

DOS MS-016

Docket No. 50-336

JAN 27 1984

DISTRIBUTION:

~~Docket File~~
NRC PDR
L PDR
SECY
ORB#3 Rdg
DEisenhut
PMKreutzer-3
KHeitner
OELD
Gray File +4

LTremper
RDiggs
ACRS-10
WJones
TBarnhart-4
JTaylor
EJordan
LJHarmon

HRDenton
CMiles
DBrinkman

Mr. W. G. Council, Senior Vice President
Nuclear Engineering and Operations
Northeast Nuclear Energy Company
P. O. Box 270
Hartford, Connecticut 06141-0270

Dear Mr. Council:

The Commission has issued the enclosed Amendment No. 91 to Facility Operating License No. DPR-65 for Millstone Nuclear Power Station, Unit 2, in response to your application dated January 20, 1984, as supplemented January 25, 1984.

These changes modify the Technical Specifications concerning the total planar peaking factor limits. These changes cover the power levels between 92.5% and 100% limits. The curve has also been extended to include operation to 65% power. The curve of Axial Shape Index vs. Fraction of Allowable Power Level has also been revised to accommodate the peaking factor change.

We have reviewed the bases for the proposed changes and conclude that they are technically correct. Therefore, we find the proposed changes in the technical specifications to be acceptable.

We have evaluated your request that this amendment be issued under the "emergency" provisions of 10 CFR 50.91(a)(5). We find that your request is acceptable since the current Technical Specifications effectively derate the plant. Therefore, this amendment will be issued without prior notice and an opportunity for public comment since we have determined that it involves no significant hazards consideration.

A copy of our Safety Evaluation is enclosed. The Notice of Issuance will be included in the Commission's next monthly Federal Register notice.

Sincerely,

Original signed by

Kenneth L. Heitner, Project Manager
Operating Reactors Branch #3
Division of Licensing

Enclosures:

- 1. Amendment No. 91 to DPR-65
- 2. Safety Evaluation

cc w/enclosures:
See next page

SCINTO HAS
NO LEGAL
OBJECTION 1/27/84

ORB#3:DL
PMKreutzer
1/24/84

ORB#3:DL
KHeitner/pn
1/26/84

ORB#3:DL
JRMiller
1/ /84

ORB#3:DL
GC
1/26/84

ORB#3:DL
GC
1/26/84

REP
CPB
1/26/84

Northeast Nuclear Energy Company

cc:

Gerald Garfield, Esq.
Day, Berry & Howard
Counselors at Law
One Constitution Plaza
Hartford, Connecticut 06103

Mr. Charles Brinkman
Manager - Washington Nuclear
Operations
C-E Power Systems
Combustion Engineering, Inc.
7910 Woodmont Avenue
Bethesda, MD 20814

Mr. Lawrence Bettencourt, First Selectman
Town of Waterford
Hall of Records - 200 Boston Post Road
Waterford, Connecticut 06385

Superintendent
Millstone Plant
P. O. Box 128
Waterford, Connecticut 06385

U. S. Environmental Protection Agency
Region I Office
ATTN: Regional Radiation
Representative
John F. Kennedy Federal Building
Boston, Massachusetts 02203

Northeast Utilities Service Company
ATTN: Mr. Richard T. Laudenat, Manager
Generation Facilities Licensing
P. O. Box 270
Hartford, Connecticut 06101

Mr. John Shedlosky
Resident Inspector/Millstone
c/o U.S.N.R.C.
P. O. Drawer KK
Niantic, CT 06357

Regional Administrator
Nuclear Regulatory Commission, Region I
Office of Executive Director for Operations
631 Park Avenue
King of Prussia, Pennsylvania 19406

Vice President - Nuclear Operations
Northeast Utilities Service Company
P. O. Box 270
Hartford, Connecticut

Office of Policy & Management
ATTN: Under Secretary Energy
Division
80 Washington Street
Hartford, Connecticut 06115

Arthur Heubner, Director
Radiation Control Unit
Department of Environmental Protection
State Office Building
Hartford, Connecticut 06115



