

ATTACHMENT IV TO IPN-97-168

**Core Operating Limits Report - Revision 4**

NEW YORK POWER AUTHORITY  
INDIAN POINT 3 NUCLEAR POWER PLANT  
DOCKET NO. 50-286  
DPR-64

9712220164 971212  
PDR ADOCK 05000286  
P PDR

**New  
York  
Power  
Authority  
Indian Point 3**

Procedure Use Is:

☒ Continuous

☐ Reference

☐ Information

Control Copy: 13

Effective Date: 25-AUG-97

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*This procedure is*

**TSR**

**POP-2.3, Revision: 4  
CORE OPERATING LIMITS FOR CYCLE 10**

Writer

Date

Reviewer

Date

**Approved By:**

Procedure Sponsor, DM/Designee

Date

PORC Meeting Number



**GENERAL REVISION**

|                                                      |                    |               |
|------------------------------------------------------|--------------------|---------------|
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**REVISION SUMMARY**  
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**1.0 REASON FOR REVISION**

1.1 Procedure update.

**2.0 SUMMARY OF CHANGES**

2.1 Updated procedure for Cycle 10 Core Parameters.

2.2 Deleted previous Attachment 1, Height Dependent FQ Multiplier K(Z) and referenced graph RV-8 which contains the same information to eliminate redundancy.

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**Attachments**

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## **1.0 PURPOSE**

1.1 This procedure establishes the cycle specific safety limits for the reactor fuel.

1.2 This procedure applies to cycle 10 fuel.

## **2.0 PRECAUTIONS AND LIMITATIONS**

2.1 The data presented in this report applies to Cycle 10 Only and SHALL NOT be used for other operating cycles.

## **3.0 PREREQUISITES**

None

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## 4.0 PROCEDURE

4.1 The following are Specific Safety Limits for the cycle 10 reactor fuel:

| PARAMETER                                                                                          | VALUE                                        | CORRESPONDING<br>T.S.  |
|----------------------------------------------------------------------------------------------------|----------------------------------------------|------------------------|
| Hot Channel Factor at Rated Thermal Power<br>( $F_{CH}^{RTP}$ )                                    | 2.42                                         | 3.10.2.1               |
| Hot Channel Factor at Rated Thermal Power<br>( $F_{CH}^{RTP}$ )<br>for Vantage +<br>for OFA and V5 | 1.635<br>1.59                                | 3.10.2.1               |
| Height-Dependent $F_{CH}$ Multiplier $K(Z)$ , referred<br>to as "fraction"                         | Refer to<br>Attachment 2<br>Graph RV-8       | 3.10.2.1               |
| Power Factor Multiplier for $F_{CH} = PF_{CH}$                                                     | 0.3                                          | 3.10.2.1               |
| Axial Flux Difference Band Width                                                                   | $\pm 5\%$                                    | 3.10.2.4<br>3.10.2.6.1 |
| Axial Flux Difference Envelope Limits at 90%<br>power                                              | -11%, +11%                                   | 3.10.2.6.1             |
| Axial Flux Difference Envelope Increase for<br>each 2% of rated power below 90% power              | $\pm 1\%$                                    | 3.10.2.6.1             |
| Shutdown Bank Position for Criticality                                                             | $\geq 225$ Steps<br>withdrawn<br>(Indicated) | 3.10.4.1               |
| Control Bank Insertion Limits                                                                      | Refer to<br>Attachment 1                     | 3.10.4.2               |

