

May 30, 1989

Docket No. 50-263

Mr. D. M. Musolf, Manager  
Nuclear Support Services  
Northern States Power Company  
414 Nicollet Mall  
Minneapolis, Minnesota 55401

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Dear Mr. Musolf:

SUBJECT: AMENDMENT NO. 66 TO FACILITY OPERATING LICENSE NO. DPR-22:  
(TAC NO. 68672)

The Commission has issued the enclosed Amendment No. 66 to Facility Operating License No. DPR-22 for the Monticello Nuclear Generating Plant. This amendment consists of changes to the Technical Specifications (TS) in response to your application dated December 5, 1986.

The amendment revises the plant Technical Specifications to implement surveillance requirements for the modified reactor vessel water level instrumentation, and to reflect the replacement of mechanical level switches with new analog instrumentation in accordance with the recommendations made in NRC Generic Letter 84-23 (October 24, 1984). This new instrumentation increases the reliability of instruments installed to meet the provisions of TMI Action Plan Item II.F.2 (NUREG-0737).

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,

/s/

John J. Stefano, Project Manager  
Project Directorate III-1  
Division of Reactor Projects - III, IV, V  
& Special Projects  
Office of Nuclear Reactor Regulation

Enclosures:

1. Amendment No. 66 to License No. DPR-22
2. Safety Evaluation

cc w/enclosures:  
See next page

LA/PD31:DRSP *[Signature]* PM/PD31:DRSP  
PShuttleworth JStefano:bw  
5/17/89 5/17/89

(A)D/PD31:DRSP  
LYandell *[Signature]*  
5/20/89

SICB *[Signature]*  
SELB/NRR  
Erosa Newberry  
5/17/89

OGC *[Signature]*  
5/22/89

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PDR ADOCK 05000263  
P PDC

*c/Leit*

*DF01*  
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UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D. C. 20555

May 30, 1989

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Mr. D. M. Musolf, Manager  
Nuclear Support Services  
Northern States Power Company  
414 Nicollet Mall  
Minneapolis, Minnesota 55401

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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,

A large, stylized handwritten signature in dark ink, likely belonging to John J. Stefano, is written over the typed name and title.

John J. Stefano, Project Manager  
Project Directorate III-1  
Division of Reactor Projects - III, IV, V  
& Special Projects  
Office of Nuclear Reactor Regulation

Enclosures:

1. Amendment No. 66 to  
License No. DPR-22
2. Safety Evaluation

cc w/enclosures:  
See next page

Mr. D. M. Musolf  
Northern States Power Company

Monticello Nuclear Generating Plant

cc:

Gerald Charnoff, Esquire  
Shaw, Pittman, Potts and  
Trowbridge  
2300 N Street, NW  
Washington, D. C. 20037

U. S. Nuclear Regulatory Commission  
Resident Inspector's Office  
Box 1200  
Monticello, Minnesota 55362

Plant Manager  
Monticello Nuclear Generating Plant  
Northern States Power Company  
Monticello, Minnesota 55362

Russell J. Hatling  
Minnesota Environmental Control  
Citizens Association (MECCA)  
Energy Task Force  
144 Melbourne Avenue, S. E.  
Minneapolis, Minnesota 55113

Dr. John W. Ferman  
Minnesota Pollution Control Agency  
520 Lafayette Road  
St. Paul, Minnesota 55155-3898

Regional Administrator, Region III  
U. S. Nuclear Regulatory Commission  
799 Roosevelt Road  
Glen Ellyn, Illinois 60137

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

O. J. Arlien, Auditor  
Wright County Board of  
Commissioners  
10 NW Second Street  
Buffalo, Minnesota 55313



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

NORTHERN STATES POWER COMPANY

DOCKET NO. 50-263

MONTICELLO NUCLEAR GENERATING PLANT

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 66  
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 December 5, 1986, 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:

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Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 66, 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 its issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



Lawrence A. Yandell, Acting Director  
Project Directorate III-1  
Division of Reactor Projects - III, IV, V  
& Special Projects  
Office of Nuclear Reactor Regulation

Attachment:  
Changes to the Technical  
Specifications

Date of Issuance: May 30, 1989

ATTACHMENT TO LICENSE AMENDMENT NO. 66

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 marginal lines indicating the area of change.

