



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
SUPPORTING AMENDMENT NO.52 TO FACILITY OPERATING LICENSE NO. DPR-59

POWER AUTHORITY OF THE STATE OF NEW YORK

JAMES A. FITZPATRICK NUCLEAR POWER PLANT

DOCKET NO. 50-333

1.0 Introduction

By letter dated March 11, 1981 (Reference 1) the Power Authority of the State of New York, the licensee, proposed changes to the James A. FitzPatrick Technical Specifications. The present Technical Specifications allow continued plant operation with fuel exposures up to 30,000 megawatt days per ton (MWD/t). Since this limit will be exceeded for some of the old fuel prior to the end of the current fuel cycle (Cycle 5), the licensee requested approval of exposures up to 36,000 MWD/t with appropriate interim reductions of allowable maximum average planar linear heat generation rate limits. The evaluation of this licensee request is provided below.

2.0 Maximum Average Planar Linear Heat Generation Rate (MAPLHGR)

The proposed new MAPLHGR limits are calculated out to higher exposures (from 30,000 MWD/STU to 40,000 MWD/STU) by the previously approved methods initially used for the fuel with exposures up to 30,000 MWD/STU. The changes in the two figures (Figures 3.5-1 and 3.5-2) are the result of extending the MAPLHGR limits to 36,000 MWD/STU for type 2 and 3,7 x 7 fuel.

Although the methodology used is generally applicable for an average planar exposure up to 36,000 MWD/t, the staff believes the effects of enhanced fission gas release in high burnup fuel (above 30,000 MWD/t) are not adequately accounted for in your submittals. To compensate for this deficiency, the staff has estimated the amount of MAPLHGR limits in Figures 3.5-1 and 3.5-2 of the proposed Technical Specifications should be reduced to assure the peak cladding temperature and local oxidation are below the limits allowed by 10 CFR 50.46. The reduction is based on the results of comparative calculations of fuel volume average temperature performed by General Electric using GEGAP III with and without an NRC correction for enhanced fission gas release and the relationship between peak cladding temperature and MAPLHGR increase presented in NEDE-23786-1-P. In estimating the MAPLHGR reduction, the staff conservatively assumed the change in volume average temperature can be translated

directly into a peak cladding temperature change. Table 1 gives the percent reduction in MAPLHGR as a function of exposure above 30,000 MWd/t for type 2 and 3 7 x 7 fuel in your submittals. We have limited the extension of the MAPLHGR to 36,000 MWd/t to account for the uncertainties in enhanced fission gas release above this exposure.

TABLE 1 - REDUCTION IN MAPLHGR AS A FUNCTION OF EXPOSURE

Exposure MWd/t	30,000	32,000	34,000	36,000
Reduction MAPLHGR, %	10.0	13.33	16.67	20.0

These MAPLHGR reductions to the licensee's proposed Technical Specifications in Figures 3.5-1 and 3.5-2 assures that the cladding temperature and local cladding oxidation would remain below the 2200°F (peak cladding temperature) and 17 percent (local cladding oxidation) limit allowed by 10 CFR 50.46 when the effects of enhanced fission gas release above 30,000 MWd/t are conservatively accounted for.

2.1 Conclusion

We have concluded that the changes to the James A. FitzPatrick Technical Specifications for the remainder of fuel cycle 5 are acceptable.

3.0 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.

4.0 Conclusion

We have concluded, based on the considerations discussed above, that: (1) because the amendment does not involve a significant increase in the probability or consequences of accidents previously considered and does not involve a significant decrease in a safety margin, the amendment does not involve a significant hazards consideration, (2) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, and (3) 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.

Dated: March 18, 1981