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January 7, 1983  
MN-83-07

JHG-83-07

United States Nuclear Regulatory Commission  
Washington, D. C. 20555

Attention: Office of Nuclear Reactor Regulation  
Division of Licensing  
Operating Reactors Branch #3  
Mr. Robert A. Clark, Chief

References: (a) License No. DPR-36 (Docket No. 50-309)  
(b) USNRC Letter to MYAPCo dated December 4, 1981  
(c) MYAPCo Letter to USNRC dated January 4, 1982, MN-82-01  
(d) USNRC Letter to MYAPCo dated February 18, 1982  
(e) MYAPCo Letter to USNRC dated March 19, 1982, MN-82-54

Subject: Shutdown Margin Clarification

Dear Sir:

The staff's review of the cycle 7 Core Performance Analysis Report resulted in resolution of the misunderstanding which had existed over the definition of shutdown margin. One related informal question remained to be answered regarding verification that shutdown margin requirements are met in the case of an inoperable CEA as permitted by T.S. 3.10.B.2 or in the case of a slow CEA as permitted by T.S. 3.10.B.3.

INOPERABLE CEA

Maine Yankee Procedure AOP-2-23 "Inoperable CEA" specifies the actions the operators take when an inoperable CEA is discovered. The procedure allows operation with one inoperable CEA, provided technical specification shutdown margin requirements are satisfied within two hours of identification of the inoperable CEA. Technical Data Book Section 1.1.5 provides figures that define the combination of power level, boron concentration and Group 5 withdrawal that will assure compliance with the technical specification requirement on shutdown margin with one inoperable CEA. Following discovery of the inoperable CEA, the operators would increase boron concentration, thus reducing power below the maximum allowed by the curves. An uncontrolled copy of this procedure and the applicable Technical Data Book curves are enclosed for your convenience.

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SLOW CEA

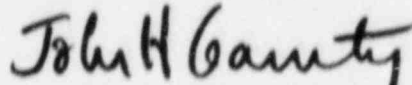
A slow CEA would normally be discovered during CEA testing prior to power operation following a refueling outage. In this case, the cause of the slow CEA would have to be determined and rectified, or an evaluation would have to be made which would allow operation with one slow CEA. This would require a determination that the reactivity effect of the slow CEA was within the limits allowed by Technical Specification 3.10.B.3.

We note that References (c) and (e) request further consideration of this matter.

We trust this information is satisfactory. However, should you have any further questions, please feel free to contact us.

Very truly yours,

MAINE YANKEE ATOMIC POWER COMPANY



John H. Garrity, Senior Director  
Nuclear Engineering & Licensing

JHG:pjp

Enclosures (5 pages)

cc: Mr. Ronald C. Haynes  
Mr. Paul A. Swetland

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|------------|------------|-------------|-----------------|
| Dept. Head | <u>YAS</u> | Proc. No.   | <u>AOP 2-23</u> |
| Plt. Mgr.  | <u>TLW</u> | Class.      | <u>A</u>        |
| PORC       | <u>TLW</u> | Rev. No.    | <u>0</u>        |
| MOO        | <u>CPK</u> | Issue Date  | <u>11-19-82</u> |
|            |            | Review Date | <u>11-19-84</u> |

AOP 2-23 INOPERABLE CEA

1.0 DISCUSSION

- 1.1 A trippable CEA is considered inoperable if it cannot be tripped. A CEA that cannot be driven shall be assumed not to be able to be tripped until it is proven that it can be tripped.
- 1.2 Operation with one inoperable CEA is permitted provided the Tech. Spec. shutdown margin requirements are satisfied within 2 hours of identification of the inoperable CEA. TDB Section 1.1.5 provides figures that define the combination of power level and boron concentration that will assure compliance with the Tech. Spec. requirement on shutdown margin with one inoperable CEA.
- 1.3 Except for low power physics tests, only one inoperable CEA is permitted.
- 1.4 A CEA that cannot be driven may be proven able to be tripped if it can be demonstrated that the cause of it not being able to be driven does not interfere with its ability to trip.

2.0 OBJECTIVE

- 2.1 To assure operation within the Tech. Spec. shutdown margin requirements.
- 2.2 To preclude operation with more than one inoperable CEA except when permitted by Tech. Specs.

3.0 SYMPTOMS

- 3.1 Inability to drive one or more CEA's.

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4.0 IMMEDIATE ACTION

- 4.1 Attempt to withdraw and then drive the questionable CEA's.
- 4.2 Verify using reed switch digital, metrascope, and pulse height indications that questionable CEA's cannot be driven.
- 4.3 If all of the CEA's are inoperable refer to EOP 2-70-0, "Emergency Shutdown from Power".

