

December 23, 2004

Mr. Thomas J. Palmisano  
Site Vice President  
Monticello Nuclear Generating Plant  
Nuclear Management Company, LLC  
2807 West County Road 75  
Monticello, MN 55362-9637

SUBJECT: MONTICELLO NUCLEAR GENERATING PLANT - FOURTH 10-YEAR  
INTERVAL INSERVICE TESTING PROGRAM RELIEF REQUEST PR-07  
(TAC NO. MC1955)

Dear Mr. Palmisano:

The Nuclear Management Company, LLC's (NMC's), letter of February 6, 2004, submitted pump Relief Request No. PR-07 requesting relief from certain inservice testing (IST) requirements of the American Society of Mechanical Engineers *Code for Operation and Maintenance of Nuclear Power Plants* (OM Code), 1995 edition including 1996 addenda. The request applied to the fourth 10-year interval of the IST plan for the Monticello Nuclear Generating Plant. NMC's letter of August 30, 2004, provided additional information for Relief Request No. PR-07, in response to the U. S. Nuclear Regulatory Commission's (NRC) request for additional information.

The NRC staff has completed its review of NMC's relief request, and finds that NMC's approach for performing the comprehensive pump test meets the intent of the OM Code, and therefore, relief from OM Code requirements is unnecessary. Enclosed is our safety evaluation.

Sincerely,

/RA/

L. Mark Padovan, Project Manager, Section 1  
Project Directorate III  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

Docket No. 50-263

Enclosure: Safety Evaluation

cc w/encls: See next page

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November 2004

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO INSERVICE TESTING PROGRAM RELIEF REQUEST PR-07

NUCLEAR MANAGEMENT COMPANY, LLC

MONTICELLO NUCLEAR GENERATING PLANT

DOCKET NO. 50-263

1.0 INTRODUCTION

The Nuclear Management Company, LLC's (NMC's), letter of February 6, 2004, submitted pump Relief Request No. PR-07 requesting relief from certain inservice testing (IST) requirements of the American Society of Mechanical Engineers (ASME) *Code for Operation and Maintenance of Nuclear Power Plants* (OM Code), 1995 edition including 1996 addenda. The request applied to the fourth 10-year interval of the IST plan for the Monticello Nuclear Generating Plant (MNGP). NMC's letter of August 30, 2004, provided additional information for Relief Request No. PR-07, in response to the U.S. Nuclear Regulatory Commission's (NRC) request for additional information.

2.0 REGULATORY EVALUATION

Title 10 of the *Code of Federal Regulations*, Section 50.55a (10 CFR 50.55a), requires that IST of certain ASME Code Class 1, 2, and 3 pumps and valves be performed in accordance with the OM Code and applicable addenda, except when alternatives have been authorized, or relief has been requested by the licensee and granted by the NRC pursuant to 10 CFR 50.55a(a)(3)(i), 10 CFR 50.55a(a)(3)(ii), or 10 CFR 50.55a(f)(6)(i). In proposing alternatives, or requesting relief, the licensee must demonstrate that: (1) the alternatives will provide an acceptable level of quality and safety, (2) compliance would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety, or (3) conformance would be impractical for its facility. The regulations in 10 CFR 50.55a authorize the NRC to approve alternatives and to grant relief from ASME Code requirements upon making the necessary findings. NRC guidance contained in Generic Letter (GL) 89-04, "Guidance on Developing Acceptable Inservice Testing Programs," provides alternatives to Code requirements which are acceptable to NRC staff. Further guidance is given in GL 89-04, Supplement 1, and NUREG-1482, "Guidance for Inservice Testing at Nuclear Power Plants."

For the fourth 10-year IST interval, NMC's Code of record for pump and valve IST is the 1995 edition with 1996 addenda of the ASME OM Code for pump and valve IST. MNGP's fourth 10-year IST interval began June 1, 2003, and ends May 31, 2012. The NRC staff's findings with respect to the IST relief request are given below.

### 3.0 TECHNICAL EVALUATION

#### 3.1 Pump Relief Request PR-07

NMC requested relief for its Emergency Filtration Train-Emergency Service Water (EFT-ESW) pumps P-111C and P-111D, from the requirements of ISTB 4.3(e)(1) of the 1995 edition with 1996 addenda of the ASME OM Code. ISTB 4.3(e)(1) requires that reference values shall be established within  $\pm 20$  percent of the pump design flow rate for the comprehensive pump test (CPT). The manufacturer's design flow rate of the EFT-EWS pump is 250 gallons per minute (gpm) at 174 feet of total developed head.