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

NORTHEAST NUCLEAR ENERGY COMPANY

THE CONNECTICUT LIGHT AND POWER COMPANY

THE WESTERN MASSACHUSETTS ELECTRIC COMPANY

DOCKET NO. 50-336

MILLSTONE NUCLEAR POWER STATION, UNIT NO. 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 91
License No. DPR-65

1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by Northeast Nuclear Energy Company, et al. (the licensee) dated January 20, 1984 as supplemented January 25, 1984, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act) and the Commission's rules and regulations set forth in 10 CFR Chapter I;
 - B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;
 - C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;
 - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and
 - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

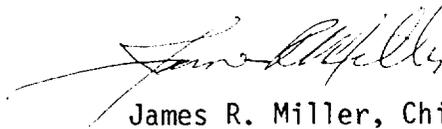
2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.C.(2) of Facility Operating License No. DPR-65 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 91, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective on the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



James R. Miller, Chief
Operating Reactors Branch #3
Division of Licensing

Attachment:
Changes to the Technical
Specifications

Date of Issuance: January 27, 1984

ATTACHMENT TO LICENSE AMENDMENT NO. 91

FACILITY OPERATING LICENSE NO. DPR-65

DOCKET NO. 50-336

Remove and replace the following pages of the Appendix A Technical Specifications with the enclosed pages. The revised pages are identified by amendment number and contain vertical lines indicating the area of change. The corresponding overleaf pages are provided to maintain document completeness.

