F	23F F	21F2 D04		
D		22B M13	23F F	22E O12	22D K02	22B F07	23B F	22E L14	23B F	22B F09	22D K14	22E N03	23F F	22B M03	
E		21D N14	23H F	22D B09	22B K08	23A F	22C K04	22E B06	22C K12	23A F	22B H07	22D B07	23H F	21D N02	
F	21C3 M07	23F F	23E F	22B G06	23A F	22C C08	23C F	22A2 E06	23C F	22C H13	23A F	22B G10	23E F	23F F	21C3 M09
G	21F2 E04	23G F	22A2 L13	23B F	22C D09	23C F	21C1 F11 19	23D F	21C1 M10 19	23C F	22C D07	23B F	22A2 L03	23G F	21F2 E12
H	21E2 P08	22E N13	23B F	22E B10	22E L02	22A2 L05	23D F	20A2 H15 19	23D F	22A2 F11	22E F14	22E P06	23B F	22E D03	21E2 B08
K	21F2 M04	23G F	22A2 F13	23B F	22C N09	23C F	21C1 E06 19	23D F	21C1 L05 19	23C F	22C N07	23B F	22A2 F03	23G F	21F2 M12
L	21C3 E07	23F F	23E F	22B K06	23A F	22C H03	23C F	22A2 M10	23C F	22C O08	23A F	22B K10	23E F	23F F	21C3 E09
M		21D D14	23H F	22D P09	22B H09	23A F	22C G04	22E P10	22C G12	23A F	22B G08	22D P07	23H F	21D D02	
N		22B E13	23F F	22E D13	22D G02	22B L07	23B F	22E F02	23B F	22B L09	22D G14	22E C04	23F F	22B E03	
O			21F2 N12	23F F	23H F	23E F	22A2 C10	23B F	22A2 C06	23E F	23H F	23F F	21F2 D12		
P				22B C11	21D B12	23F F	23G F	22E C12	23G F	23F F	21D B04	22B C05			
R						21C3 K11	21F2 N05	21E2 H14	21F2 N11	21C3 K05					

### Key

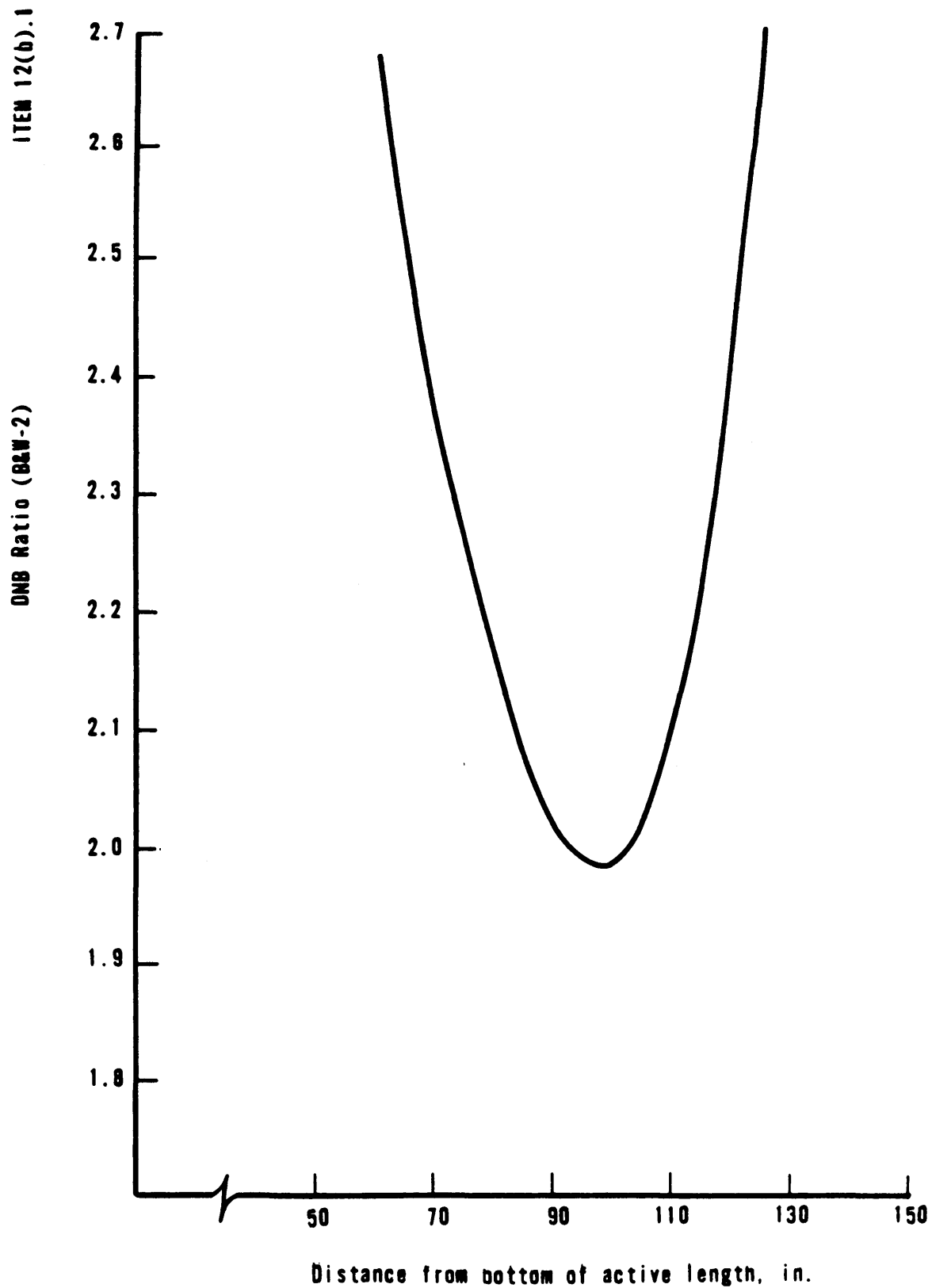
xxx	Batch ID
yyy	Previous Cycle Location
zzz	Previous Cycle Number (N/A for Feed, Cycle 20 if blank)

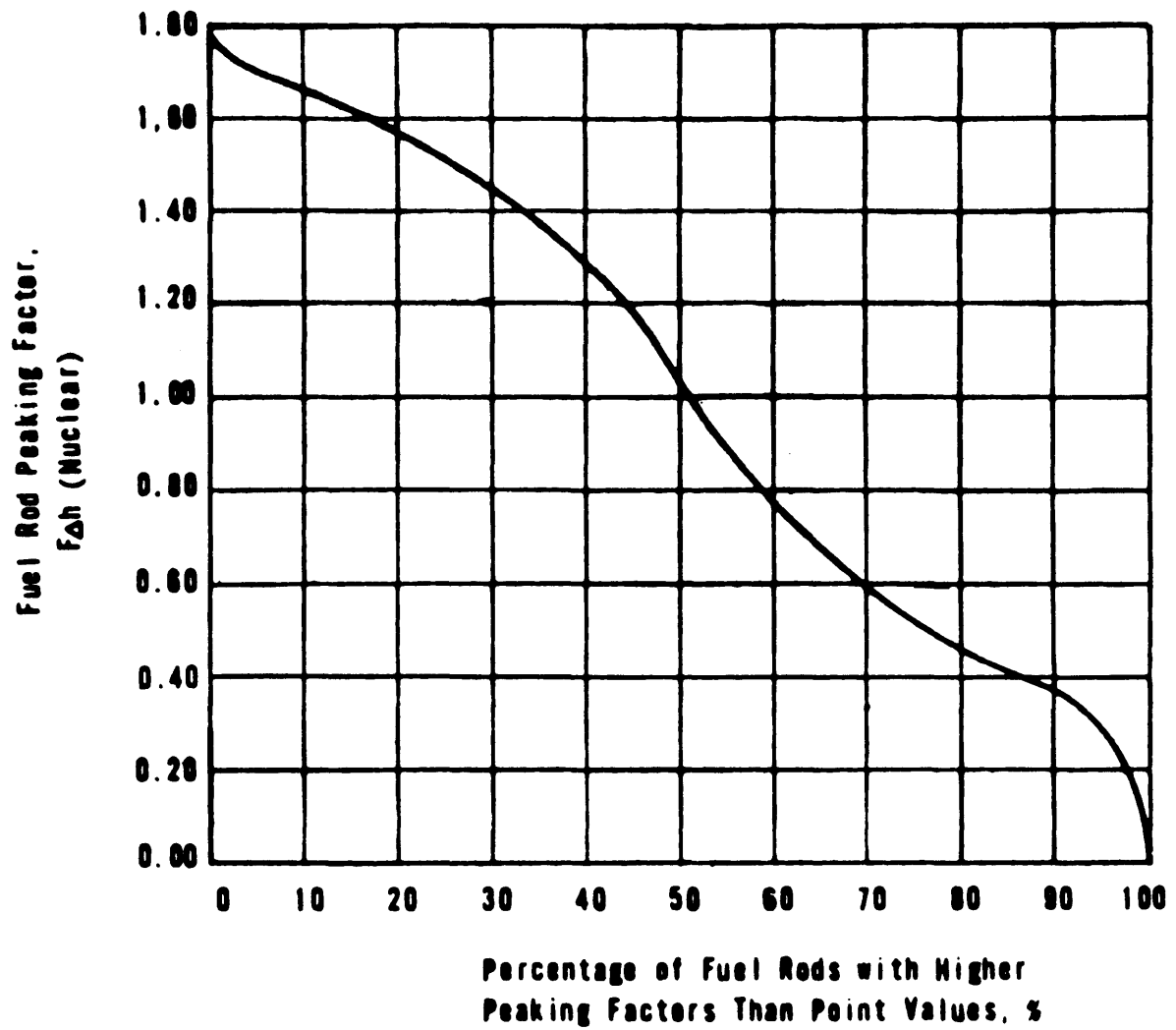
Note: F denotes Fresh Fuel

Figure 3.2-8

Deleted







p. 3.FIG-10

**GPU Nuclear**

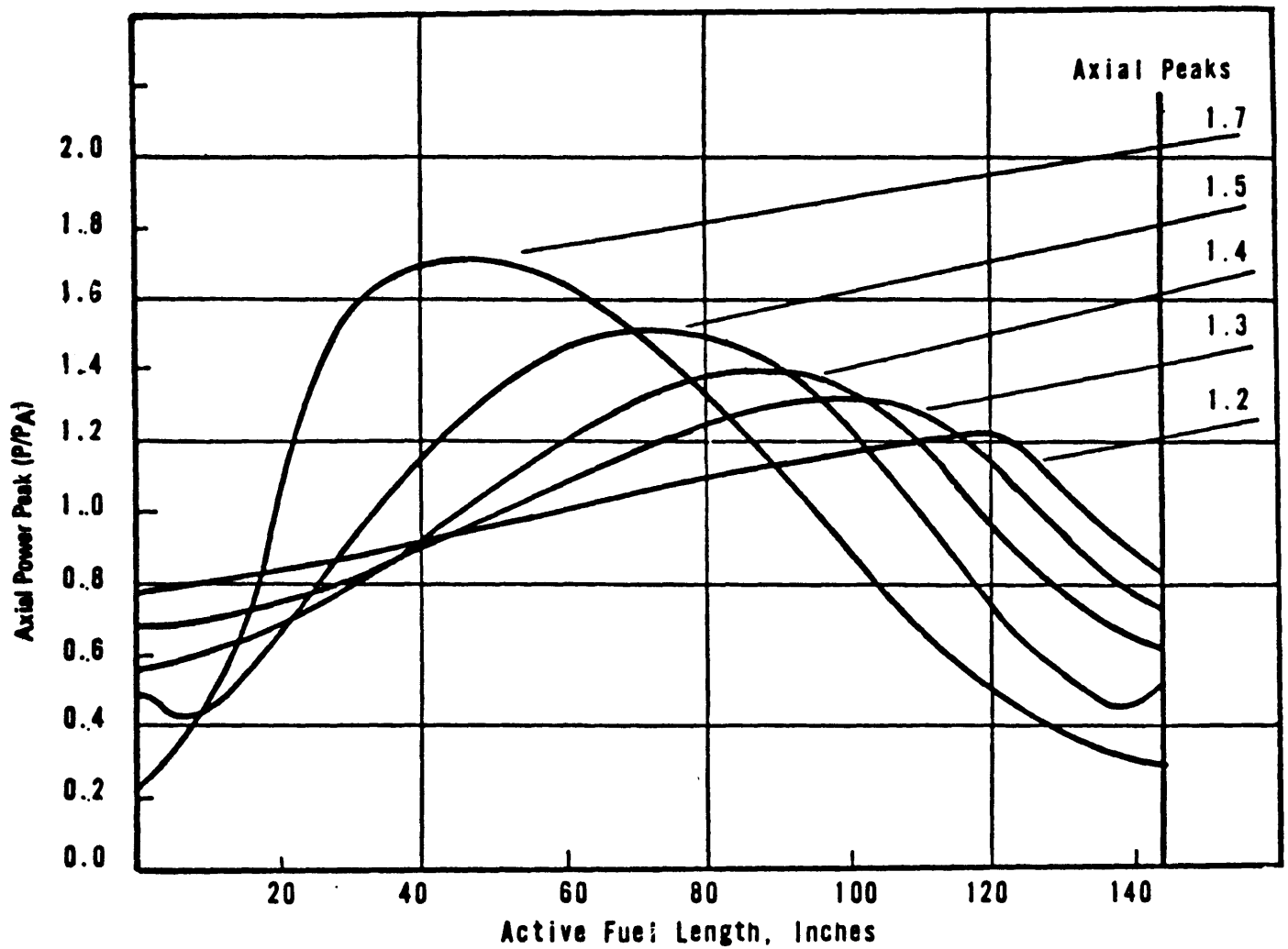
Update - 5

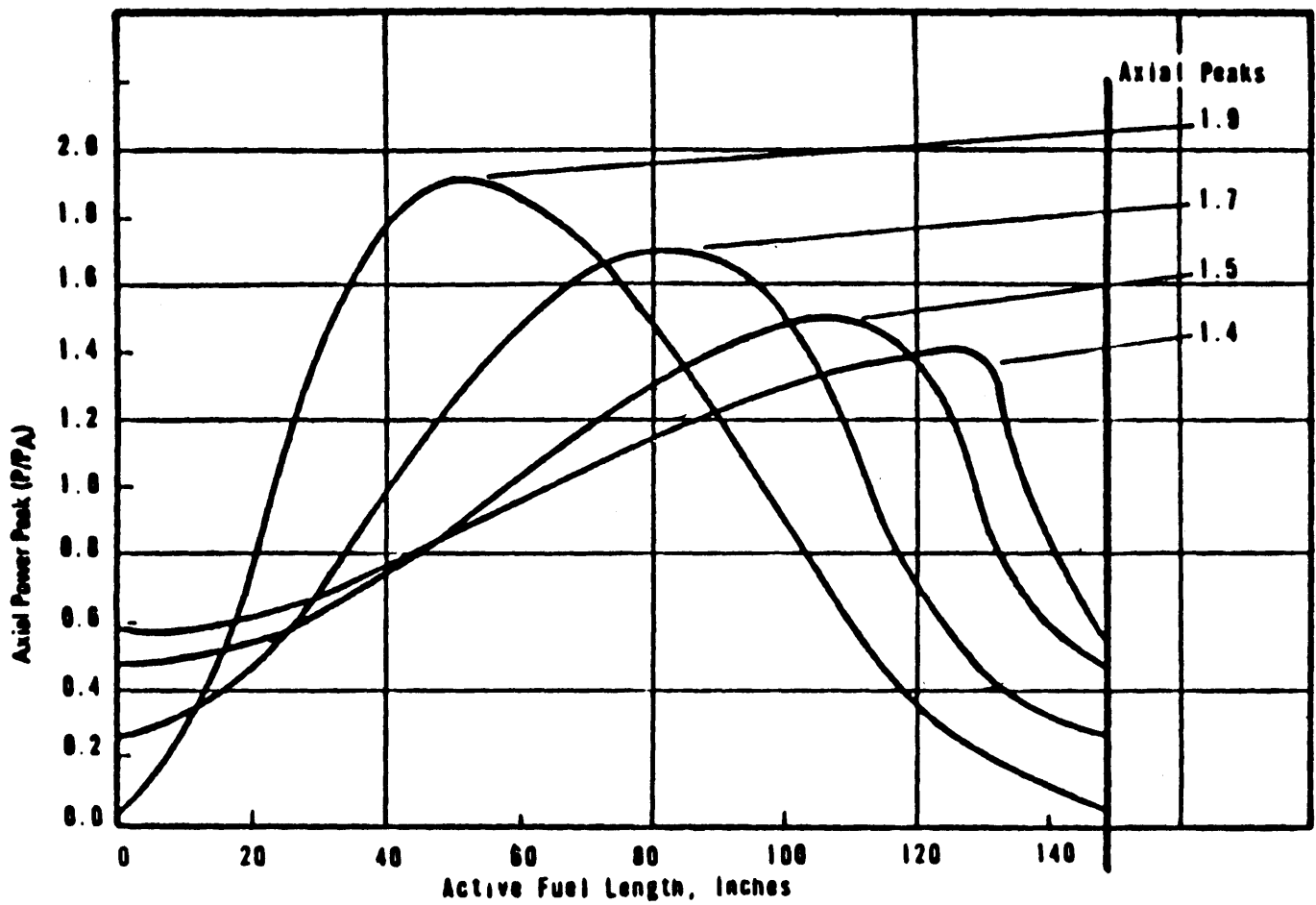
TMI Unit 1

7/86

Distribution of Fuel Rod Peaking  
(Initial Cycle)

Fig. 3.2-10





p. 3.FIG-12

**GPU Nuclear**

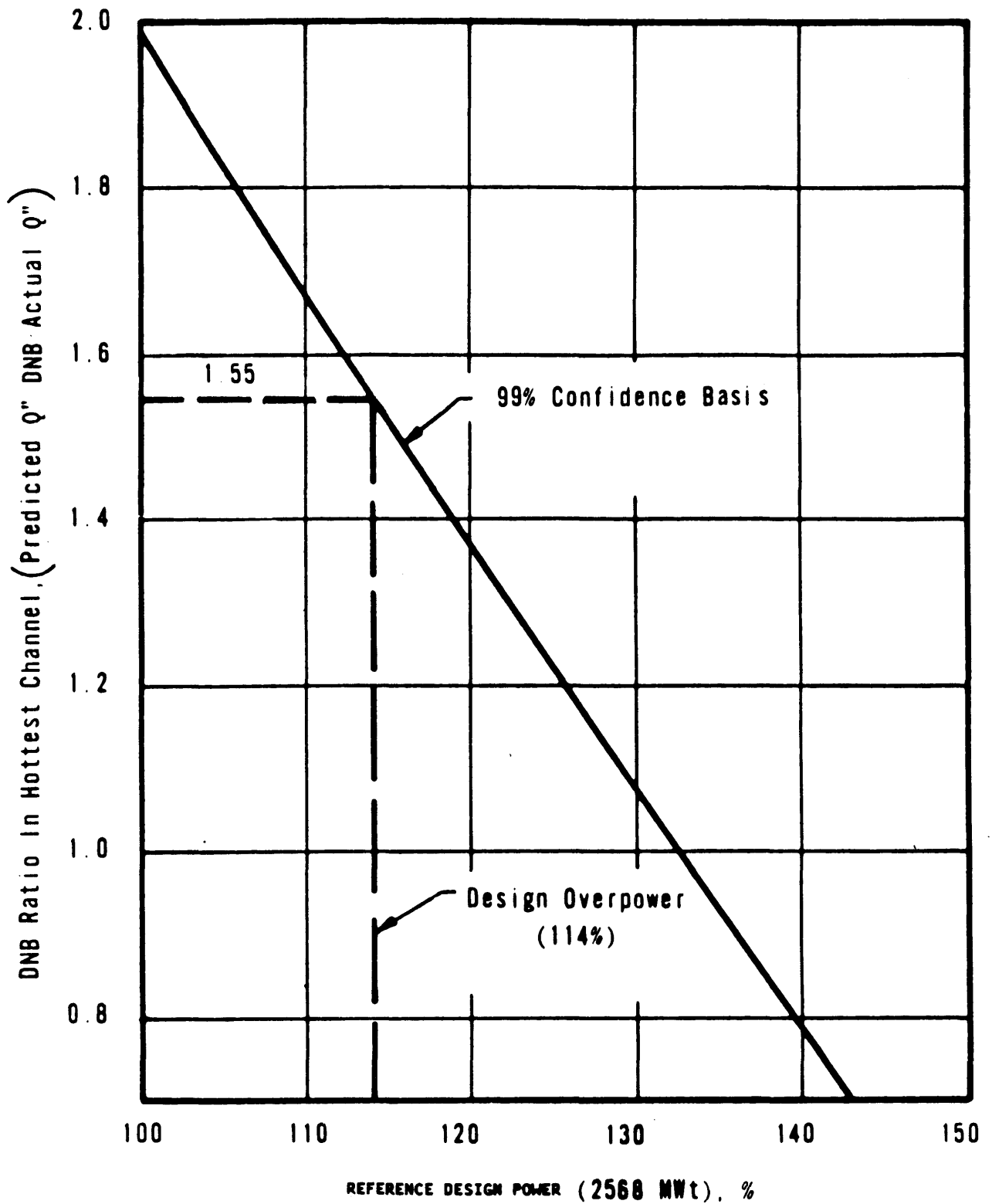
Update - 5

TMI Unit 1

7/86

Equivalent Axial Power Distribution for a  
Radical Local Peaking Factor of 1.65  
(Initial Cycle)

Fig. 3.2-12



p. 3.FIG-13

**GPU Nuclear**

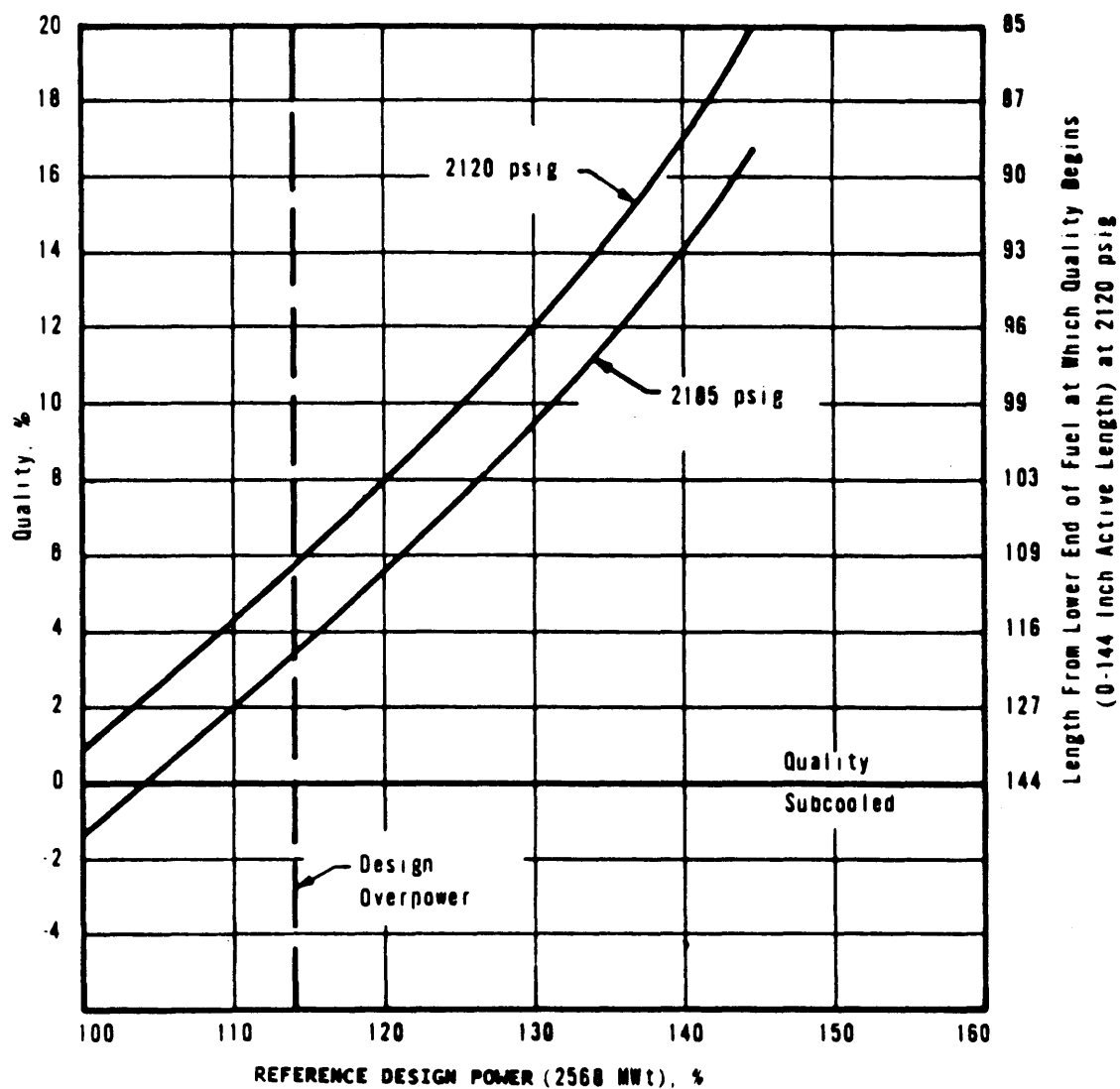
TMI Unit 1

DNB Ratios (W-3) in Hot Unit Cell  
Versus Reactor Power  
(Initial Cycle)

