Attachment I to JPN-83-101

PROPOSED TECHNICAL SPECIFICATIONS

REGARDING FULL ARC TURBINE CONTROL

NEW YORK POWER AUTHORITY

JAMES A. FITZPATRICK NUCLEAR POWER PLANT

Docket No. 50-333

3.1 (CONTINUED)

MCPR Operating Limit for Incremental Cycle Core Average Exposure

At RWM Hi-trip level setting	BOC to EOC-2GWD/t	EOC-2GWD/t to EOC-1GWD/t	EOC-1GWD/t to EOC
S = .66W + 39%	1.21	1.25	1.30
S = .66W + 40%	1.22	1.25	1.30
S = .66W + 41%	1.24	1.25	1.30
S = .66W + 42%	1.25	1.25	1.30
S = .66W + 43%	1.27	1.27	1.30
S = .66W + 44%	1.33	1.33	1.33

C. MCPR shall be determined daily during reactor power operation at $\geq$ 25% of rated thermal power and following any change in power level or distribution that would cause operation with a limiting control rod pattern as described in the bases for Specification 3.3.B.5.

D. When it is determined that a channel has failed in the unsafe condition, the other RPS channels that monitor the same variable shall be functionally tested immediately before the trip system containing the failure is tripped. The trip system containing the unsafe failure may be placed in the untripped condition during the period in which surveillance testing is being performed on the other RPS channels.

E. Verification of the limits set forth in specification 3.1.B shall be performed as follows:

1. The average scram time to notch position 38 shall be: $\tau_{AVE} \leq \tau_B$

2. The average scram time to notch position 38 is determined as follows:

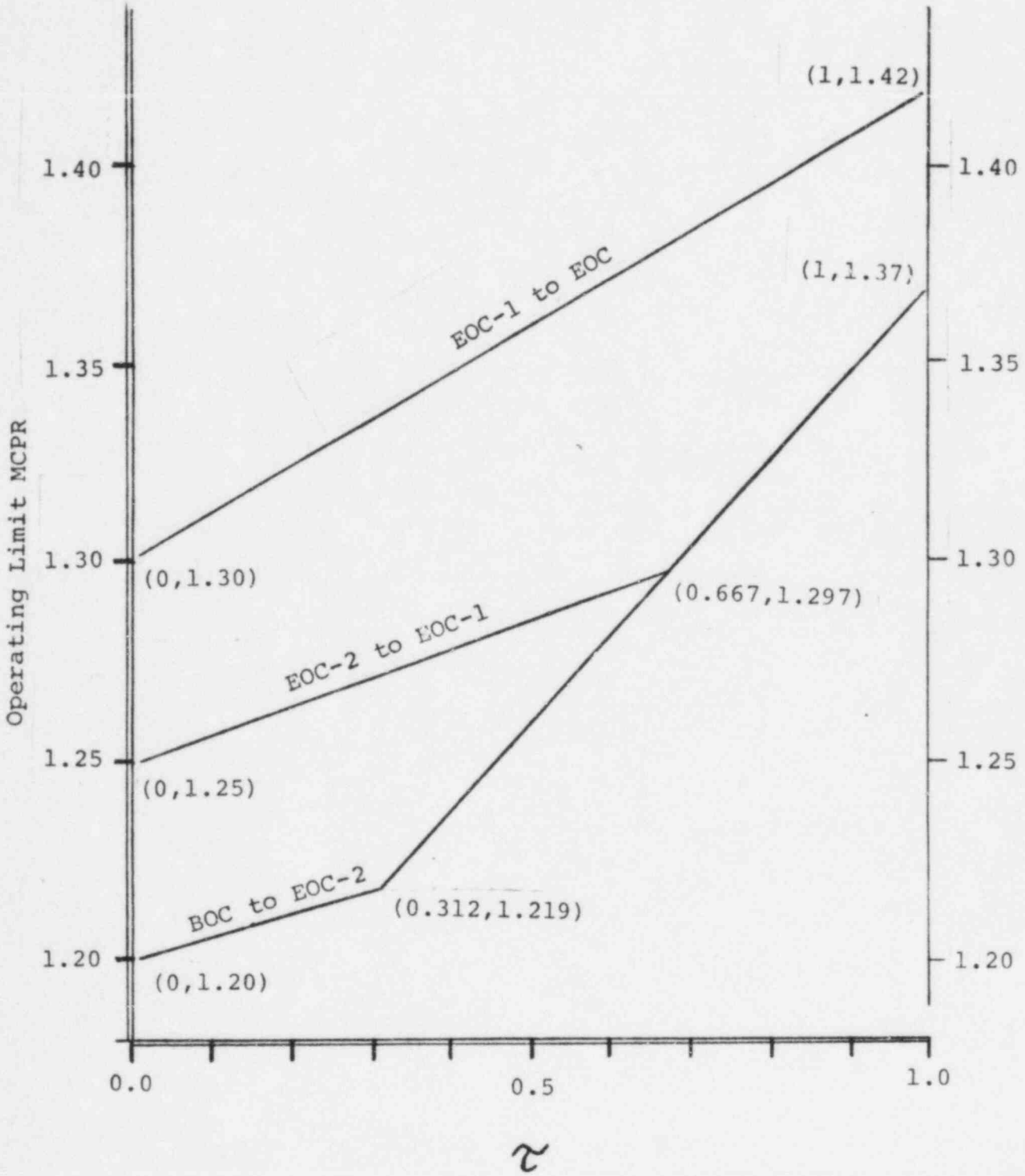
$$\tau_{AVE} = \sum_{i=1}^{n} Ni\,\tau i \Big/ \sum_{i=1}^{n} Ni$$