Remove

3/4 2-4
3/4 2-6
3/4 2-8

Insert

3/4 2-4
3/4 2-6
3/4 2-8

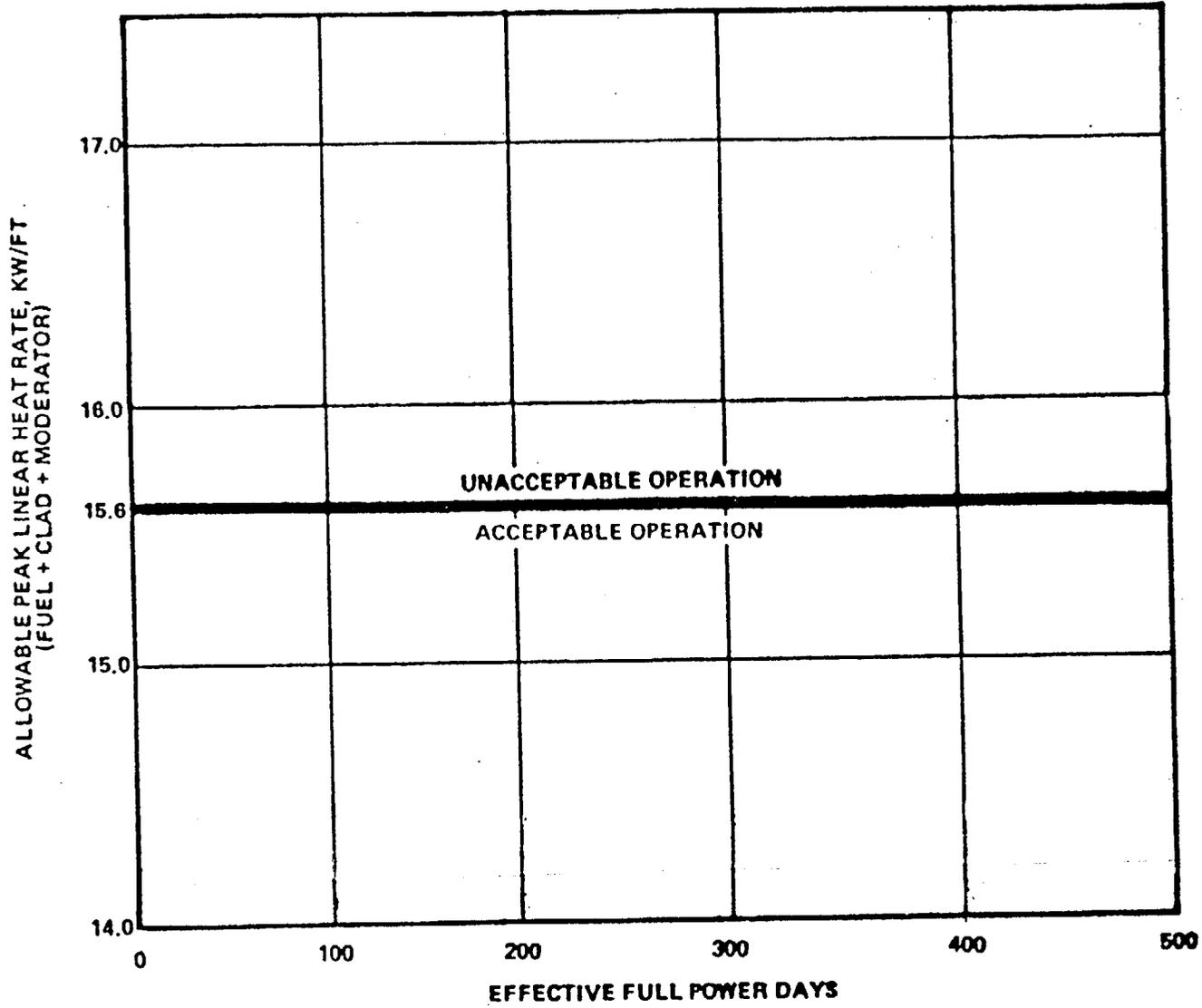


Figure 3.2-1 Allowable Peak Linear Heat Rate vs Burnup

