



UNITED STATES  
NUCLEAR REGULATORY COMMISSION

WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION  
RELATING TO REVISION 3 OF TOPICAL REPORT NSPNAD-8608  
RELOAD SAFETY EVALUATION METHODS FOR APPLICATION TO MONTICELLO  
FOR  
NORTHERN STATES POWER COMPANY  
MONTICELLO NUCLEAR GENERATING PLANT  
DOCKET NO. 50-263

1.0 INTRODUCTION

By letter dated February 2, 1995 (Ref. 1), the Northern States Power Company (NSP) submitted Revision 3 of the Topical Report NSPNAD-8608, "Reload Safety Evaluation Methods for Application to the Monticello Nuclear Generating Plant," (Ref. 2) for NRC review. NSPNAD-8608-A, Rev. 2 describes the currently approved reload safety evaluation (RSE) methodology for the Monticello Nuclear Generating Plant. This revision documents the qualification of the currently approved DYNODE-B model, based on newly approved CASMO-3/SIMULATE-3 methodology (NSPNAD-8609, Rev. 2), to boiling water reactor (BWR) core RSE activities for the Monticello unit. NSP intends to use SIMULATE-3 for generation of physics input for the DYNODE-B program in licensing applications of RSE analyses.

2.0 SUMMARY OF THE TOPICAL REPORT

Topical Report NSPNAD-8608, Revision 3, describes the NSP qualification of new SIMULATE-3 based DYNODE-B transient analyses for application to the Monticello BWR. The qualification is addressed by comparing results of representative and limiting transients between the current nuclear data handling (NDH)-based DYNODE-B model and the SIMULATE-based model. Specifically, the report addresses the results from the Monticello Cycle 15 RSE analyses (NSPNAD-91001, Rev. 1). The consistent agreement between the previous NDH and the new SIMULATE based models presented in this topical report validates the NSP application of this revised input model for DYNODE-B analysis of the Monticello BWR unit. Section 1, providing an overview of the scope of the report, is modified to add the qualification of the SIMULATE-based DYNODE-B model, as presented in Appendix A. Appendix A is added to the topical report to describe and qualify use of the NSP-specific SIMULATE-3 inputs for the DYNODE-B transient model.

ENCLOSURE

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### 3.0 TECHNICAL EVALUATION

The nuclear models in SIMULATE and DYNODE-B used for scram reactivity, void reactivity, and Doppler reactivity are cross compared by using representative and limiting DYNODE-B transients selected from Cycle 15 for comparison of NDH-based versus SIMULATE-based analyses. The transients analyzed are slow turbine control valve closure, turbine trip without bypass, feedwater controller failure, loss-of-feedwater heater, and main steam isolation valve closure without position scram.

### 4.0 SUMMARY AND CONCLUSIONS

NSP has performed comparisons and benchmarking using the SIMULATE-3 based DYNODE-B methodology. This effort consisted of detailed comparisons of SIMULATE and DYNODE-B neutronics and comparisons of the current NDH-based model with the SIMULATE-based model for representative and limiting Monticello transients. Based on the analyses and results presented in the topical report, the staff concludes that the SIMULATE-3/DYNODE-B methodology, as validated by NSP, can be applied to transient BWR calculations for RSE applications as discussed in the above technical evaluation. The accuracy of this methodology has been demonstrated to be sufficient for use in licensing applications for safety and transient analysis.

### 5.0 REFERENCES

1. Letter from R. O. Anderson (NSP) to Document Control Desk (USNRC), regarding "Request for Approval of Revision 3 of Topical Report NSPNAD-8608, 'Reload Safety Evaluation Methods for Application to the Monticello Nuclear Generating Plant'," February 2, 1995.
2. NSPNAD-8608, Revision 3, "Reload Safety Evaluation Methods for Application to the Monticello Nuclear Generating Plant," Northern States Power Company, January 1995. (Enclosure to Ref. 1)

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