



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

SUPPORTING AMENDMENT NO. 36 TO FACILITY LICENSE NO. DPR-63

NIAGARA MOHAWK POWER CORPORATION

NINE MILE POINT NUCLEAR POWER STATION UNIT NO. 1

DOCKET NO. 50-220

1.0 Introduction

By letter dated June 28, 1979, (1) Niagara Mohawk Power Corporation (the licensee) proposed changes (2) to the limiting power-to-flow line appearing in the Technical Specifications for Nine Mile Point 1 (NMP-1). The requested change to the power-to-flow curve is intended to provide additional operational flexibility during plant load changes. The safety analyses supporting the proposed technical specification change is provided in Reference 3. The proposed modification to the operating limit is substantially similar to an earlier approved revision to the power-to-flow line. However, the new proposal does not require or include changes to any other plant operating limits or limiting safety-system settings which was the case in the previously approved revision.

2.0 Evaluation

The limiting power-to-flow curve represents the maximum permissible operating steady-state core thermal power as a function of core flow. Increasing the power-to-flow curve would allow reactor operation at a correspondingly higher power for the same flow. Accordingly, the initial steady-state condition for events postulated for NMP-1 would be affected by the proposed change. To show that the limiting transients and accidents will not violate related plant safety criteria, the events which could be affected by the proposed change were re-analyzed by the licensee for this application. The analytical codes and methods used for the revised safety analyses are described in Reference 4. As described in Reference 5 these analytical procedures have been previously reviewed and accepted by the staff. The plant and cycle-specific inputs to these analyses are consistent with the revised power-to-flow curve and the most recent reload safety analyses (6, 7) for NMP-1.

As shown in References 3, 6 and 7, the most limiting abnormal operational transients for NMP-1, (which could be adversely affected by the proposed change) are turbine trip without bypass (TT w/o BP) and control rod withdrawal error (RWE). Previously for the most recent reload submittal, these events were analyzed for 100% power

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and 100% flow. This power flow condition would not be changed by the new curve. Accordingly transients initiated from this condition are covered by the previous reload analysis(6, 7) results. For this application the transients were reanalyzed for an initial steady-state flow condition of 91 percent. This represents the lowest flow for which 100% power would be allowed by the proposed curve. The results of the revised TT w/o BP analysis show that power level reductions are required near and at the end of cycle 6 in order to maintain a 25 psi pressure margin to the lowest safety valve set point. At the end of the current cycle (Cycle 6) a core power reduction to 94.3% would be required while at an exposure equal to 1000 MWd/T before the end of cycle, a derate to 98% power would be required to maintain a 25 psi margin. No power derate is necessary between the beginning of the current cycle and 2000 MWd/T before the end of cycle.

A turbine trip without bypass occurring at the end of cycle and the RWE also result in substantial reductions in critical power ratio (CPR). The revised transient analysis(3) shows that a TT w/o BP occurring from 94.3% power and 91% flow would result in a Δ CPR of 0.15 for the 8x8 and 8x8R fuel assemblies. The most severe control rod withdrawal error results in a MCPR reduction of 0.32 for the 8x8 fuel and 0.27 for the 8x8R fuel, with the current 105% rod block setting.

The above MCPR changes exceed the MCPR changes reported in the most recent reload analysis. However, these MCPR changes are bounded by the previously reported(6, 7) results for the fuel loading error event, which established the present MCPR operating limits. Accordingly, the current NMP-1 MCPR operating limits are not affected by the proposed power-to-flow curve.

With regard to the limiting overpressurization analysis, peak transient pressures are reported to be at least 25 psi below the ASME Code allowable limit of 1375 psig. Finally, all other safety analysis results and conclusions reported in the Cycle 6 reload report(6, 7) remain unaffected by the modified power-flow curve.

3.0 Technical Specifications

Based on our review, we find that the proposed modified limiting power-to-flow curve is consistent with and adequately supported by the revised safety analysis. Accordingly operation in accordance with the revised technical specification power-to-flow curve is acceptable.



4.0 Environmental Considerations

We have determined that this 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 this 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.

5.0 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.

6.0 References

1. Letter to H. Denton from LeBoeuf, Lamb, Leiby and McRae (Counsel for Niagara Mohawk Power Corporation) dated June 28, 1979.
2. Proposed Changes to the Technical Specifications (Appendix A) appearing as Attachment A to the Letter to H. Denton from LeBoeuf, Lamb, Leiby and McRae, dated June 28, 1979.
3. "Nine Mile Point Nuclear Power Station Unit 1 Extended Load Line Limit Analysis License Amendment Submittal (Cycle 6)," NEDO-24185, April 1979.
4. "Generic Reload Fuel Application," NEDE-24011-P-A, May 1977.
5. USNRC letter (D. Eisenhut) to General Electric (R. Gridley) dated May 12, 1978 transmitting "Safety Evaluation for the General Electric Topical Report, 'Generic Reload Fuel Application' (NEDO-2411-P)."
6. "Supplemental Reload Licensing Submittal for Nine Mile Point Nuclear Power Station Unit 1 Reload No. 7," NEDO-24155, November 1978.
7. Supplemental Reload Licensing Submittal for Nine Mile Point Nuclear Power Station Unit 1, Reload No. 7 Reanalysis Supplement, NEDO-24155-1, December 1978.

Dated: March 28, 1980

