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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

SUPPORTING AMENDMENT NO. 19 TO PROVISIONAL OPERATING LICENSE NO. DPR-22

NORTHERN STATES POWER COMPANY

MONTICELLO NUCLEAR GENERATING PLANT

DOCKET NO. 50-263

INTRODUCTION

By letter dated December 1, 1975, as supplemented by letter dated February 27, 1976, the Northern States Power Company proposed changes to the Technical Specifications appended to Provisional Operating License No. DPR-22, for the Monticello Nuclear Generating Plant. The proposed changes involve a reduction in the main steam line low pressure isolation setpoint and reduction in the operating Minimum Critical Power Ratio (MCPR) for 8 x 8 and 7 x 7 fuel.

DISCUSSION AND EVALUATION

A. Main Steam Line Pressure Isolation Set Point Reduction

Installation of the main steam line low pressure sensors was required to provide reactor isolation in the event of an abnormal transient associated with the failure of the initial turbine pressure regulator in the open direction. This reactor isolation function was provided to limit the duration and severity of system depressurization so that no significant thermal stresses are imposed on the primary system. No credit was taken for these low pressure sensors in any of the other postulated abnormal operating transients or accidents. The current isolation set point is 850 psig; the proposed setpoint is 825 psig.

Northern States Power Company referenced Edwin I. Hatch Nuclear Plant Unit 1 (50-321) submittal dated October 9, 1975 which provided a bounding analysis for a reduction in the main steam line low pressure setpoint from 880 psig to 825 psig. The NRC staff has reviewed the

Hatch 1 analysis and has determined that it is applicable to NSP's proposed changes. In both cases (Hatch and Monticello) the additional temperature decrease and subsequent reactor vessel thermal stresses, resulting from the additional pressure reduction during the abnormal transient, are negligible. Because reduction of the low pressure isolation setpoint would not have significant effects on previously analyzed transients, we have concluded that the proposed change is acceptable.

B. Reduction In Operating Minimum Critical Power Ratio (MCPR) Limits

The operating limit MCPR, which is presently 1.41 for 8 x 8 fuel and 1.33 for 7 x 7 fuel, is based upon the most limiting transient, a turbine trip, without bypass, from 100% power and 100% flow conditions. Assuming the fuel is operating at the proposed MCPR limits of 1.38 for 8 x 8 fuel and 1.29 for 7 x 7 fuel, the calculated decrease in MCPR during the transient is .32 for 8 x 8 fuel and .23 for 7 x 7 fuel. Therefore, in the event of the occurrence of the most limiting transient, the MCPR Technical Specification Safety limit of 1.06 would not be violated.

The required operating limit MCPR is a function of the magnitude and location of the axial and rod-to-rod power peaking. In determining the required MCPR, axial and local peaking representative of beginning of cycle were assumed. That is, R-factors of 1.10 for 7 x 7 fuel and 1.102 for 8 x 8 fuel and an axial peaking factor of 1.40 at a mid core point was assumed. The transient analyses included as input data the worst consistent set of local and axial peaking factors. During the fuel cycle the local peaking, and therefore the R-factor, is reduced while the peak in the axial shape moves toward the bottom of the core. Although the operating limit MCPR would be increased by approximately 1% by the reduced end-of-cycle R-factor, this is offset by the reduction in MCPR resulting from the relocation of the axial peak to below the midplane. Because the MCPR will remain essentially constant over the fuel cycle and because the proposed MCPR limits will not result in violation of the Technical Specification Safety limit in event of the limiting transient, the proposed reduction in MCPR Operating limits is acceptable.

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 statement, negative declaration or environmental impact appraisal need not be prepared in connection with the issuance of this amendment.

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: