September 9, 1994

Docket No. 50-263

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

Dear Mr. Anderson:

SUBJECT: MONTICELLO NUCLEAR GENERATING PLANT - ISSUANCE OF AMENDMENT RE: SECONDARY CONTAINMENT SYSTEM AND STANDBY GAS TREATMENT SYSTEM WATER LEVEL SETPOINT CHANGE (TAC NO. M89226)

The Commission has issued the enclosed Amendment No. 91 to Facility Operating License No. DPR-22 for the Monticello Nuclear Generating Plant. The amendment consists of changes to the Technical Specifications (TS) in response to your application dated March 28, 1994.

The amendment changes TS Tables 3.2.4 and 4.2.1 such that the initiating parameter for secondary containment isolation and standby gas treatment system would be revised from Low Reactor Water Level to Low-Low Reactor Water Level.

A copy of our related Safety Evaluation is also enclosed. Notice of Issuance will be included in the Commission's biweekly Federal Register notice.

Sincerely,

Original signed by

Beth A. Wetzel, Acting Project Manager
Project Directorate III-1
Division of Reactor Projects - III/IV
Office of Nuclear Reactor Regulation

Enclosures:
1. Amendment No. 91 to DPR-22
2. Safety Evaluation

cc w/enclosures:
See next page

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no legal objection

OFFICE	(A)LA:PD31-1	(A)PM:PD31-1	OGC	PD:PD31-1
NAME	LLessler	BWetzel:gl		LMarsh
DATE	8/25/94	8/25/94	9/ /94	9/8/94

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Mr. Roger O. Anderson, Director
Northern States Power Company

Monticello Nuclear Generating Plant

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DATED: September 9, 1994

AMENDMENT NO. 91 TO FACILITY OPERATING LICENSE NO. DPR-22-MONTICELLO

Docket File
NRC & Local PDRs
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cc: Plant Service list

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

NORTHERN STATES POWER COMPANY

DOCKET NO. 50-263

MONTICELLO NUCLEAR GENERATING PLANT

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 91
License No. DPR-22

1. The Nuclear Regulatory Commission (the Commission) has found that:

   A. The application for amendment by Northern States Power Company (the licensee) dated March 28, 1994, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;

   B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;

   C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;

   D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and

   E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.C.(2) of Facility Operating License No. DPR-22 is hereby amended to read as follows:

Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 91 , are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

Marsha Gamberoni for

Ledyard B. Marsh, Director
Project Directorate III-1
Division of Reactor Projects - III/IV
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Technical Specifications

Date of Issuance: September 9, 1994

ATTACHMENT TO LICENSE AMENDMENT NO. 91

FACILITY OPERATING LICENSE NO. DPR-22

DOCKET NO. 50-263

Revise Appendix A Technical Specifications by removing the pages identified below and inserting the attached pages. The revised pages are identified by amendment number and contain vertical lines indicating the areas of change.

REMOVE	INSERT
59	59
62	62
70	70

Table 3.2.4
Instrumentation That Initiates Reactor Building Ventilation Isolation
And Standby Gas Treatment System Initiation

Function	Trip Settings	Total No. of Instrument Channels Per Trip System	Min. No. of Operable or Operating Instrument Channels Per Trip System (Notes 1, 2)	Required Conditions*
1. Low Low Reactor Water Level (Note 3)	≥6'-6", ≤6'-10"	2	2	A. or B.
2. High Drywell Pressure (Note 3)	≤2 psig	2	2	A. or B.
3. Reactor Building Plenum Radiation Monitors	≤100 mR/hr	1	1 (Note 4)	A. or B.
4. Refueling Floor Radiation Monitors	≤100 mR/hr	1	1 (Note 4)	A. or B.

Notes:

(1) There shall be two operable or tripped trip systems for each function with two instrument channels per trip system and there shall be one operable or tripped trip system for each function with one instrument channel per trip system.

(2) Upon discovery that minimum requirements for the number of operable or operating trip systems or instrument channels are not satisfied action shall be initiated to:

(a) Satisfy the requirements by placing appropriate channels or systems in the tripped condition, or
(b) Place the plant under the specified required conditions using normal operating procedures.

(3) Need not be operable when primary containment integrity is not required.

(4) One of the two monitors may be bypassed for maintenance and/or testing.

* Required Conditions when minimum conditions for operation are not satisfied.

A. The reactor building ventilation system isolated and the standby gas treatment system operating.

B. Establish conditions where secondary containment is not required.

Table 4.2.1 - Continued
Minimum Test and Calibration Frequency For Core Cooling
Rod Block and Isolation Instrumentation

