February 11, 1998

Mr. Roger O. Anderson, Director
Licensing and Management Issues
Northern States Power Company
414 Nicollet Mall
Minneapolis, Minneapolis 55401

SUBJECT: MONTICELLO NUCLEAR GENERATING PLANT - REQUEST FOR ADDITIONAL INFORMATION ON LICENSE AMENDMENT REQUEST ENTITLED "SUPPORTING THE MONTICELLO NUCLEAR GENERATING PLANT (MNGP) POWER RERATE PROGRAM" (TAC NO. M96238)

Dear Mr. Anderson:

By letter dated July 26, 1996, Northern States Power Company (NSP) submitted a license amendment request to increase the MNGP operating license maximum power level to 1775 megawatts thermal and revise supporting MNGP Technical Specifications. This change reflects an increase of 6.3 percent above the currently licensed power level of 1670 megawatts thermal.

On April 14, 1997, the staff issued its request for additional information (RAI) based on a preliminary review of the July 26, 1996, submittal. NSP responded to the staff's RAI in a letter dated September 5, 1997. Subsequently, by a letter dated December 4, 1997, NSP submitted Revision 1 to the original submittal dated July 26, 1996.

Based on a review of the submittals dated September 5 and December 4, 1997, the staff has determined that additional information is necessary to complete its review. The enclosed RAI provides details of the required material. Please advise NRC of NSP's schedule for responding to the enclosed RAI.

Sincerely,

ORIGINAL SIGNED BY
Tae Kim, Senior Project Manager
Project Directorate III-1
Division of Reactor Projects - III/IV
Office of Nuclear Reactor Regulation

Docket No: 50-263
Enclosure: As stated
cc w/encl: See next page

DF01

DISTRIBUTION:

Docket File	OGC	PUBLIC	ACRS
PD31 RF	EAdensam (EGA1)		JMcCormick-Barger, RIII
JKudrick	HGarg	JKnox	CWu
GWest	JLee	RFrahm, Sr.	

DOCUMENT NAME: G:\WPDOCS\MONTICEL\MO96238.LTR
TO RECEIVE A COPY OF THIS DOCUMENT, INDICATE IN THE BOX: "C" = COPY WITHOUT ENCLOSURES "E" = COPY WITH ENCLOSURES "N"

OFFICE	PD31:PM	E	PD31:LA	E	PD31:PD	E				
NAME	TJKim TJK		CJamerson CJ		CACarpenter CAC					
DATE	2/ 11 /98		2/ 11 /98		2/ 11 /98		2/ /98		2/ /98	

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, Minnesota 55362

Plant Manager
Monticello Nuclear Generating Plant
ATTN: Site Licensing
Northern States Power Company
2807 West County Road 75
Monticello, Minnesota 55362-9637

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

Commissioner
Minnesota Pollution Control Agency
520 Lafayette Road
St. Paul, Minnesota 55119

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

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

Darla Groshens, Auditor/Treasurer
Wright County Government Center
10 NW Second Street
Buffalo, Minnesota 55313

Kris Sanda, Commissioner
Department of Public Service
121 Seventh Place East
Suite 200
St. Paul, Minnesota 55101-2145

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

REQUEST FOR ADDITIONAL INFORMATION REGARDING PROPOSED

POWER UPRATE FOR THE MONTICELLO NUCLEAR GENERATING PLANT

Docket Number 50-263

1. On pages 24 and 25 of the submittal dated September 5, 1997, it is stated that "the required time to initiate manual depressurization of the reactor vessel was changed from 26 minutes to 23 minutes...the time required to initiate SBLC [standby liquid control system] changes from 21 minutes to about 13 minutes...Although required times to accomplish manual operator actions are decreased as illustrated above, there is still adequate time to accomplish these actions, and an exception [emphasis added] that the actions would indeed be accomplished." The licensee noted that the two subject operator actions are examples of operator actions most sensitive to power rerate.

   Please provide the bases for assurance (i.e., simulator observations and licensee assessments) that operators can perform these actions in the required response times.

2. NSP's response to question 36 in the submittal dated September 5, 1997, provides a statement that was to be added to the revised license amendment. The statement should clearly and specifically indicate that:

   For power rerate, GE setpoint methodology provided in NEDC-31336, General Electric Setpoint Methodology, is used in establishing setpoints.

