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

December 3, 1985

Docket No. 50-263

Mr. D. M. Musolf
Nuclear Support Services Department
Northern States Power Company
414 Nicollet Mall - 8th Floor
Minneapolis, Minnesota 55401

Dear Mr. Musolf:

The Commission has issued the enclosed Amendment No. 35 to Facility 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 April 29, 1985, as revised June 14, and September 4, 1985.

The amendment revises Technical Specifications Section 3.5 to change the oxygen concentration in the primary containment atmosphere from 5% by weight to 4% by volume and adds Sections 3.7(E) and 4.7(E). The new sections provide the Limiting Conditions for Operation and the surveillance requirements for the Combustible Gas Control System.

A copy of the Safety Evaluation is enclosed.

Sincerely,

John A. Zwolinski, Director
BWR Project Directorate
Division of BWR Licensing

Enclosures:
1. Amendment No. 35 to License No. DPR-22
2. Safety Evaluation

cc w/enclosures:
See next page

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Sincerely,

Rajender Auluck, Project Manager
Operating Reactors Branch #2
Division of Licensing

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Mr. D. M. Musolf
Northern States Power Company
Monticello Nuclear Generating Plant

cc:

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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. 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 April 29, 1985, as revised June 14, and September 4, 1985, 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:

2 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 is effective as of the date of its issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

John A. Zwolinski, Director
BWR Project Directorate
Division of BWR Licensing

Attachment:
Changes to the Technical
Specifications

Date of Issuance: December 3, 1985

ATTACHMENT TO LICENSE AMENDMENT NO. 35

FACILITY OPERATING LICENSE NO. DPR-22

DOCKET NO. 50-263

Replace the following pages of the Appendix "A" Technical Specifications with the enclosed pages. The revised pages are indicated by marginal lines.

Pages

ii
165
171a
173
180
182
190

3.0 LIMITING CONDITIONS FOR OPERATION	4.0 SURVEILLANCE REQUIREMENTS
d. One position alarm circuit can be inoperable providing that the redundant position alarm circuit is operable. Both position alarm circuits may be inoperable for a period not to exceed seven days provided that all vacuum breakers are operable.	b. When the position of any drywell-suppression chamber vacuum breaker valve is indicated to be not fully closed at a time when such closure is required, the drywell to suppression chamber differential pressure decay shall be demonstrated to be less than that shown on Figure 3.7.1 immediately and following any evidence of subsequent operation of the inoperable valve until the inoperable valve is restored to a normal condition. c. When both position alarm circuits are made or found to be inoperable, the control panel indicator light status shall be recorded daily to detect changes in the vacuum breaker position.
5. Oxygen Concentration a. The primary containment atmosphere shall be reduced to less than 4% oxygen by volume with nitrogen gas whenever the reactor is in the run mode, except as specified in 3.7.A.5.b. b. Within the 24-hour period subsequent to placing the reactor in the run mode following shutdown, the containment atmosphere oxygen concentration shall be reduced to less that 4% by volume, and maintained in this condition. Deinerting may commence 24 hours prior to leaving the run mode for a reactor shutdown.	5. Oxygen Concentration Whenever inerting is required, the primary containment oxygen concentration shall be measured and recorded on a weekly basis.

Amendment No. 35

3.0 LIMITING GAS CONTROL SYSTEM

E. Combustible Gas Control System

1. Two separate and independent Combustible Gas Control System trains shall be operable at all times whenever the reactor is in the run mode except as specified in Section 3.7.E.2 and 3.7.E.3 below.

2. After one of the Combustible Gas Control System train(s) is made or found to be inoperable for any reason, restore the inoperable train to operable status within 30 days or submit a special report to the Commission within the next 30 days which includes the following information:

   1) Identification of the inoperable equipment or subsystems and the reason for inoperability,

   2) Action(s) to be taken to restore equipment to operable status, and

   3) Summary description of action(s) taken to prevent recurrence.

3. With both of the Combustible Gas Control Control System trains inoperable for any reason, restore at least one train to operable status within 30 days or initiate an orderly shutdown of the reactor and be in the cold shutdown condition within 24 hours.

4.0 SURVEILLANCE REQUIREMENTS

E. Combustible Gas Control System

1. At least once an operating cycle, perform the following:

   a. Calibrate the following instrumentation and control circuits

      1. Inlet flow indicator
      2. Total Flow indicator
      3. Return gas high temperature
      4. High reaction chamber temperature

   b. Perform a resistance to ground test on all heater electrical circuits

   c. Verify through a visual examination that there is no evidence of abnormal conditions.