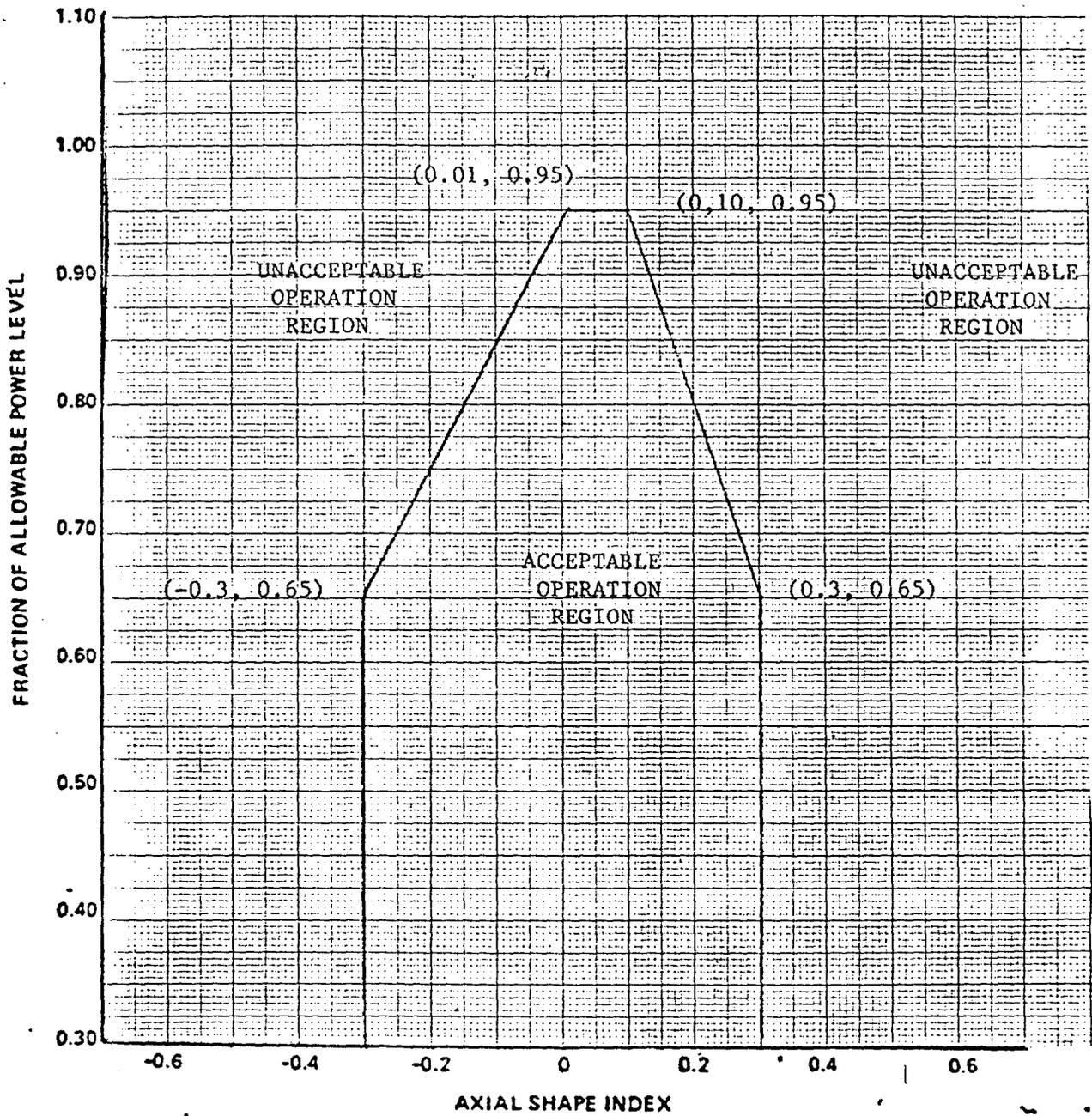


FIGURE 3.2-2 AXIAL SHAPE INDEX vs Fraction of Allowable Power Level per Specification 4.2.1.2c