where: n = number of surveillance tests performed to date in the cycle, Ni = number of active rods measured in

Figure 3.1-2

Operating Limit MCPR
Versus τ (defined in Section 3.1.B.2)

FOR ALL FUEL TYPES



Attachment II to JPN-83-101

SAFETY EVALUATION

REGARDING FULL ARC TURBINE CONTROL

NEW YORK POWER AUTHORITY

JAMES A. FITZPATRICK NUCLEAR POWER PLANT

Docket No. 50-333

I. Description of the Changes

The changes described here refer to Appendix A (Technical Specifications) of the James A. FitzPatrick Nuclear Power Plant Operating License.

These changes are the direct result of a modification completed during the recent refueling outage. This modification changed the turbine control valve configuration from partial to full arc admission.

Prior to this modification, the main turbine's four control valves would open in sequence-two valves open simultaneously, while the remaining two valves open one after the other and only after the first two valves were fully open. At full power, this resulted in three valves fully open and the remaining valve open approximately 25-33 percent.

With full arc admission, all four valves open simultaneously. At full power, this results in all four valves open approxmiately 50-52 percent. Since each control valve admits steam to only one ninety degree quadrant of the turbine rotor, this modification results in full-arc steam admission. Full arc admission reduces the cyclical stresses on the turbine blades that accompany partial arc admission.

On page 31, on the table entitled "MCPR Operating Limit for Incremental Cycle Core Average Exposure", the values for 39%, 40%, 41%, 42% and 43% rod block monitor (RBM) hi-trip level setting for "EOC-1 GWD/t to EOC" have been changed from 1.29 to 1.30.

Figure 3.1-2 on page 47b "Operating Limit MCPR Versus τ (defined in Section 3.1.B.2)- For All Fuel Types" has been revised to account for the turbine control valve modification.

