April 22, 2002

Mr. Jeffrey S. Forbes
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 - THIRD 10-YEAR INTERVAL INSERVICE INSPECTION PROGRAM REQUEST FOR RELIEF FROM AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME) CODE, SECTION XI REQUIREMENTS (TAC NO. MB3904)

Dear Mr. Forbes:

By letter dated January 11, 2002, Nuclear Management Company, LLC, (NMC), the licensee for Monticello Nuclear Generating Plant, submitted Relief Request No. 14 proposing an alternative to certain requirements of the ASME Code, Section XI and Code Case N-498-1 (Alternative Rules for 10-year System Hydrostatic Testing for Class 1, 2, and 3 Systems, Section XI, Division 1), which has been approved by the Nuclear Regulatory Commission. NMC has requested relief from the requirement of Code Case N-498-1 in regard to the 4-hour hold time for insulated systems prior to VT-2 visual examination during system pressure test of portions of the high pressure coolant injection (HPCI) line, including the HPCI turbine exhaust, vents and drains to the suppression chamber, for the third 10-year inservice inspection interval of Monticello Nuclear Generating Plant. NMC has proposed to perform the pressure test during a periodic HPCI surveillance test performed in accordance with the ASME Section XI Inservice Testing Program with a 60-minute hold time in lieu of the required 4-hour hold time due to operational limitations on the suppression chamber.

In this instance, the staff considers compliance with the 4-hour hold time, and certain other requirements of the applicable Code and Code Case N-498-1, to be a hardship without a compensating increase in the level of quality and safety. Therefore, the staff finds the licensee's request, pursuant to 10 CFR 50.55a(a)(3)(ii), to be acceptable, and authorizes the licensee's proposed alternative for the third 10-year inservice inspection interval of Monticello Nuclear Generating Plant. The staff's evaluation is enclosed.

Sincerely,

/RA/

L. Raghavan, Chief, Section 1
Project Directorate III
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket No. 50-263

Enclosure: Safety Evaluation

cc w/encl: See next page

April 22, 2002

Mr. Jeffrey S. Forbes
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 - THIRD 10-YEAR INTERVAL INSERVICE INSPECTION PROGRAM REQUEST FOR RELIEF FROM AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME) CODE, SECTION XI REQUIREMENTS (TAC NO. MB3904)

By letter dated January 11, 2002, Nuclear Management Company, LLC, (NMC), the licensee for Monticello Nuclear Generating Plant, submitted Relief Request No. 14 proposing an alternative to certain requirements of the ASME Code, Section XI and Code Case N-498-1 (Alternative Rules for 10-year System Hydrostatic Testing for Class 1, 2, and 3 Systems, Section XI, Division 1), which has been approved by the Nuclear Regulatory Commission. NMC has requested relief from the requirement of Code Case N-498-1 in regard to the 4-hour hold time for insulated systems prior to VT-2 visual examination during system pressure test of portions of the high pressure coolant injection (HPCI) line, including the HPCI turbine exhaust, vents and drains to the suppression chamber, for the third 10-year inservice inspection interval of Monticello Nuclear Generating Plant. NMC has proposed to perform the pressure test during a periodic HPCI surveillance test performed in accordance with the ASME Section XI Inservice Testing Program with a 60-minute hold time in lieu of the required 4-hour hold time due to operational limitations on the suppression chamber.

In this instance, the staff considers compliance with the 4-hour hold time, and certain other requirements of the applicable Code and Code Case N-498-1, to be a hardship without a compensating increase in the level of quality and safety. Therefore, the staff finds the licensee's request, pursuant to 10 CFR 50.55a(a)(3)(ii), to be acceptable, and authorizes the licensee's proposed alternative for the third 10-year inservice inspection interval of Monticello Nuclear Generating Plant. The staff's evaluation is enclosed.