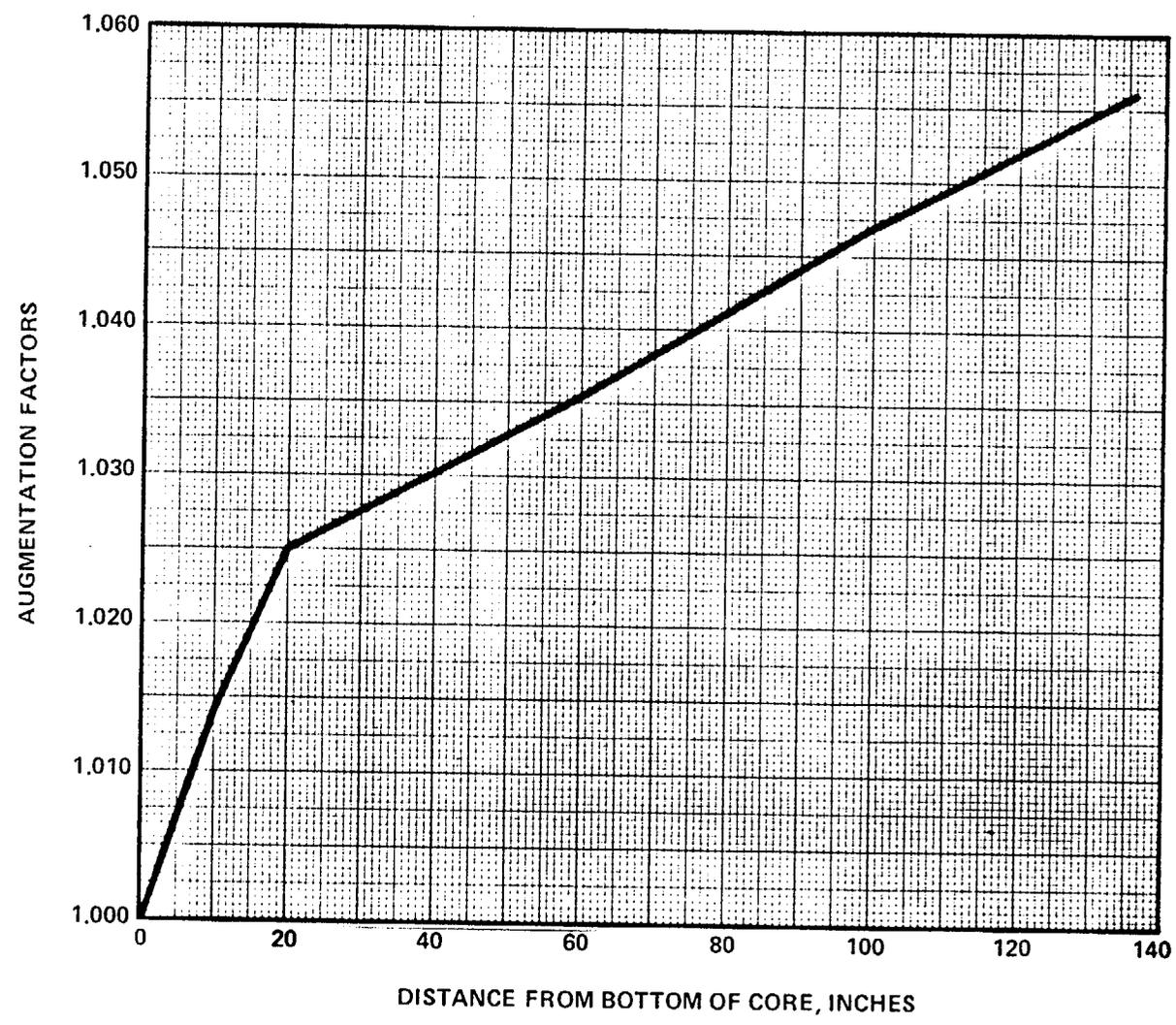


FIGURE 4.2-1 Augmentation Factors vs Distance From Bottom of Core

POWER DISTRIBUTION LIMITS

TOTAL PLANAR RADIAL PEAKING FACTOR - F_{xy}^T

LIMITING CONDITION FOR OPERATION

3.2.2 The calculated value of F_{xy}^T , defined as $F_{xy}^T = F_{xy}(1+T_q)$, shall be limited to ≤ 1.719 .

APPLICABILITY: MODE 1*.

ACTION:

With $F_{xy}^T > 1.719$, within 6 hours either:

- a. Reduce THERMAL POWER to bring the combination of THERMAL POWER and F_{xy}^T to within the limits of Figure 3.2-3 and withdraw the full length CEAs to or beyond the Long Term Steady State Insertion Limit of Specification 3.1.3.6; or
- b. Be in at least HOT STANDBY.

SURVEILLANCE REQUIREMENTS

4.2.2.1 The provisions of Specification 4.0.4 are not applicable.

4.2.2.2 F_{xy}^T shall be calculated by the expression $F_{xy}^T = F_{xy}(1+T_q)$ and F_{xy}^T shall be determined to be within its limit at the following intervals:

- a. Prior to operation above 70 percent of RATED THERMAL POWER after each fuel loading,
- b. At least once per 31 days of accumulated operation in MODE 1, and
- c. Within four hours if the AZIMUTHAL POWER TILT (T_q) is > 0.02 .