2. At least once every six months verify the recombiner reaction chamber operability by verifying that the outlet temperature exceeds 600°F within one hour and that heater current is within 5% of rated current when the power setting is increased to maximum.

3. The leak tightness of the recombiners and associated piping shall be verified during each shutdown when a Type A overall integrated containment leakage test is required by either:

   a. Venting the recombiner trains to the containment during the Type A test, or

   b. Performing a separate leakage test of both recombiner trains and adding the results to the Type A test leakage.

TABLE 3.7.1, continued
PRIMARY CONTAINMENT ISOLATION

Isolation Group	Valve Identification	Number of Valves		Maximum Operating Time (Sec)	Normal Position
		Inboard	Outboard		
2	Shutdown Cooling System		1	120	Closed
2	Shutdown Cooling System		1	120	Closed
2	Reactor Head Cooling Line	1	1	120	Closed
2	Combustible Gas Control		8	60	Closed
3	Cleanup Demineralizer System	1	1	40	Open
3	Cleanup Demineralizer System		1	40	Open
4	HPCI Turbine Steam Supply	1	1	40	Open
5	RCIC Turbine Steam Supply	1	1	30	Open

NOTE: Isolation Groupings are as follows:

Group 1: The valves in Group 1 are closed upon any of the following conditions:
1. Reactor low low water level
2. Main steam line high radiation
3. Main steam line high flow
4. Main steam line tunnel high temperature
5. Main steam line low pressure (RUN mode only)

Group 2: The actions in Group 2 are initiated by any one of the following conditions:
1. Reactor low water level
2. High Drywell pressure

NOTE: Manual override is provided to permit CGCS operation during Group II isolation.

Amendment No. 35

Bases Continued:

and two green lights for each of the eight valves. There are four independent limit switches on each valve. The two switches controlling the green lights are adjusted to provide an indication of disc opening of less than 1/8" at the bottom of the disc. These switches are also used to activate the valve position alarm circuits. The two switches controlling the red lights are adjusted to provide indication of the disc very near the full open position.

The control room alarm circuits are redundant and fail safe. This assures that no simple failure will defeat alarming to the control room when a valve is open beyond allowable and when power to the switches fails. The alarm is needed to alert the operator that action must be taken to correct a malfunction or to investigate possible changes in valve position status, or both. If the alarm cannot be cleared due to the inability to establish indication of closure of one or more valves, additional testing is required. The alarm system allows the operator to make this evaluation on a timely basis. The frequency of the testing of the alarms is the same as that required for the position indication system.

Operability of a vacuum breaker valve and the four associated indicating light circuits shall be established by cycling the valve. The sequence of the indicating lights will be observed to be that previously described. If both green light circuits are inoperable, the valve shall be considered inoperable and a pressure test is required immediately and upon indication of subsequent operation. If both red light circuits are inoperable, the valve shall be considered inoperable, however, no pressure test is required if positive closure indication is present.

Oxygen concentration is limited to 4% by volume to minimize the possibility of hydrogen combustion following a loss of coolant accident. Significant quantities of hydrogen could be generated if the core cooling systems failed to sufficiently cool the core. The occurrence of primary system leakage following a major refueling outage or other scheduled shutdown is more probable than the occurrence of the loss of coolant accident upon which the specified oxygen concentration limit is based. Permitting access to the drywell for leak inspections during a startup is judged prudent in term of the added plant safety offered without significantly reducing the margin of safety. Thus, to preclude the possibility of starting the reactor and operating for extended periods of time with significant leaks in the primary system, leak inspections are scheduled during startup periods, when the primary system is at or near rated operating temperature and pressure. The 24-hour period to provide inerting is judged to be sufficient to perform the leak inspection and establish the required oxygen concentration. The primary containment is normally slightly pressurized during periods of reactor operation. Nitrogen used for inerting could leak out of the containment but air could not leak in to increase oxygen concentration. Once the containment is filled with nitrogen to the required concentration, no monitoring of oxygen concentration is necessary. However, at least once a week the oxygen concentration will be determined as added assurance.