Instrument Channel	Test (3)	Calibration (3)	Sensor Check (3)
3. Steam Line Low Pressure	Once/3 months	Once/3 months	None
4. Reactor Low Low Water Level	Once/3 months (Note 5)	Every Operating Cycle-Transmitter Once/3 Months-Trip Unit	Once/shift
CONTAINMENT ISOLATION (GROUPS 2 & 3)			
1. Reactor Low Water Level (Note 10)	-	-	-
2. Drywell High Pressure (Note 10)	-	-	-
HPCI (GROUP 4) ISOLATION			
1. Steam Line High Flow	Once/month	Once/3 months	None
2. Steam Line High Temperature	Once/month	Once/3 months	None
RCIC (GROUP 5) ISOLATION			
1. Steam Line High Flow	Once/month	Once/3 months	None
2. Steam Line High Temperature	Once/month	Once/3 months	None
REACTOR BUILDING VENTILATION & STANDBY GAS TREATMENT			
1. Reactor Low Low Water Level	Once/3 months (Note 5)	Every Operating Cycle - Transmitter Once/3 months - Trip Unit	Once/shift
2. Drywell High Pressure (Note 10)	-	-	-
3. Radiation Monitors (Plenum)	Once/month	Once/3 months	Once/day
4. Radiation Monitors (Refueling Floor)	Once/month	Once/3 months	Note 4
RECIRCULATION PUMP TRIP AND ALTERNATE ROD INJECTION			
1. Reactor High Pressure	Once/month (Note 5)	Once/Operating Cycle-Transmitter Once/3 Months-Trip Unit	Once/Day
2. Reactor Low Low Water Level	Once/month (Note 5)	Once/Operating Cycle-Transmitter Once/3 Months-Trip Unit	Once/shift
SHUTDOWN COOLING SUPPLY ISOLATION			
1. Reactor Pressure Interlock	Once/month	Once/3 Months	None

	Trip Function	Deviation
Reactor Building Ventilation Isolation and Standby Gas Treatment System Initiation Specification 3.2.E.3 and Table 3.2.4	Reactor Building Vent Plenum Monitors	+5 mR/hr
	Refueling Floor Radiation Monitors	+5 mR/hr
	* Low Low Reactor Water Level	-3 inches
	High Drywell Pressure	+1 psi
Primary Containment Isolation Functions Table 3.2.1	* Low Low Water Level	-3 inches
	High Flow in Main Steam Line	+2%
	High Temp. in Main Steam Line Tunnel	+10°F
	Low Pressure in Main Steam Line	-10 psi
	High Drywell Pressure	+1 psi
	* Low Reactor Water Level	-6 inches
	HPCI High Steam Flow	+7,500 lb/hr
	HPCI Steam Line Area High Temp.	+2°F
	RCIC High Steam Flow	+2250 lb/hr
	RCIC Steam Line Area High Temp	+2°F
	Shutdown Cooling Supply ISO	+7 psi

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 91 TO FACILITY OPERATING LICENSE NO. DPR-22

NORTHERN STATES POWER COMPANY

MONTICELLO NUCLEAR GENERATING PLANT

DOCKET NO. 50-263

1.0 INTRODUCTION

By letter dated March 28, 1994, the Northern States Power Company, licensee for the Monticello Nuclear Generating Plant (Monticello), applied for an amendment to the facility Technical Specifications (TS). The proposed amendment would revise the reactor vessel water level instrument setpoint for initiation of secondary containment isolation and standby gas treatment system (SGTS) actuation. The setpoint would be changed from the "Low" value which is 10½ ft. above the top of active fuel (TAF) to the "Low-Low" value which is 6½ ft. TAF.

The purpose of the proposed amendment is to reduce the number of spurious secondary containment isolation initiation events, thereby, reducing the number of thermal transients imposed on reactor building equipment. The proposed setpoint modification is a recommendation of the nuclear steam system supplier vendor (Ref.: General Electric Co. Service Information Letter (SIL) SIL-131, "Containment Isolation Logic Change," dated March 31, 1975). The proposed amendment would also revise the Technical Specification bases to indicate a reduction in the allowable deviation.

Monticello is a 1670 MWt boiling water reactor (BWR) BWR/4 facility having a Mark I primary containment. It is located 30 miles northwest of Minneapolis, MN.

2.0 EVALUATION

Secondary containment function: The Monticello primary containment is enclosed in a reactor building that serves as a secondary containment. The design basis event for the primary and secondary containment systems is a loss-of-coolant accident (LOCA) which instantaneously pressurizes the primary containment to the calculated peak accident pressure and also instantaneously releases fission products in accordance with a specified source term. The secondary containment system is designed to isolate by the automatic closure of ventilation dampers. Large openings in the secondary containment such as airlocks and truck/rail openings are normally kept closed. The isolated secondary containment confines leakage from the primary containment, except for that from certain sources which are separately accounted for, and provides holdup, mixing and delay of the effluent. The SGTS, which is part of the secondary containment system, is an air handling/filtration system which draws air from the various secondary containment areas to establish and maintain a subatmospheric pressure. The air is processed by discharging it through high-efficiency particulate air filters and charcoal beds to the elevated release point (i.e., plant stack). The subatmospheric pressure limits the amount of primary containment leakage that might bypass the SGTS directly to the environs (exfiltration). By providing this secondary containment system, the radiological consequences (offsite dose) associated with a design-basis accident (DBA) are reduced considerably.