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### 5.0 SUBSEQUENT ACTION

- 5.1 When the CEA is identified as inoperable perform the following:
- 5.1.1 Record time and date; \_\_\_\_\_ .
  - 5.1.2 Record CEA #; \_\_\_\_\_ .
  - 5.1.3 Notify I & C Department personnel of the CEDS problem.
- 5.2 If more than one CEA is inoperable and physics tests are not in progress, perform the sequential remedial actions specified in Tech. Spec. 3.0.A.
- 5.3 If one CEA is inoperable and cannot be made operable, initiate a boration that insures the combination of power level and boron concentration is acceptable within 2 hours using the following curves:
- 5.3.1 TDB Figure 1.1.5.1 for an inoperable regulating CEA.
  - 5.3.2 TDB Figure 1.1.5.2 for an inoperable shutdown CEA.
- NOTE: If the CEA should drop into the core refer to AOP 2-21, "Misaligned (Dropped) CEA", as the CEA would now be a misaligned (dropped) CEA and not an inoperable CEA.

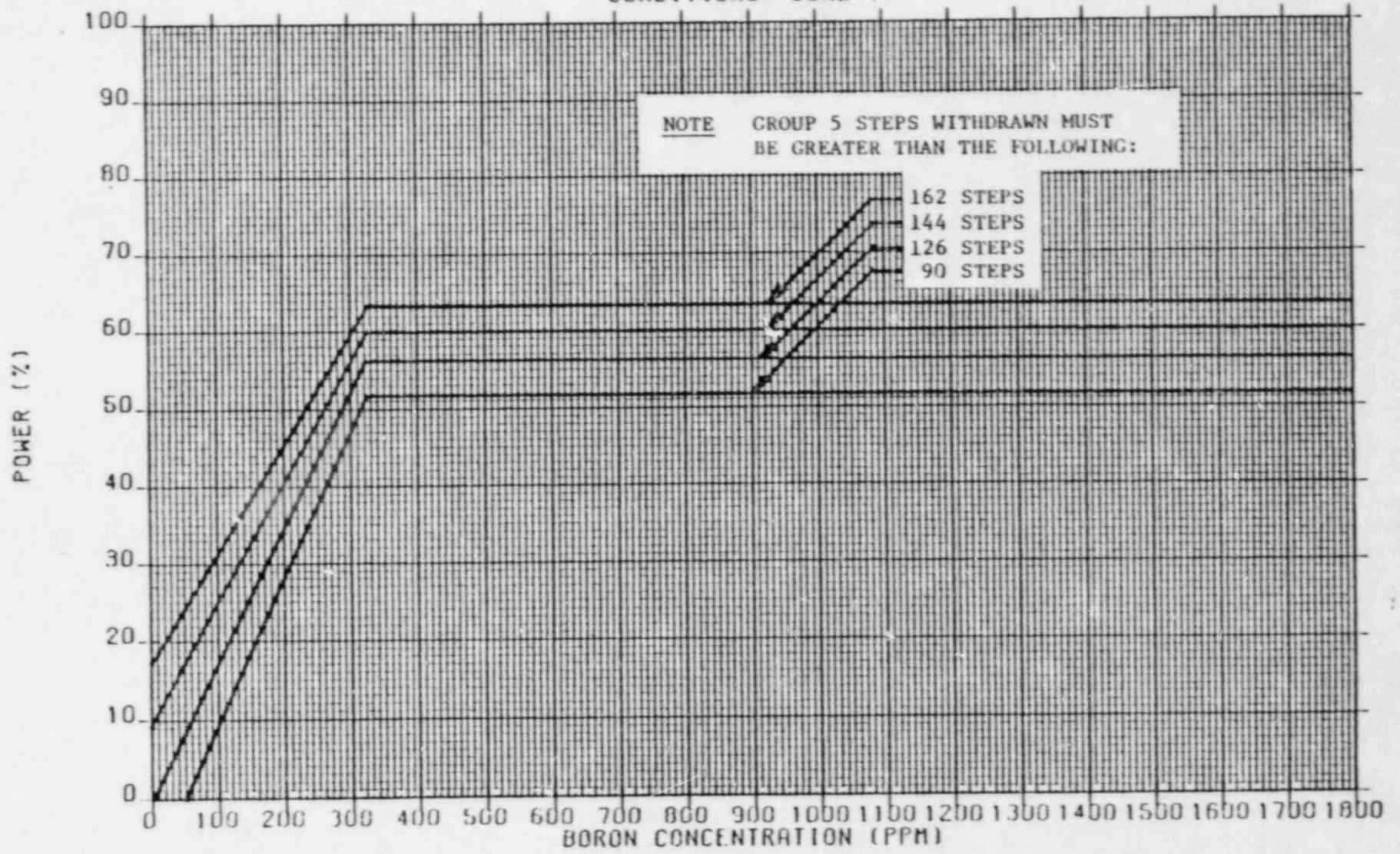
- 5.4 Notify the Operations Department Head and the RE Section Head as soon as practicable.

NOTE: The RE Section Head may specify operating conditions other than those described in the TDB that satisfy the Tech. Spec. shutdown margin requirements.