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## 5.0 REFERENCES

### 5.1 Commitment Documents

None

### 5.2 Development Documents

5.2.1 NRC Generic Letter 88-16

5.2.2 Technical Specifications

5.2.3 Indian Point 3 Cycle 10 Reload Safety Evaluation, July 1997

5.2.4 Technical Specification 3.10.2.1

### 5.3 Interface Documents

5.3.1 RV-8, Height Dependent  $F_0$  Multiplier  $K(Z)$

## 6.0 RECORDS AND DOCUMENTATION

None

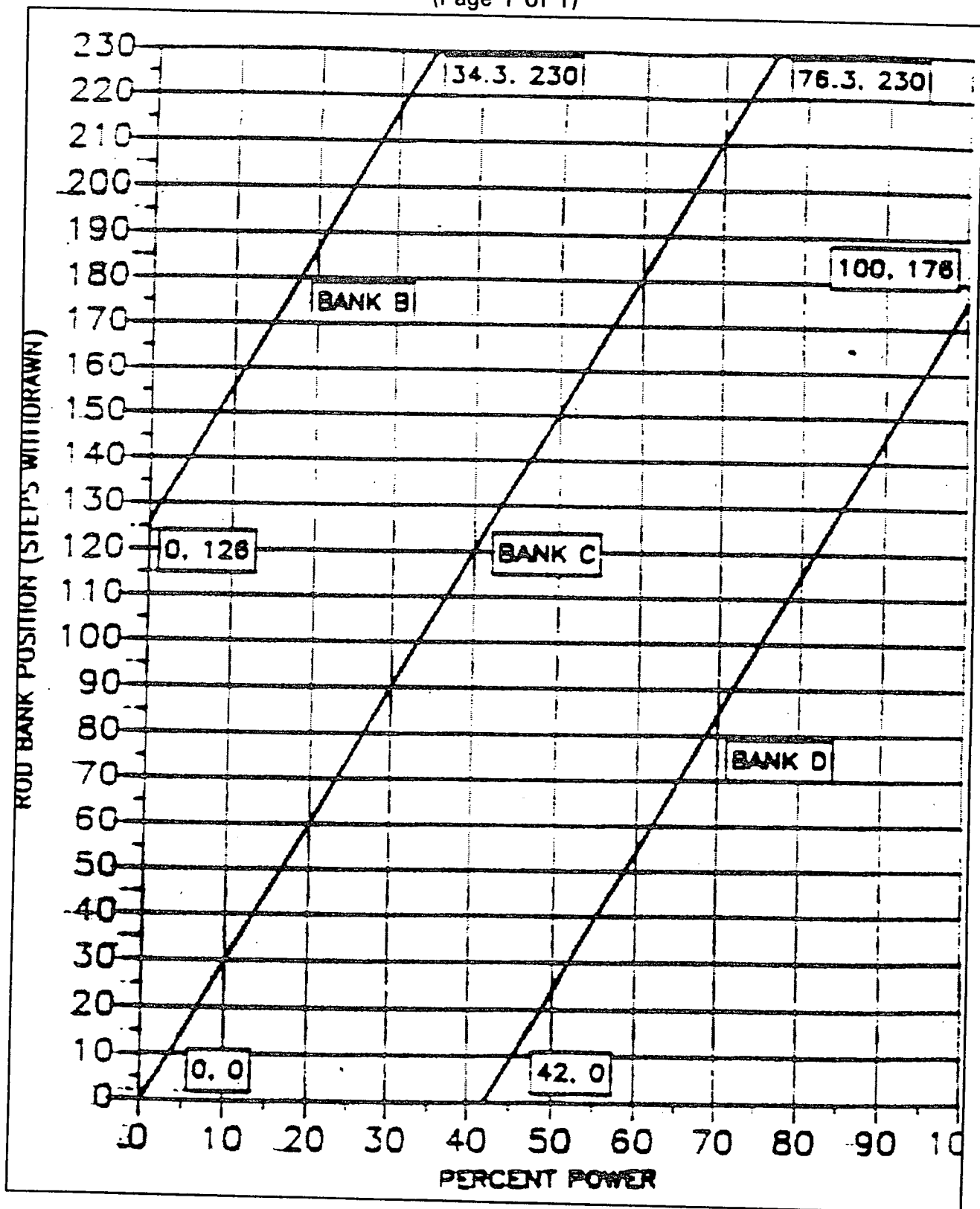
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**ATTACHMENT 1  
CONTROL ROD INSERTION LIMITS VS. RELATIVE POWER  
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Attachment 2  
 NORMALIZED  $F_Q(Z)$  Operating Function  $K_1(Z)$   
 (Applies to  $F_Q$  of 2.42)  
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