Isolation of the secondary containment and concurrent actuation of the SGTS is initiated by diverse, redundant safety-grade instrumentation. This instrumentation includes sensors for the following variables: (a) high drywell pressure, (b) low vessel level, (c) reactor building ventilation exhaust high radiation level, and (d) refueling floor high radiation level. The high drywell and low vessel level instruments serve primarily to provide diverse detection of a LOCA during periods when primary containment integrity is required. The radiation instruments serve primarily to detect accidents which might occur during modes of operation when the secondary containment is serving as the primary containment, such as during fuel handling. The reactor vessel water level instrumentation is not used in conjunction with the safety features that mitigate a fuel handling accident (i.e., the proposed TS changes do not affect the primary containment function of the secondary containment).

SIL-131: In SIL-131, GE recommended to its BWR customers that the reactor vessel water level setpoint for SGTS initiation be selected as the same as that for emergency core cooling systems (ECCS) pump initiation. The 1975 SIL noted that: (a) the recommendations required NRC approval, and (b) were being implemented in new generation BWR/4, 5 and 6 plants. The changes recommended by the SIL would reduce the number of inadvertent and unnecessary instances of secondary containment isolations and SGTS actuations.

Water Level Low-Low Setpoint: The low-low setpoint is 6½ ft. above TAF and is indicated in the control room as -47 inches. The low-low setpoint instrumentation is currently used in conjunction with numerous other engineered safety features (ESF) such as primary containment isolation, automatic depressurization system, core spray, anticipated transient without scram, high pressure coolant injection system (HPCI), reactor core isolation cooling system (RCIC) and the low pressure coolant injection system. The low-low setpoint represents a point on the vessel water level scale where, when the level is decreasing, core cooling is threatened to the extent that high pressure emergency inventory makeup systems should be actuated, and low pressure ECCS should be readied. The reactor will have been previously scrammed at the higher "low" level.

Safety concern associated with the proposed amendment: In the analysis of fuel performance during postulated transients and accidents, the timing of ESF actuations is critical. Assumptions used in the thermal-hydraulic analyses establish analytical limits for the timing of functions such as diesel generator startup and ECCS injection flow. Similarly, in analyzing containment performance and in calculating radiological doses for the surrogate containment DBA, analytical limits are established for closure of isolation valves and dampers and the establishment of secondary containment subatmospheric conditions. In such analyses, "time zero," the analytical beginning of the accident, is the point in time at which the primary containment is assumed to be instantaneously pressurized to its peak accident pressure and to begin leaking at its design leakage rate. At "time zero," primary and secondary containment isolation actuations are assumed to be initiated by high containment pressure. After a series of time delays due to instrument response, startup of diesel generators, sequencing of SGTS loads onto the electrical bus, closure of dampers and drawdown of the secondary containment to a negative pressure, the secondary containment is assumed to begin performing its fission product control function.

Unlike more recently designed facilities, Monticello is a relatively early BWR facility for which the radiological analyses do not assume a time delay for establishment of a post-accident subatmospheric pressure in the secondary containment. For Monticello, it is assumed that a subatmospheric pressure is maintained during normal operation and is not lost during the period when valves and dampers move to their accident positions and the SGTS starts (Ref.: Standard Review Plan Section 6.5.3 discussion on early BWRs). The licensee, therefore, does not have and did not provide an analytical basis supporting the proposed amendment. In the absence of a reanalysis supporting the setpoint change, the staff considered the generic criteria of the Standard Technical Specifications (STS), and the relative effect of the setpoint change for those events which would pressurize the primary containment and release a significant quantity of fission products inside the containment.

In the event of a LOCA, the drywell would become pressurized. A high containment pressure would be sensed by the containment pressure instruments. This would initiate primary and secondary containment isolation and SGTS actuation (in addition to other protective actions) in a timely manner. The vessel water level instrumentation would reach its setpoint after the drywell pressure instruments. The water level instrumentation thus serves as diverse, backup instrumentation. The BWR/4 STS state that the water level instrument secondary containment isolation function should be initiated coincident with HPCI and RCIC initiation. RCIC/HPCI initiation occurs at a time when core cooling is only being threatened but hasn't been lost (i.e., at the low-low level setpoint).

The licensee's proposed setpoint level reduction is consistent with the staff position defined in NUREG-1433, "Standard Technical Specifications, General Electric Plant, BWR/4," will not adversely affect secondary containment performance, and is acceptable.

3.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Minnesota State official was notified of the proposed issuance of the amendments. The State official had no comments.

4.0 ENVIRONMENTAL CONSIDERATION

The amendment changes a requirement with respect to the installation or use of a facility component located within the restricted area as defined in 10 CFR

Part 20. The staff has determined that the amendment involves no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that the amendment involves no significant hazards consideration and there has been no public comment on such finding (59 FR 24750). Accordingly, the amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendment.

5.0 CONCLUSION

The staff has determined that a reduction in reactor vessel level setpoint for the secondary containment/SGTS actuation is acceptable. This conclusion is based on: (a) conformance to the staff position that the setpoint should coincide with the HPCI/RCIC initiation setpoint, and (b) an understanding that the vessel water level variable is not the primary initiation variable for the secondary containment isolation function in a design-basis accident.

The staff has concluded, based on the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributor: W. Long

Date: September 9, 1994