Update - 5

7/86

Fig. 3.2-13



**GPU Nuclear**

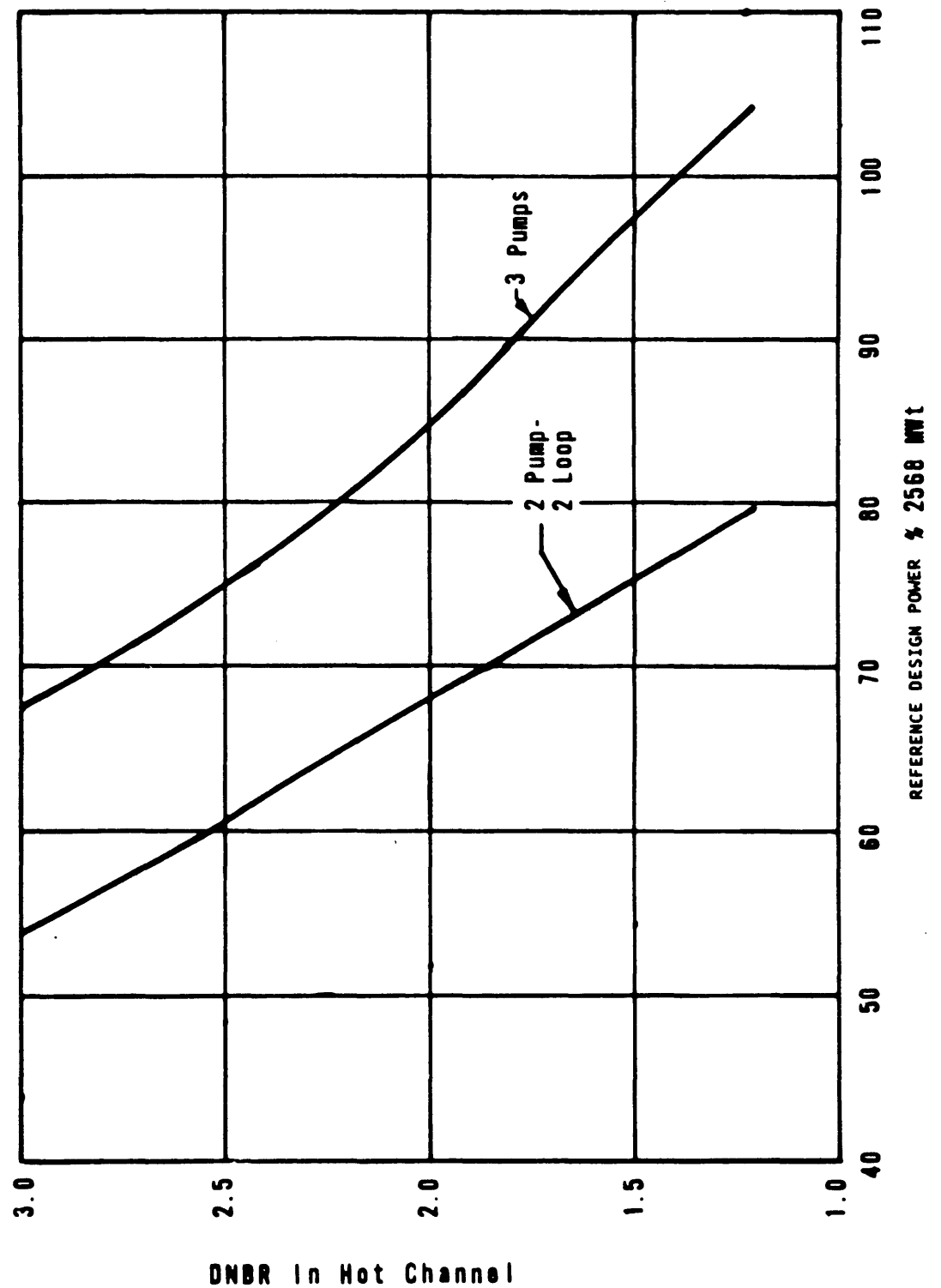
Update - 5

TMI Unit 1

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Maximum Hot Channel Exit Quality  
Versus Reactor Power  
(Initial Cycle)

Fig. 3.2-14



**GPU Nuclear**

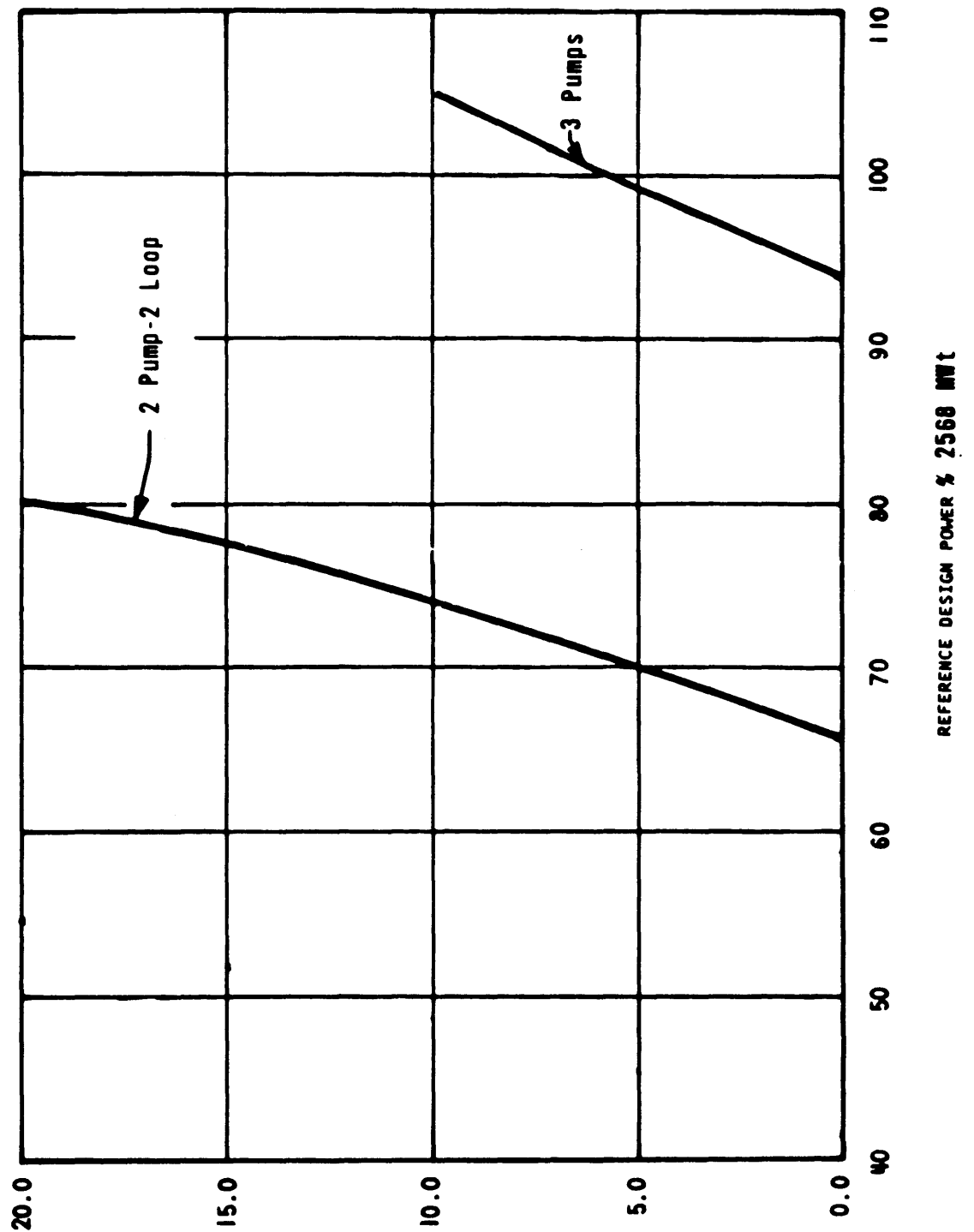
Update - 5

TMI Unit 1

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Hot Channel DNBR Ratio (W-3) Versus Power for  
Partial Pump Operation  
(Initial Cycle)

Fig. 3.2-15



Coolant Quality At Point of Minimum DNBR In Hot Channel

**GPU Nuclear**

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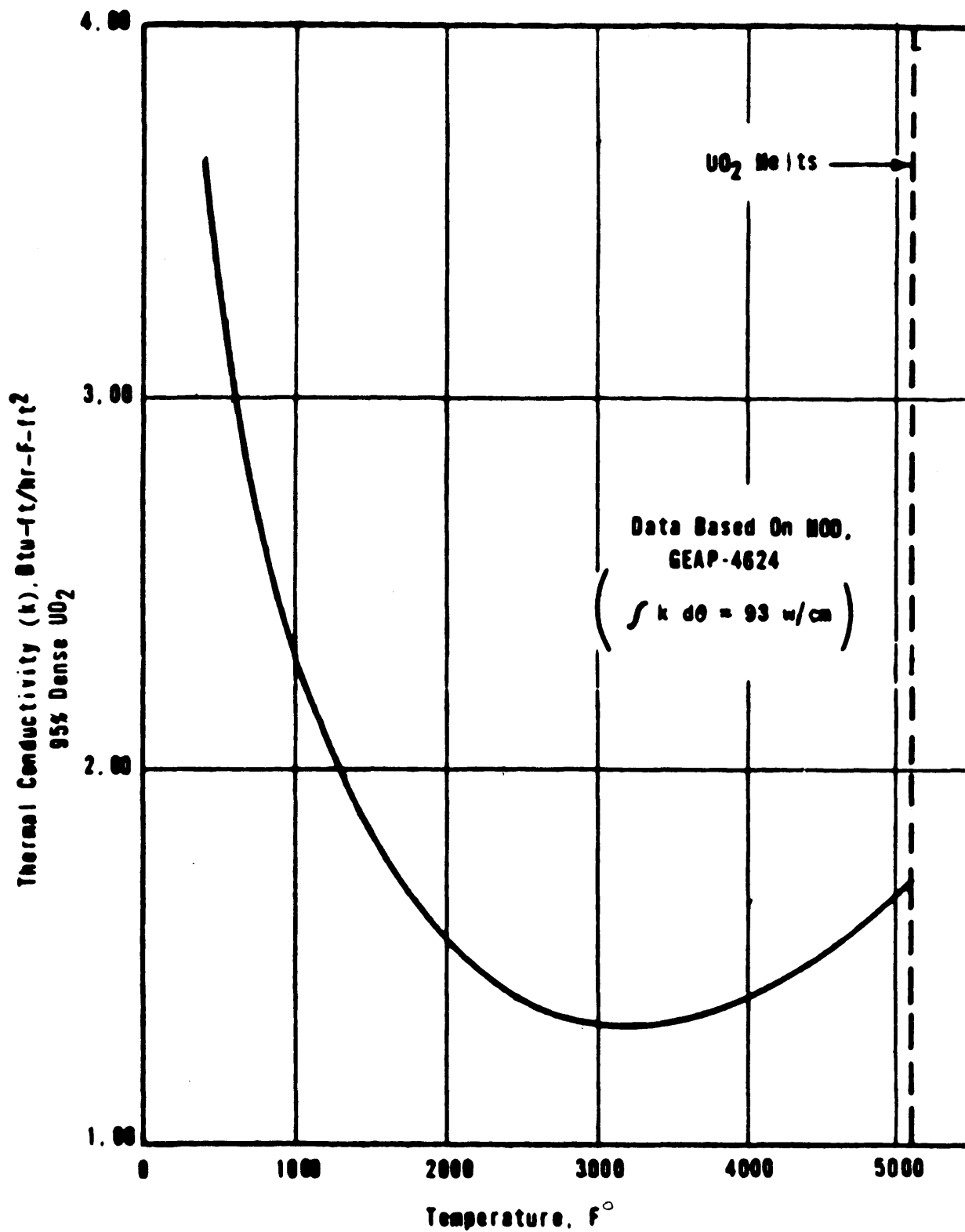
TMI Unit 1

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Hot Channel Quality at Point of Minimum DNBR  
Versus Power for Partial Pump Operation  
(Initial Cycle)

