

9/25/78

September 25, 1978

Robert M. Lazo, Esq., Chairman
Atomic Safety and Licensing Board
U.S. Nuclear Regulatory Commission
Washington, D. C. 20555

Dr. Richard F. Cole
Atomic Safety and Licensing Board
U.S. Nuclear Regulatory Commission
Washington, D. C. 20555

Dr. Walter H. Jordan
881 West Outer Drive
Oak Ridge, Tennessee 37830

In the Matter of
NORTHERN STATES POWER COMPANY
(Monticello Nuclear Generating Plant, Unit 1)
Docket No. 50-263

Gentlemen:

On March 20, 1978, we sent you a copy of the Licensee's March 1, 1978 license amendment request regarding implementation of the recirculation pump trip system. On September 15, 1978, the Commission granted the requested amendment. A copy of the letter and supporting documents granting the amendment are enclosed for your information. This letter and documents were previously sent to the parties to this proceeding.

Sincerely,

Stephen H. Lewis
Counsel for NRC Staff

Enclosures:
As stated

cc w/o enclosures:
Edward Luton, Esq.
Mr. Russell J. Hatling
Gerald Charnoff, Esq.
Arthur Renquist, Esq.
Mr. Steve J. Gadler
Jocelyn F. Olson, Esq.
Mr. Ken Dzugan
Atomic Safety & Licensing Appeal Board
Atomic Safety & Licensing Board Panel
Docketing and Service Section

Distribution
NRC Central ✓
LPDR
FF(2)
Shapar/Engelhardt
Grossman/Scinto
Cunningham
Karman
Lewis
Bajwa, P522
Bevan, 314

OFFICE	OELD SHL	OELD JHC	Vassallo, 110 Phil	
SURNAME	Lewis/tm	Cunningham	Smith, 314 Phil	
DATE	9/22/78	9/25/78	Paton	
			Chron	



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

September 15, 1978

Docket No. 50-263

Northern States Power Company
ATTN: Mr. L. O. Mayer, Manager
Nuclear Support Services
414 Nicollet Mall - Eighth Floor
Minneapolis, Minnesota 55401

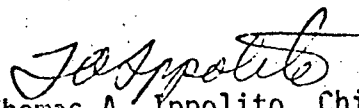
Gentlemen:

The Commission has issued the enclosed Amendment No. 35 to Provisional Operating License No. DPR-22 for the Monticello Nuclear Generating Plant. The amendment consists of changes to the Technical Specifications in response to your application dated March 1, 1978.

The amendment revises the Technical Specifications to provide operating limits and procedures for the recirculation pump trip system for Monticello Nuclear Generating Station.

Copies of the related Safety Evaluation and Notice of Issuance are also enclosed.

Sincerely,


Thomas A. Ippolito, Chief
Operating Reactors Branch #3
Division of Operating Reactors

Enclosures:

1. Amendment No. 35 to License No. DPR-22
2. Safety Evaluation
3. Notice of Issuance

cc w/enclosures:
See page 2

cc w/enclosures:

Gerald Charnoff, Esquire
Shaw, Pittman, Potts and
Trowbridge
1800 M Street, N. W.
Washington, D. C. 20036

Arthur Renquist, Esquire
Vice President - Law
Northern States Power Company
414 Nicollet Mall
Minneapolis, Minnesota 55401

Mr. L. R. Eliason
Plant Manager
Monticello Nuclear Generating Plant
Northern States Power Company
Monticello, Minnesota 55362

Russell J. Hatling, Chairman
Minnesota Environmental Control
Citizens Association (MECCA)
Energy Task Force
144 Melbourne Avenue, S. E.
Minneapolis, Minnesota 55414

Mr. Kenneth Dzugan
Environmental Planning Consultant
Office of City Planner
Grace Building
421 Wabasha Street
St. Paul, Minnesota 55102

Sandra S. Gardebring
Executive Director
Minnesota Pollution Control Agency
1935 W. County Road B2
Roseville, Minnesota 55113

Mr. Steve Gadler
2120 Carter Avenue
St. Paul, Minnesota 55108

Anthony Z. Roisman
Natural Resources Defense Council
917 15th Street, N. W.
Washington, D. C. 20555

The Environmental Conservation Library
Minneapolis Public Library
300 Nicollet Mall
Minneapolis, Minnesota 55401

