

BEFORE THE UNITED STATES
NUCLEAR REGULATORY COMMISSION

In the Matter of)
NEW YORK POWER AUTHORITY) Docket No. 50-333
James A. FitzPatrick Nuclear Power Plant)

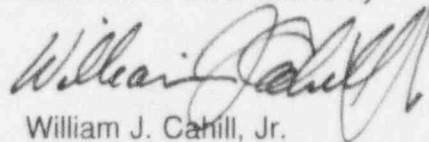
APPLICATION FOR AMENDMENT TO OPERATING LICENSE

The New York Power Authority requests an amendment to the Technical Specifications contained in Appendix A to Facility Operating License DPR-59 for the James A. FitzPatrick Nuclear Power Plant. This application is filed in accordance with Section 10 CFR 50.90 of the Nuclear Regulatory Commission's regulations.

This application for an amendment to the James A. FitzPatrick Technical Specifications proposes a revised Minimum Critical Power Ratio Safety Limit. The changes correct the Safety Limit Minimum Critical Power Ratio (SLMCPR) values for cycle 12, the current reactor operating cycle. General Electric Company determined the present values were non-conservative during an evaluation of SLMCPRs for a number of plants, including FitzPatrick, during April and May of 1996.

Attachment I contains the proposed new Technical Specification pages and Attachment II is the Safety Evaluation for the proposed changes. Attachment III is a markup of the affected pages.

New York Power Authority

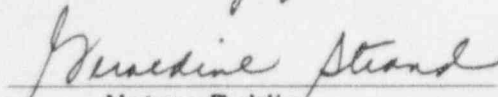


William J. Cahill, Jr.
Chief Nuclear Officer

STATE OF NEW YORK
COUNTY OF WESTCHESTER

Subscribed and sworn to before me

this 12th day of July 1996.


Notary Public

GERALDINE STRAND
Notary Public, State of New York
No. 4981272
Qualified in Westchester County
Commission Expires Jan. 27, 1998

9607180231 960712
PDR ADOCK 05000333
P PDR

REVISED TECHNICAL SPECIFICATION PAGES

**PROPOSED TECHNICAL SPECIFICATION CHANGES REGARDING
CYCLE 12 MINIMUM CRITICAL POWER RATIO SAFETY LIMIT**

New York Power Authority

JAMES A. FITZPATRICK NUCLEAR POWER PLANT

Docket No. 50-333

DPR-59

JAFNPP

1.1 FUEL CLADDING INTEGRITY

Applicability:

The Safety Limits established to preserve the fuel cladding integrity apply to those variables which monitor the fuel thermal behavior.

Objective:

The objective of the Safety Limits is to establish limits below which the integrity of the fuel cladding is preserved.

Specifications:

A. Reactor Pressure >785 psig and Core Flow >10% of Rated

The existence of a minimum critical power ratio (MCPR) less than 1.08 shall constitute violation of the fuel cladding integrity safety limit, hereafter called the Safety Limit. An MCPR Safety Limit of 1.09 shall apply during single-loop operation.

2.1 FUEL CLADDING INTEGRITY

Applicability:

The Limiting Safety System Settings apply to trip settings of the instruments and devices which are provided to prevent the fuel cladding integrity Safety Limits from being exceeded.

Objective:

The objective of the Limiting Safety System Settings is to define the level of the process variables at which automatic protective action is initiated to prevent the fuel cladding integrity Safety Limits from being exceeded.

Specifications:

A. Trip Settings

The limiting safety system trip settings shall be as specified below:

1. Neutron Flux Trip Settings

- a. IRM - The IRM flux scram setting shall be set at $\leq 120/125$ of full scale.

Attachment II to JPN-96-033

**SAFETY EVALUATION FOR
PROPOSED TECHNICAL SPECIFICATION CHANGES REGARDING
CYCLE 12 MINIMUM CRITICAL POWER RATIO SAFETY LIMIT**

New York Power Authority

**JAMES A. FITZPATRICK NUCLEAR POWER PLANT
Docket No. 50-333**

**SAFETY EVALUATION
PROPOSED TECHNICAL SPECIFICATION CHANGES REGARDING
CYCLE 12 MINIMUM CRITICAL POWER RATIO SAFETY LIMIT**

Page 1 of 4

I. DESCRIPTION OF THE PROPOSED CHANGES

The following proposed changes to the James A. FitzPatrick Technical Specifications establish a revised Minimum Critical Power Ratio (MCPR) safety limit. The changes correct the Safety Limit Minimum Critical Power Ratio (SLMCPR) values for cycle 12, the current reactor operating cycle. General Electric Company determined the present values were non-conservative during an evaluation of SLMCPRs for a number of plants, including FitzPatrick, during April and May of 1996 (Reference 1).

Page 7

Change "1.07" in specification 1.1.A to "1.08." Change "1.08" in specification 1.1.A to "1.09."

II. PURPOSE OF THE PROPOSED CHANGES

The purpose of the proposed change is to provide the appropriate MCPR safety limit for the Cycle 12 core. The cycle 12 core contains GE11 fuel which was determined by the General Electric Company to require a higher SLMCPR when used in FitzPatrick cycle 12 than had been previously calculated on a generic basis.

III. SAFETY IMPLICATIONS OF THE PROPOSED CHANGES

The proposed change revises the Safety Limit Minimum Critical Power Ratio (SLMCPR) to be 1.08 for two-loop operation and 1.09 for single-loop operation. This change is required as the result of correction of an error in the calculation of SLMCPR for the cycle 12 core.