Fig. 3.2-16





**GPU Nuclear**

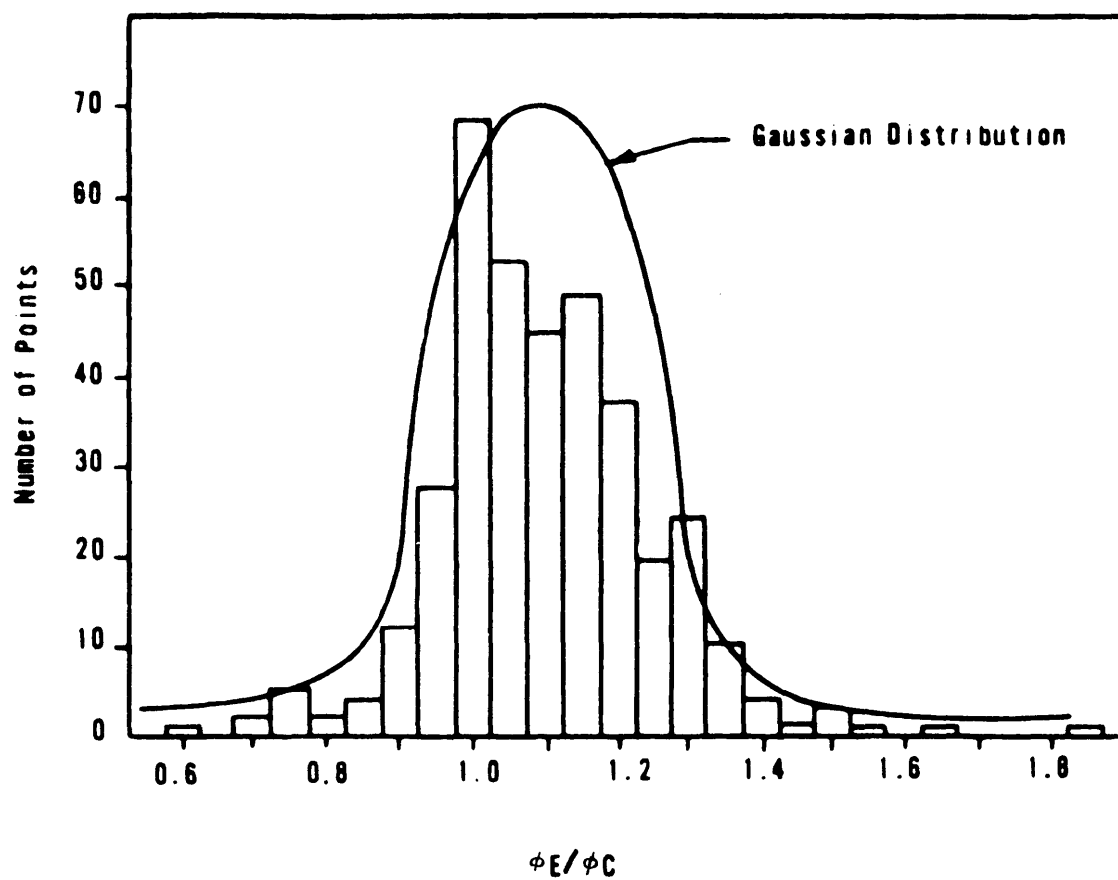
TMI Unit 1

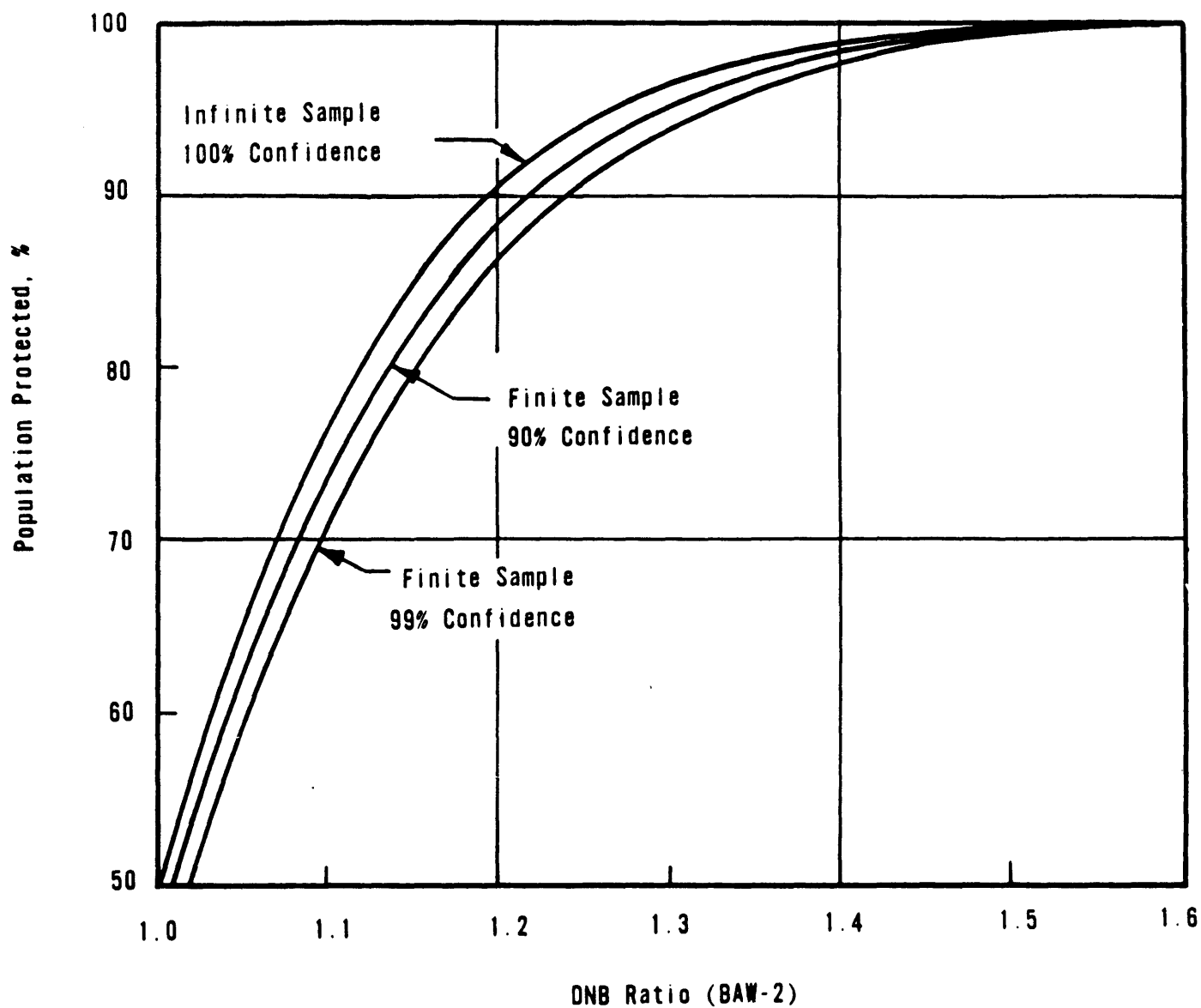
Thermal Conductivity of UO<sub>2</sub>

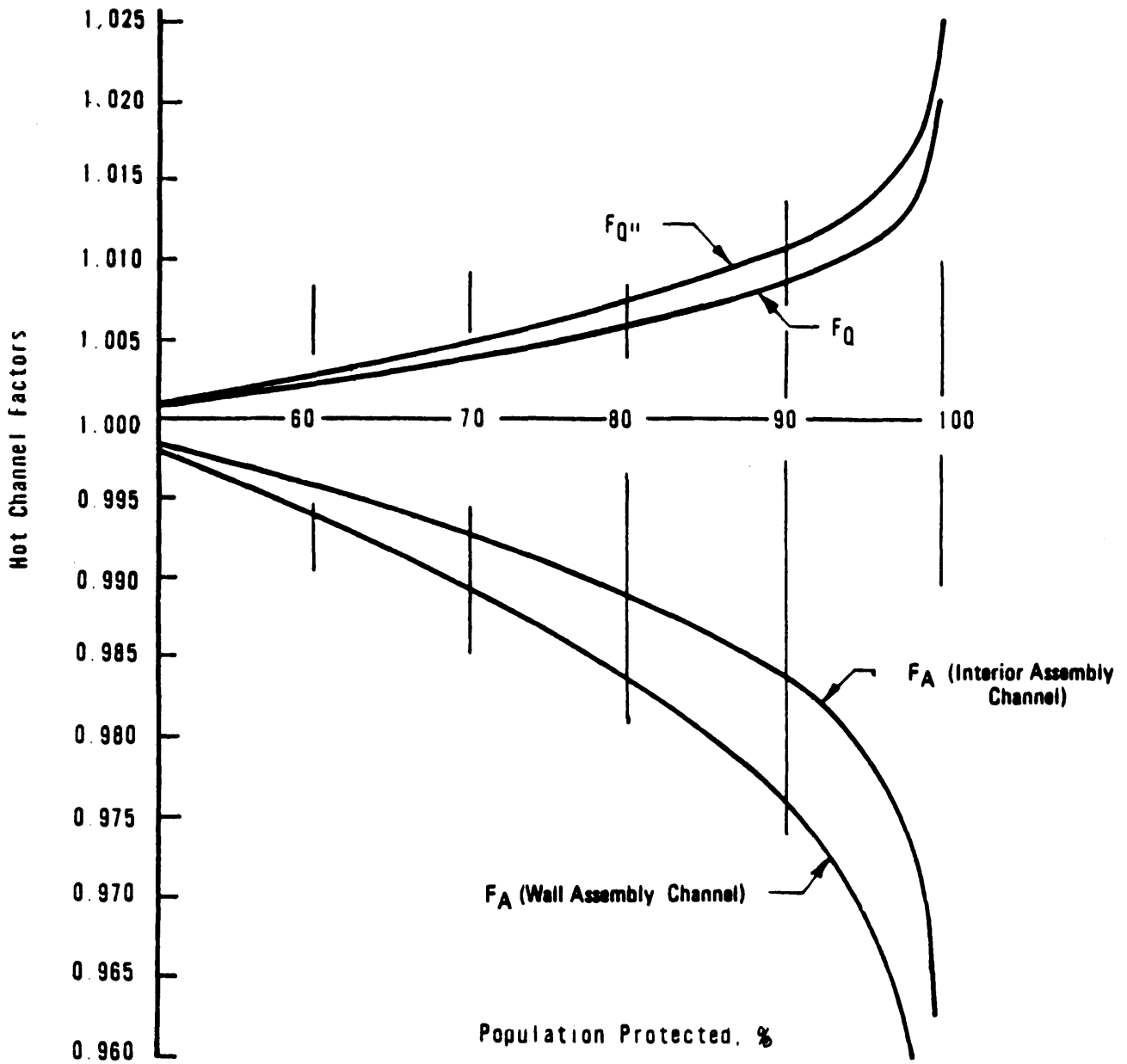
Update - 5

7/86

Fig. 3.2-17







**GPU Nuclear**

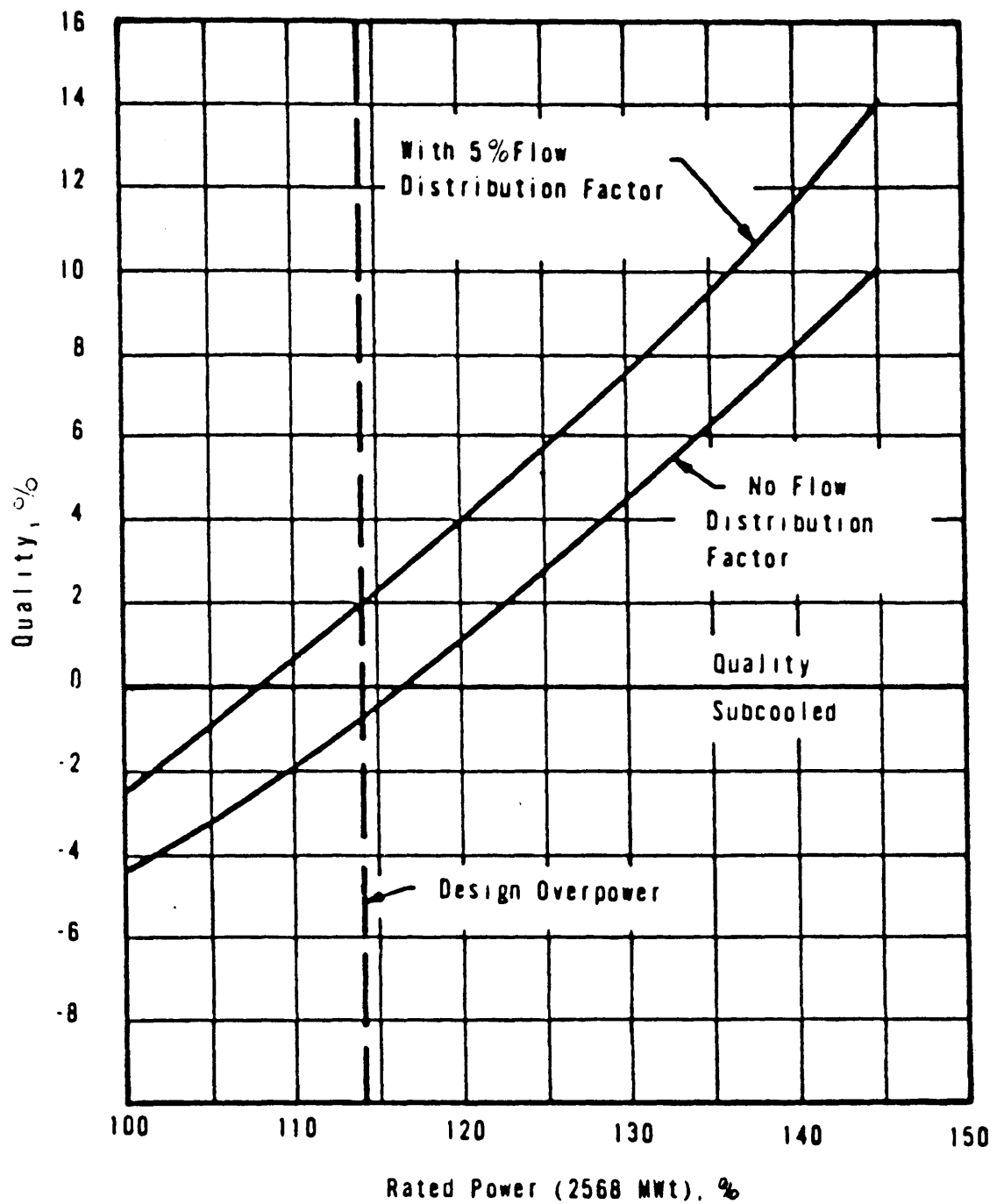
Update - 5

TMI Unit 1

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Hot Channel Factors vs. Percent  
Population Protected

Fig. 3.2-20



p. 3.FIG-21

**GPU Nuclear**

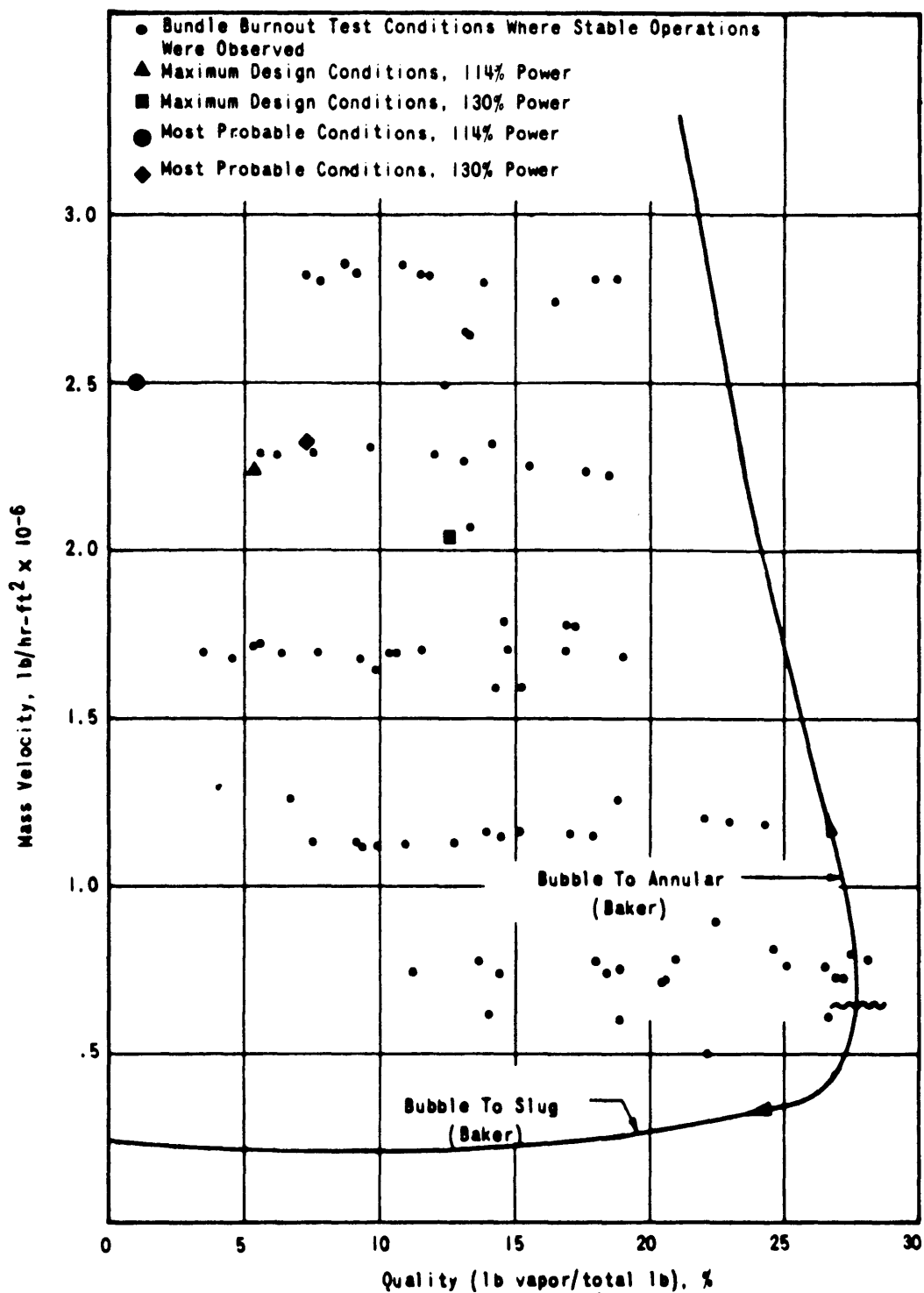
Update - 5

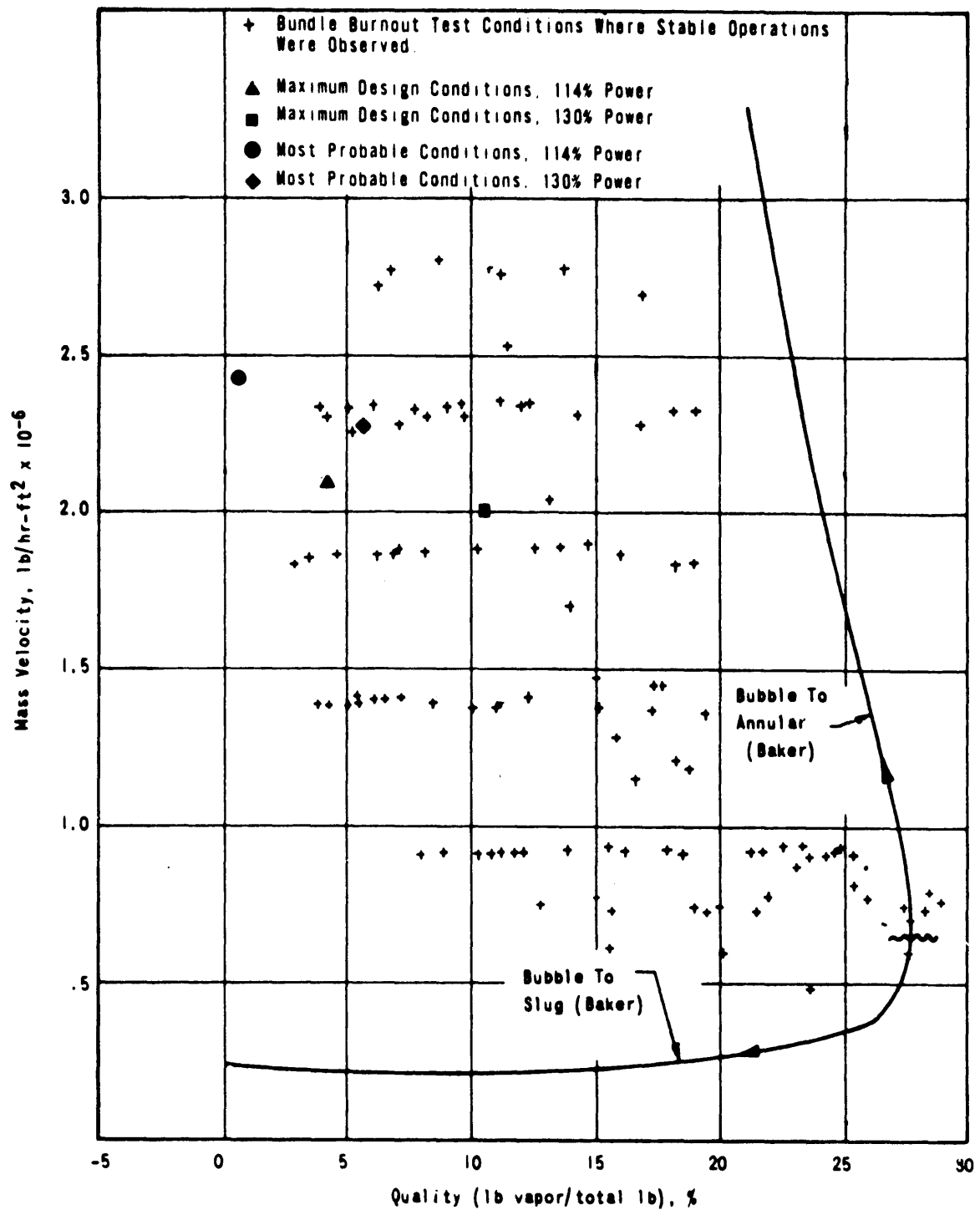
TMI Unit 1

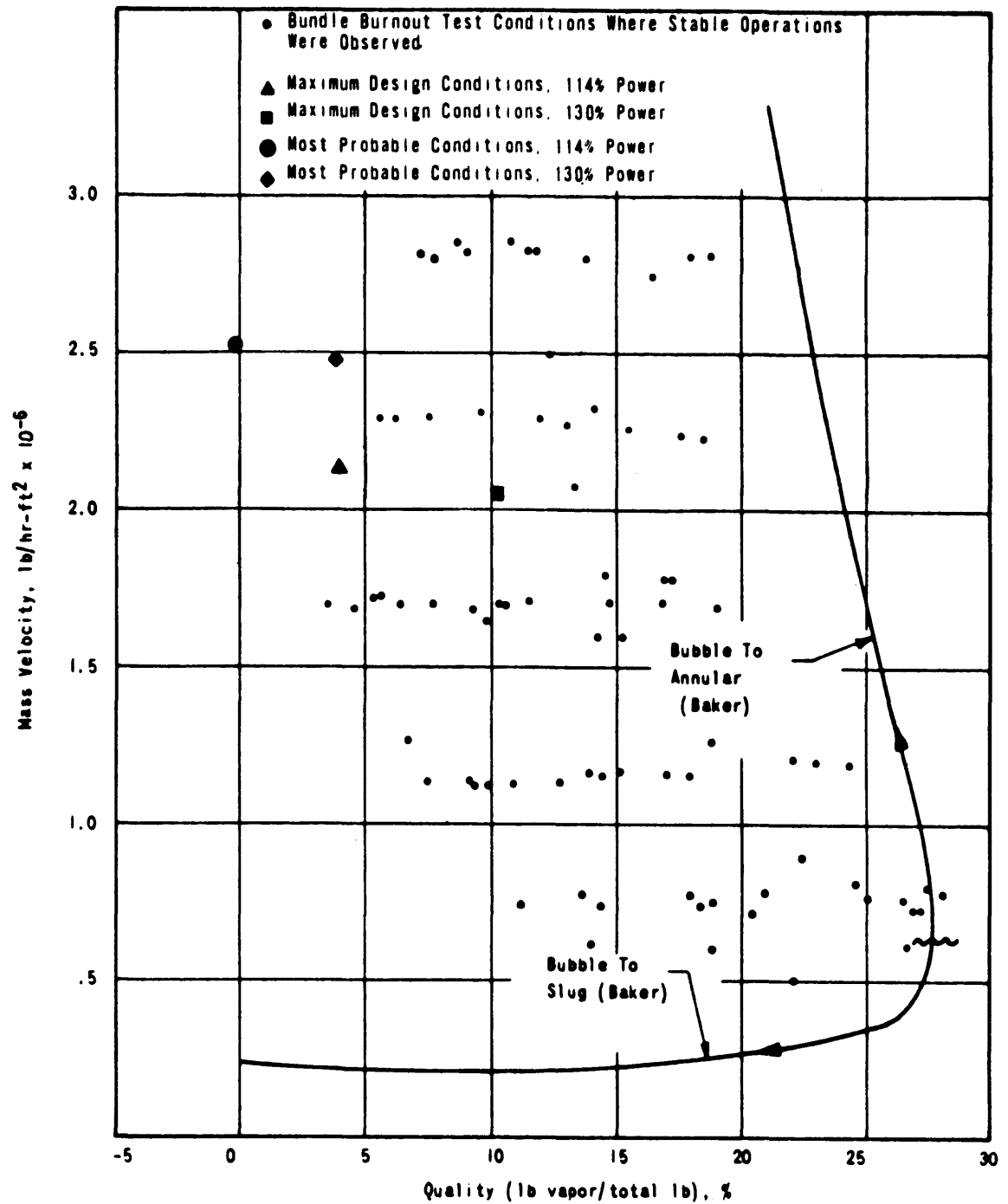
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Hot Channel and Nominal Channel  
Exit Qualities Versus Reactor Power  
(Without Engineering Hot Channel Factors)  
(Initial Cycle)