REMOVE

INSERT

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TABLE 4.1.1SCRAM INSTRUMENT FUNCTIONAL TESTSMINIMUM FUNCTIONAL TEST FREQUENCIES FOR SAFETY INSTRUMENTATION AND CONTROL CIRCUITS

<u>INSTRUMENT CHANNEL</u>	<u>GROUP*</u>	<u>FUNCTIONAL TEST</u>	<u>MINIMUM FREQUENCY (4)</u>
High Reactor Pressure	A	Trip Channel and Alarm	Once each month
High Drywell Pressure	A	Trip Channel and Alarm	Once each month
Low Reactor Water Level (2, 5)	B	Trip Channel and Alarm	Once each month
High Water Level in Scram Discharge	A, B	Trip Channel and Alarm	Once each month
Condenser Low Vac	A	Trip Channel and Alarm	Once each month
Main Steam Line Isolation Valve Closure	A	Trip Channel and Alarm	Once each month
Turbine Stop Valve Closure	A	Trip Channel and Alarm	Once each month
Manual Scram	A	Trip Channel and Alarm	Once each month
Turbine Control Valve Fast Closure	A	Trip Channel and Alarm	Once each month
APRM/Flow Reference (5)	B	Trip Output Relays	Once each week
IRM (5)	C	Trip Channel and Alarm	Note 3
High Steam Line Rad. (5)	B	Trip Channel and Alarm	Once each week
Mode Switch in Shutdown	C	Place mode switch in shutdown	Each refueling outage

Table 4.1.2  
SCRAM INSTRUMENT CALIBRATION  
MINIMUM CALIBRATION FREQUENCIES FOR REACTOR PROTECTION INSTRUMENT CHANNELS

<u>INSTRUMENT CHANNEL</u>	<u>GROUP</u>	<u>CALIBRATION METHOD</u>	<u>MINIMUM FREQUENCY (2)</u>
APRM	E	Heat Balance	Once every 3 days (4)
IRM	E	Heat Balance	See Note 1
High Reactor Pressure	D	Pressure Standard	Every 3 months
High Drywell Pressure	D	Pressure Standard	Every 3 months
Low Reactor Water	E	Pressure Standard	Every Operating Cycle - Transmitter
High Water Level in Scram Discharge	D or E	Water Level	Every 3 months - Trip Unit
Condenser Low Vacuum	D	Vacuum Standard	Every 3 months
High Steamline Radiation	E	See Note 3	See Note 3
Main Steamline Isolation Valve Closure	D	Observation	Every Operating Cycle
Turbine Control Valve Fast Closure	D	Pressure Standard	Every 3 months
Turbine Stop Valve Closure	D	Observation	Every Operating Cycle
Recirculation Flow Meters & Flow Instrumentation	-	Pressure Standard	Every 3 months

Notes:

1. Perform calibration test during every startup and normal shutdown.
2. Calibration tests are not required when the systems are not required to be operable or are tripped. If tests are missed, they shall be performed prior to returning the systems to an operable status.
3. This instrument will be calibrated every three months by means of a built-in current source, and each refueling outage with a known radioactive source.
4. This calibration is performed by taking a heat balance and adjusting the APRM to agree with the heat balance. Alarms and trips will be verified and calibrated if necessary during the weekly functional test.

\*Groups:

- D. Passive type devices.
- E. Vacuum tube or semiconductor devices and detectors that drift or lose sensitivity.