State Department of Health
ATTN: Secretary & Executive Officer
University Campus
Minneapolis, Minnesota 55440

Mr. D. S. Douglas, Auditor
Wright County Board of Commissioners
Buffalo, Minnesota 55313

Chief, Energy Systems Analyses
Branch (AW-459)
Office of Radiation Programs
U. S. Environmental Protection Agency
Room 645, East Tower
401 M Street, S. W.
Washington, D. C. 20460

U. S. Environmental Protection Agency
Federal Activities Branch
Region V Office
ATTN: EIS COORDINATOR
230 South Dearborn Street
Chicago, Illinois 60604



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

NORTHERN STATES POWER COMPANY

DOCKET NO. 50-263

MONTICELLO NUCLEAR GENERATING PLANT

AMENDMENT TO PROVISIONAL OPERATING LICENSE

Amendment No. 35
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 1, 1978 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 3.B of Provisional Operating License No. DPR-22 is hereby amended to read as follows:

B. Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 35, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

3. This license amendment becomes effective when the newly installed recirculation pump trip system becomes operable.

FOR THE NUCLEAR REGULATORY COMMISSION

Thomas A. Ippolito
Thomas A. Ippolito, Chief
Operating Reactors Branch #3
Division of Operating Reactors

Attachment:
Changes to the Technical
Specifications

Date of Issuance: September 15, 1978

ATTACHMENT TO LICENSE AMENDMENT NO. 35

PROVISIONAL OPERATING LICENSE NO. DPR-22

DOCKET NO. 50-263

Replace the following pages of the Technical Specifications contained in Appendix A of the above-indicated license with the attached pages bearing the same numbers, except as otherwise indicated. The changed areas on the revised pages are reflected by a marginal line.

Remove

ii
ix
49
--
62
68
--
69
70

Insert

ii
ix
49
60A
62
68
68A
69
70

	E. Reactor Building Ventilation Isolation and Standby Gas Treatment System Initiation	49
	F. Recirculation Pump Trip Initiation	49
	3.2 Bases	64
	4.2 Bases	71
3.3 and 4.3	Control Rod System	75
	A. Reactivity Limitations	75
	B. Control Rod Withdrawal	76
	C. Scram Insertion Times	79
	D. Control Rod Accumulators	80
	E. Reactivity Anomalies	81
	3.3 and 4.3 Bases	82
3.4 and 4.4	Standby Liquid Control System	88
	A. Normal Operation	88
	B. Operation with Inoperable Components	89
	C. Volume-Concentration Requirements	90
	3.4 and 4.4 Bases	94
3.5 and 4.5	Core and Containment Cooling Systems	96
	A. Core Spray System	96
	B. LPCI Subsystem	98
	C. RHR Service Water System	101

LIST OF TABLES

3.1.1	Reactor Protection System (Scram) Instrument Requirements	30
4.1.1	Scram Instrument Functional Tests - Minimum Functional Test Frequencies for Safety Instrumentation and Control Circuits	34
4.1.2	Scram Instrument Calibration - Minimum Calibration Frequencies for Reactor Protection Instrument Channels	36
3.2.1	Instrumentation that Initiates Primary Containment Isolation Functions	50
3.2.2	Instrumentation that Initiates Emergency Core Cooling Systems.	53
3.2.3	Instrumentation that Initiates Rod Block	57
3.2.4	Instrumentation that Initiates Reactor Building Ventilation Isolation and Standby Gas Treatment System Initiation	60
3.2.5	Instrumentation that Initiates a Recirculation Pump Trip	60A
3.2.6	Trip Functions and Deviations	69
4.2.1°	Minimum Test and Calibration Frequency For Core Cooling, Rod Block and Isolation Instrumentation	61
3.6.1	Safety Related Hydraulic Snubbers	121B
4.6.1	In-Service Inspection Requirements for Monticello	124
3.7.1	Primary Containment Isolation	153
4.8.1	Sample Collection and Analysis - Monticello Nuclear Generating Plant - Radiation Environmental Monitoring Program	169
6.5.1	Protection Factors for Respirators	206

3.0 LIMITING CONDITIONS FOR OPERATION

E. Reactor Building Ventilation Isolation and Standby Gas Treatment System Initiation

1. a. Except as specified in 3.2.E.1.b below, four radiation monitors shall be operable at all times.
 - b. One of the two monitors in the ventilation plenum and one of the two radiation monitors on the refueling floor may be inoperable for 24 hours. If the inoperable monitors are not restored to service in this time, the reactor building ventilation system shall be isolated and the standby gas treatment system operated until repairs are complete.
2. The radiation monitors shall be set to trip as follows:
 - (a) ventilation plenum ≤ 3 mr/hr
 - (b) refueling floor ≤ 100 mr/hr
3. When irradiated fuel is in the reactor vessel and the reactor water temperature is above 212°F, the limiting conditions for operation for the instrumentation listed in Table 3.2.4 shall be met.