Sincerely,
/RA/
L. Raghavan, Chief, Section 1
Project Directorate III
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket No. 50-263

Enclosure: Safety Evaluation

cc w/encl: See next page

DISTRIBUTION:

PUBLIC	OGC	ACRS	BBurgess, RGN-III
PDIII-1 Reading	TBergman	SMiranda	RBouling
GHill			

ADAMS Accession No.: ML021000541 *Provided SE input by memo

OFFICE	PDIII-1/PM	PDIII-1/LA	OGC	PDIII-1/SC	EMCB*
NAME	SMiranda	RBouling	SBrock	LRaghavan	TChan
DATE	04/11/02	04/11/02	04/15/02	04/22/02	04/02/02

OFFICIAL RECORD COPY

cc:

J. E. Silberg, Esquire
Shaw, Pittman, Potts and Trowbridge
2300 N Street, N. W.
Washington, DC 20037

U.S. Nuclear Regulatory Commission
Resident Inspector's Office
2807 W. County Road 75
Monticello, MN 55362

Site Licensing Manager
Monticello Nuclear Generating Plant
Nuclear Management Company, LLC
2807 West County Road 75
Monticello, MN 55362-9637

Robert Nelson, President
Minnesota Environmental Control
Citizens Association (MECCA)
1051 South McKnight Road
St. Paul, MN 55119

Commissioner
Minnesota Pollution Control Agency
520 Lafayette Road
St. Paul, MN 55155-4194

Regional Administrator, Region III
U.S. Nuclear Regulatory Commission
801 Warrenville Road
Lisle, IL 60532-4351

Commissioner
Minnesota Department of Health
717 Delaware Street, S. E.
Minneapolis, MN 55440

Douglas M. Gruber, Auditor/Treasurer
Wright County Government Center
10 NW Second Street
Buffalo, MN 55313

Commissioner
Minnesota Department of Commerce
121 Seventh Place East
Suite 200
St. Paul, MN 55101-2145

Adonis A. Neblett
Assistant Attorney General
Office of the Attorney General
445 Minnesota Street
Suite 900
St. Paul, MN 55101-2127

Mr. Roy A. Anderson
Executive Vice President and
Chief Nuclear Officer
Nuclear Management Company, LLC
700 First Street
Hudson, WI 54016

Nuclear Asset Manager
Xcel Energy, Inc.
414 Nicollet Mall
Minneapolis, MN 55401

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

THIRD 10-YEAR INTERVAL INSERVICE INSPECTION PROGRAM

REQUEST FOR RELIEF FROM AMERICAN SOCIETY OF MECHANICAL ENGINEERS

(ASME) CODE, SECTION XI REQUIREMENTS

MONTICELLO NUCLEAR GENERATING PLANT

NUCLEAR MANAGEMENT COMPANY, LLC

DOCKET NO. 50-263

1.0 INTRODUCTION

Inservice inspection (ISI) of the ASME Code Class 1, 2, and 3 components is to be performed in accordance with Section XI of the ASME Boiler and Pressure Vessel Code (Code) and applicable addenda as required by 10 CFR 50.55a(g), except where specific relief has been granted by the Commission pursuant to 10 CFR 50.55a(g)(6)(i). 10 CFR 50.55a(a)(3) states that alternatives to the requirements of paragraph (g) may be used, when authorized by the Nuclear Regulatory Commission (NRC), if the applicant demonstrates that (i) the proposed alternatives would provide an acceptable level of quality and safety or (ii) compliance with the specified requirements would result in hardship or unusual difficulty without a compensating increase in the level of quality and safety.

Pursuant to 10 CFR 50.55a(g)(4), ASME Code Class 1, 2, and 3 components (including supports) shall meet the requirements, except the design and access provisions and the preservice examination requirements set forth in the ASME Code, Section XI, "Rules for Inservice Inspection of Nuclear Power Plant Components," to the extent practical within the limitations of design, geometry, and materials of construction of the components. The regulations require that inservice examination of components and system pressure tests conducted during the first 10-year interval and subsequent intervals comply with the requirements in the latest edition and addenda of Section XI of the ASME Code incorporated by reference in 10 CFR 50.55a(b) 12 months prior to the start of the 120-month interval, subject to the limitations and modifications listed therein. The applicable edition of the ASME Code, Section XI, for the third 10-year ISI interval of Monticello Nuclear Generating Plant, is the 1986 Edition.