II. Purpose of the Changes

The proposed changes revise the technical specification operating limit minimum critical power ratio (MCPR) values, based on calculations of the load rejection without bypass event in the full arc configuration. The load rejection without bypass event begins with a loss of generator load. The resulting power/load imbalance closes the turbine control valves. Full stroke closure time is 150 msec. Since in full arc all the turbine control valves are only partially open, closure is more rapid than in partial arc where full stroke time is required. The effect on the reactor core of this more rapid closure is that the void collapse occurs faster relative to the insertion of negative reactivity by the scram signal

(on turbine control valve fast closure) which is unaffected by the partial to full arc change. The increase in ΔCPR event (Critical Power Ratio) for the load rejection without bypass, caused by the change from partial to full arc, is 0.02.

Other pressurization events (turbine trip without bypass and feedwater controller failure) are unaffected by this change in turbine control valve configuration since they rely on turbine stop valve closure.

The basis for the changes proposed by this application are calculations performed by the General Electric Co. These supporting calculations were done using approved computer programs and methodology. Calculations analyzed a load rejection without bypass event at two exposure points; EOC and EOC-1. These calculations are summarized in "Supplemental Reload Licensing Submittal For James A. FitzPatrick Nuclear Power Plant - Reload 5", Y1003J01A56, Revision 1 - November, 1983 (Reference 1).

While the original analysis included load rejection without bypass calculations at three exposure points (EOC, EOC-1, and EOC-2) Reference 1 uses only the first two of these. Because a feedwater controller failure event is limiting at EOC-2 (in ODYN option B, the expected mode of operation), no additional margin would result from a calculation of load rejection without bypass at this exposure. Should conditions require a change from ODYN's option B limits ($\tau > 0$) before EOC-1, then the MCPR limits will be based on the load rejection without bypass calculation at EOC-1.

III. Impact of the Change

The proposed changes to the MCPR operating limits for incremental cycle core average exposure (page 31) are not necessary until 1 GWD/t before end-of-cycle (EOC-1).

The changes proposed for Figure 3.1.2 (page 47b) are necessary only if observed scram times require that MCPR values be corrected (i.e. if ODYN option B is not applicable).

The NRC has provided guidance concerning the application of standards not involving significant hazards considerations (48 FR 14870). One of the examples involving no significant hazards considerations is that the change" ... may result in some increase to the probability or consequences of a previously analyzed accident or may reduce in some ways a safety margin, but where the results of the change are clearly within all acceptable criteria with respect to the system ..." (example vi). The proposed technical specification changes described in this safety evaluation is very similiar to this example. The potential consequences of a load rejection without bypass event are more severe but still within

acceptance criteria. Minimum critical power ratio (MCPR) limits have been changed to restore the safety margin. Therefore, the original safety margin remains unchanged.

IV. Implementation of the Changes

Implementation of the changes, as proposed, will not impact the ALARA or Fire Protection programs at FitzPatrick. Moreover, the changes will not impact the environment.

V. Conclusion

The incorporation of these changes: a) will not increase the probability or the consequences of an accident or malfunction of equipment important to safety as evaluated previously in the Safety Analysis Report; b) will not increase the possibility of an accident or malfunction of a type other than that evaluated previously in the Safety Analysis Report; c) will not reduce the margin of safety as defined in the basis for any Technical Specification; d) does not constitute an unreviewed safety question, and e) involves no Significant Hazards Considerations, as defined in 10 CFR 50.92.

VI. References

1. "Supplemental Reload Licensing Submittal for James A. FitzPatrick Nuclear Power Plant Reload 5," General Electric report Y1003J01A56, Rev. 1, November 1983.

2. James A. FitzPatrick Nuclear Power Plant Final Safety Analysis Report (FSAR) revised July 1983, Rev.1

3. James A. FitzPatrick Nuclear Power Plant Safety Evaluation Report (SER)

Attachment III to JPN-83-101

"SUPPLEMENTAL RELOAD LICENSING SUBMITTAL FOR JAMES A. FITZPATRICK NUCLEAR POWER PLANT RELOAD"

REVISION 1, NOVEMBER, 1983

James A. FitzPatrick Nuclear Power Plant
New York Power Authority

Docket No. 50-333