F. Recirculation Pump Trip Initiation

1. Whenever the reactor is in the RUN Mode, the limiting conditions for operation for the instrumentation listed in Table 3.2.5 shall be met.

4.0 SURVEILLANCE REQUIREMENTS

Table 3.2.5

Instrumentation that Initiates a Recirculation Pump Trip

Function	Trip Setting	Minimum No. of Operable or Operating Trip Systems (1)	Total No. of Instrument Channels Per Trip System	Minimum No. of Operable or Operating Instrument Channels Per Trip System (1)	Required Conditions*
1. High Reactor Dome Pressure	≤ 1150 psig	2	2	2	A
2. Low Reactor Water Level	$\geq 6'$ 6" above the top of the active fuel.	2	2	2	A

NOTE:

1. 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 the appropriate channels or systems in the tripped condition, or
 - b. Place the plant under the specified required condition using normal operating procedures.
- * Required conditions when minimum conditions for operation are not satisfied:

- A. Reactor in Startup, Refuel or Shutdown mode.

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 4. Steam Line High Radiation	Note 1 Once/week (5)	Once/3 months Note 6	None Once/shift
<u>HPCI ISOLATION</u>			
1. Steam Line High Flow 2. Steam Line High Temperature	Note 1 Note 1	Once/3 months Once/3 months	None None
<u>RCIC ISOLATION</u>			
1. Steam Line High Flow 2. Steam Line High Temperature	Note 1 Note 1	Once/3 months Once/3 months	None None
<u>REACTOR BUILDING VENTILATION</u>			
1. Radiation Monitors (Plenum) 2. Radiation Monitors (Refueling Floor)	Note 1 Note 1	Once/3 months Once/3 months	Once/shift (4)
<u>OFF-GAS ISOLATION</u>			
1. Radiation Monitors (Air Ejectors)	Notes (1,5)	Note 6	Once/shift
<u>RECIRCULATION PUMP TRIP</u>			
1. Reactor High Pressure	Note 1	Once/Operating Cycle - Transmitter Once/3 Months - Trip Unit	Once/Day
2. Reactor Low Water Level	Note 1	Once/Operating Cycle - Transmitter Once/3 Months - Trip Unit	Once/Day

NOTES:

- (1) Initially once per month until exposure hours (M as defined on Figures 4.1.1) is 2.0×10^5 , thereafter according to Figure 4.1.1 with an interval not greater than three months.

Bases Continued:

3.2 For effective emergency core cooling for the small pipe break the HPCI or Automatic Pressure Relief system must function since for these breaks, reactor pressure does not decrease rapidly enough to allow either core spray or LPCI to operate in time. The arrangement of the tripping contacts is such as to provide this function when necessary and minimize spurious operation. The trip settings given in the specification are adequate to assure the above criteria is met. Reference Section 6.2.4 and 6.2.6 FSAR. The specification preserves the effectiveness of the system during periods of maintenance, testing, or calibration, and also minimizes the risk of inadvertent operation; i.e., only one instrument channel out of service.

Two air ejector off-gas monitors are provided and when their trip point is reached, cause an isolation of the air ejector off-gas line. Isolation is initiated when both instruments reach their high trip point or one has an upscale trip and the other a downscale trip or two downscale. There is a 30-minute delay before recombiner train inlet valve closure when the recombiners are in use and a 15-minute delay before off-gas isolation valve closure when the recombiners are bypassed in which the reactor operator may take corrective action. Both instruments are required for trip. The trip settings of the instruments are set so that the maximum stack release rate limit is not exceeded.