Fig. 3.2-21







**GPU Nuclear**

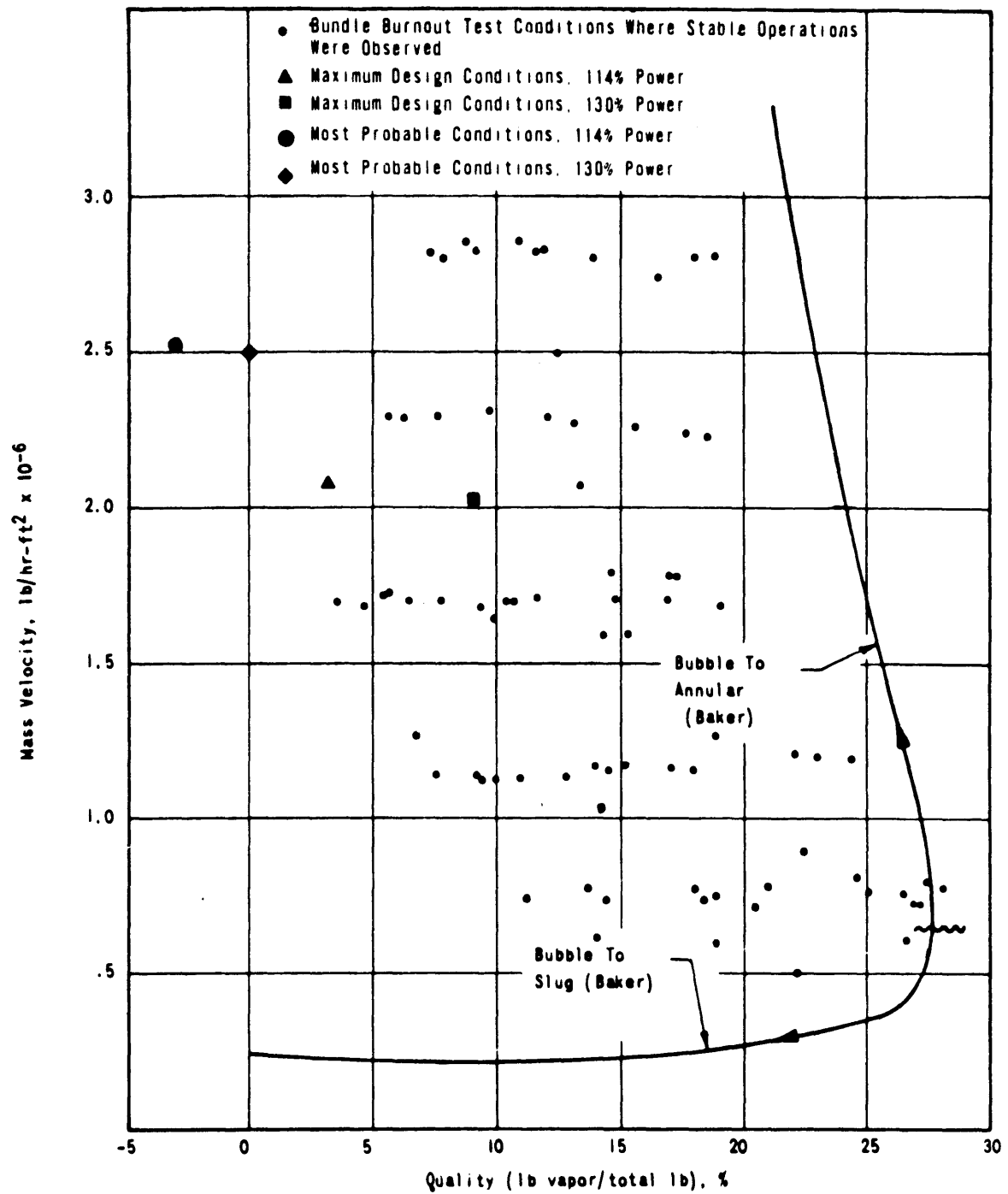
Update - 5

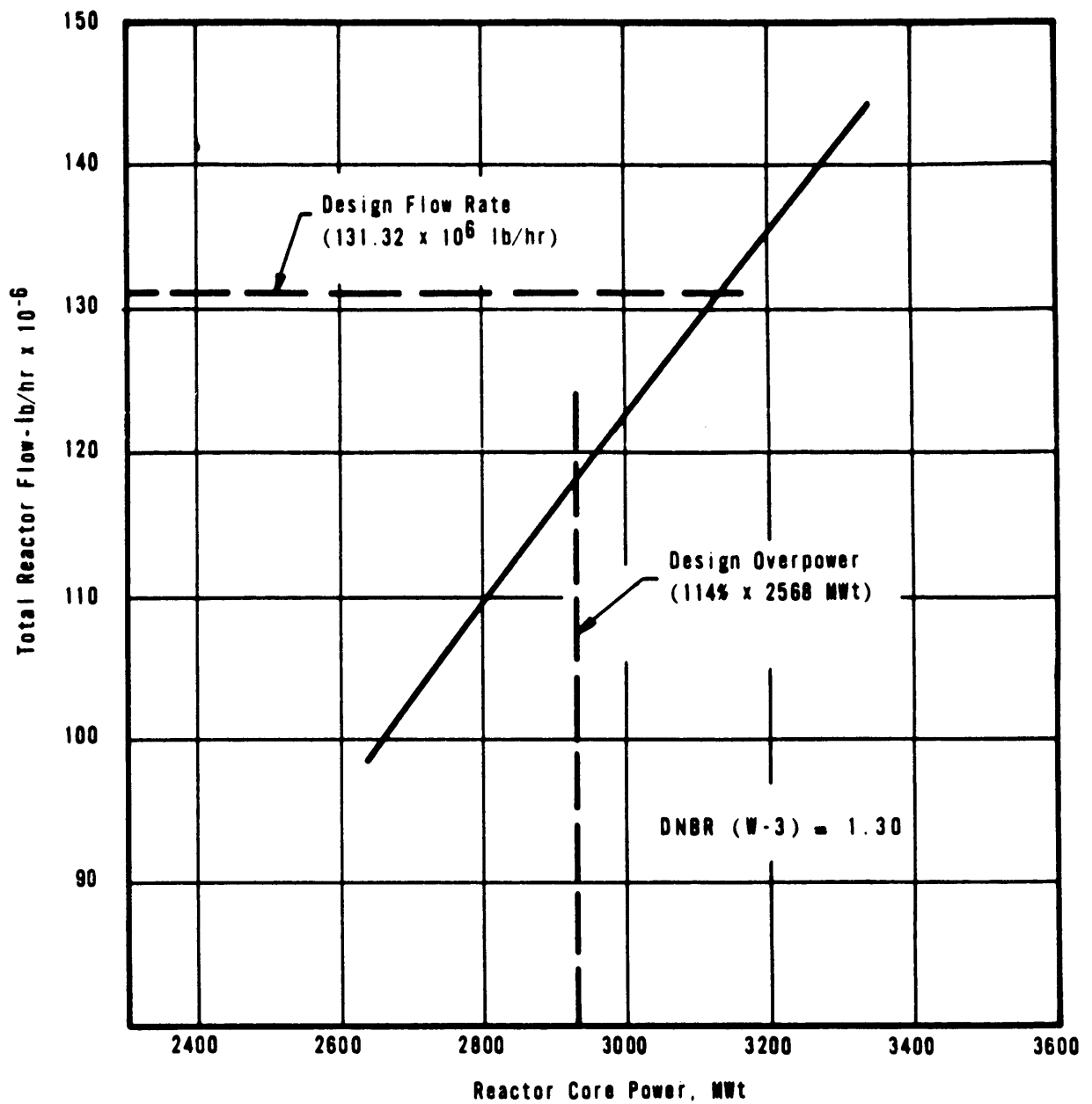
TMI Unit 1

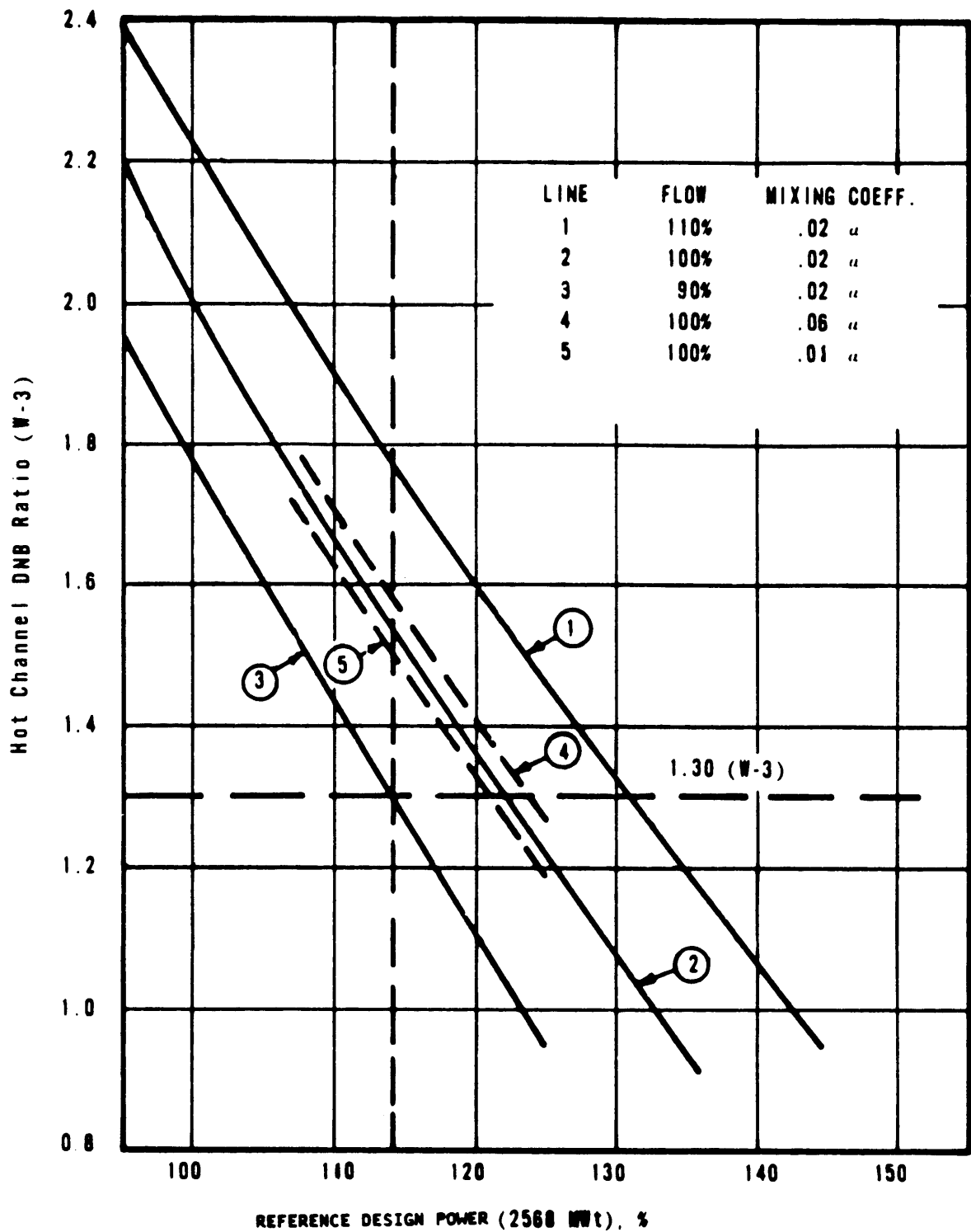
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Flow Regime Map for the Hot Wall Cell









REFERENCE DESIGN POWER (2568 MWt), %

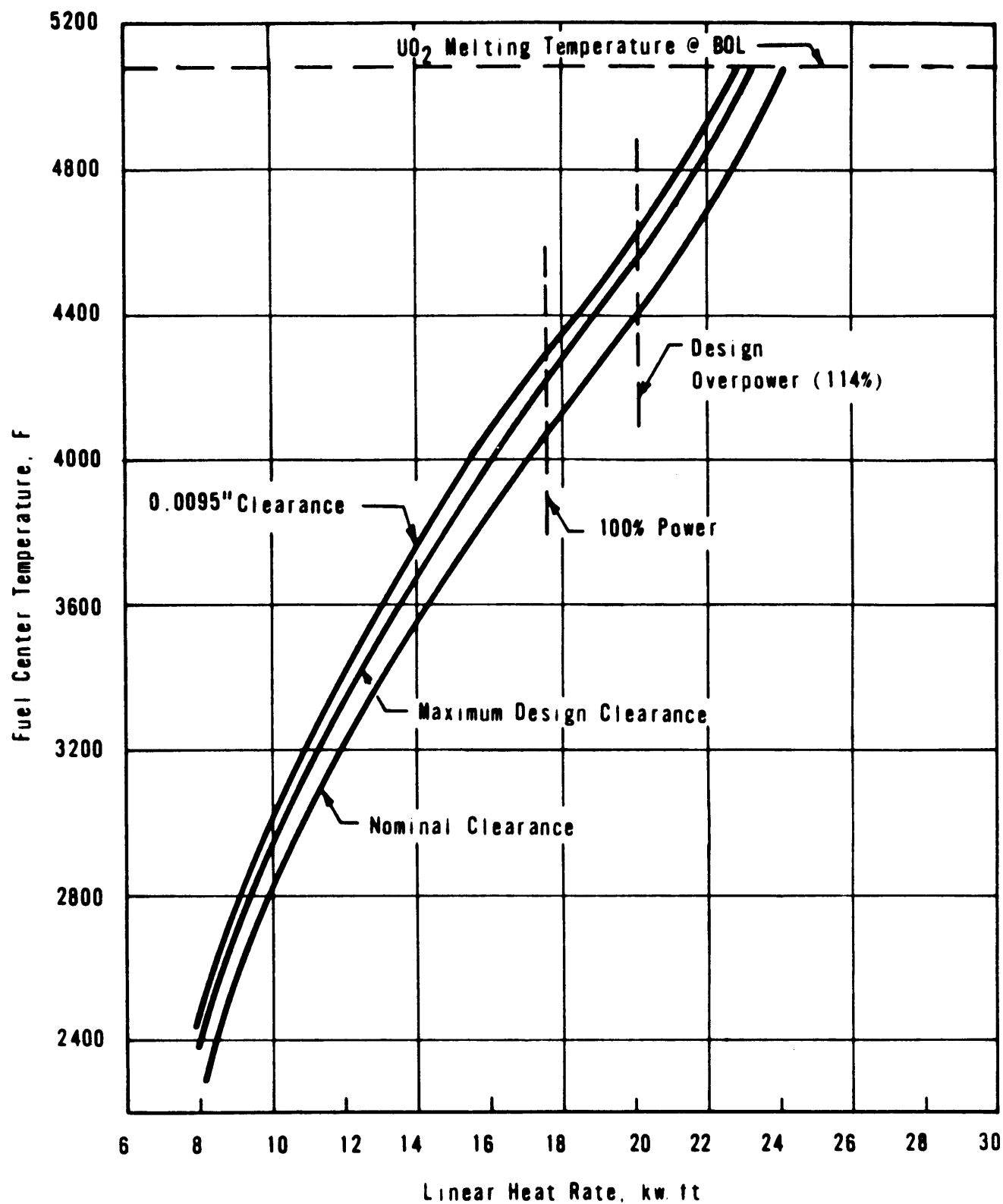
**GPU Nuclear**

Update - 5

TMI Unit 1

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Hot Channel DNB Ratio (W-3) Versus Power  
with Reactor System Flow and Energy Mixing  
as Parameters (Initial Cycle)



**GPU Nuclear**

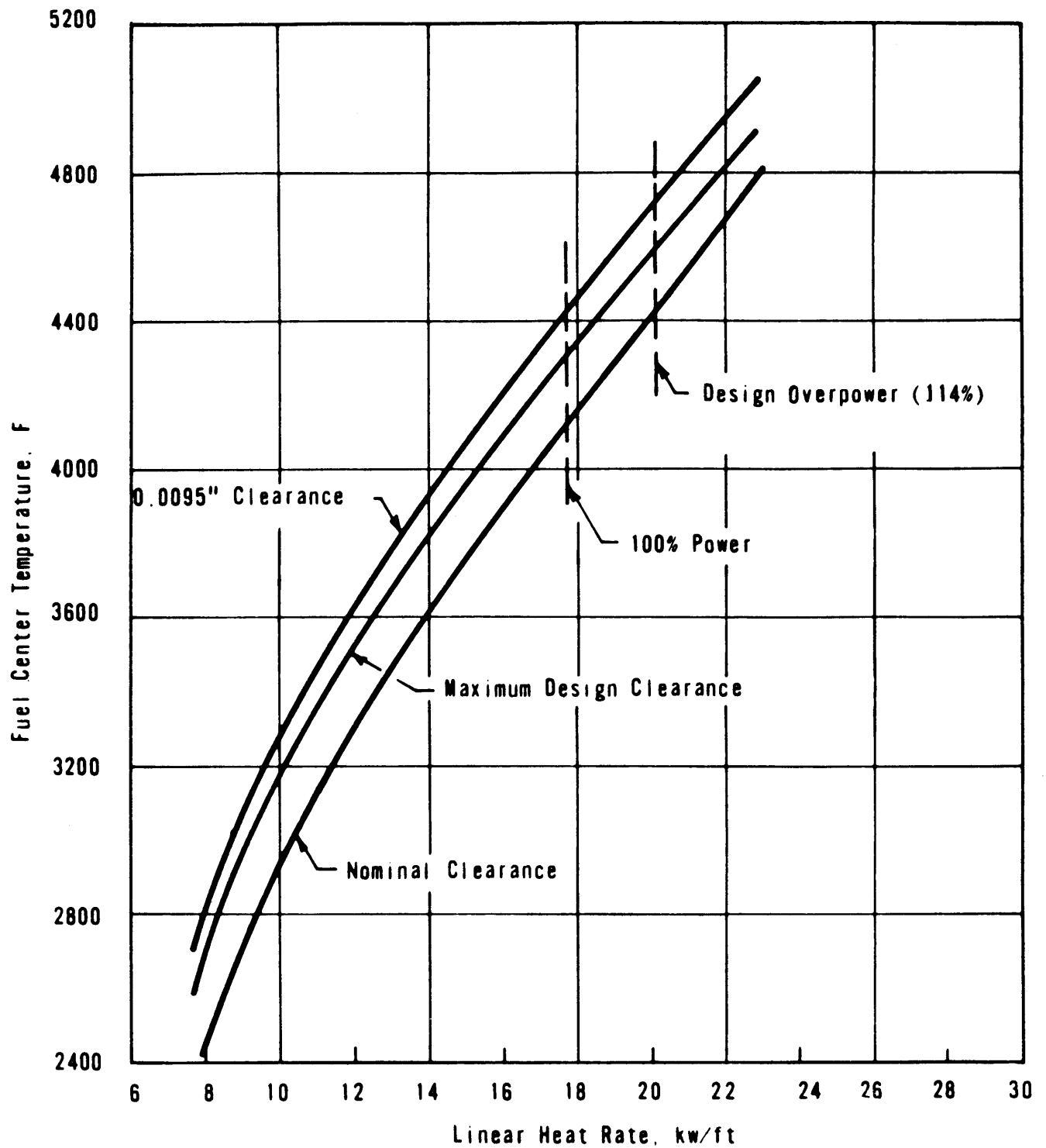
TMI Unit 1

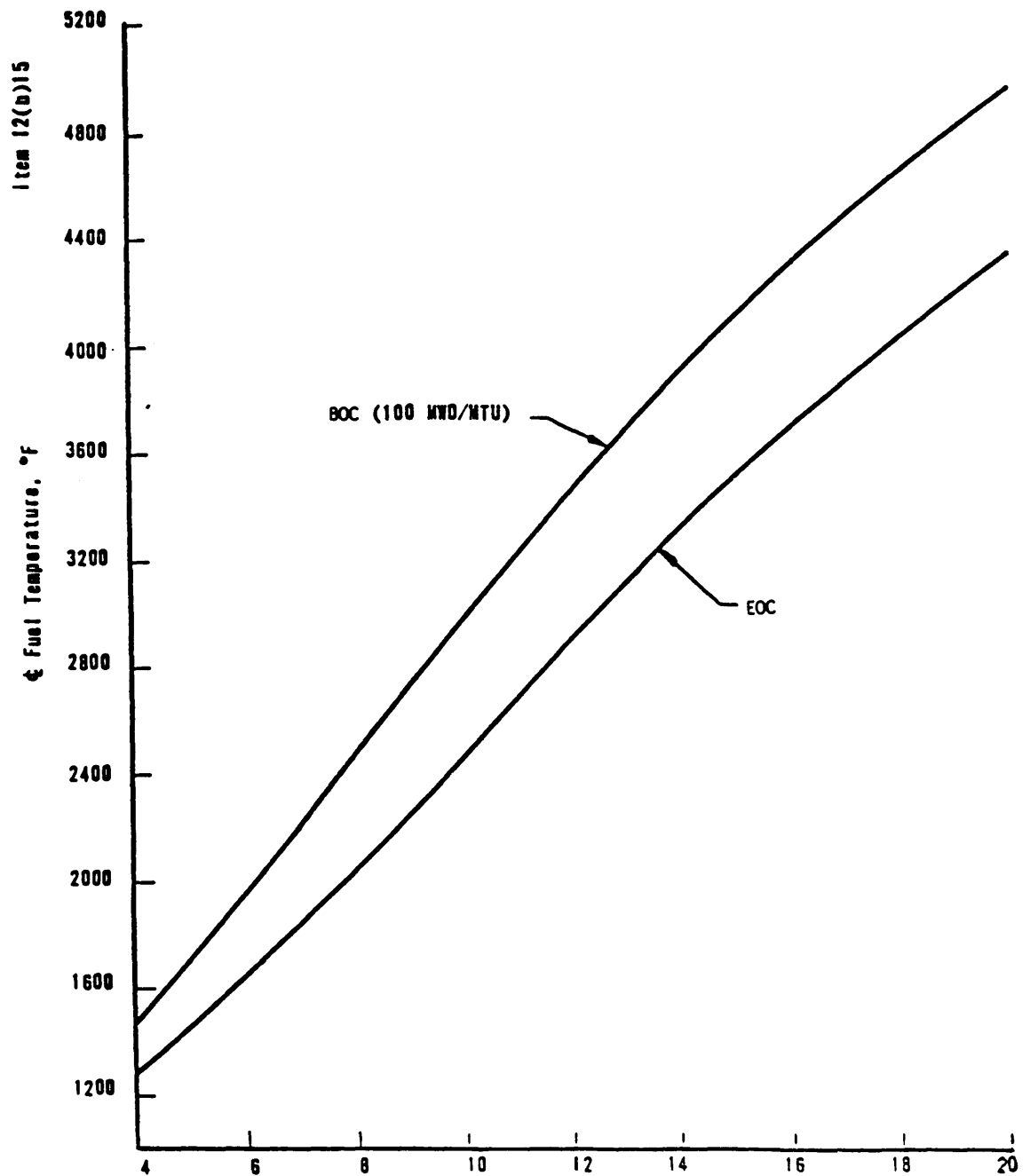
Fuel Center Temperature for  
Beginning-of-Cycle Conditions  
(Initial Cycle)

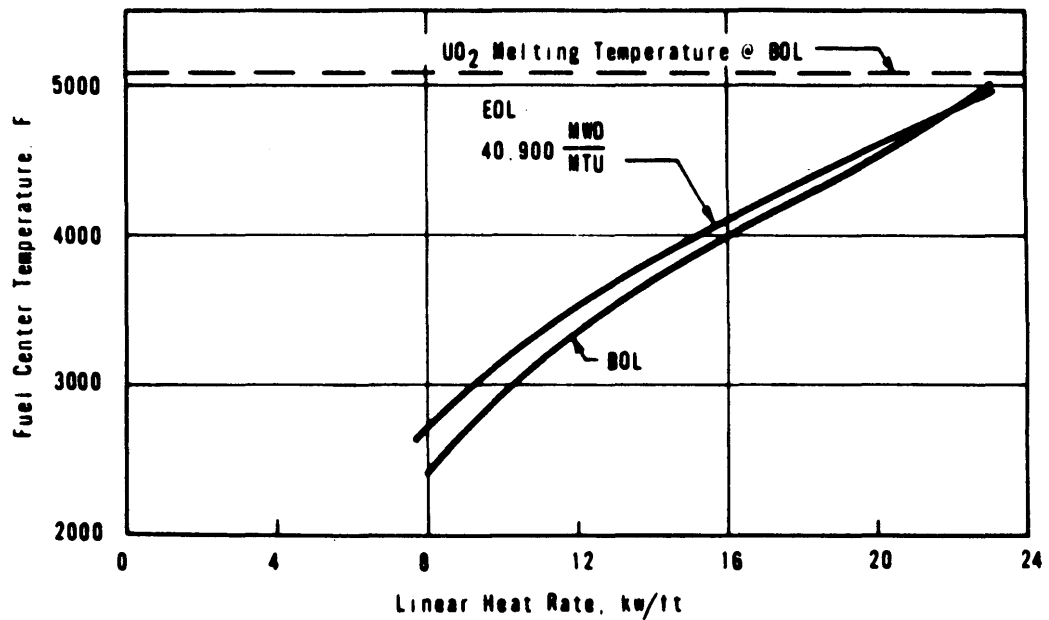
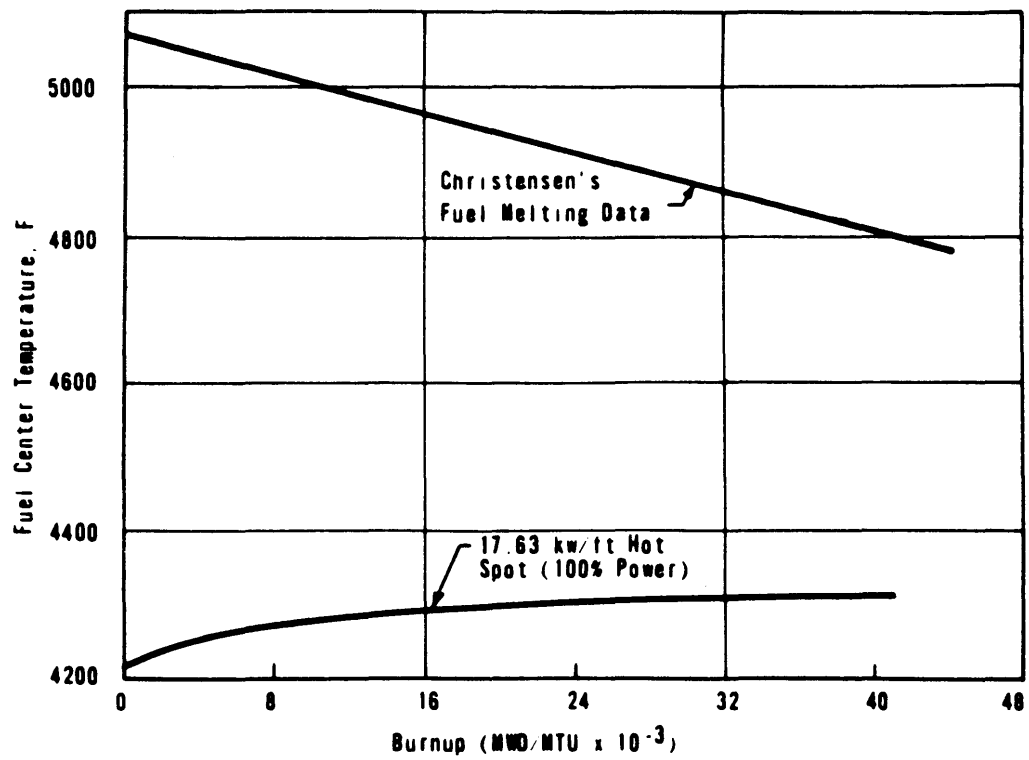
Update - 5

