



Northern States Power Company

Monticello Nuclear Generating Plant  
2807 West Hwy 75  
Monticello, Minnesota 55362-9637

January 31, 1995

10 CFR 55.45 (b)(5)

US Nuclear Regulatory Commission  
Attn: Document Control Desk  
Washington, DC 20555

MONTICELLO NUCLEAR GENERATING PLANT  
Docket No. 50-263 License No. DPR-22

Certification of Plant-Referenced Simulator

This submittal provides the information required by 10 CFR 55.45(b)(5)(ii) and 10 CFR 55.45.(b)(5)(vi) for the Monticello Nuclear Generating Plant simulator. The required four year certification report is provided as Attachment A. Certification of the Monticello Nuclear Generating Plant simulator was provided to the Commission by letter dated February 1, 1991, from Thomas M Parker to the US Nuclear Regulatory Commission, with subject "Certification of Plant-Referenced Simulator".

This submittal contains the following new NRC commitment:

The performance test discrepancies identified in section "E" of the attached certification report are to be corrected prior to December 31, 1995.

Please contact Marv Engen, Sr Licensing Engineer, at (612) 295-1291 if you require further information.

Roger O Anderson  
Director  
Licensing and Management Issues

c: Regional Administrator - III, NRC  
NRR Project Manager, NRC  
Sr Resident Inspector, NRC  
State of Minnesota  
Attn: Kris Sanda  
J Silberg

Attachment: (A) Monticello Nuclear Generating Plant Simulator, 4 Year Certification Report

H:\DATA\NRCCORR\SIM-CERT.DOC

9502070257 950131  
PDR ADDCK 05000263  
R PDR

A005  
11

## **Attachment A**

### **MONTICELLO NUCLEAR GENERATING PLANT SIMULATOR**

#### **4 YEAR CERTIFICATION REPORT**

##### **A. Introduction**

The Monticello Simulator four year report is required to be submitted to the Nuclear Regulatory Commission in accordance with 10 CFR 55.45 on the fourth anniversary of the initial simulator certification report (February 1, 1991).

The four year report identifies the following:

1. Simulator changes.
2. Performance testing completed in the 1991-1994 time period.
3. A description of tests to be performed in the subsequent four year period.
4. Uncorrected performance test failures.
5. A schedule for correction of performance test failures.

##### **B. References**

Title 10, Code of Federal Regulations, part 55, "Operator Licenses", Subpart E, Section 45.

ANSI 3.5, 1985 "Nuclear Power Plant Simulators for use in Operator Training".

U.S. Nuclear Regulatory Guide 1.149 "Nuclear Power Plant Simulation Facilities for use in Operator License Examinations".

##### **C. Major simulator changes since initial certification**

1. The original Master-Slave 32/77 computer system was replaced by an Encore RSX system in December 1993.

2. Malfunctions added/deleted:

DELETED

\* RH03 - RHR HT. EXCHANGER LOW DIFFERENTIAL PRESSURE

ADDED

- \* CH22A - SDV VENT VALVES FAIL OPEN
- \* CH22B - SDV DRAIN VALVES FAIL OPEN
- \* ED17A - LOAD CENTER 107 FEEDER TRIP
- \* ED17B - LOAD CENTER 108 FEEDER TRIP
- \* PC05 - TORUS DRAIN
- \* PC11 - SECONDARY CONTAINMENT POSITIVE PRESSURE
- \* PO01 - SPDS COMPUTER FAILURE
- \* RH03A - LPCI INJECTION VALVE FAILURE TO OPEN (LOGIC FAILURE)
- \* RH03B - LPCI INJECTION VALVE FAILURE TO OPEN (VALVE MOTOR FAILURE)
- \* RR28 - VARIABLE INSTRUMENT LINE BREAK OUTSIDE PRIMARY CONTAINMENT
- \* RX03 - CORE POWER OSCILLATIONS
- \* TC10 - TURBINE TRIP FAILURE

3. All applicable reference plant modifications have been evaluated, installed and tested per Monticello Training Center Simulator Procedures.

D. Performance tests conducted 1991-1994

All simulator certification tests for the years 1991-1994 have been completed as scheduled in the initial Monticello Simulator Certification report (Appendix 13). The following list reiterates the categories of testing performed.

1. Normal Plant Evolutions as identified in ANSI/ANS 3.5-1985 Section 3.1.1.
2. Certified Malfunctions as identified in ANSI/ANS 3.5-1985 Section 3.1.2.
3. Steady State and Transient Performance tests as identified in ANSI/ANS 3.5-1985 Section 5.4.2 and Appendix B.
4. Computer Real Time as identified in ANSI/ANS 3.5-1985 Section 3.1.1.

5. Simulator Environment as identified in ANSI/ANS 3.5-1985 Sections 3.2.1 and 3.2.2.

All tests were satisfactory except as delineated in part E of this report.

#### **F. Performance test schedule 1995-1998**

Performance tests will be conducted as identified in Appendix 13 of the initial Monticello Simulator Certification Report. Simulator malfunctions added since the initial report will be included in the malfunction test list and tested per the schedule.

#### **E. Uncorrected performance test discrepancies 1991-1994**

##### **1. Transient Tests**

- a. TZ05 - "Simultaneous trip of both Recirculation pumps" (1994)

Problem: Total Core Flow decrease and control rod operating line do not match plant data and estimates.

##### **2. Steady State Performance Tests**

- a. US02A - 100% Steady State Performance (1994)

Problem: Individual Recirculation Loop & Total Loop flows are outside acceptable limits as compared to actual plant data.

#### **G. TEST FAILURE RESOLUTION**

Operations instructors have been notified of the performance discrepancies to ensure that simulator training will not be adversely affected. Both test failures will be corrected with the installation of an improved Core & Thermohydraulics software model. This model will be installed and ready for training by 31 December 1995.