Four radiation monitors are provided which initiate isolation of the reactor building and operation of the standby gas treatment system. The monitors are located in the reactor building ventilation plenum and on the refueling floor. Any one upscale trip will cause the desired action. Trip settings of 3 mR/hr for the monitors in the ventilation duct are based upon initiating normal ventilation isolation and Standby Gas Treatment System operation so as not to exceed the maximum release rate limit for the reactor building vent. Trip settings of 100 mR/hr for the monitors on the refueling floor are based upon initiating normal ventilation isolation and standby gas treatment system operation so that none of the activity released during the refueling accident leaves the reactor building via the normal ventilation stack but that all the activity is processed by the standby gas treatment system.

The recirculation pump trip description and performance analysis is discussed in Topical Report NEDO-25016, September 1976, "Evaluation of Anticipated Transients Without Scram for the Monticello Nuclear Generating Plant". (See September 15, 1976 letter from Mr L O Mayer, NSP, to Mr D L Ziemann, USNRC.) The pump trip is provided to minimize reactor pressure in the highly unlikely event of a plant transient coincident with the failure of all control rods to scram. The rapid flow reduction

Bases Continued:

increases core voiding, a negative reactivity feedback. High pressure sensors initiate the pump trip in the event of an isolation transient. Low level sensors initiate the trip on loss of feed-water (and the resulting MSIV closure). The recirculation pump trip is only required at high reactor power levels, where the safety/relief valves have insufficient capacity to relieve the steam which continues to be generated after reactor isolation in this unlikely postulated event, requiring the trip to be operable only when in the RUN mode is therefore conservative.

Although the operator will set the set points within the trip settings specified in Tables 3.2.1, 3.2.2, 3.2.3, 3.2.4, and 3.2.5, 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, operator setting error, drift of the set point, etc. Therefore, these deviations have been accounted for in the various transient analyses and the actual trip settings may vary by the following amounts.

Table 3.2.6
Trip Functions And Deviations

	Trip Function	Deviation
Reactor Building Ventilation Isolation and Standby Gas Treatment System Initiation Specification 3.2.E.3 and Table 3.2.4	Ventilation Plenum Radiation Monitors	+0.2 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	+2°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	

Table 3.2.6 - Continued
Trip Function and Deviations

	Trip Function	Deviation
Instrumentation That Initiates Emergency Core Cooling Systems Table 3.2.2	Low-Low Reactor Water Level	-3 Inches
	Reactor Low Pressure (Pump Start) Permissive	-10 psi
	High Drywell Pressure	+1 psi
	Low Reactor Pressure (Valve Permissive)	-10 psi
Instrumentation That Initiates Rod Block Table 3.2.3	IRM Downscale IRM Upscale	-2/125 of Scale +2/125 of Scale
	APRM Downscale APRM Upscale	-2/125 of Scale See Basis 2.3 - Page 24
	RBM Downscale RBM Upscale	-2/125 of Scale Same as APRM Upscale
Instrumentation That Initiates Recirculation Pump Trip	High Reactor Pressure Low Reactor Water Level	+ 12 psi - 3 Inches

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.



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

SUPPORTING AMENDMENT NO. 35 TO PROVISIONAL OPERATING LICENSE NO. DPR-22

NORTHERN STATES POWER COMPANY

MONTICELLO NUCLEAR GENERATING PLANT

DOCKET NO. 50-263

Introduction

The Northern States Power Company by letter dated March 1, 1978 submitted a request for a change to the Provisional Operating License, Appendix A Technical Specifications, for the Monticello Nuclear Generating Plant. This change concerns the field breaker recirculation pump trip system. The licensee has informed NRC that the earliest possible time for implementation of the recirculation pump trip system is during the Fall 1978 refueling outage. We find this schedule acceptable.

Evaluation

The proposed changes to the Technical Specification for the new recirculation pump trip system are modeled after the Technical Specifications for the existing protective instrumentation. The limiting conditions for operation, operability requirements and surveillance requirements are discussed below.

The proposed limiting condition for operation requires the recirculation pump trip system to be operable when the reactor is in the run mode. Since the capacity of the safety/relief valves is far in excess of the steam generation rate achievable in any other mode, there is no potential for vessel overpressurization in modes other than run. Restricting the LCO to the run mode is, therefore, appropriate.

The proposed operability requirements are similar to those of similar systems. These requirements were assumed in the design and reliability analysis of the trip system.