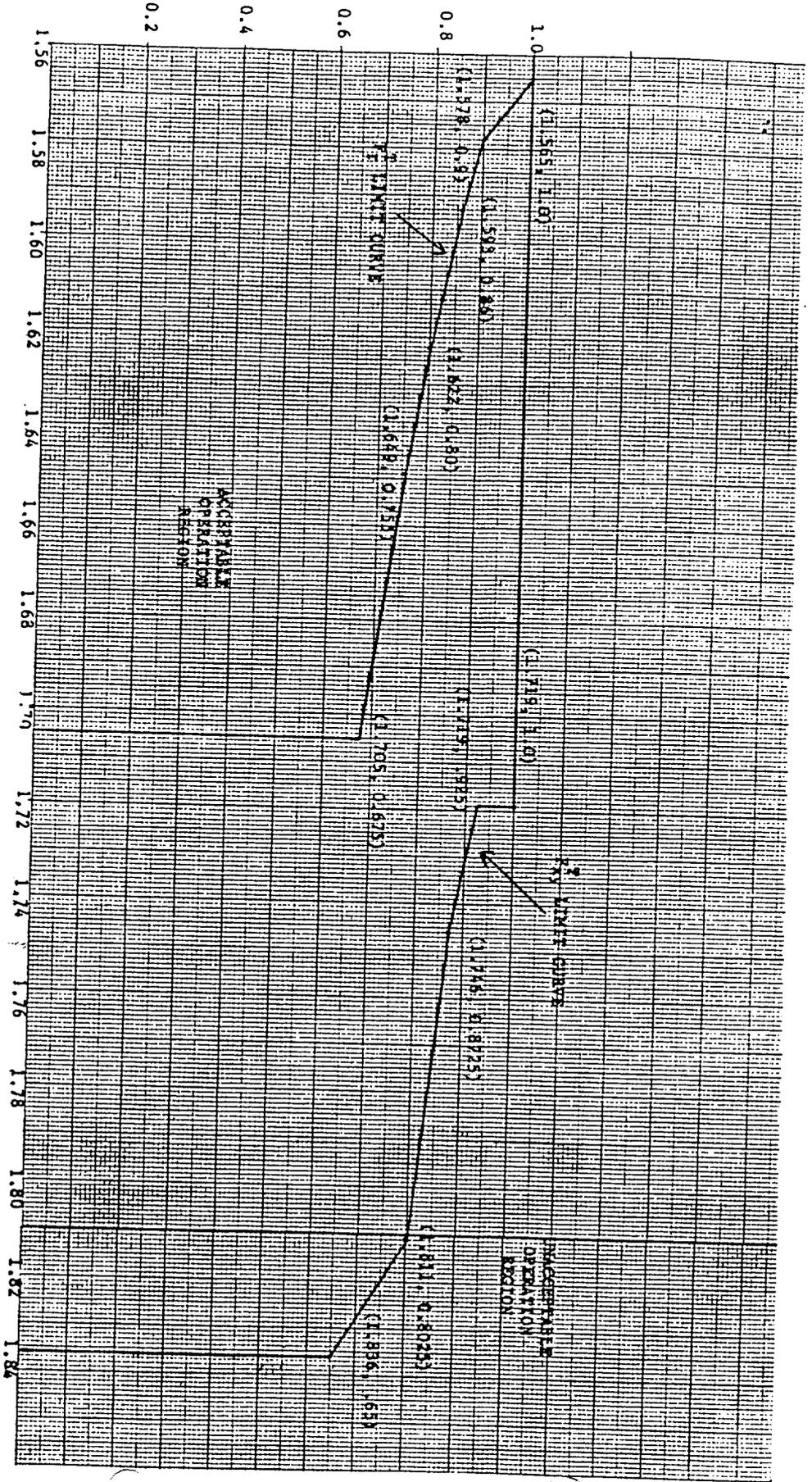
* See Special Test Exception 3.10.2.

POWER DISTRIBUTION LIMITS

SURVEILLANCE REQUIREMENTS (Continued)

4.2.2.3 F_{xy} shall be determined each time a calculation of F_{xy}^T is required by using the incore detectors to obtain a power distribution map with all full length CEAs at or above the Long Term Steady State Insertion Limit for the existing Reactor Coolant Pump combination. This determination shall be limited to core planes between 15% and 85% of full core height inclusive and shall exclude regions influenced by grid effects.

4.2.2.4 T_q shall be determined each time a calculation of F_{xy}^T is required and the value of T_q used to determine F_{xy}^T shall be measured value of T_q .



$$F_T = F_{xy} (F_r, n(1 + T_d) : F_{ny} n(1 + T_d))$$

FIGURE 3.2-3 Total Radial Peaking Factor Versus Allowable Fraction of RATED THERMAL POWER



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO ISSUANCE OF AMENDMENT NO. 91 TO DPR-65

NORTHEAST NUCLEAR ENERGY COMPANY, ET AL.

MILLSTONE NUCLEAR POWER STATION, UNIT 2

DOCKET NO. 50-336

1.0 Introduction and Background

By letter dated December 30, 1983, the USNRC issued Amendment No. 90 to Facility License No. DPR-65 for Millstone Nuclear Power Station, Unit 2. This amendment reflected changes to the Technical Specifications necessary for plant operation in Cycle 6.

As part of these changes, the total planar peaking factor F_{xy}^T monitoring limits were restored back to the original Beginning of Cycle (BOC) 5 values. The Cycle 6 licensing analyses supported the proposed revision.

The plant was made critical for Cycle 6 operation on January 5, 1984. Core power was increased to levels at which peaking factors could be measured on January 13, 1984.

Subsequent measurements of peaking factors indicated that full power operation would not be possible with the current technical specifications. While the curve is designed to closely bound actual plant operations the calculated value for F_{xy}^T was approximately 4.3% too low.