By letter dated January 11, 2002, Nuclear Management Company, LLC, (NMC), the licensee for Monticello Nuclear Generating Plant, submitted Relief Request No. 14 proposing an alternative to certain requirements of the ASME Code, Section XI and Code Case N-498-1 (Alternative Rules for 10-year System Hydrostatic Testing for Class 1, 2, and 3 Systems, Section XI,

Division 1), which has been approved by the NRC. NMC has requested relief from the requirement of Code Case N-498-1 in regard to the 4-hour hold time for insulated systems prior to VT-2 visual examination during system pressure test of portions of the high pressure coolant injection (HPCI) line, including the HPCI turbine exhaust, vents and drains to the suppression chamber, for the third 10-year ISI interval of Monticello Nuclear Generating Plant. NMC has proposed to perform the pressure test during a periodic HPCI surveillance test performed in accordance with the ASME Section XI Inservice Testing Program with a 60-minute hold time in lieu of the required 4-hour hold time due to operational limitations on the suppression chamber.

The staff has evaluated the licensee's request for relief pursuant to 10 CFR 50.55a(a)(3)(ii) for the third 10-year ISI interval of Monticello Nuclear Generating Plant.

2.0 DISCUSSION (RELIEF REQUEST NO. 14)

Identification of Systems and Components

Insulated Class 2 pressure retaining piping and components in the HPCI system include; but are not limited to: 1) the steam line, downstream of the HPCI steam admission valve (MO-2036) through the HPCI Turbine (S-201), up to and including Torus penetration X-221; 2) the insulated portion of the branched main process vacuum breaker line, downstream of the manual block valve (HPCI-82) in the steam exhaust line and up to and including Torus penetration X-217; 3) steam line drain lines including those attached and downstream of stop valve HO-7, up to and including Torus penetration X-222; and 4) a small section of gland seal condenser condensate pump return piping between check valve HPCI-20 and the cooling water return line.

Code Requirements

ASME Code, Section XI, 1986 Edition, Table IWC-2500-1, Examination Category C-H requires a VT-2 visual examination during a system hydrostatic test once every 10-year ISI interval. Subsection IWA-5213(d) requires a 4-hour hold time for insulated systems, and a 10-minute hold time for non-insulated systems or components after attaining the test pressure and temperature conditions prior to performing the VT-2 visual examination.

Code Case N-498-1 (Alternative Rules for 10-year System Hydrostatic Testing for Class 1, 2, and 3 Systems, Section XI, Division 1), approved for use by NRC in Regulatory Guide 1.147 "Inservice Inspection Code Case Acceptability, ASME Section XI, Division 1" Revision 12, allows performance of a system leakage test in lieu of the hydrostatic test, but also requires pressurization for a minimum of 4 hours for insulated systems and 10 minutes for non-insulated systems at nominal operating pressure prior to performing the VT-2 visual examination.

Licensee's Requested Relief

Relief is requested from maintaining the 4-hour holding time at test pressure required by the Code in subsection IWA-5213(d) and also in Code Case N-498-1, step b(3) for the subject systems.

Licensee's Proposed Alternative (as stated):

Monticello Nuclear Generating Plant will implement the inspection rules for 10 year hydrostatic testing per ASME Code Case N-498-1 with the following exception:

A system pressure test shall be performed in accordance with ASME Section XI, IWA-5211(b) for the subject system or a portion of the system not required to operate during normal reactor operation, but for which periodic system or component functional testing is performed to meet Owner's requirements. This test shall consist of performing the required VT-2 examinations in conjunction with a periodic HPCI surveillance test performed in accordance with the ASME Section XI Inservice Testing Program. The test "hold time" for normally unpressurized, insulated components shall be a minimum of 60 minutes starting when the test flow and the pressure requirements have been met.

Use of Code Case N-498-1 with a 60 minute "hold time" for normally unpressurized, insulated components will provide acceptable detection of any leaks in the (mostly low pressure) portion of the system which is insulated.

Licensee's Basis for Relief (as stated):

Operation of the HPCI system at the Code required pressure and temperature for the required 4 hour test condition "hold time" would result in undesirable Torus water temperature, thereby challenging compliance with the technical specification limits and reducing the suppression pool heat sink margin. Additionally, a 4 hour test would unnecessarily challenge the operating personnel for a longer time than is needed to determine whether pressure boundary leakage exists in the insulated, normally unpressurized, portions of the system.

Not only will undesirable Torus water temperatures result from operating the HPCI system for 4 hours, there will also be a decrease in maneuvering tolerance for response to an actual transient should one occur simultaneously with the performance of the test. This challenge to operating personnel, and decrease in maneuvering tolerances would be without a compensating increase in safety. The proposed one hour "hold time," as discussed in the proposed alternative examination, provides an acceptable level of quality and safety to ensure that pressure boundary leakage can be identified in accordance with Code requirements.