The process used to determine the generic SLMCPR for the GE11 fuel design (the limiting bundle in the FitzPatrick cycle 12 core) assumes the following regarding core design (Reference 2):

- Equilibrium GE11 core
- BWR/4 764 bundle core
- Flat rod power distribution in bundle
- 18 month cycle design
- 33 percent batch fraction
- Limiting point in cycle - Peak hot excess reactivity point

The calculation process finds the control rod pattern which places the most fuel bundles on limits (peak hot excess reactivity was chosen because of increased flexibility in positioning control blades), then power is raised until 0.1 percent of fuel rods are statistically determined to be in boiling transition. This power is then used to calculate the SLMCPR.

**SAFETY EVALUATION
PROPOSED TECHNICAL SPECIFICATION CHANGES REGARDING
CYCLE 12 MINIMUM CRITICAL POWER RATIO SAFETY LIMIT**

Page 2 of 4

The calculation of cycle 12 SLMCPR used the same plant and power uncertainties as the generic SLMCPR evaluation, as well as the same calculation process. The difference is that core power distributions were obtained from power distributions projected for the current operating cycle. The evaluation used the following core design features:

- Actual core loading
- Projected control blade patterns
- Actual rod powers used for R-factor distributions
- Carried out for several points in the cycle

The use of actual core design affects the SLMCPR calculation through the following factors:

- Bundle designs have been optimized for local peaking which yields flatter R-factors
- In mixed cores (cycle 12 uses a mix of 8x8 and 9x9 fuel) there are fewer rods to get to a fixed value of 0.1 percent of all rods in the core in boiling transition
- End-of-cycle (EOC) points have been considered. At EOC R-factors are lower (R-factor is generally lowest near lattice reactivity peak which for longer cycles is at EOC).

Recalculation of SLMCPR using FitzPatrick cycle 12 specific values rather than generic values for core design resulted in an increase in SLMCPR from 1.07 to 1.08 (Reference 3).

Reference 4 describes operation of the FitzPatrick Plant with a single Reactor Water Recirculation loop in service (single-loop operation, SLO). This mode of operation requires raising the SLMCPR by 0.01 to account for changes in core flow and Traversing Incore Probe (TIP) uncertainties. Therefore, the SLMCPR for SLO applicable to cycle 12 is 1.09.

IV. EVALUATION OF SIGNIFICANT HAZARDS CONSIDERATION

Operation of the FitzPatrick plant in accordance with the proposed Amendment would not involve a significant hazards consideration as defined in 10 CFR 50.92, since it would not:

1. involve a significant increase in the probability or consequences of an accident previously evaluated because:

A change in the SLMCPR does not affect initiation of any accident. Operation in accordance with the revised SLMCPR ensures the consequences of previously analyzed accidents are not changed.

**SAFETY EVALUATION
PROPOSED TECHNICAL SPECIFICATION CHANGES REGARDING
CYCLE 12 MINIMUM CRITICAL POWER RATIO SAFETY LIMIT**

Page 3 of 4

2. create the possibility of a new or different kind of accident from any accident previously evaluated because:

The SLMCPR establishes a performance limit for the fuel. Therefore changing the limit will not initiate any accident.

3. involve a significant reduction in a margin of safety because:

The analyses performed to determine the revised SLMCPR assure maintenance of the same margin of safety as presently exists for the prevention of onset of transition boiling.

V. IMPLEMENTATION OF THE PROPOSED CHANGES

This amendment request meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9) as follows:

- (i) the amendment involves no significant hazards consideration.

As demonstrated in Section IV of this evaluation, the proposed change involves no significant hazards consideration.

- (ii) there is no significant change in the types or significant increase in the amounts of any effluents that may be released offsite.

The proposed change restores the margin of safety which is presently assumed for fuel cladding integrity with respect to onset of transition boiling. Therefore there is no change in the amounts of effluents which may be released offsite.

- (iii) there is no significant increase in individual or cumulative occupational radiation exposure.

The proposed change restores the margin of safety which is presently assumed for fuel cladding integrity with respect to onset of transition boiling. No more fuel rods will experience transition boiling if the limiting abnormal operating occurrence is initiated from M CPR operating limits based upon the proposed SLMCPR than are presently postulated in transient analyses (these limits have been imposed on plant operation as corrective actions for the discovery of the error in SLMCPR calculation). Therefore, there will be no change in individual or cumulative radiation exposure.

Based on the above, it is concluded that there will be no impact on the environment resulting from the proposed changes and the proposed changes meet the criteria specified in 10 CFR 51.22 for a categorical exclusion from the requirements of 10 CFR 51.21 relative to requiring a specific environmental assessment by the Commission.

**SAFETY EVALUATION
PROPOSED TECHNICAL SPECIFICATION CHANGES REGARDING
CYCLE 12 MINIMUM CRITICAL POWER RATIO SAFETY LIMIT**

Page 4 of 4

Additionally, implementation of the proposed changes will not adversely affect the Fire Protection Program at the FitzPatrick plant.

VI. CONCLUSION

Based on the discussions above, implementation of a SLMCPR of 1.08 (1.09 for SLO) does not involve a significant hazards consideration, or an unreviewed safety question, and will not endanger the health and safety of the public. The Plant Operating Review Committee and Safety Review Committee have reviewed this proposed Technical Specification change and agree with this conclusion.

VII. REFERENCES

- (1) GE letter, D. C. Serell to R. C. Taylor (LB 262-96-071), "Safety Limit MCPR Calculation," dated May 6, 1996.
- (2) General Electric Standard Application for Reactor Fuel, (GESTAR II), NEDE-24011-P-A-11, November 1995.
- (3) GE Report 24A5167, Rev. 1, "Supplemental Reload Licensing Report for James A. FitzPatrick Nuclear Power Plant Reload 11 Cycle 12," June 1996.
- (4) FitzPatrick Nuclear Power Plant Single-Loop Operation, NEDO-24281, August 1980.