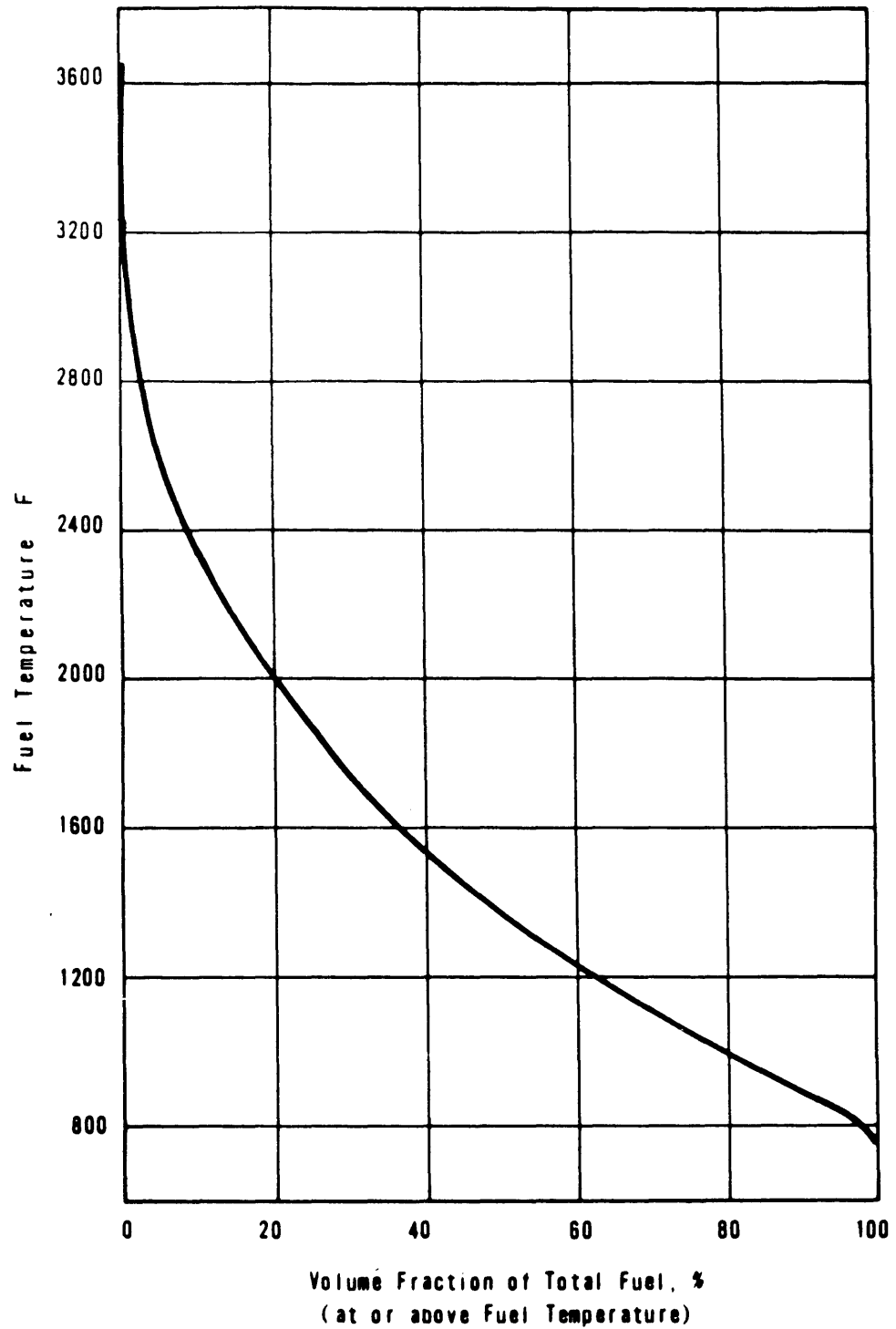
7/86

Fig. 3.2-28









**GPU Nuclear**

Update - 5

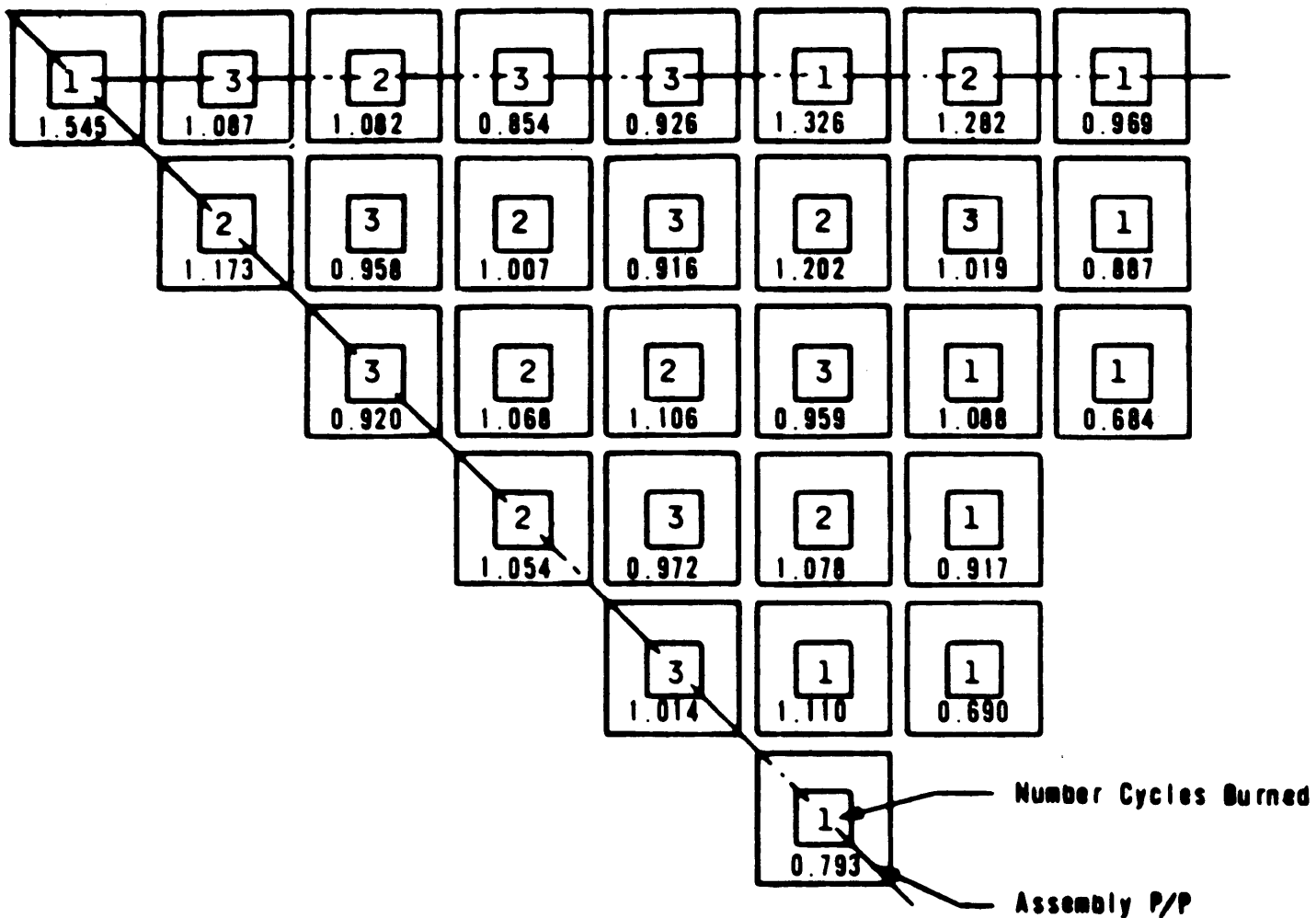
TMI Unit 1

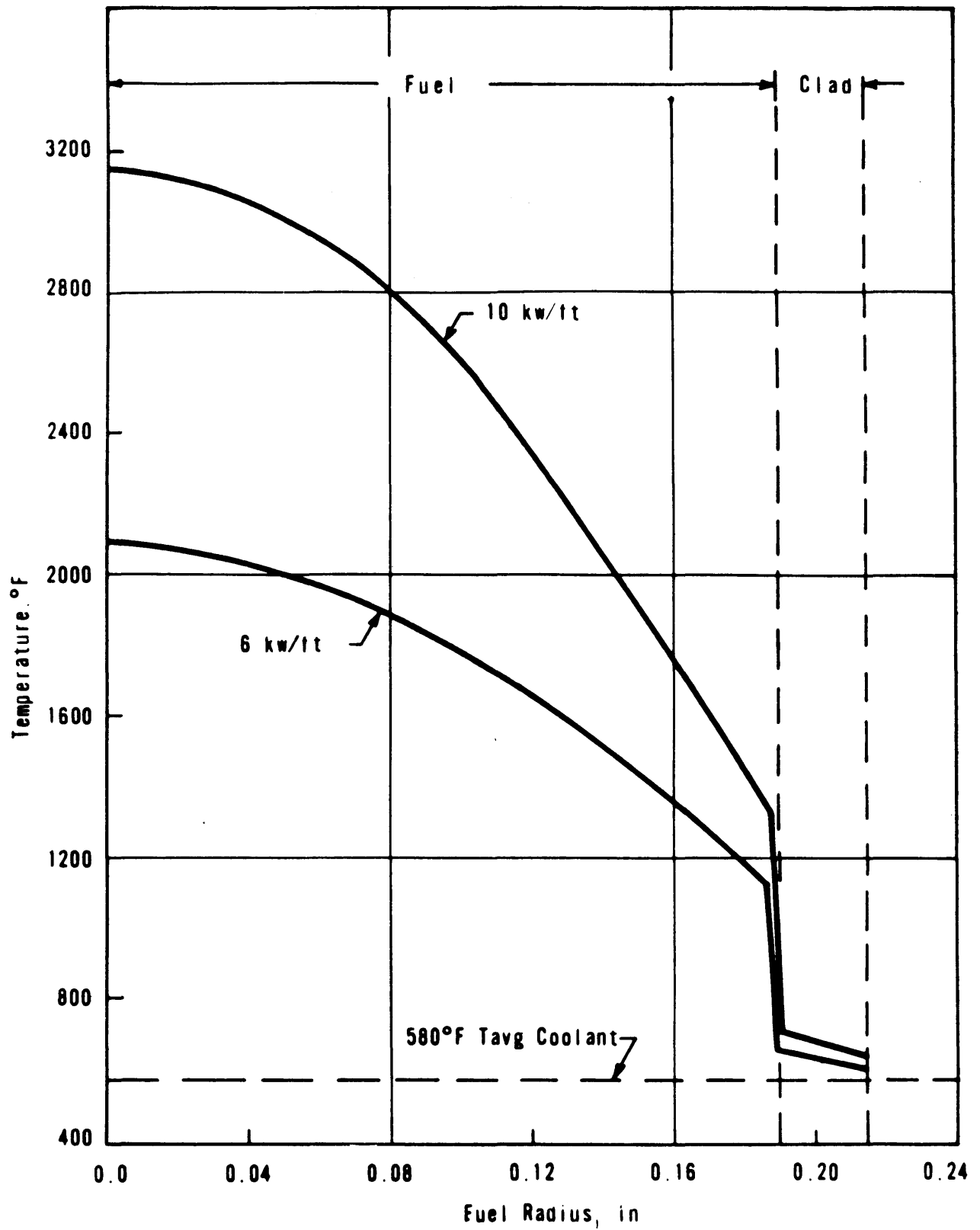
7/86

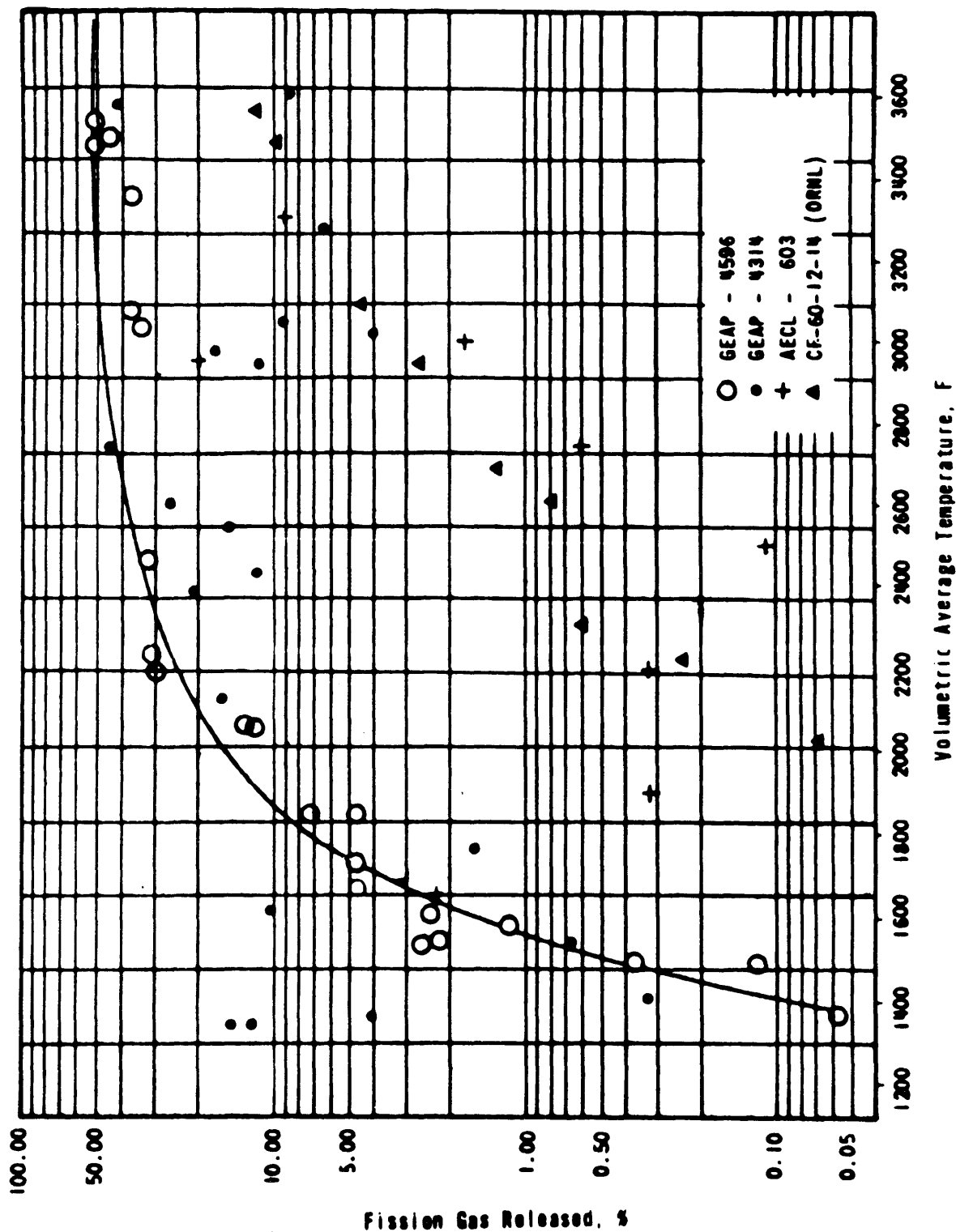
Fuel Temperature Versus Total Fuel Volume Fraction  
for Equilibrium Cycle at End-of-Cycle

Fig. 3.2-32









**GPU Nuclear**

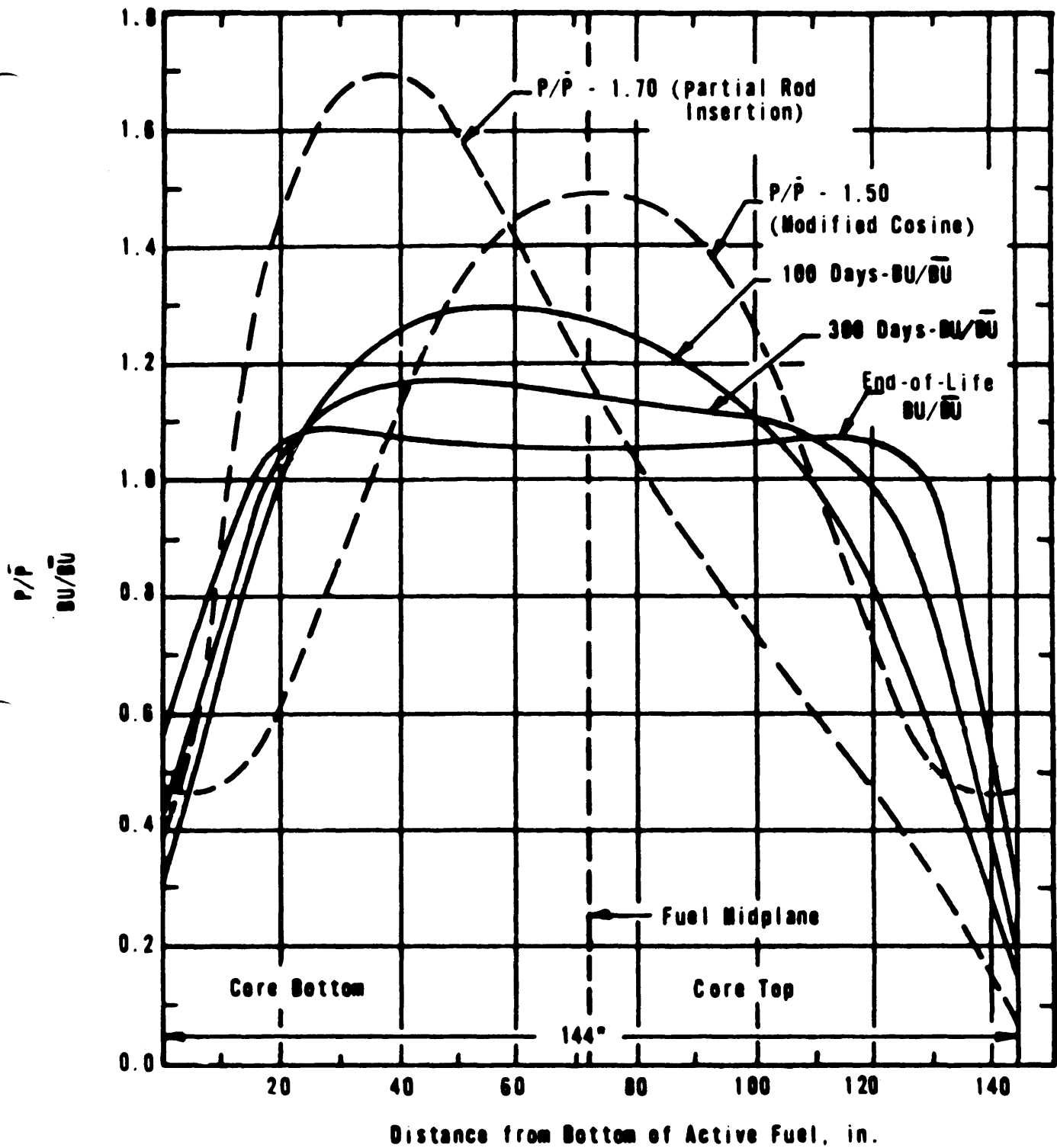
TMI Unit 1

Update - 5

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Percent Fission Gas Released as a Function of the  
Average Temperature of the UO<sub>2</sub> Fuel

Fig. 3.2-35



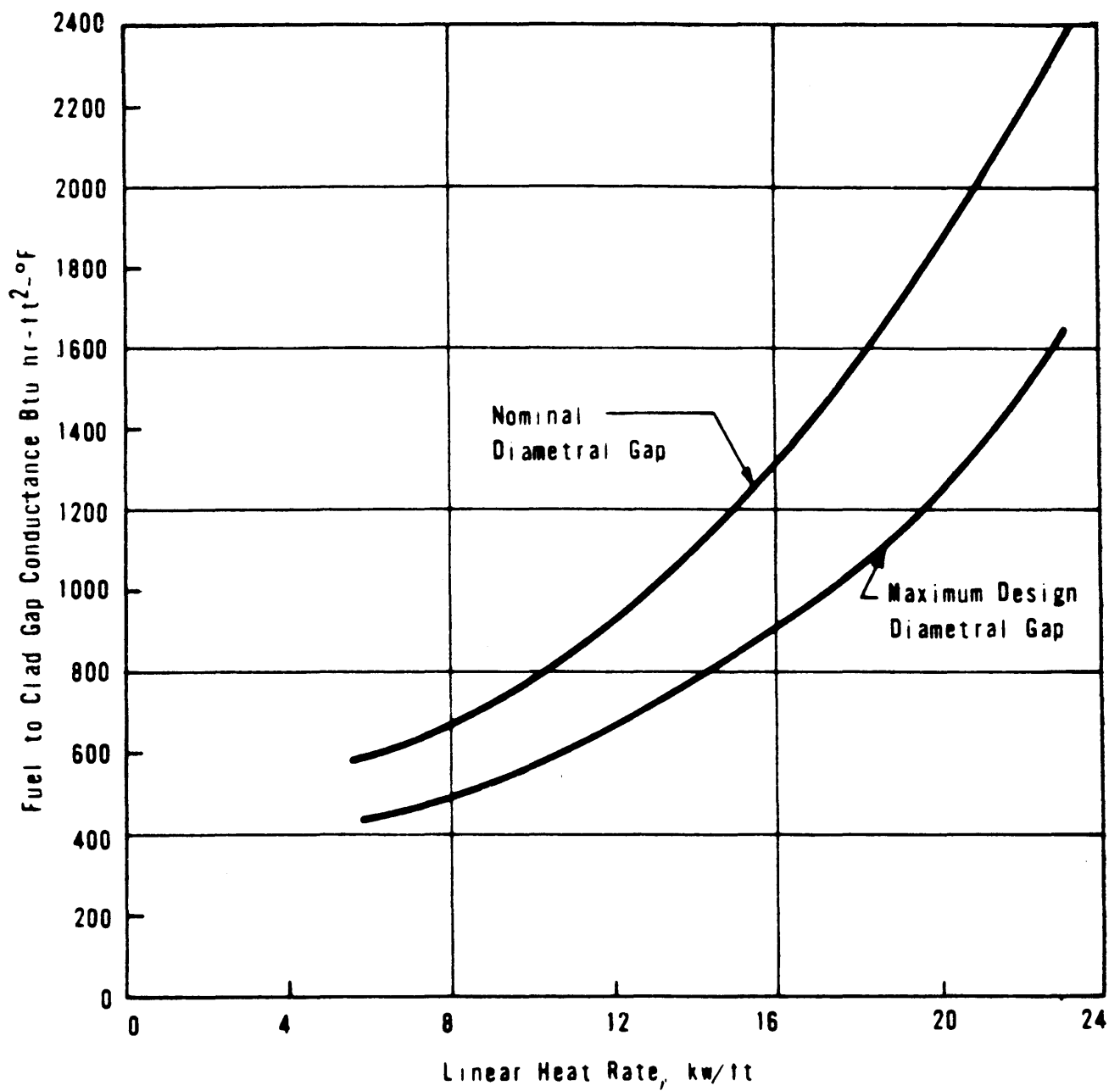
**GPU Nuclear**

Update - 5

TMI Unit 1

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Axial Local to Average Burnup and Instantaneous  
Power Comparisons



**GPU Nuclear**

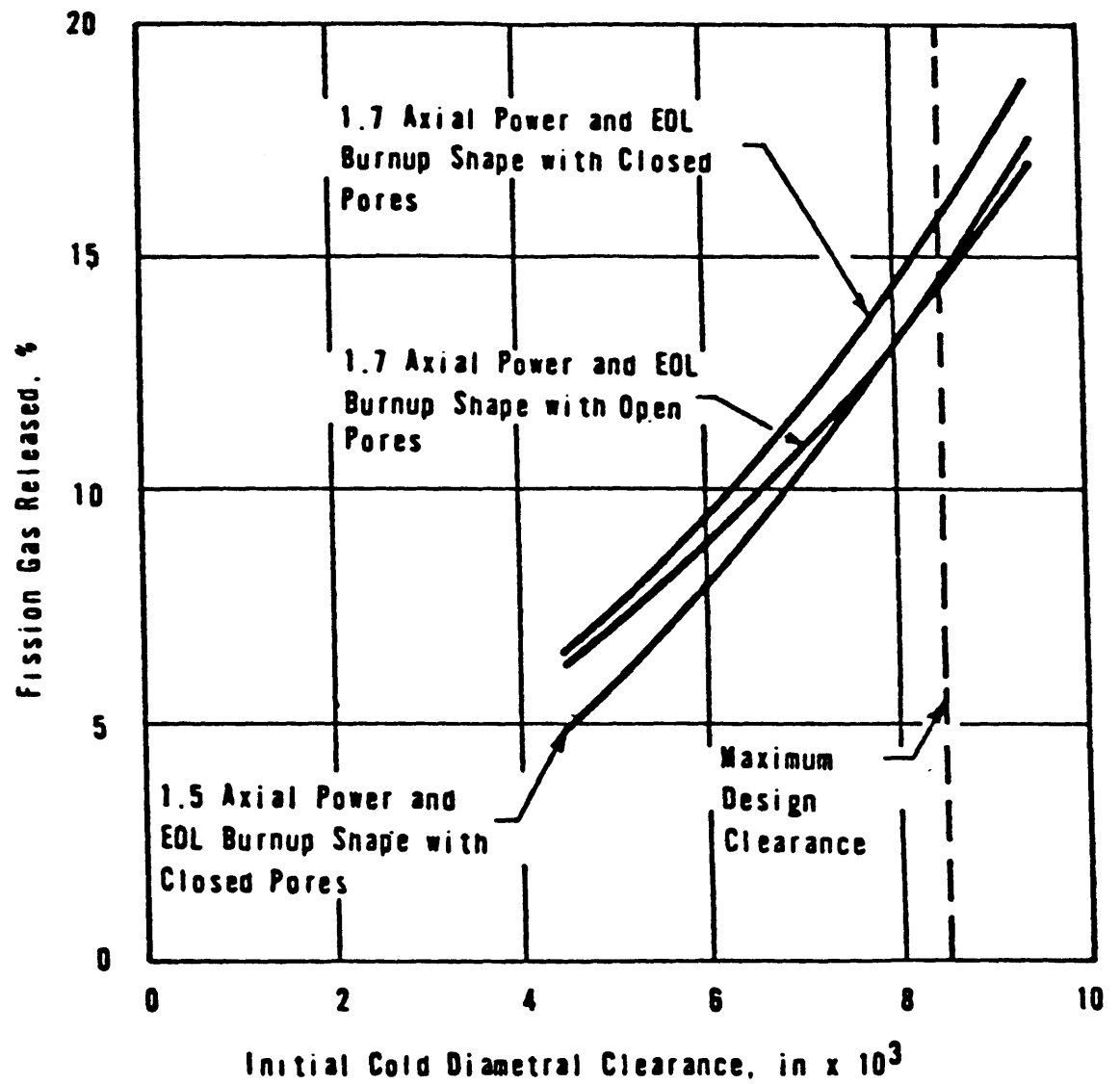
Update - 6

TMI Unit 1

7/87

Fuel to Clad Gap Conductance for End-Of-Cycle  
Conditions (Initial Cycle)