3. NSP's response to question 38 provided that the setpoint for Condenser Low Vacuum has been revised from 23.25" Hg to 22.25" Hg. However, Exhibit B, TS Table 3.1.1, page , and Exhibit A, pages A-8 and A-31, indicate that the Condenser Low Vacuum setpoint has been revised from 23" Hg to 22" Hg. Clarify this discrepancy.

4. Exhibit A, page A-9, item 2b, states that TS Table 3.1.1, page 30, item d, will be revised to state, "when the reactor thermal power is <45% (798.75MWt)." However, Exhibit B and Exhibit C indicate this to be, "when the reactor thermal power is ≤45% (798.75MWt). Clarify this discrepancy.

5. Exhibit B and Exhibit C of the TS amendment request provide more changes to the TS than listed in Table 5.1 of Exhibit E. For example, the following changes were not identified in Table 5.1:

   a) Turbine condenser low vacuum (TS Table 3.1.1).
   b) Low pressure core cooling pumps discharge pressure interlock (TS Table 3.2.2, item c.3).
   c) Reactor pressure interlock (TS Table 3.2.1, item 6.a).

   Explain why these changes were not included in Table 5.1 of Exhibit E.

ENCLOSURE

6. For each component/equipment type (or one representative/bounding example of a component/equipment type) where expected environmental conditions at the uprate power level exceeds the environmental conditions tested to, provide the following:

   a) Description showing the relationship between environmental conditions (i.e., temperature) tested to, the expected environmental conditions at current power levels (if applicable/available), and the expected environmental conditions at power uprate level from time 0 (i.e., initiation of accident) to the time the component/equipment type is required to remain operable for post-LOCA [loss-of-coolant accident] operation.

   b) Evaluation demonstrating qualification for each segment of the uprate power level temperature response that is not enveloped by the environmental conditions (i.e., temperature) tested to.

   c) Where (or if) margins derived through the use of the Arrhenius methodology are utilized as part of the basis for concluding continued qualification, provide the Arrhenius calculation at the current (if applicable/available) and uprate power levels. Define the margins available for the current and uprate power levels and describe and justify the reduced margin for the uprate power level.

   d) Provide MNGP Calculation CA 97-176 which shows that the equivalent temperature exposure time for the EQ [environmental qualification] temperature evaluation profile exceeds the equivalent temperature exposure time for the DBA [design basis accident] temperature profile.

7. The Monticello normal design configuration includes provisions for the automatic fast bus transfer of the offsite power source through the 2R to the offsite power source through the 1R transformer. As a result of power uprate and other design changes, loading on the 1R transformer has increased. To accommodate this increased loading and to assure acceptable voltages for safety system loads, the licensee has derated the 1R transformer and implemented design provisions (when automatic transfer occurs) to trip both recirc MGs [motor generators], to trip both circulating water pumps, and to re-energize only one feed pump.

   a) Describe design, operational, testing, technical specification requirements, and/or other provisions that assure a trip of both recirc MGs, a trip of both circulating water pumps, and the re-energization of only one feed pump.

   b) For failure of one of the two operable offsite circuits, the Monticello Updated Safety Analysis Report (USAR) indicates that design provisions are provided for automatic fast bus transfer from (1) the normal offsite power supply (transformer 2R) to the standby offsite supply (transformer 1R), (2) the normal offsite power supply (transformer 2R) to the standby offsite supply (transformer 1AR), or (3) the standby offsite supply (transformer 1R) to the standby offsite supply (transformer 1AR). Describe design, operational, testing, technical specification surveillance and limiting conditions for operation, reliability data,

and/or other provisions that assure that the correct (or abnormal) operation (or failure) of this automatic power supply transfer will not cause the loss of both offsite circuits following a LOCA. With respect to reliability for having at least one offsite circuit immediately available to redundant safety systems following a LOCA, describe the effect (with and without the automatic bus transfer being operable) due to power uprate.

