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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

SUPPORTING AMENDMENT NO. 30 TO PROVISIONAL OPERATING LICENSE NO. DPR-22

NORTHERN STATES POWER COMPANY

MONTICELLO NUCLEAR GENERATING PLANT

DOCKET NO. 50-263

INTRODUCTION

By Licensee Event Report dated June 27, 1977, Northern States Power Company (NSP) informed the NRC of the results of a General Electric Company (GE) verification of Fuel Cycle 5 (present cycle) Minimum Critical Power Ratio (MCPR) limits for the Monticello Nuclear Generating Plant. GE's analysis showed that the assumed time for the recirculation pump trip was incorrect in the event of a turbine trip or generator trip. The correction yielded increased values of the Operating Limit MCPR for both 7x7 and 8x8 fuel, both of which are utilized in the present Monticello core. NSP correctly established revised administrative controls to assure usage of the new MCPR limits and then, by license amendment request dated July 29, 1977, requested incorporation of the revised limits into the Monticello Technical Specifications. The July 29, 1977 letter also requested correction of an editorial error made during retyping and issuance of an earlier license amendment.

DISCUSSION & EVALUATION

Monticello's electrical protection system includes trip circuitry for the recirculation pump motors to prevent large non-essential loads from being transferred to the auxiliary transformer in the event of a turbine trip or generator trip. However, trip circuitry does not meet the same standards as the reactor protection system. When modeling was performed using the original GE fuel damage figure-of-merit (Mimimum Critical Heat Flux Ratio or MCHFR), it was found that the pump trip did not influence the results of analyzed transients. The trip was used in modeling the transients only to represent the plant as it existed.

This same modeling was performed when the new GE figure-of-merit, MCPR, was incorporated by the GE Thermal Analysis Bases (GETAB). However, in a recent model verification by GE to determine conditions at the end of Cycle 6 (the next cycle), it was discovered that the pump trip had been modeled to occur too rapidly in the GETAB analysis, resulting

in a delta CPR for the pump trip case 0.08 smaller than the case without the pump trip, and thus unintentionally taking credit for the pump trip. Corrections were incorporated to adjust the recirculation pump trip time in the model, necessitating an increase of 0.08 in the Operating Limit MCPR for both 7x7 and 8x8 fuel, and once again removing the effect of the pump trip from the determination of thermal limits. The pump trip will continue to be incorporated into the model with the revised trip time in order to best describe the plant in its existing condition.

The calculated increase in Operating Limit MCPR of 0.08 is not only bounding for the present cycle with 8x8 and 7x7 fuels, but is also applicable to the 8x8 fuel during the next fuel cycle (7x7 fuel will be replaced by 8x8 fuel during the Fall 1977 refueling outage). Analysis showed that at the end of the next fuel cycle (cycle 6), the requested Operating Limit MCPR of 1.46 will insure the Safety Limit MCPR of 1.06 is not violated during the limiting transients, which are turbine trip without bypass and generator trip without bypass.

Because the proposed change results from correction of a previous model error, and because the model has again been revised to give no credit to a non-safety-grade system, we find the proposed changes to be acceptable.

The proposed editorial change involves revising the incorrect insertion of the acronym RWM (Rod Worth Minimizer) for the acronym RBM (Rod Block Monitor) in an earlier license amendment. Our examination of the specifications involved showed that the two acronyms had indeed been inadvertently switched. We have determined that correction of such an editorial error is necessary and is acceptable. It was noted that, since the specification was issued, no occasion has arisen involving a "limiting control rod pattern" which would require functional testing of the RBM, and thus the error has resulted in no degradation of plant safety.

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.

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.

Date: September 28, 1977