Fig. 3.2-37



**GPU Nuclear**

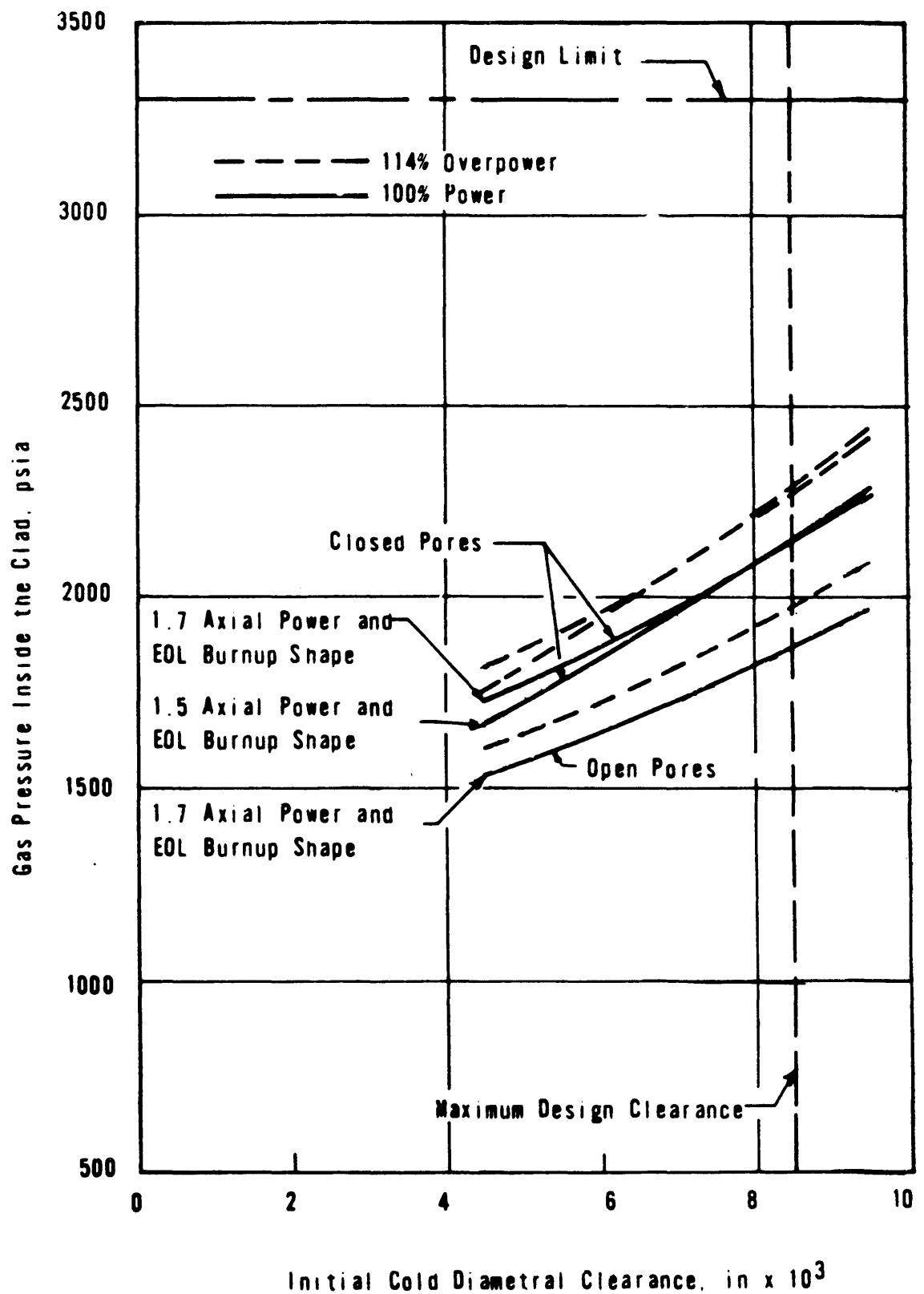
Update - 6

TMI Unit 1

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Fission Gas Release for 1.5 and 1.7 Max/Avg. Axial Power Shapes (Initial Cycle)

Fig. 3.2-38



**GPU Nuclear**

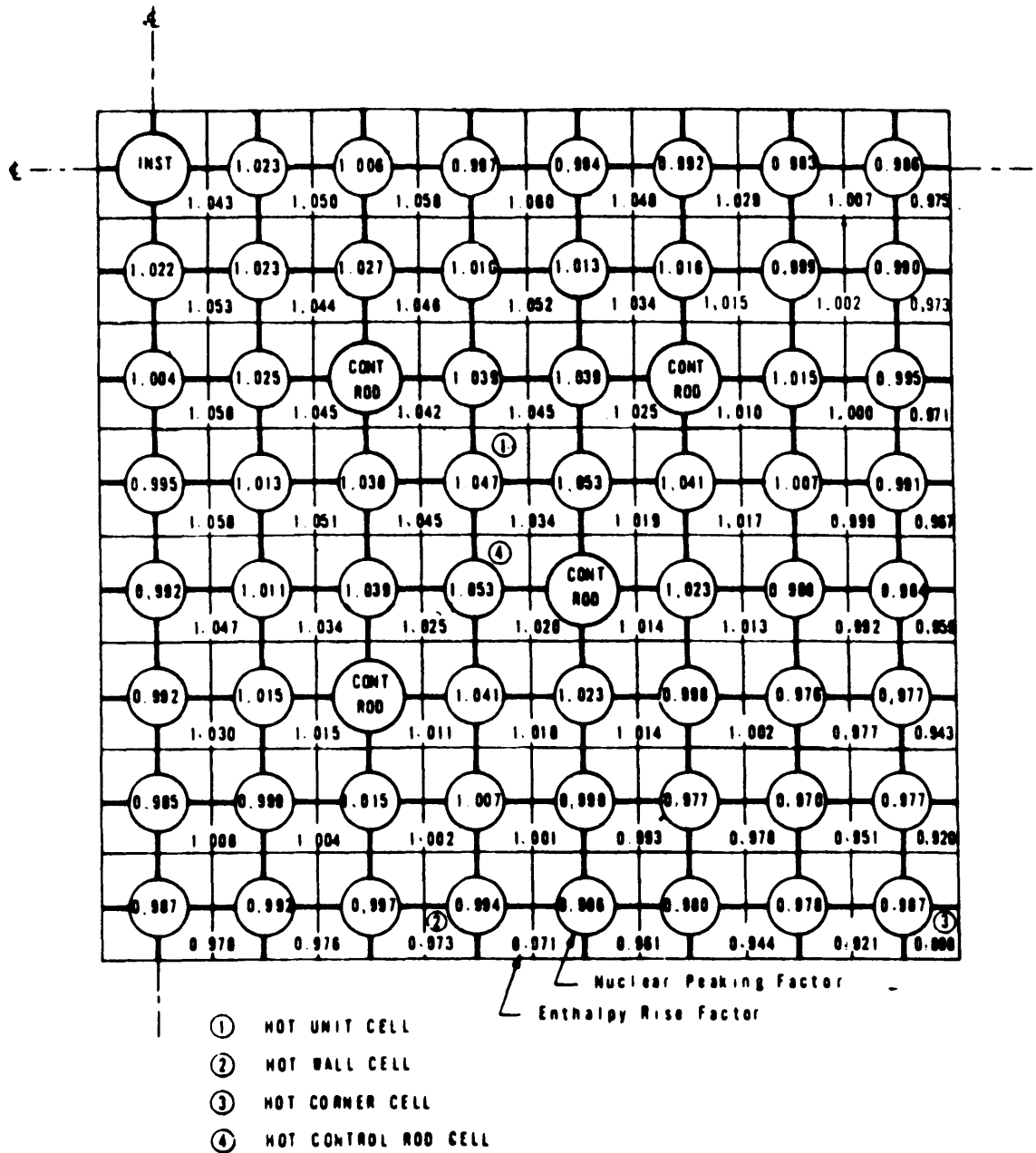
Update - 6

TMI Unit 1

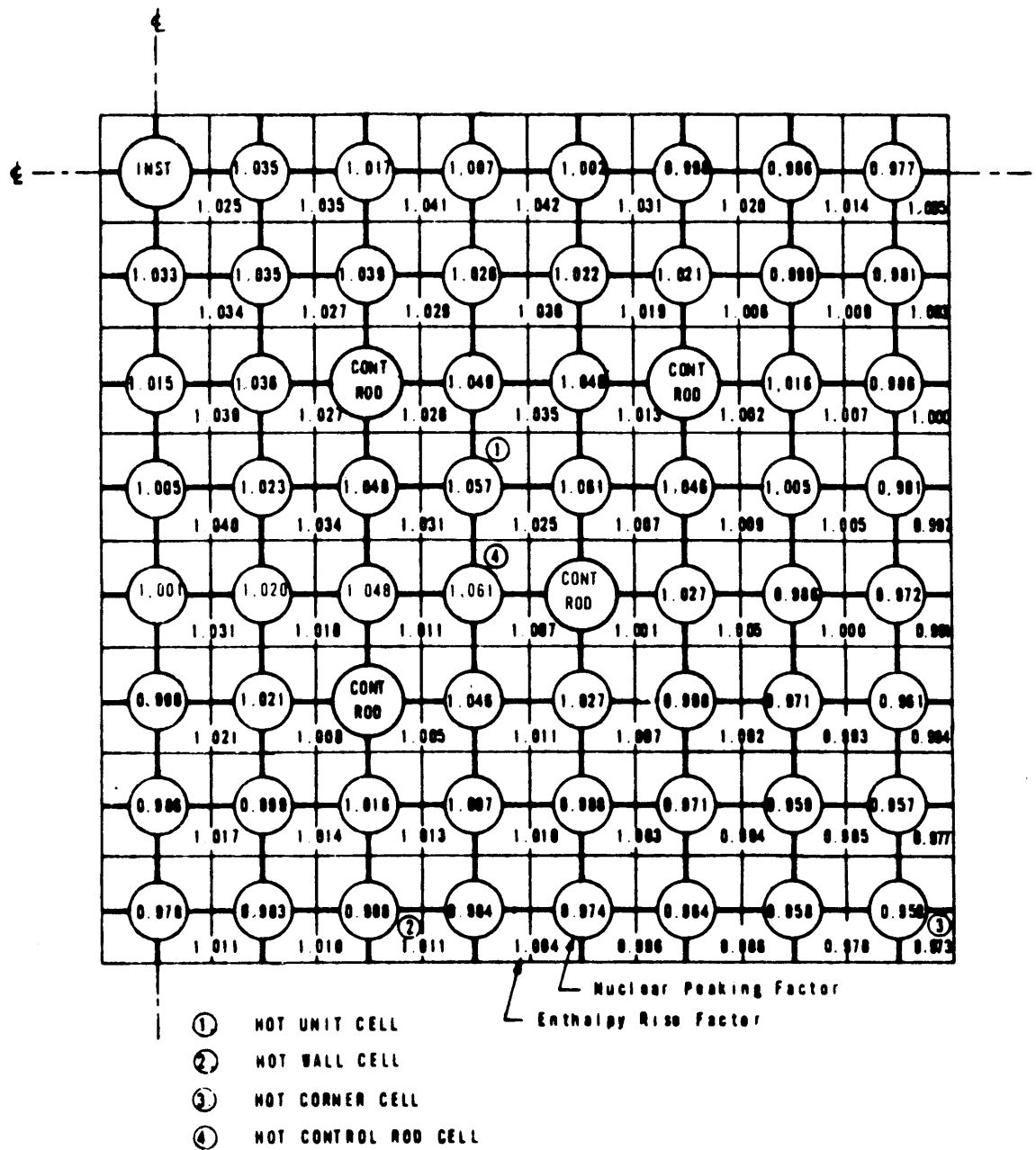
7/87

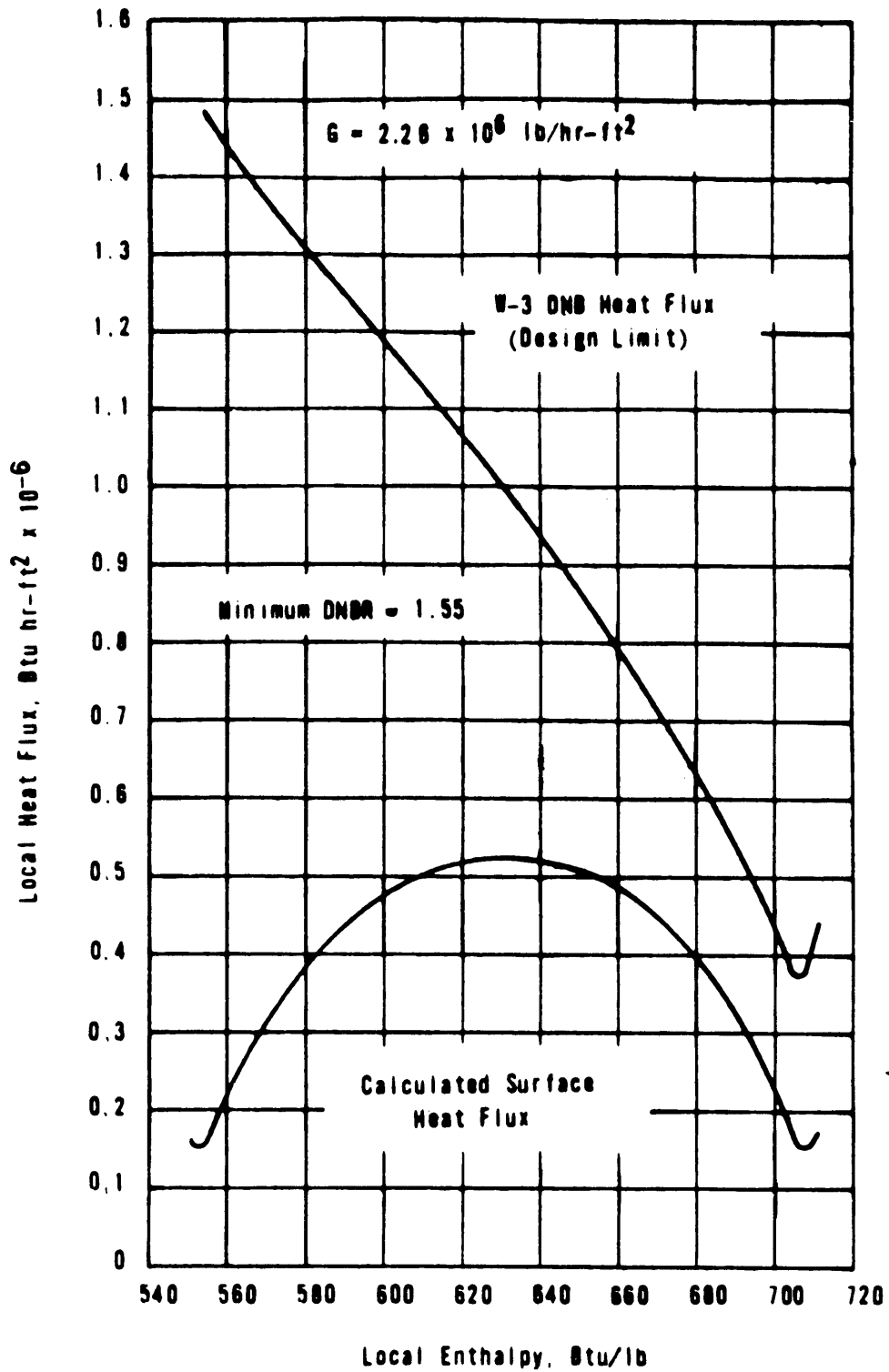
Maximum Gas Release to Pressure Inside the Fuel  
Clad for Various Axial Burnup and Power Shapes  
(Initial Cycle)

Fig. 3.2-39









**GPU Nuclear**

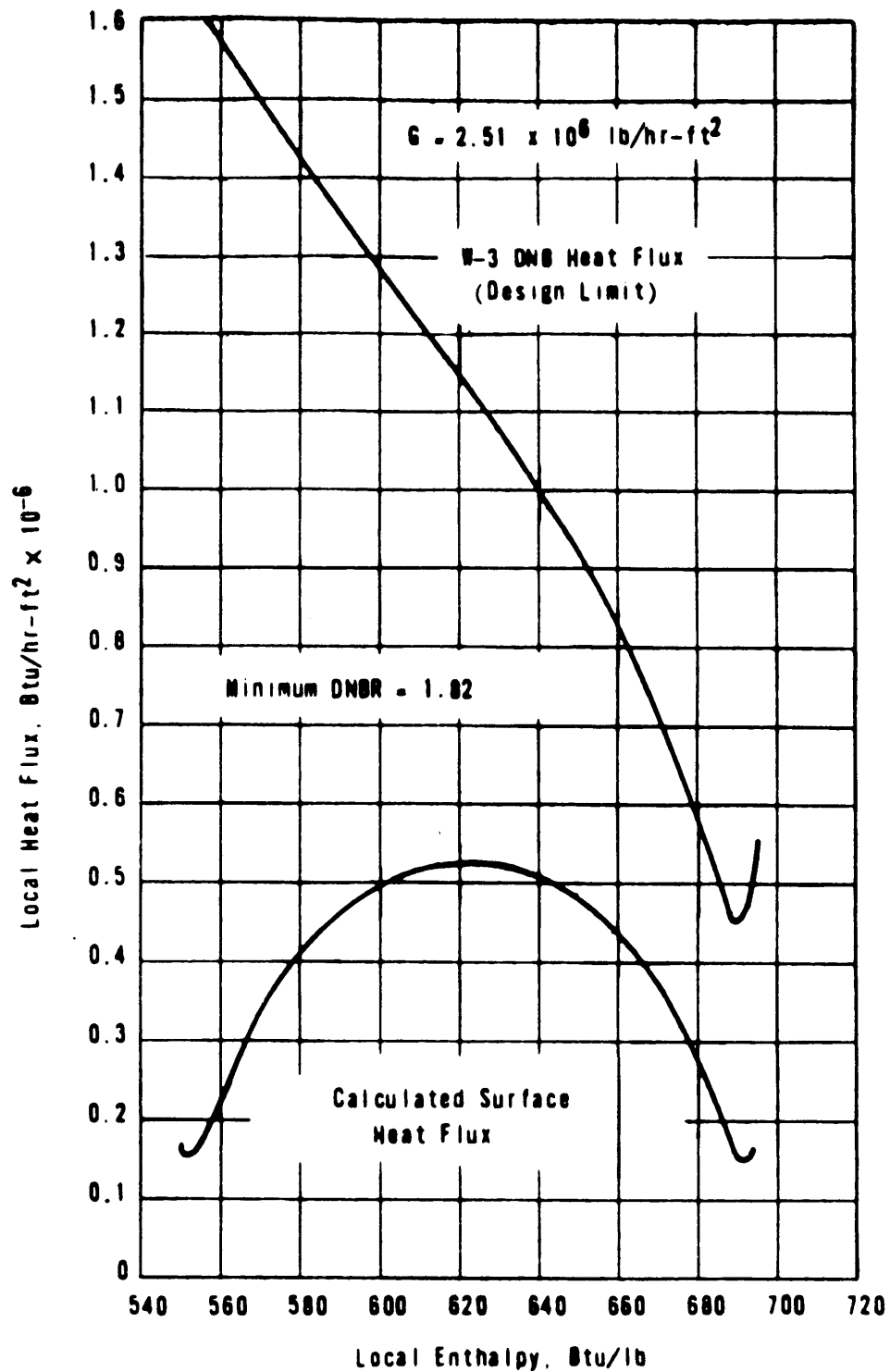
Update - 5

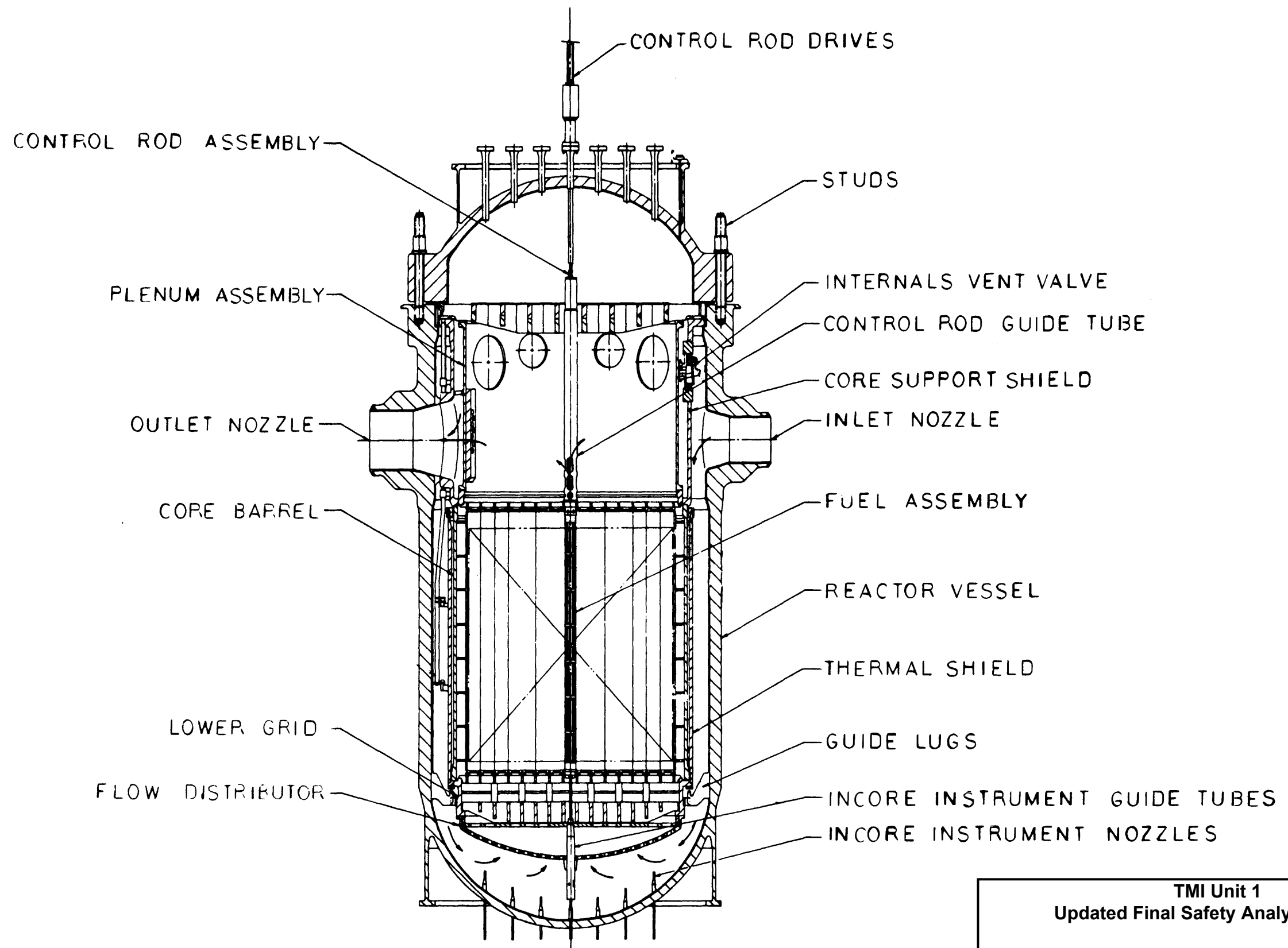
TMI Unit 1

7/86

Calculated and Design Limit Local Heat Flux Versus  
Enthalpy in the Hot Unit Cell at the Most Probable  
Condition (Initial Cycle)