### Bases Continued:

- 3.1 The IRMs are calibrated by the heat balance method such that 120/125 of full scale on the highest IRM range is below 20% of rated neutron flux (see Specification 2.3.A.2). The requirement that the IRM detectors be inserted in the core assures that the heat balance calibration is not invalidated by the withdrawal of the detector.

Although the operator will set the set points within the trip setting specified on Table 3.1.1, the actual values of the various set points can differ appreciably from the value the operator is attempting to set. The deviations could be caused by inherent instrument error, drift of the set point, etc. Therefore, such deviations have been accounted for in the various transient analysis and the actual trip settings may vary by the following amounts.

<u>Trip Function</u>	<u>Deviation</u>	<u>Trip Function</u>	<u>Deviation</u>
3. High Flux IRM	+2/125 of scale	*7. Reactor Low Water Level	-6 inches
5. High Reactor Pressure	+10 psi	8. Scram Discharge Volume High Level	+1 gallon
6. High Drywell Pressure	+1 psi	9. Turbine Condenser Low Vacuum	½ in. Hg

\* This indication is reactor coolant temperature sensitive. The calibration is thus made for rated conditions. The level error at low pressures and temperatures is bounded by the safety analysis which reflects the weight-of-coolant above the lower tap, and not the indicated level.

A violation of this specification is assumed to occur only when a device is knowingly set outside of the limiting trip setting, or a sufficient number of devices have been affected by any means such that the automatic function is incapable of operating within the allowable deviation while in a reactor mode in which the specified function must be operable, or the actions specified in 3.1.B.2 are not initiated as specified.

If an unsafe failure is detected during surveillance testing, it is desirable to determine as soon as possible if other failures of a similar type have occurred and whether the particular function involved is still operable or capable of meeting the single failure criterion. To meet the requirements of Table 3.1.1, it is necessary that all instrument channels in one trip system be operable

Amendment No. 30,66

**TABLE 4.2.1**  
**Minimum Test and Calibration Frequency For Core Cooling**  
**Rod Block and Isolation Instrumentation**

Instrument Channel	Test (3)	Calibration (3)	Sensor Check (3)
<b><u>ECCS INSTRUMENTATION</u></b>			
1. Reactor Low-Low Water Level (Note 7)	Once/month (Note 5)	Every Operating Cycle - Transmitter Once/3 months - Trip Unit	Once/Shift
2. Drywell High Pressure (Note 7)	Once/month	Once/3 months	None
3. Reactor Low Pressure (Pump Start)	Once/month	Once/3 months	None
4. Reactor Low Pressure (Valve Permissive)	Once/month	Once/3 months	None
5. Undervoltage Emergency Bus	Refueling Outage	Refueling Outage	None
6. Low Pressure Core Cooling Pumps Discharge Pressure Interlock	Once/month	Once/3 months	None
7. Loss of Auxiliary Power	Refueling Outage	Refueling Outage	None
8. Condensate Storage Tank Level	Refueling Outage	Refueling Outage	None
9. Reactor High Water Level	Once/month (Note 5)	Every Operating Cycle - Transmitter Every 3 months - Trip Unit	Once/Shift
<b><u>ROD BLOCKS</u></b>			
1. APRM Downscale	Once/month (Note 5)	Once/3 months	None
2. APRM Flow Variable	Once/month (Note 5)	Once/3 months	None
3. IRM Upscale	Notes (2,5)	Note 2	Note 2
4. IRM Downscale	Notes (2,5)	Note 2	Note 2
5. RBM Upscale	Once/month Note (5)	Once/3 months	None
6. RBM Downscale	Once/month Note (5)	Once/3 months	None
7. SRM Upscale	Notes (2,5)	Note 2	Note 2
8. SRM Detector not in Start-up Position	Notes (2,9)	Note 2	None
9. Scram Discharge Volume-High Level	Once/3 months	Refueling outage	None
<b><u>MAIN STEAM LINE ISOLATION</u></b>			
1. Steam Tunnel High Temperature	Refueling Outage	Refueling Outage	None
2. Steam Line High Flow	Once/month	Once/3 months	Once/Shift