#### 3.2 NMC's Basis for Requesting Relief

NMC's February 6, 2004, submittal stated the following:

The highest repeatable test flow rates are below the minimum allowable inservice testing flow for the Comprehensive Test as specified by ISTB 4.3(e)(1). Pumps P-111C and P-111D are classified as Group B pumps per ISTB 1.3. NMC is currently performing the ISTB Group B quarterly pump test for both pumps at the highest practicable flow rate.

Attaining a repeatable inservice testing pump flow rate of  $\geq 160$  gpm is impractical due to the high system resistance for both pumps. The pumps are installed in systems that have numerous cooling coils and other components that contribute to a high system resistance for both affected system trains.

In order to attain the OM Code required comprehensive pump flow rate, NMC would have to perform a major plant modification involving the subject pumps and/or both divisions of the EFT-ESW systems. Therefore, NMC considers this OM Code requirement to be impractical to meet.

#### 3.3 Alternate Testing

NMC's letter of August 30, 2004, proposed that the CPT reference flow be established at the highest repeatable flow rates of 143 gpm for P-111C and 126 gpm for P-111D; approximately 57 percent and 50 percent of manufacture's pump design flow. In addition to the OM Code-required test for Group B pumps, NMC proposes to do the following for the quarterly pump test:

- Perform vibration testing during the Group B quarterly test and comply with the acceptance criteria established for the CPT in Table ISTB 5.2.1-1.
- Comply with the pump stabilization time requirements (2 minutes) of ISTB 5.6.1, "Group A" test when performing the Group B quarterly test.
- Include an Alert Level for differential pressure for the quarterly test that complies with the Group A pump hydraulic Acceptance Criteria per Table ISTB 5.2.1-2 in lieu of using ISTB Group B Table 5.2.2-1 for the quarterly test.

### 3.4 Evaluation

The MNGP EFT-ESW pumps fall within the scope of the ASME OM Code and are defined as Group B pumps. Therefore, they are subject to quarterly Group B tests and a biennial CPT. Pump speed as well as differential pressure or flow rate are required to be monitored for the Group B test for the EFT-ESW pumps. Additionally, speed, differential pressure, flow rate, discharge pressure, and vibration are required for the CPT. ISTB 3.4(e)(1) of the ASME OM Code requires establishing reference values for the CPT that are within  $\pm 20$  percent of pump design flow.

The CPT, which first appeared in the 1995 Edition of the OM Code, results in a more accurate assessment of pump operational readiness and performance characteristics at a reduced frequency (once every refueling cycle versus once every 3 months). The test is intended to be conducted at, or near, the pump design flow rate because this area of the pump curve is considered to be most representative of design performance characteristics of the pump. The quarterly Group A or B test is primarily a qualitative test to detect gross mechanical degradation or hydraulic failures. It does not to assess hydraulic performance capabilities, or to detect minor imbalances through vibration measurements.

The CPT provides a technically sound evaluation, and reliable assessment of pump operational readiness, and performance characteristics under design-basis accident conditions. This evaluation and assessment of design performance provides reasonable assurance that the EFT-ESW pumps will accomplish their safety-related functions. However, the OM Code does not define “design flow rate.”

Although there has been much discussion in OM Code meetings about the meaning of the term “pump design flow rate” as used in paragraph ISTB-3.4(e)(1) of the ASME OM Code, the NRC staff considers the pump design flow rate to be the licensed design-basis flow rate at the required total developed head (i.e., the range of flows assumed in the accident analysis or committed to in a licensing document). The intent of the Group A and Group B tests is to monitor for degradation. The intent of the CPT is to verify design-basis capability.

In its current configuration, P-111C and P-111D are tested using the actual flow path for the EFT-ESW system under accident conditions during each refueling outage. The CPT is run at reference points of 143 gpm for P-111C and 126 gpm for P-111D, representing the highest repeatable flow rates. As shown by NMC, these testing flow reference points for both pumps are significantly greater than the required system flows for P-111C and P-111D as defined by their design and licensing bases, i.e., 97 gpm and 93 gpm respectively. As such, the NRC staff finds that NMC’s current testing program meets ASME OM Code, paragraph ISTB 3.4(e)(1).

The NRC staff finds that the proposed approach detailed by NMC in its Relief Request PR-07, including an enhanced quarterly test, meets OM Code requirements. Therefore, NMC’s request for relief, PR-07, is unnecessary.

#### 4.0 CONCLUSION

NMC's approach for performing the CPT meets ASME OM Code requirements, and therefore, the request for relief is unnecessary.

Principal Contributor: Y. S. Huang,

Date: December 23, 2004