### 6.0 FINAL CONDITIONS

- 6.1 The Tech. Spec. shutdown margin requirements are being met with not more than one inoperable CEA or,
- 6.2 The remedial actions specified in Tech. Spec. 3.0.A. have been accomplished.

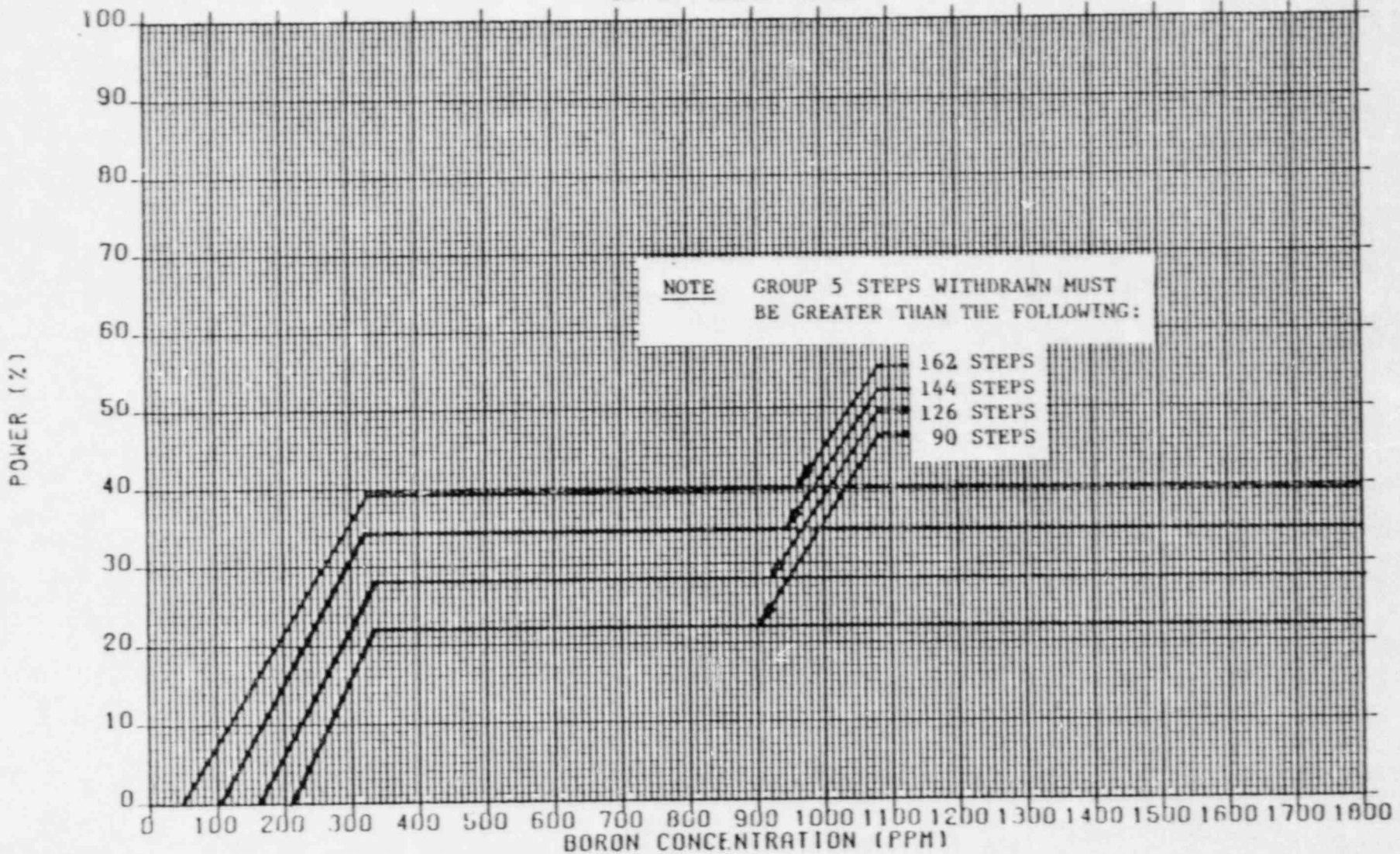
MAXIMUM POWER LEVEL WITH AN INOPERABLE REGULATING CEA VS. BORON CONCENTRATION  
CONDITIONS: CORE 7



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REVIEWED BY *J.M. [Signature]* DATE *11/11/52* PREPARED BY *J.S. [Signature]*  
DATE *11/11/52* FIGURE *11.5.1*

MAXIMUM POWER LEVEL WITH AN INOPERABLE SHUTDOWN CEA VS. BORON CONCENTRATION  
 CONDITIONS: CORE 7



**NOTE** GROUP 5 STEPS WITHDRAWN MUST BE GREATER THAN THE FOLLOWING:

- 162 STEPS
- 144 STEPS
- 126 STEPS
- 90 STEPS

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PORC REVIEW  
 REVIEWED BY *[Signature]* DATE *11/14/52* FIGURE *1152*  
 PREPARED BY *[Signature]*