**Table 4.7 - 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	Note 1	Once/3 months	None
4. Steam Line High Radiation	Once/week (Note 5)	Note 6	Once/shift
<b><u>CONTAINMENT ISOLATION (GROUPS 2 &amp; 3)</u></b>			
1. Reactor Low Water Level (Note 10)	-	-	-
2. Drywell High Pressure (Note 10)	-	-	-
<b><u>HPCI (GROUP 4 ) ISOLATION</u></b>			
1. Steam Line High Flow	Once/month	Once/3 months	None
2. Steam Line High Temperature	Once/month	Once/3 months	None
<b><u>RCIC (GROUP 5) ISOLATION</u></b>			
1. Steam Line High Flow	Once/month	Once/3 months	None
2. Steam Line High Temperature	Once/month	Once/3 months	None
<b><u>REACTOR BUILDING VENTILATION</u></b>			
1. Radiation Monitors (Plenum)	Once/month	Once/3 months	Once/day
2. Radiation Monitors (Refueling Floor)	Once/month	Once/3 months	Note 4
3. Wide Range Gas Monitors	-	See Table 4.8.2	-
<b><u>RECIRCULATION PUMP TRIP AND ALTERNATE ROD INJECTION</u></b>			
1. Reactor High Pressure	Notes (1,5)	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
<b><u>SHUTDOWN COOLING SUPPLY ISOLATION</u></b>			
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 Reactor Water Level High Drywell Pressure	-6 inches +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

Amendment No. 18,22,30,40,66

	Trip Function	Deviation
Instrumentation for Safety/Relief Valve Low Low Set Logic	Reactor Coolant System Pressure for Opening/Closing	±20 psig
	Opening - Closing Pressure	≥60 psi
	Discharge Pipe Pressure Inhibit	±10 psid
	Timer Inhibit	-3 sec +10 sec
Other Instrumentation	*High Reactor Water Level	+6 inches
	*Low-Low Reactor Water Level	-3 inches
	Low Condensate Storage Level	-6 inches

\* This indication is reactor coolant temperature sensitive. The calibration is thus made for rated conditions. The level error at low pressures and temperatures is bounded by the safety analysis which reflects the weight-of-coolant above the lower tap, and not the indicated level.

A violation of this specification is assumed to occur only when a device is knowingly set outside of the limiting trip settings, or, when a sufficient number of devices have been affected by any means such that the automatic function is incapable of operating within the allowable deviation while in a reactor mode in which the specified function must be operable or when actions specified are not initiated as specified.

Amendment No. 30,37,66



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION  
RELATED TO AMENDMENT NO. 66 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 December 5, 1986, Northern States Power Company (NSP) submitted a request for revision of the Technical Specifications, Appendix A to Operating License DPR-22, for the Monticello Nuclear Generating Plant. The proposed changes would incorporate surveillance and operability requirements for Reactor Water Level Column Piping (RWLCP) for Emergency Core Cooling System (ECCS) and Reactor Protection System (RPS) instrumentation installed to satisfy NUREG-0737, Item II.F.2, Inadequate Core Cooling.

The proposed revision would incorporate surveillance and operability requirements for RWLCP for ECCS and RPS instrumentation modified to minimize vertical runs of piping inside containment. Also, analog transmitters and trip units would be included to replace mechanical level switches.

2.0 DISCUSSION AND EVALUATION

To meet the requirements of NUREG-0737, Item II.F.2, Inadequate Core Cooling, the licensee has completed modifications to the RWLCP for ECCS and RPS. The licensee has proposed to include the instrumentation for this modification in the Technical Specifications.

The modifications to the RWLCP include the minimizing of vertical piping runs inside containment and the addition of analog transmitters and trip units to replace original mechanical level switches.