To correct this deficiency in the current technical specifications, Northeast Nuclear Energy Company, (the licensee) has provided an application for a license amendment dated January 20, 1984 and supplemented January 25, 1984. This license amendment would revise total planar peaking factor curve as a function of allowable fraction of rated power. In addition, the application for amendment requested a revised curve for axial shape index. The purpose of the revised curves is to assure that linear heat rate surveillance requirement can be provided by the excore detectors when the incore system is inoperable.

2.0 Evaluation

The total planar peaking factor F_{xy}^T is used to determine the local power density. Local power density is a limiting system parameter to protect the fuel from axial power maldistributions, and assure acceptable fuel behavior in loss-of-coolant accidents. Because this modification to F_{xy}^T is slight, the local power density trip setpoint remains unchanged.

When the incore monitoring system is operable, direct measurement of power density assures compliance with the 15.6 kw/ft limits of Section 3.2.1.

The proposed revision of the total planar peaking factor F_{xy}^T curve is only of concern when the excore detectors are used to monitor linear heat rate. The licensee has proposed to conservatively offset the 4.3% increase in F_{xy}^T at full power with a 5.0% decrease in the axial shape index limits. The revised limits require that reactor power will be reduced to 95% of allowable rated power when the incore detectors are inoperable. An additional 2% correction is made to remove an unneeded general tilt allowance.

We conclude that this approach for revising the total planar peaking factor F_{xy}^T curves is conservative. This is because under all circumstances the limiting parameter, local power density, is not exceeded nor are limiting safety system settings varied from previously approved values. We therefore find these changes acceptable.

3.0 Technical Specification Changes

The technical specification changes proposed by the licensee are acceptable as follows:

- A. Revised total planar peaking factor F_{xy}^T curve - This change affects pages 3/4 2-6 and 3/4 2-8. The allowable total planar peaking factor is increased by 6.3% in the range 0.925 to 1.000 of allowable fraction of rated power. The previous curve has been extended to 0.650 of rated power based on the Cycle 6 reload and safety analyses. The curve has also been corrected by 2% for the unneeded tilt allowance.
- B. New Axial Shape Index Tent - This change to page 3/4 2-4 involves a truncation of the current axial shape index tent at 95% power. This 5% reduction offsets the changes to the total planar peaking factor. Reactor operation above 95% of rated power is not acceptable if the incore detector system is inoperable.

4.0 Evaluation of Emergency Conditions

The licensee has requested expedited consideration of this amendment request since the current Technical Specifications result in a derating of the facility. The licensee has stated that discovery of such a small under prediction in the total planar peaking factor was only possible as of January 13, 1984.

The current technical specifications supporting Cycle 6 operations are based on the fuel vendor's predictions of core physical parameters. The F_{xy}^T curve was designed to bound as closely as possible the operating characteristics predicted by the reload analyses.

After completing startup testing and steam generator cleanup, power levels of 30% and greater were achieved on January 13, 1984. At that time, measurements

of F_{xy}^T were possible and evidence of the underprediction in F_{xy}^T was identified. The licensee could not have identified this situation until power levels in excess of 20% were achieved. At that time the licensee reevaluated the power distribution data and requested this proposed amendment.

The staff concludes that failure to act in a timely manner would result in a continued derating of the plant and therefore the emergency provisions of 10 CFR 50.91(a)(5) are applicable to this situation. The staff concludes that the licensee's request under these provisions is acceptable, and that an amendment should be issued under the emergency provisions.

5.0 Conclusions

We have reviewed the proposed changes to the Millstone Unit 2 Technical Specifications and find they are acceptable. We find that the licensee has provided an acceptable basis for this amendment to be issued under the emergency provisions of 10 CFR 50.91(a)(5).

5.1 Environmental Consideration

We have determined that the amendment does not authorize a change in effluent types or total amounts nor an increase in power level and will not result in any significant environmental impact. Having made this determination, we have further concluded that the amendment involves an action which is insignificant from the standpoint of environmental impact and, pursuant to 10 CFR §51.5(d)(4), that an environmental impact statement or negative declaration and environmental impact appraisal need not be prepared in connection with the issuance of this amendment.

5.2 Conclusion

We have concluded, based on the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, and (2) such activities will be conducted in compliance with the Commission's regulations and the issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public.

Date: January 27, 1984

Principal Contributors:
K. Heitner, DL
M. Dunenfeld, CPB