Additionally, this relief request only applies to those portions of the HPCI system that are insulated, normally unpressurized, and/or require turbine operation to be pressurized (e.g., the turbine exhaust line and steam line drains from the exhaust piping). The majority of the HPCI steam line is normally pressurized at reactor pressure. The normally pressurized lines may be inspected in conjunction with or at a time separate from this system examination.

Uninsulated piping, such as the water side piping of the HPCI system can be inspected following a hold time of 10 minutes per Code Case N-498-1. Other portions of system piping such as the steam lines upstream of the outboard isolation valve are inspected during other Code examinations.

3.0 EVALUATION

Both the Code and Code Case N-498-1 specify pressure tests that require a 4-hour hold time prior to performing the VT-2 visual examination during the hydrostatic test of insulated systems. The licensee has stated that compliance with the 4-hour hold time will result in hardship or unusual difficulty without a compensating increase in the level of quality and safety. The licensee has further stated that performance of the test with a 4-hour hold time could compromise plant safety.

Based on the review of information provided, the staff believes that in order to maintain suppression pool temperature within the technical specification limits, the pressure test and the 4-hour hold time for the subject system would require dedicated operation of the residual heat removal system in the suppression pool cooling mode while the reactor is at power. Furthermore, due to exhaust of steam from the HPCI turbine into the suppression pool, the steam condensation capability of the suppression pool will be reduced. Therefore, should an actual plant emergency occur during the test, the ability to bring the plant to a safe shutdown condition could be diminished.

Within each 10-year inspection interval, a system functional test at operating pressure including a VT-2 visual examination is conducted on the system at 40-month intervals in accordance with the Code. At or near the end of each inspection interval, the Code requires a hydrostatic test, which by virtue of Code Case N-498-1, can be a system leakage test requiring pressurization to nominal operating pressure for at least 4 hours prior to the VT-2 visual examination. However, the licensee's proposed alternative would allow performance of the pressure test during the ASME Section XI Inservice Test with pressurization for at least 60 minutes at nominal operating pressure without removal of the insulation in lieu of a 4-hour hold time at this pressure prior to the VT-2 visual examination.

The piping and components subject to the VT-2 visual examination contain steam. The staff believes that steam leaks are audible and, therefore, are more easily detectable than comparable water leaks from insulated components. Therefore, for these components, a reduced hold time for steam piping at nominal operating pressure without removal of the insulation prior to performing VT-2 visual examination is expected to permit detection of leakage. The piping included in this relief are the portions extending from the steam admission valve through the HPCI turbine and the turbine exhaust piping to the suppression pool along with the associated drains and vent lines. In an unlikely event of missing a very small leak during the system pressure test, the leak can be detected during maintenance activities requiring pump/turbine operation for post maintenance testing or the next system functional test. Further, assuming reasonable crack growth between consecutive tests for the portion of subject piping which is at system pressure during normal plant operation, the system will also remain functional in spite of a leak. Compliance with the Code requirement would require removal of insulation from the affected piping, conduct of the test and replacement of the insulation following the test. This would result in hardship to the licensee without a compensating increase in the level of quality and safety.

4.0 CONCLUSION

The staff concludes that for the HPCI turbine inlet and exhaust piping to the suppression pool and the associated drains and vents, maintaining a 4-hour hold time at nominal operating pressure prior to the VT-2 visual examination during a system pressure test could challenge the heat limitations of the suppression pool and thus, could create an operational safety concern. A system pressure test during the ASME Section XI Inservice Test at nominal operating pressure with a 60-minute hold time at pressure without removal of the insulation prior to performing the VT-2 visual examination will provide reasonable assurance of leak-tight integrity of the subject system. In addition, the staff considers the removal and subsequent reinstallation of insulation for the sole purpose of complying with the requirements of the applicable Code and Code Case N-498-1 to be a hardship without a compensating increase in the level of quality and safety. Therefore, pursuant to 10 CFR 50.55a(a)(3)(ii), the licensee's proposed alternative is authorized for the third 10-year ISI interval of Monticello Nuclear Generating Plant.

Principal Contributor: P. Patnaik

Date: April 22, 2002