The changes to Table 4.1.1 of the Technical Specifications reflect the installation of the new analog trip units for the Low Reactor Water Level channel. The Technical Specifications require functional testing of these trip units via the injection of a simulated signal into the instrument (not the sensor) to verify the proper instrument channel response, alarm and/or initiating action. This change also identifies the High Water Level in Scram Discharge channel as analog devices coupled with bi-stable trips that provide a scram function.

The changes to Table 4.1.2 of the Technical Specifications reflect the addition of a calibration frequency of every operating cycle for the Low Reactor Water Level channel transmitters. These new transmitters are more reliable and less susceptible to failure than the old mechanical switches being replaced. These new transmitters are similar to those used in the Recirculation Pump Trip/Alternate Rod Injection System. The Reactor Water Level transmitter calibration frequency is identical to the Recirculation Pump Trip/Alternate Rod Injection System transmitter calibration frequency. The Reactor Water Level trip units will have a calibration frequency of every three months. The changes also include a note that identifies the Reactor Water Level trip units as devices that drift or lose sensitivity.

During an April 18, 1988 telephone conversation, the licensee provided information regarding the set point methodology utilized for this instrumentation. The licensee stated that the set point methodology was consistent with the guidelines provided in ISA 67.04 "Setpoints for Nuclear Safety-Related Instrumentation Used in Nuclear Power Plants." The licensee is required to document this set point methodology information within 120 days after issuance of this SE. Based on its review of the proposed change, the staff finds the new calibration frequency for this instrumentation to be acceptable.

The changes to Technical Specification Bases 3.1 and 3.2 provide clarification on level error, for the Reactor Low Water Level channel, at low reactor temperatures and pressures. The new level instrumentation set points are based on normal operating reactor temperatures. Therefore, a level error exists at low pressures and temperatures. However, the licensee has stated that this error is bounded by the safety analysis. The staff concludes that since this error is bounded by the safety analysis and that there are other independent parameters that will provide the necessary trip functions at these operating conditions. The proposed changes to Bases 3.1 and 3.2 are acceptable.

The changes to Technical Specification Table 4.2.1 reflect the addition of a calibration frequency of every operating cycle for the Reactor Low-Low Water Level and Reactor High Water Level transmitters under ECCS INSTRUMENTATION. Also a reference to a note has been added for the Reactor Low-Low Water Level and Reactor High Water Level under ECCS INSTRUMENTATION. This note requires the functional testing of this instrumentation, via the injection of a simulated signal into the instrument (not the primary sensor) to verify the proper instrument channel response, alarm and/or initiating action. This change also identifies the Reactor Low-Low Water Level and Reactor High Water Level trip units to be calibrated every three months.

Also, as part of the change to Table 4.2.1, the same note is being added to Steam Line High Radiation under MAIN STEAM LINE ISOLATION and Reactor High Pressure and Reactor Low-Low Water Level under RECIRCULATION PUMP TRIP AND ALTERNATE ROD INJECTION. This change is administrative in nature and is being made for consistency.

The above changes to the licensee's Technical Specifications are consistent with the requirements of NUREG-0737, Item II.F.2.

Based on the above evaluation, the staff concludes that the licensee's request to revise the Monticello Nuclear Generating Plant Technical Specifications to include surveillance and operability requirements for RWLCP for ECCS and RPS instrumentation conforms to the NUREG-0737, Item II.F.2 criteria and is, therefore, acceptable. The licensee is required to document the set point methodology for RWLCP instrumentation within 120 days after issuance of this SE.

### 3.0 ENVIRONMENTAL CONSIDERATION

This amendment involves a change in the installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 and changes to the surveillance requirements. 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 published a proposed finding that this amendment involves no significant hazards consideration and there has been no public comment on such finding. Accordingly, this 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 this amendment.

### 4.0 CONCLUSION

We have 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 this amendment will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributor: B. Marcus  
J. Stefano

Dated: May 30, 1989