Fig. 3.2-42



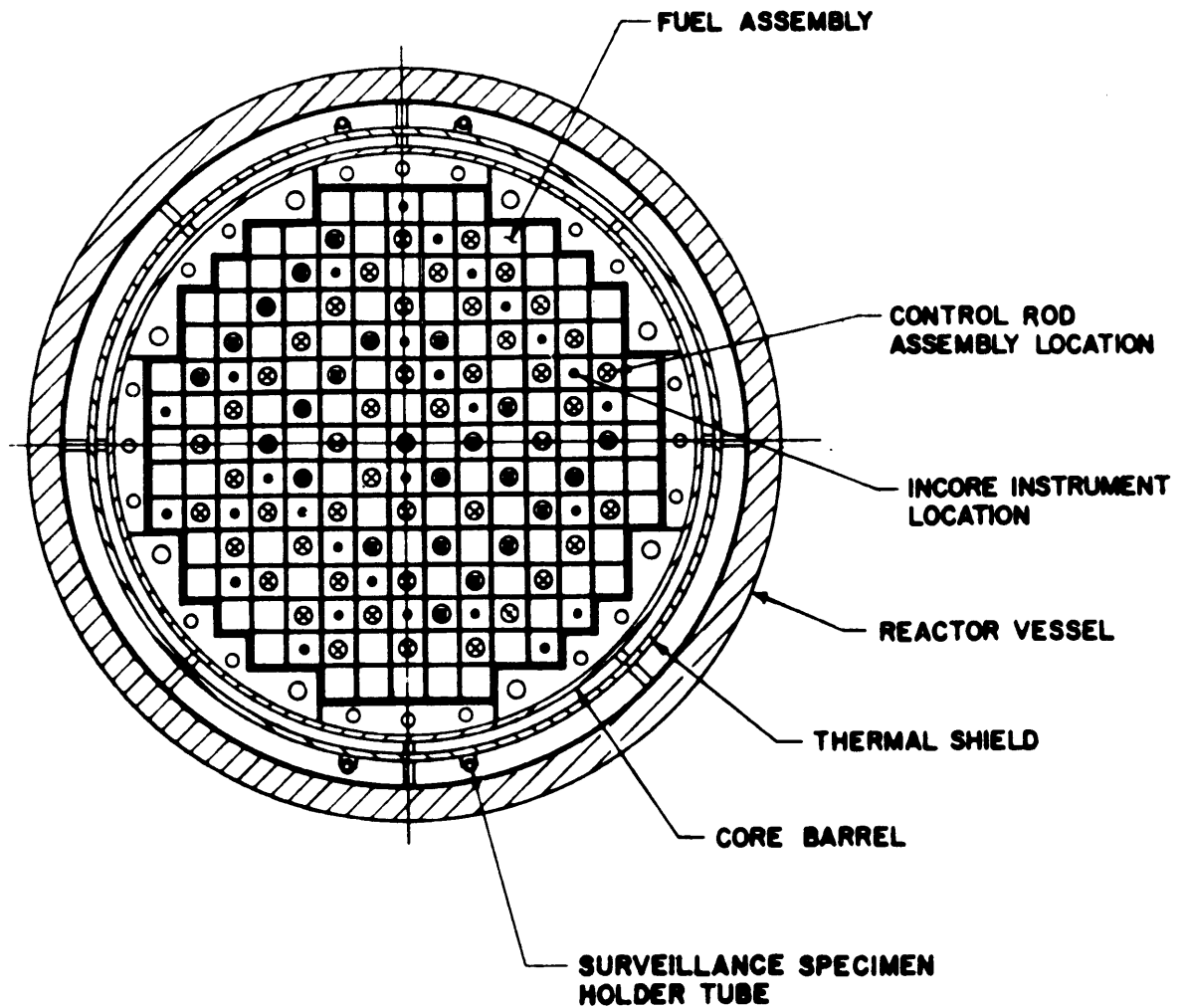


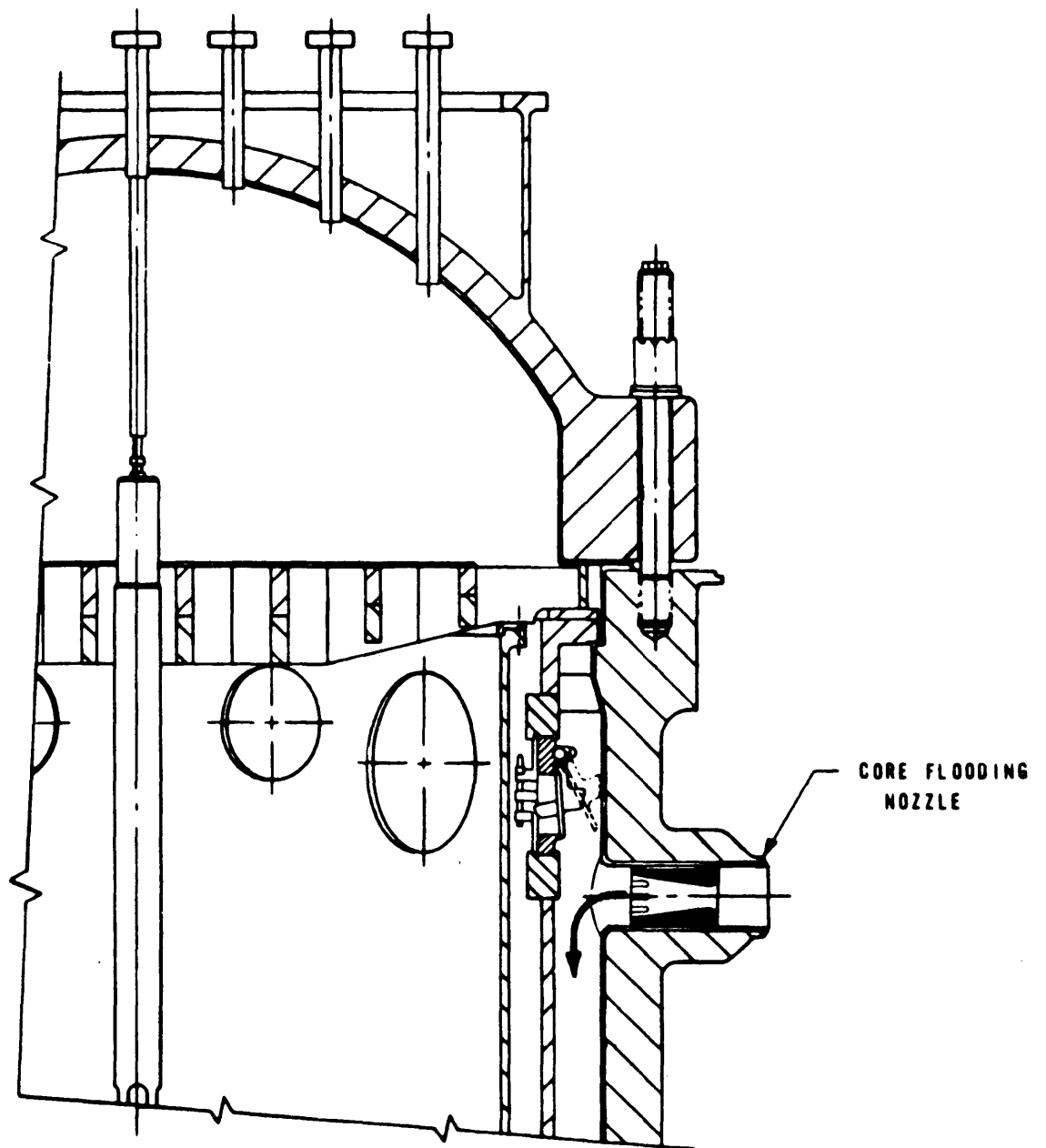
TMI Unit 1  
Updated Final Safety Analysis Report

Reactor Vessel and Internals - Gen. Arrangement

Figure 3.2-44

Rev. 20, 04/10





p. 3.FIG-46

**GPU Nuclear**

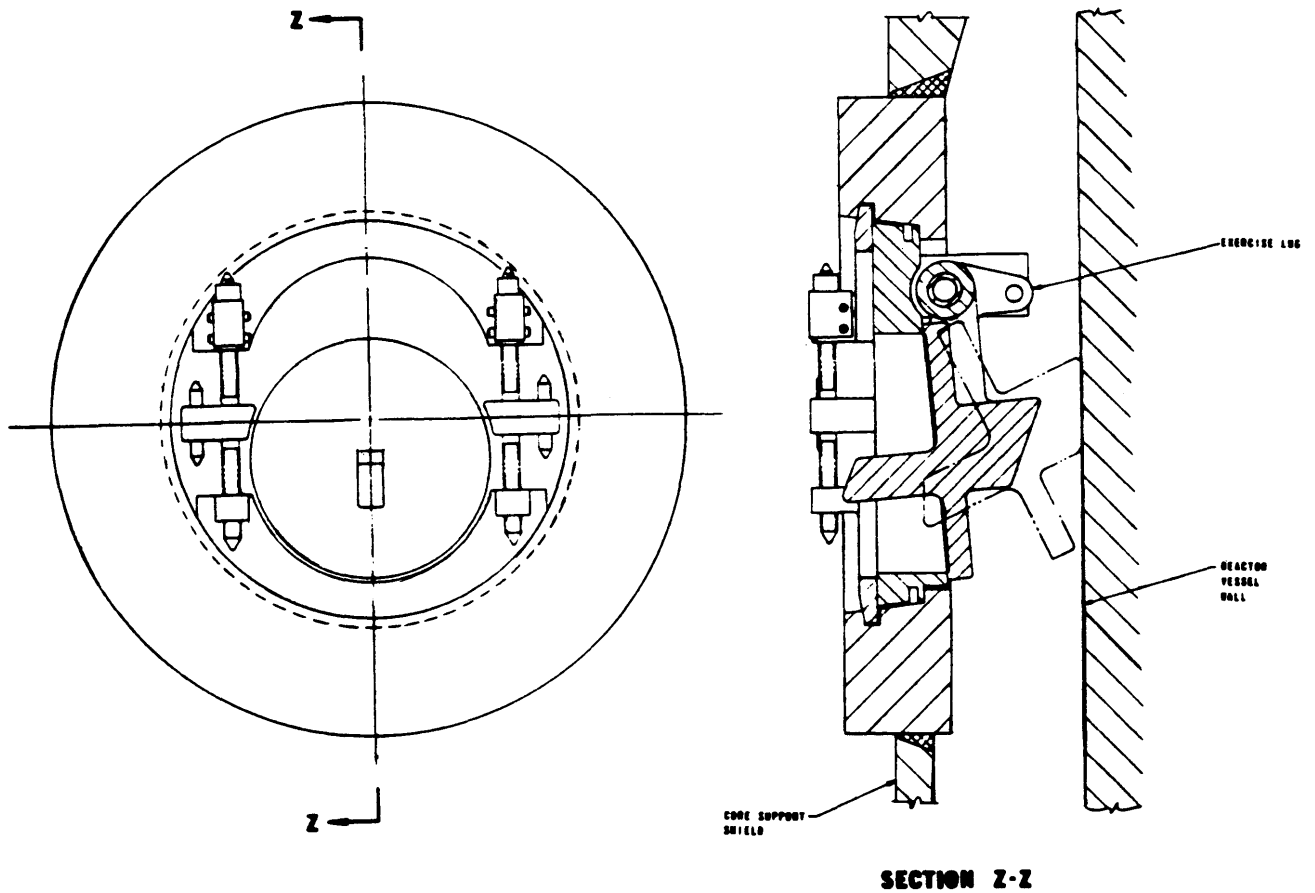
TMI Unit 1

Core Flooding Arrangement

Update - 5

7/86

Fig. 3.2-46



p. 3.FIG-47

**GPU Nuclear**

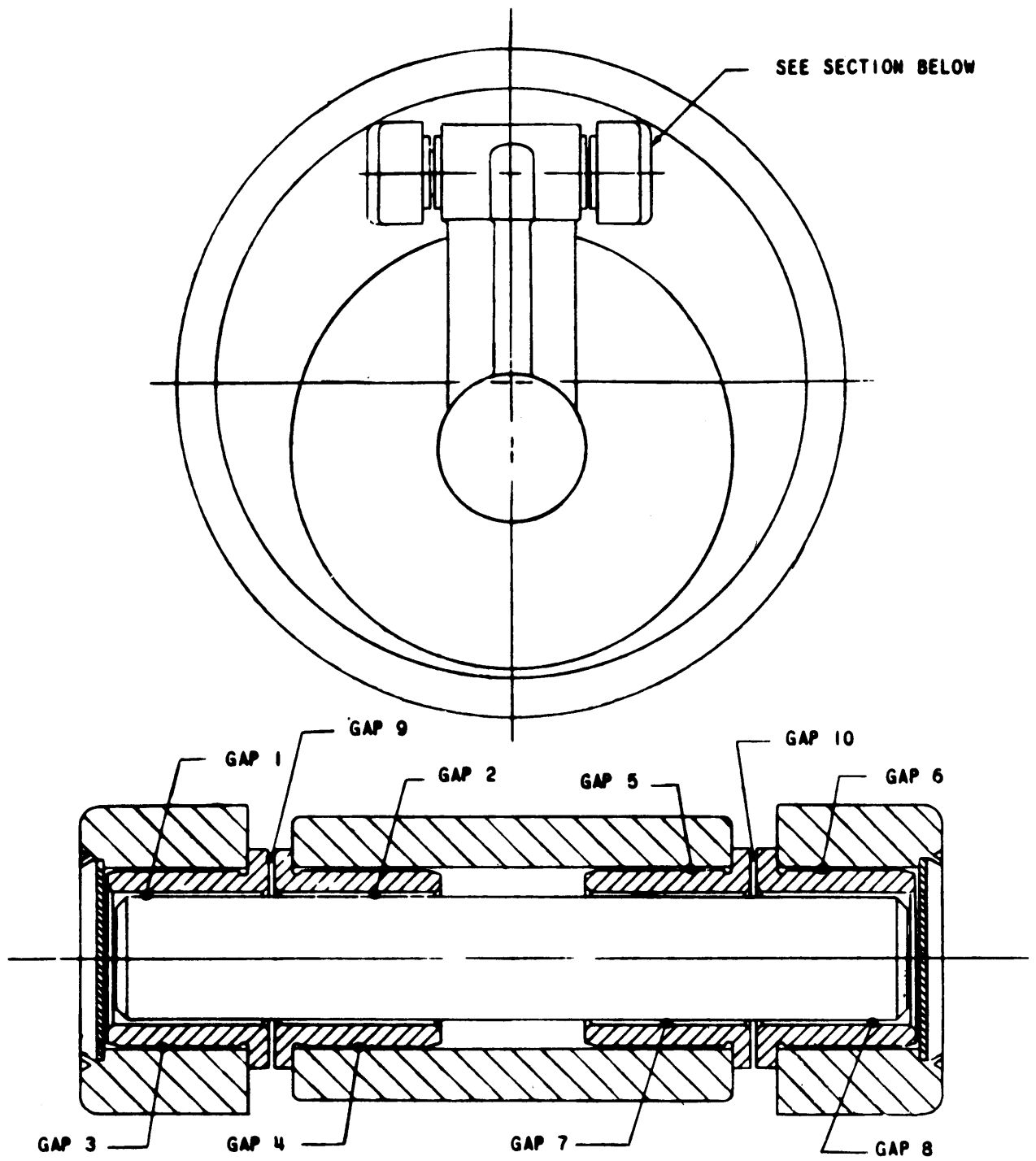
TMI Unit 1

Internals Vent Valves

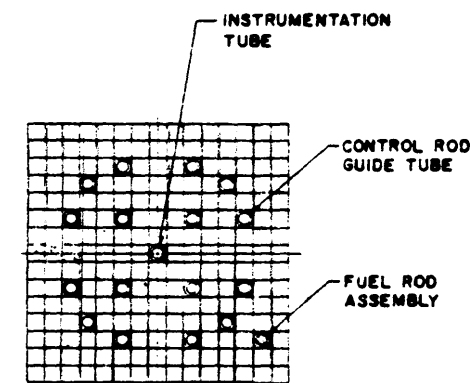
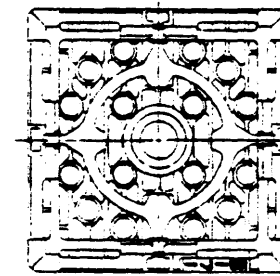
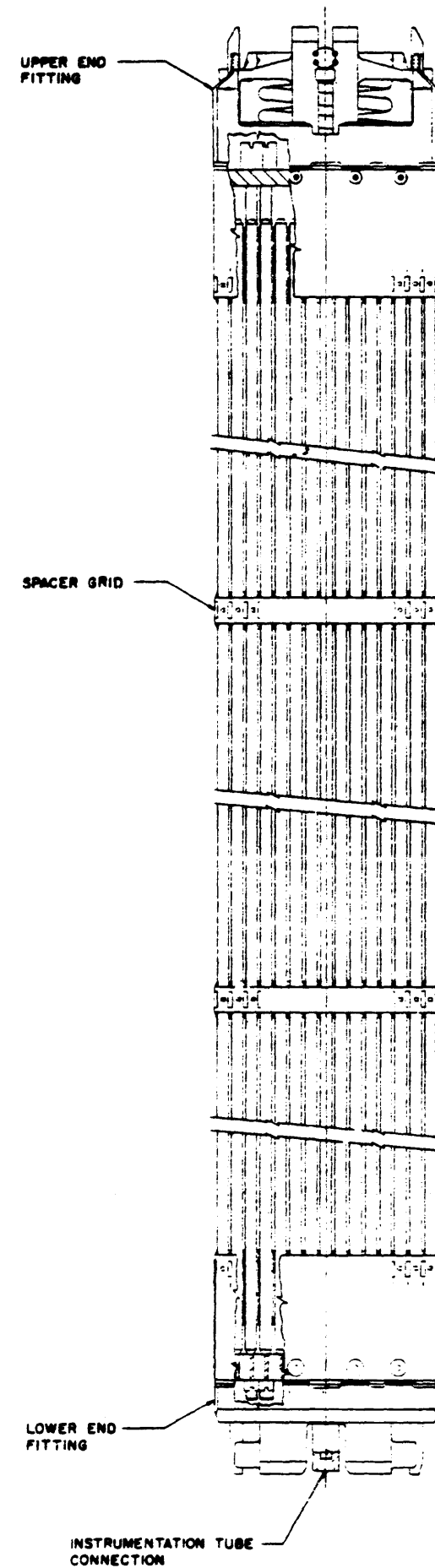
Update - 5