Amendment No. 17,35

Bases Continued:

While only a small amount of particulates are released from the primary containment as a result of the loss of coolant accident, high-efficiency particulate filters before and after the charcoal filters are specified to minimize potential particulate release to the environment and to prevent clogging of the charcoal adsorbers. The charcoal adsorbers are installed to reduce the potential release of radioiodine to the environment. The in-place test results should indicate a system leak tightness of less than 1% bypass leakage for the charcoal adsorbers using halogenated hydrocarbon and a HEPA filter efficiency of at least 99% removal of DOP particulates. Laboratory carbon sample test results indicate a radioactive methyl iodide removal efficiency for expected accident conditions. Operation of the standby gas treatment circuits significantly different from the design flow will change the removal efficiency of the HEPA filters and charcoal adsorbers. If the performance requirements are met as specified, the calculated doses would be less than the guidelines stated in 10 CFR 100 for the accidents analyzed.

D. Primary Containment Isolation Valves

Double isolation valves are provided on lines penetrating the primary containment. Closure of one of the valves in each line would be sufficient to maintain the integrity of the pressure suppression system. Automatic initiation is required to minimize the potential leakage paths from the containment in the event of a loss-of-coolant accident. Details of the isolation valves are discussed in Sections 5.2 and 7.2 of the FSAR.

E. Combustible Gas Control System

The function of the Combustible Control System (CGCS) is to maintain oxygen concentrations in the post-accident containment atmosphere below combustible concentrations. Oxygen may be generated in the hours following a loss of coolant accident from radioalysis of reactor coolant.

The Technical Specifications limit oxygen concentrations during operation to less than four percent by volume during operation. The maintenance of an inert atmosphere during operation precludes the build-up of a combustible mixture due to a fuel metal-water reaction. The other potential mechanism for generation of combustible mixtures is radioalysis of coolant which has been found to be small.

A special report is required to be submitted to the Commission to outline CGCS equipment failures and corrective actions to be taken if inoperability of one train exceeds thirty days. In addition, if both trains are inoperable for more than 30 days, the plant is required to shutdown until repairs can be made.

Amendment No.35

Bases Continued:

The containment is penetrated by a large number of small diameter instrument lines. A program for the periodic testing (see Specification 4.7.D) and examination of the valves in these lines has been developed and a report covering this program was submitted to the AEC on July 27, 1983.

The main steam line isolation valves are functionally tested on a more frequent interval to establish a high degree of reliability.

E. Combustible Gas Control System

The Combustible Gas Control System (CGCS) is functionally tested once every six months to ensure that the recombiner trains will be available if required. In addition, calibration and maintenance of essential components is specified once each operating cycle.

Amendment No. 35

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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

SUPPORTING AMENDMENT NO. 35 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 April 29, 1985, as revised June 14, and September 4, 1985, Northern States Power Company (NSP, the licensee) proposed revised Technical Specifications (TS) concerning the installation of the Combustible Gas Control System (CGCS) to comply with the requirements of 10 CFR 50, Section 50.44.

2.0 EVALUATION

In order to comply with 10 CFR 50, Section 50.44, NSP completed installation of two separate and independent CGCS trains during the 1984 refueling outage. The function of the CGCS is to maintain oxygen concentration in the post-accident containment atmosphere below the combustible limit. This system consists of two 100 percent hydrogen recombiners and associated piping and valves.

The proposed additions to the TS closely follow the guidance provided in the Standard Technical Specifications (STS) for General Electric Boiling Water Reactors. The proposed TS will limit the oxygen concentration during normal operation to less than four percent by volume during operation. The maintenance of an inert atmosphere during operation precludes the build up of a combustible mixture due to metal-water reaction.

The licensee has taken one exception to the STS relating to the permissible inoperability times of the CGCS trains. The licensee proposes that the inoperability of one CGCS train be permitted for up to a period of 30 days. A special report will be submitted to the Commission to outline CGCS failures and corrective actions to be taken if inoperability of one train exceeds 30 days. In addition, the inoperability of both of the CGCS trains are permitted for up to a period of 30 days without plant shutdown. If both trains are inoperable for more than 30 days, the plant is required to shutdown until repairs can be made.

This is consistent with the Technical Specifications issued to plants with Containment Air Dilution (CAD) Combustible Gas Control System. These plants have inerted environments and rely upon the CAD system as backup for combustible gas control. The TS for an inoperable CAD system require the CAD system to be in the operable status within 30 days or to be at least in hot shutdown within the next 12 hours. Therefore, the staff concludes that the proposed Technical Specifications for the CGCS are acceptable.

3.0 ENVIRONMENTAL CONSIDERATIONS

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 in 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 issued 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, and (2) such activities will be conducted in compliance with the Commission's regulations and 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: L. Ruth

Dated: December 3, 1985