c) For "weak grid" conditions (i.e., when substation autotransformer No. 10 is out of service), the offsite system design (after power uprate) will have sufficient capacity and capability to permit operation of safety systems following a LOCA. It is the staff's understanding that the substation autotransformer No. 10 is considered (or is representative of) the worst-case transmission system contingency. If a transmission network failure were to occur with transformer 10 out of service, verify that the offsite system would still have sufficient capacity and capability to permit operation of safety systems following a LOCA. If this is not the case, verify that the offsite system would be considered inoperable because licensing/design basis requirements are not being met when autotransformer No. 10 is out of service.

d) Based on a review of licensing/design basis commitments documented in the Monticello JSAR, it is the staff's understanding that operability of an immediately available offsite circuit at Monticello (more conservatively) requires that the transmission network have sufficient capacity and capability (as demonstrated by stability analysis) so that acceptable voltage (from the offsite system via at least one of two offsite circuits) will remain available following simultaneous LOCA and any single failure on the offsite system or transmission network. Confirm this understanding.

8. Section 3, Design Basis Accidents, of Revision 1 to the license amendment request dated July 26, 1996, supporting the Monticello Nuclear Generating Plant Power Rerate Program, states that the radiological consequences of the limiting design-basis accidents were re-evaluated. It further states that the evaluation was performed using inputs and evaluation techniques consistent with the current regulatory guidance and they are different from those used in the current licensing basis evaluation presented in the Monticello USAR and the safety evaluation performed by NRC (AEC).

Provide major parameters and assumptions used in the re-evaluation of the radiological consequences complete with dose calculations performed for the site boundaries (exclusion area boundary and low population zone) and for the control room operators resulting from (1) the LOCA, (2) the fuel handling accident (refueling accident), and (3) the control rod drop accident. Include a description of and the bases for the applicability of the inputs, assumptions, models, and resultant calculations related to the relative concentration values (X/Qs) used in the dose assessments. The description should also address the basis for selection of the period of meteorological data used, including justification of long-term (e.g., 30 years) and site area (e.g., free from local obstructions such as trees or plant structures) representativeness and measures to assure high data quality.

9. In response to Question 23 in the submittal dated September 5, 1997, it is stated that the response to this question as it applies to motor-operated valve (MOV) performance following the power uprate is in progress and will be submitted at a later date. As of the date of this RAI, we have not received your response. Provide a list of safety-related valves affected by the power uprate, their functions and operating conditions (including pressure, temperature, differential pressure, flow rate, ambient pressure, and stroke times) at the current (100 percent power design basis) and the power uprate conditions. Identify mechanical components for which operability at the uprated power level could not be confirmed. Also, provide a discussion of how the Monticello MOV and air-operated valve programs have been updated to reflect the extended power uprate condition.

10. In response to Question 25 in the submittal dated September 5, 1997, regarding the maximum calculated stresses for the critical BOP [balance-of-plant] piping systems, NSP stated that the maximum piping stress increases are shown in Table 3-5 of the power uprate license amendment request. Table 3-5, "Piping Stress Comparisons," provides the maximum percent increases in piping stresses for limiting BOP systems. Examination of the data in Table 3-5 indicates that the percent stress increases are substantial at some locations. We request that NSP provide a comparison of maximum stresses against the code allowable stress limits to demonstrate that the piping systems and their supports are within the allowable limits at the uprated power level.

11. Please describe how NSP has verified that the safety limits and operating limits provided by the fuel vendor for the Monticello-specific core are calculated in accordance with NRC-approved codes/methodologies with applicable limitations (if any) contained in the staff safety evaluation. List all restrictions and conditions specified in the referenced topical reports and their associated safety evaluations that are appropriate for Monticello's specific core.

12. Provide the upper bound PCT [peak cladding temperature] for the Monticello plant at the limiting large and small break sizes (at the DBA-LOCA and the 0.06 sq ft size).

13. In Section 4.1, Exhibit E of the December 4 1997, submittal, it references NRC's safety evaluation dated July 25, 1997, which reviewed and approved the NSP's license amendment request dated June 19, 1997. This submittal included confirmatory calculations with the SHEX code and the HXSIZ code conducted at 1880 MWt to bound the calculated core shutdown power that would result from the use of ANS 5.1-1979 decay heat model with a 2-sigma uncertainty adder at the currently licensed power level of 1670 MWt. Please provide similar analyses at 1775 MWt in support of the proposed power rerate.