The proposed surveillance requirements incorporate the fact that analog transmitters are used in the recirculation pump trip system. These devices are a new, improved line of BWR instrumentation. The calibration frequency is proposed to be once per operating cycle which is consistent with both the equipment capabilities and the requirements for similar equipment used by other reactor vendors. The calibration frequency of the trip units is

proposed to be quarterly, the same as other similar protective instrumentation. Likewise, the test frequency is specified as monthly, like that of other protective instrumentation. Finally, a sensor check is proposed once per day. These are considered to be appropriate frequencies, commensurate with the design applications and the fact that the recirculation pump trip system is a backup to existing protective instrumentation.

The Technical Specifications acknowledge that devices will inherently deviate slightly from their settings over a period of time. This is the basis for specifying both the periodic calibration requirement and the allowable deviation; that is, the amount by which a setting can be found to have deviated from the specified setpoint without it being considered a violation, provided the device is not knowingly set outside the specified range. The allowable deviation is a small margin (generally well below the margin that could be justified) which, based on engineering judgement, is a small fraction of the conservatism in the analysis. The deviation of the high reactor pressure setpoint is specified as one percent of the setpoint or 12 psi. The deviation for low reactor water level is specified as three inches, the same as the other low level protective instrumentation. A review of the progression of the transients in which these trip signals are required shows that the specified values are appropriate and therefore acceptable.

Based on our review, we find the proposed changes to the Technical Specifications to be acceptable on the basis that with the implementation of the proposed changes, there is adequate assurance that the recirculation pump trip system will perform its intended function in the event of an anticipated transient without scram.

Environmental Consideration

We have determined that the amendment does not authorize a change in effluent types or total amounts nor an increase in power level and will not result in any significant environmental impact. Having made this determination, we have further concluded that the amendment involves an action which is insignificant from the standpoint of environmental impact and, pursuant to 10 CFR §51.5(d)(4), that an environmental impact statement or negative declaration and environmental impact appraisal need not be prepared in connection with the issuance of this amendment.

Conclusion

We have concluded, based on the considerations discussed above, that:
(1) because the amendment does not involve a significant increase in the probability or consequences of accidents previously considered and does not involve a significant decrease in a safety margin, the amendment does

not involve a significant hazards consideration, (2) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, and (3) such activities will be conducted in compliance with the Commission's regulations and the issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public.

Dated: September 15, 1978

UNITED STATES NUCLEAR REGULATORY COMMISSION

DOCKET NO. 50-263

NORTHERN STATES POWER COMPANY

NOTICE OF ISSUANCE OF AMENDMENT TO PROVISIONAL
OPERATING LICENSE

The U. S. Nuclear Regulatory Commission (the Commission) has issued Amendment No. 35 to Provisional Operating License No. DPR-22 issued to Northern States Power Company (NSP) (the licensee) which revised the Technical Specifications for operation of the Monticello Nuclear Generating Plant (the facility) located in Wright County, Minnesota. The amendment is effective as of its date of issuance.

The amendment revises the Technical Specifications to provide operating limits and procedures for the recirculation pump trip system for Monticello Nuclear Generating Station.

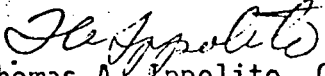
The application for the amendment complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations. The Commission has made appropriate findings as required by the Act and the Commission's rules and regulations in 10 CFR Chapter I, which are set forth in the license amendment. Prior public notice of this amendment was not required since the amendment does not involve a significant hazards consideration.

The Commission has determined that the issuance of this amendment will not result in any significant environmental impact and that pursuant to 10 CFR §51.5(d)(4) an environmental impact statement, or negative declaration and environmental impact appraisal need not be prepared in connection with issuance of this amendment.

For further details with respect to this action, see (1) the application for amendment dated March 1, 1978, (2) Amendment No. 35 to License No. DPR-22, and (3) the Commission's related Safety Evaluation. All of these items are available for public inspection at the Commission's Public Document Room, 1717 H Street, N. W., Washington, D. C. and at the Environmental Conservation Library, Minneapolis Public Library, 300 Nicollet Mall, Minneapolis, Minnesota 55401. A copy of items (2) and (3) may be obtained upon request addressed to the U. S. Nuclear Regulatory Commission, Washington, D. C. 20555, Attention: Director, Division of Operating Reactors.

Dated at Bethesda, Maryland this 15th day of September 1978.

FOR THE NUCLEAR REGULATORY COMMISSION


Thomas A. Ippolito, Chief
Operating Reactors Branch #3
Division of Operating Reactors