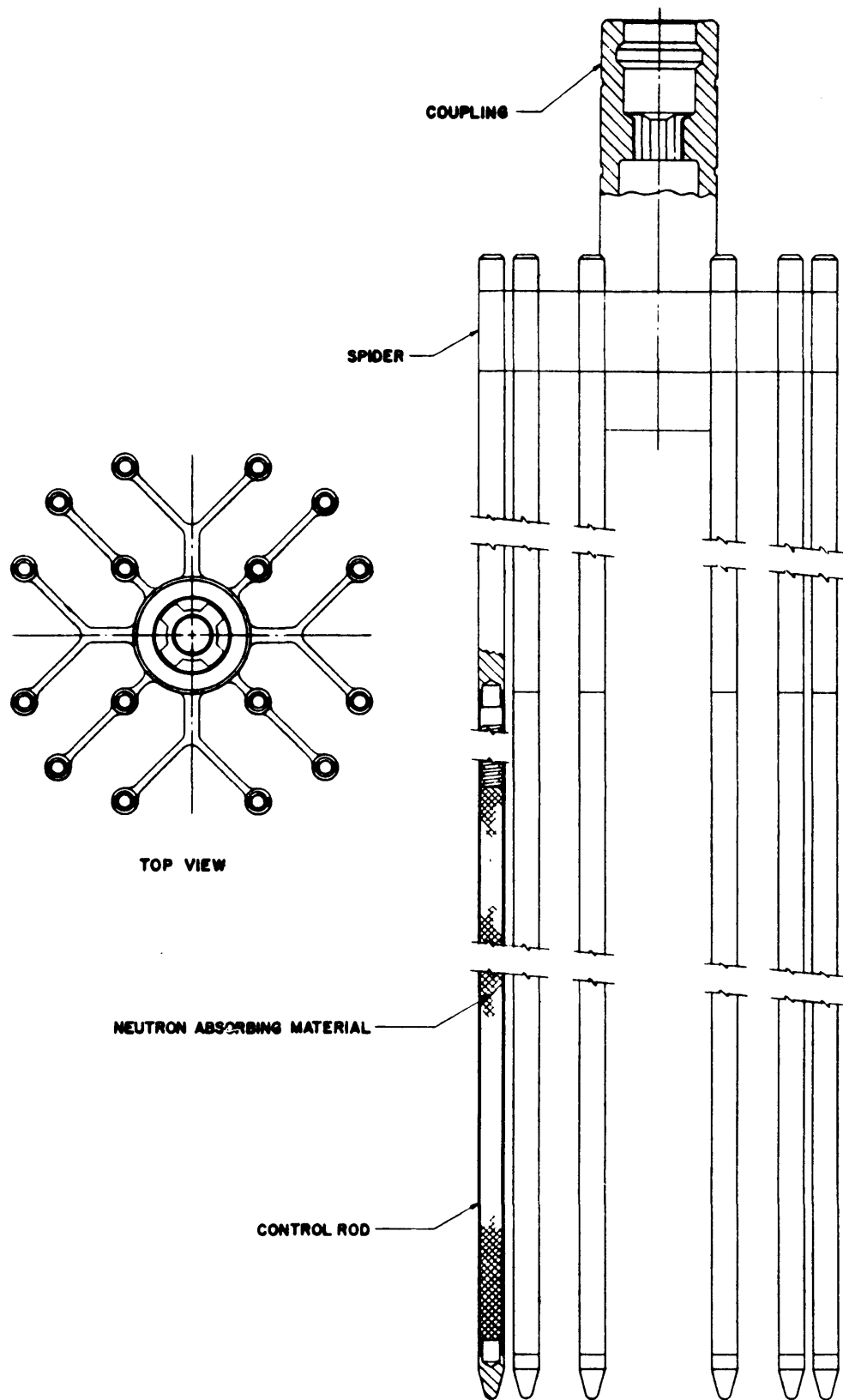
7/86

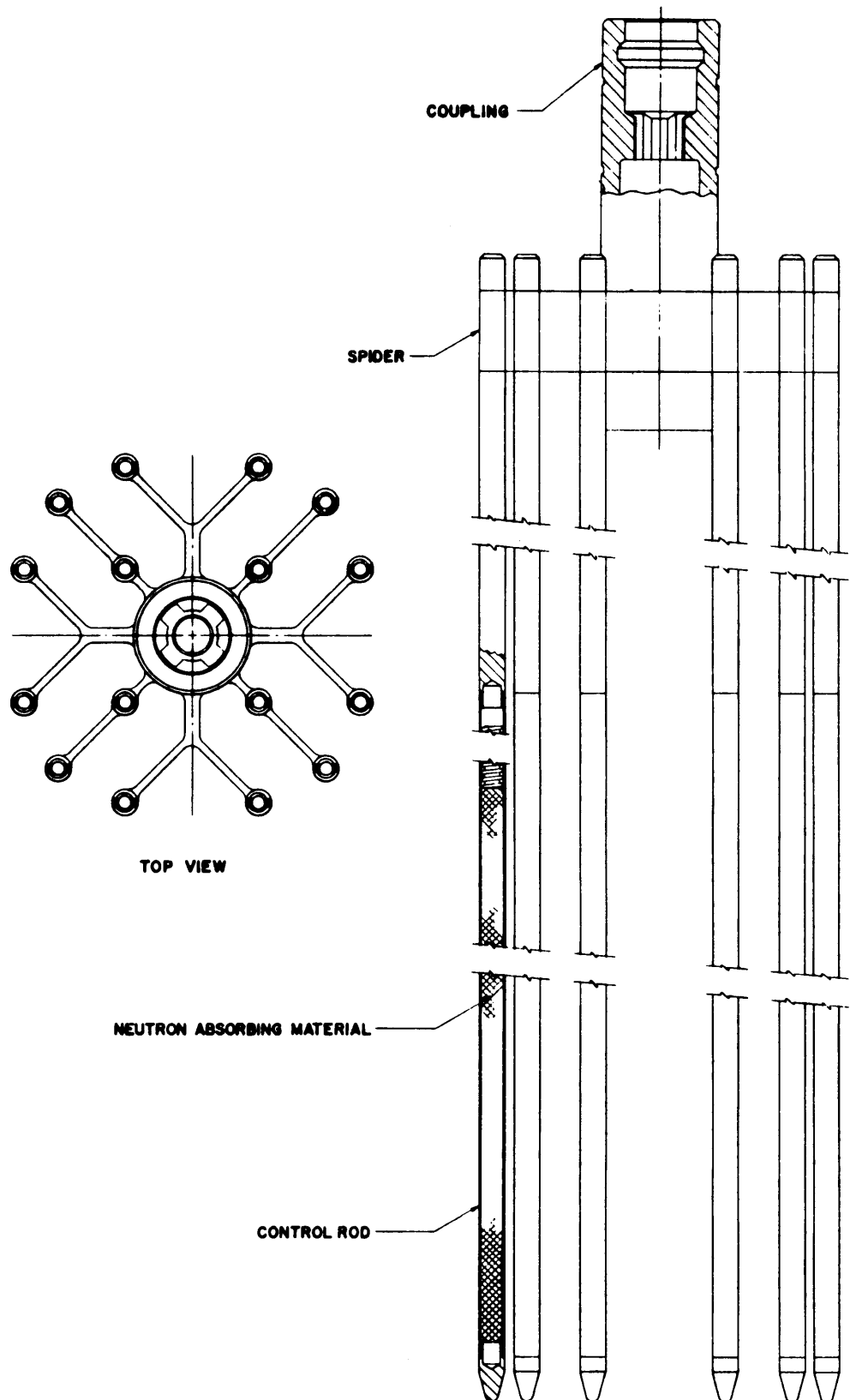
Fig. 3.2-47

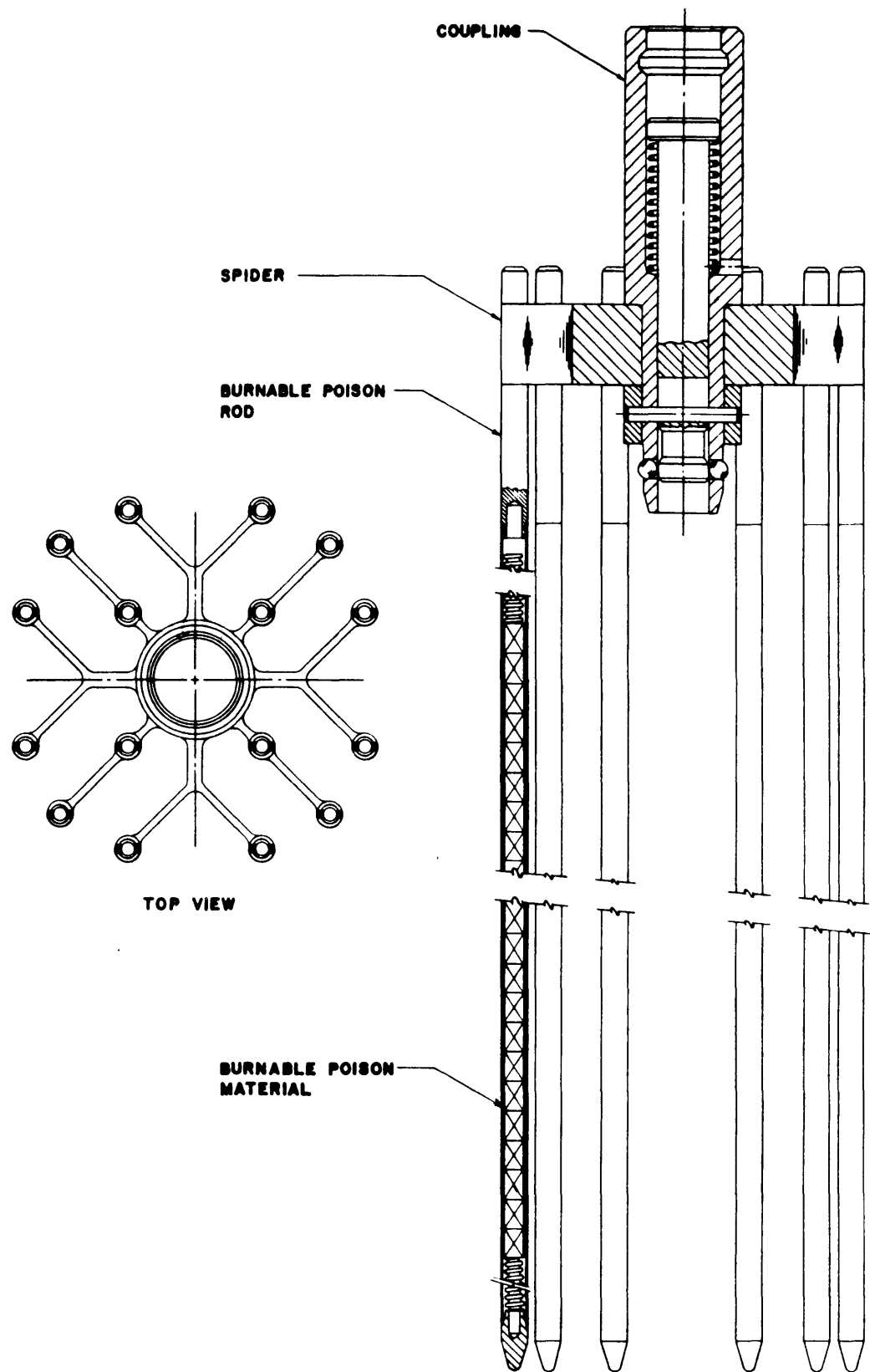


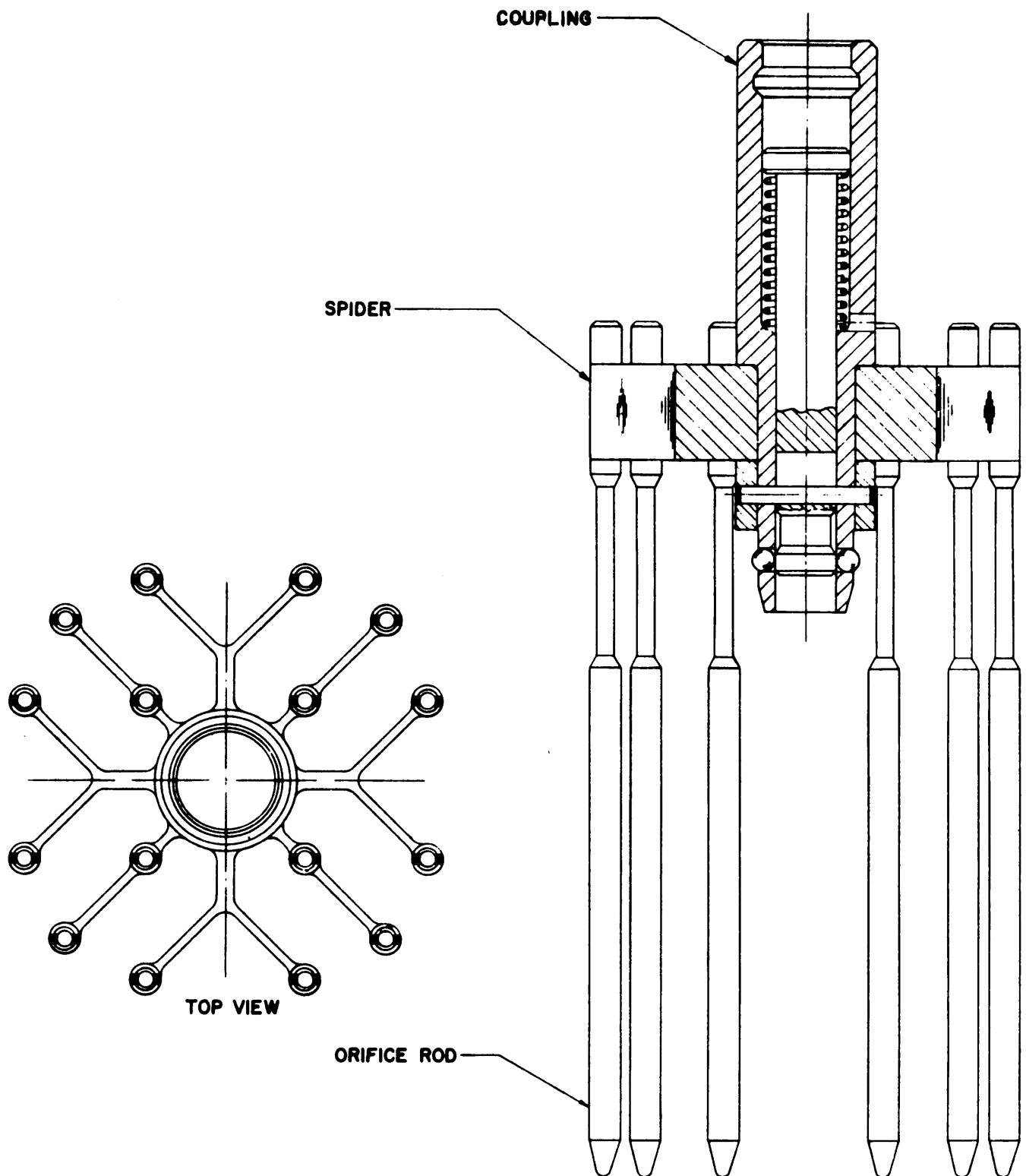












p. 3.FIG-53

**GPU Nuclear**

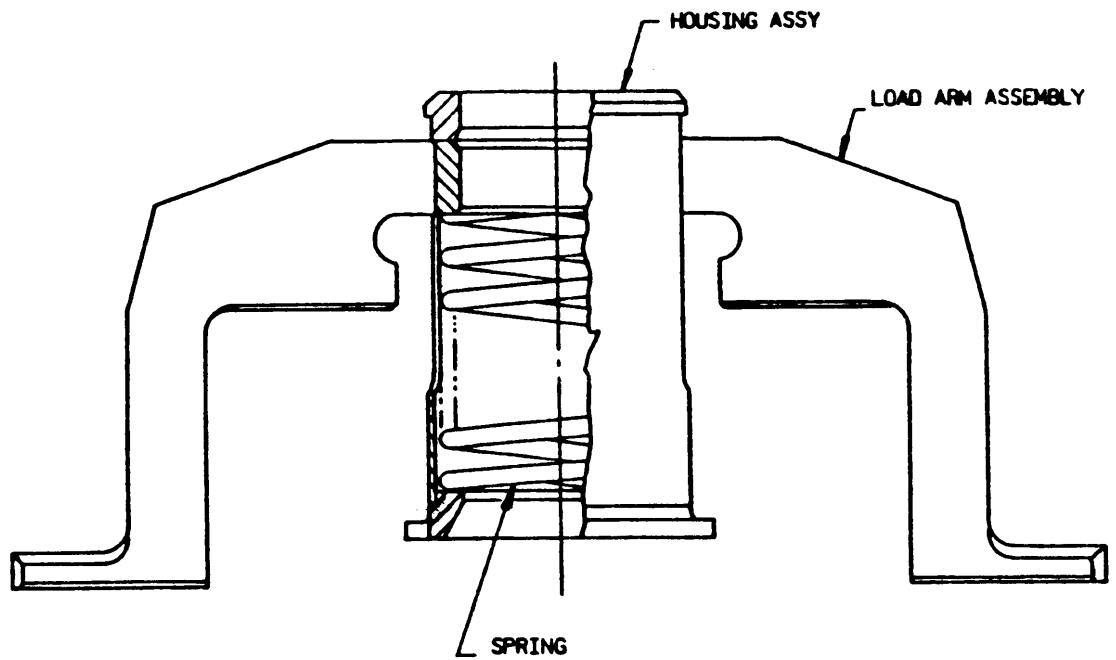
TMI Unit 1

Orifice Rod Assembly

Update - 5

7/86

Fig. 3.2-53



p. 3.FIG-54

**GPU Nuclear**

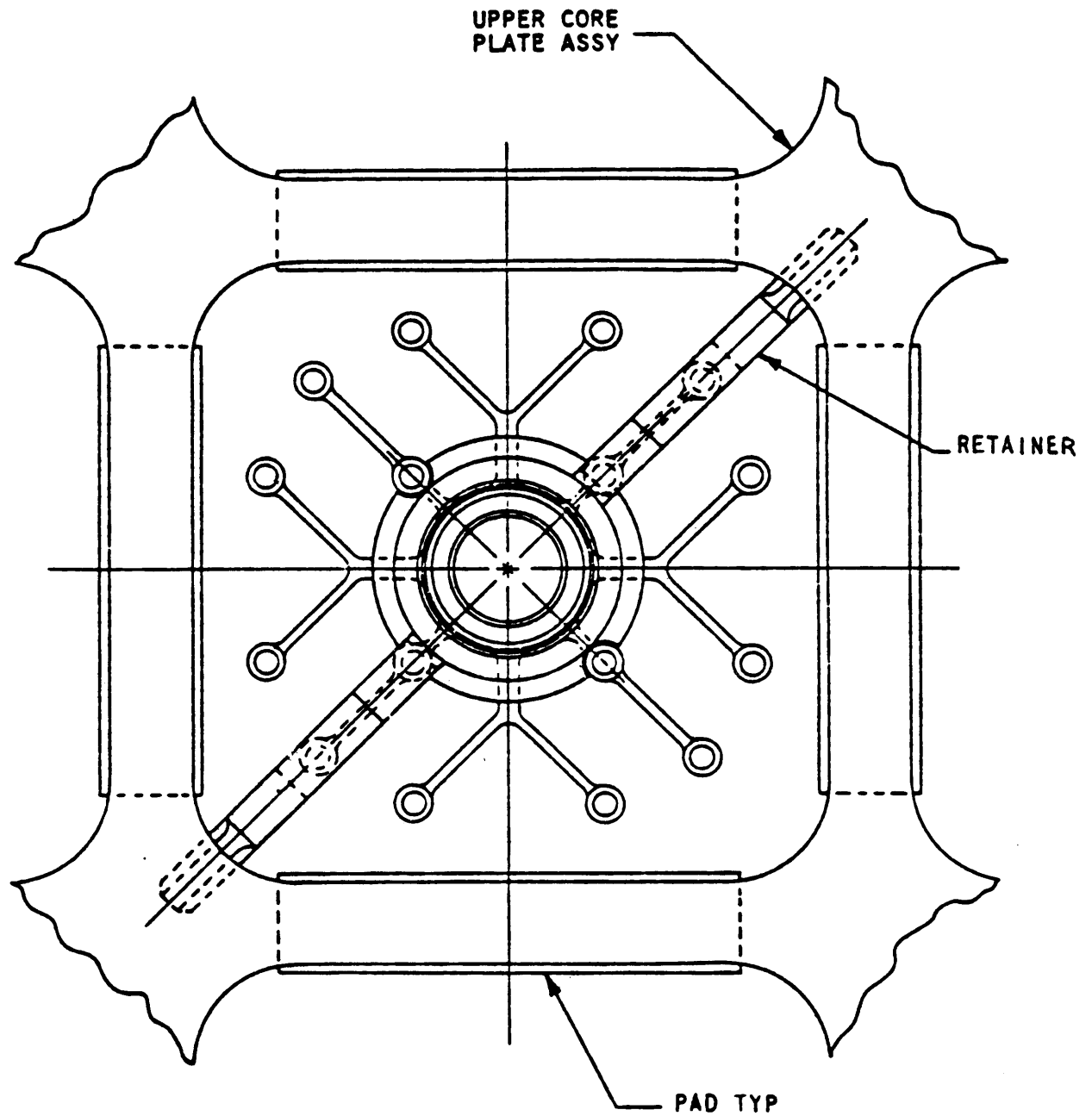
TMI Unit 1

Side View of BPRA Retainer

Update - 5

7/86

Fig. 3.2-54



p. 3.FIG-55

**GPU Nuclear**

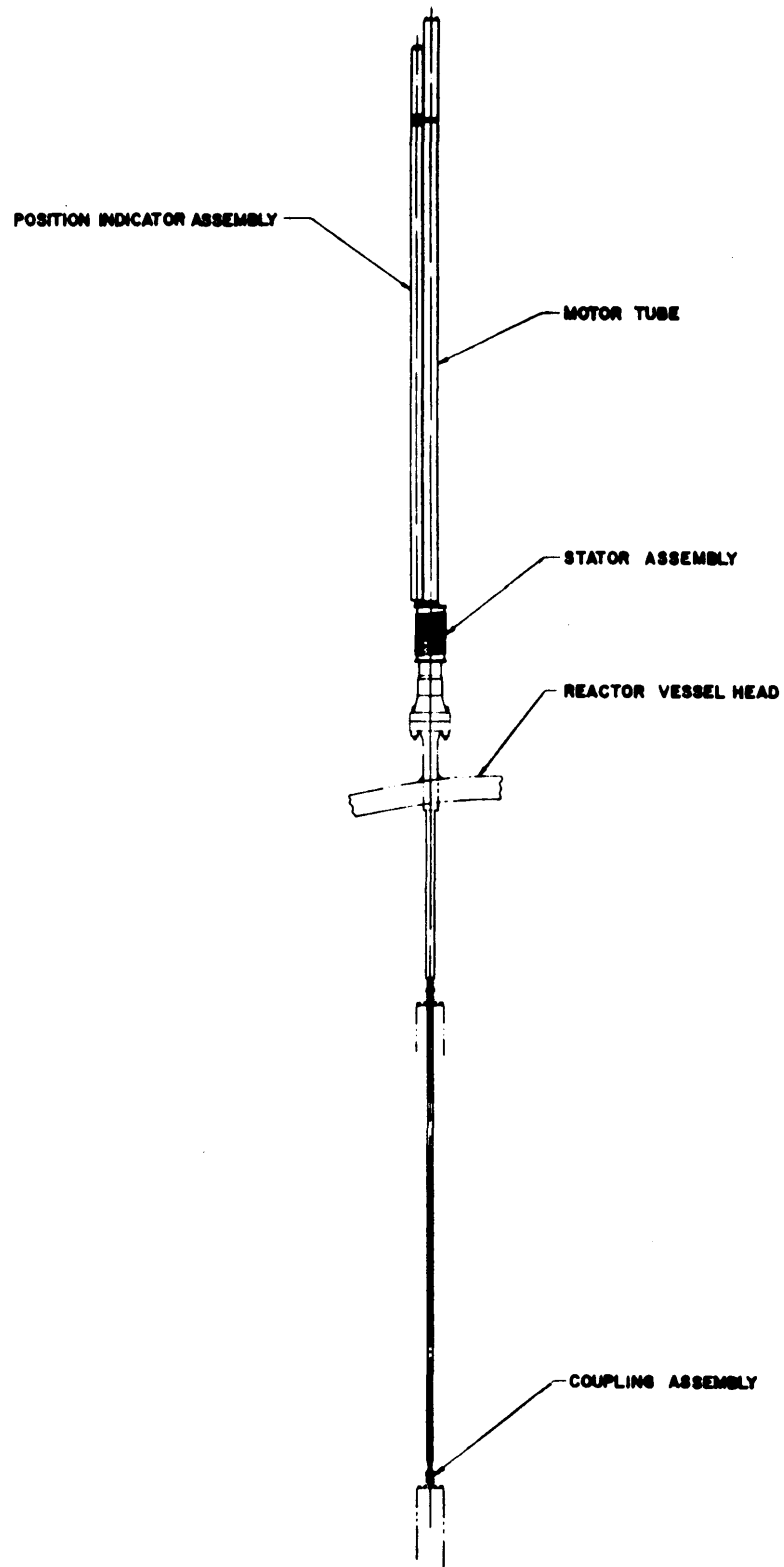
TMI Unit 1

Top View of BPRA Retainer  
During Operation

Update - 5

7/86

Fig. 3.2-55



**GPU Nuclear**

TMI Unit 1

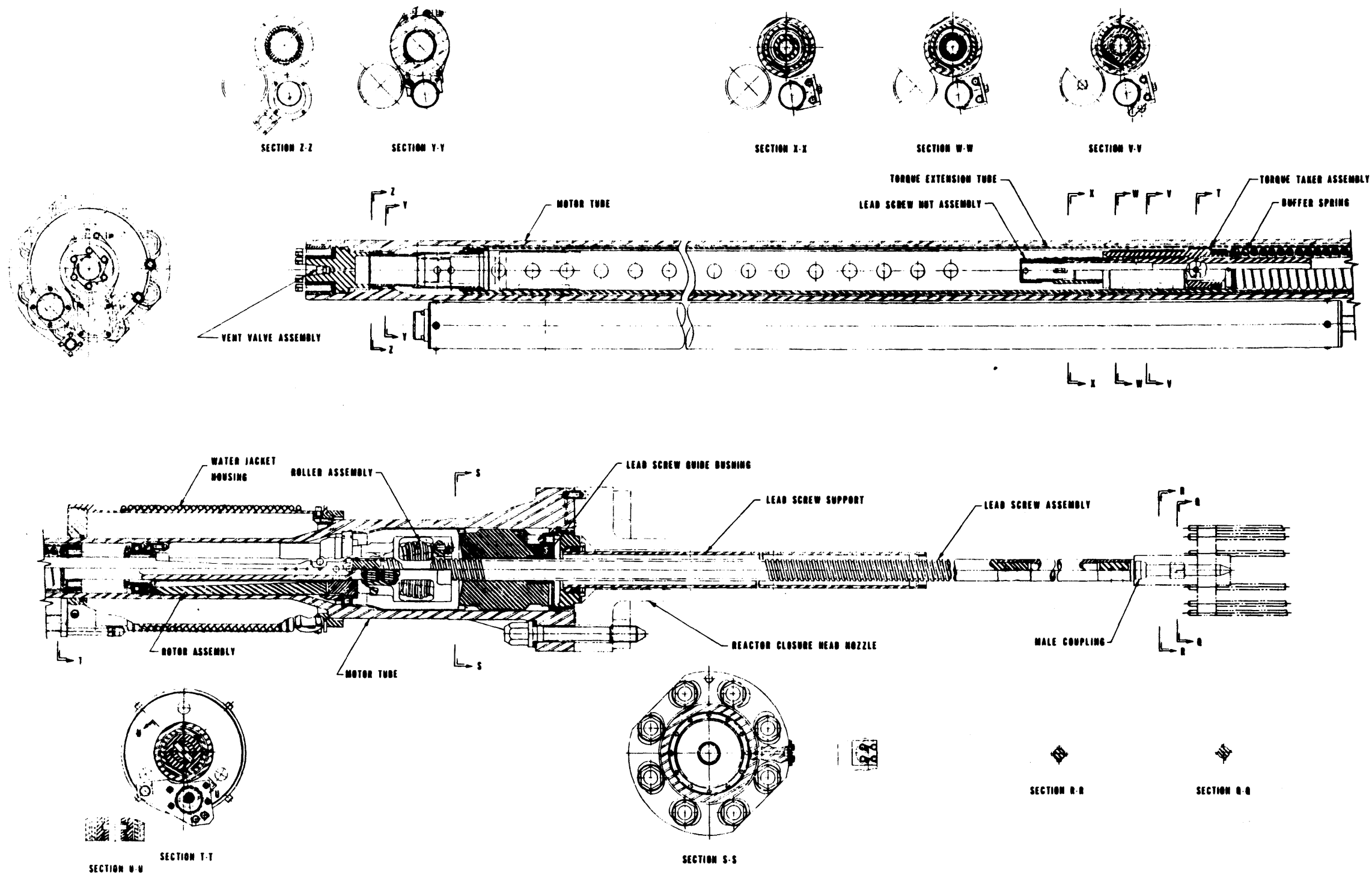
Control Rod Drive - Gen. Arrangement

Update - 5

7/86

Fig. 3.2-56





p. 3.FIG-57

TMI- UNIT 1 REV.  
19, APRIL 2008  
p.3.FIG-3  
Stuck Rod  
Location BOC  
and EOC  
FIGURE 3.2-3

**GPU Nuclear**  
TMI Unit 1

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7/86

Control Rod Drive - Vertical Section

Fig. 3.2-57