Mr. Roger O. Anderson, Director
Nuclear Energy Engineering
Northern States Power Company
414 Nicollet Mall
Minneapolis, MN 55401

August 28, 1998

SUBJECT: MONTICELLO NUCLEAR GENERATING PLANT - ISSUANCE OF AMENDMENT RE: REACTOR COOLANT EQUIVALENT RADIOIODINE CONCENTRATION AND CONTROL ROOM HABITABILITY (TAC NO. M96256)

Dear Mr. Anderson:

The Commission has issued the enclosed Amendment No. 101 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 revised application dated June 19, 1998, as supplemented July 1, 1998. The June 19, 1998, submittal superseded in its entirety Northern States Power (NSP) Company's previous letters dated July 26, 1996, and April 11, 1997. NSP letter dated May 5, 1997, "Supplementary Information to Revision One to License Amendment Request Dated July 26, 1996 Reactor Coolant Equivalent Radioiodine Concentration and Control Room Habitability (TAC M96256)," was also considered in our review of the amendment request. The amendment revises Technical Specifications Section 3.6.C, Coolant Chemistry, 3/4.17.B, Control Room Emergency Filtration System, and their associated bases.

This amendment also adds two license conditions to Appendix C of the license. These license conditions were proposed by NSP in its letter of July 1, 1998.

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

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

Docket No. 50-263

Enclosures: 1. Amendment No.101to DPR-22
2. Safety Evaluation

cc w/encl: See next page

DISTRIBUTION: See attached page

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

August 28, 1998

Mr. Roger O. Anderson, Director
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414 Nicollet Mall
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Tae Kim, Senior Project Manager
Project Directorate III-1
Division of Reactor Projects - III/IV
Office of Nuclear Reactor Regulation

Docket No. 50-263

Enclosures: 1. Amendment No. 101 to DPR-22
2. Safety Evaluation

cc w/encl: See next page

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

DATED: August 28, 1998

AMENDMENT NO. 101 TO FACILITY OPERATING LICENSE NO. DPR-22 - MONTICELLO

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M. Kunowski, RIII
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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. 101
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 June 19, 1998, as supplemented July 1, 1998, and including information in the licensee's May 5, 1997, letter, 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 paragraphs 2.C.2 and 2.C.8 of Facility Operating License No. DPR-22 are hereby amended to read as follows:

C.2 Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 101 , are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

C.8 Additional Conditions

The Additional Conditions contained in Appendix C, as revised through Amendment No. 101 , are hereby incorporated into this license. The licensee shall operate the facility in accordance with the Additional Conditions.

3. This license amendment is effective as of the date of issuance. Implementation of the license conditions shall be as specified in Appendix C.

FOR THE NUCLEAR REGULATORY COMMISSION

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

Attachments: 1 Changes to the Technical Specifications
2. Page C-2 of Appendix C

Date of Issuance: August 28, 1998

Amendment Number	Additional Condition	Implementation Date
98	Update Section 5.2 of the Updated Safety Analysis Report by incorporating Figure E.2 of the NSP submittal dated July 16, 1997.	Within 90 days from the date of plant startup from the current maintenance outage, or November 1, 1997, whichever is later.
98	Process a 10 CFR 50.59 evaluation to change the EOP definition of adequate core cooling to 2/3 core height. The corresponding EOP changes and the required operator training shall also be completed. Final implementations shall be completed when all the 10 CFR 50.59 evaluation requirements are satisfied.	Within 180 days from the date of plant startup from the current maintenance outage, or February 1, 1998, whichever is later.
101	Conduct an independent evaluation of the testing methodology and the testing configuration of the EFT [emergency filtration testing] system by HEPA and charcoal filter testing experts. This evaluation shall include review of the exceptions to the ASME N510-1989 testing standard listed in Exhibit F of NSP's June 19, 1998, letter. The evaluation results shall be reported to the NRC.	Within 9 months of the date of issuance of Amendment No. 101.
101	Initiate appropriate modifications to the EFT system to comply with the ASME N510-1989 testing standard or obtain NRC approval for continued use of the exceptions.	Within 24 months of the date of issuance of Amendment No. 101.

ATTACHMENT TO LICENSE AMENDMENT NO. 101

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
123	123
148	148
229w	229w
229x	229x
229y	229y
229z	229z

3.0 LIMITING CONDITIONS FOR OPERATION	4.0 SURVEILLANCE REQUIREMENTS
4. The reactor vessel head bolting studs shall not be under tension unless the temperature of the vessel head flange and the head are $\geq 70^{\circ}F$.	4. When the reactor vessel head studs are under tension and the reactor is in the Cold Shutdown Condition, the reactor vessel shell flange temperature shall be permanently recorded.
C. Coolant Chemistry	C. Coolant Chemistry
1. The steady state radioiodine concentration in the reactor coolant shall not exceed 0.25 microcuries of I-131 dose equivalent per gram of water.	1. (a) A sample of reactor coolant shall be taken at least every 96 hours and

Bases 3.6/4.6 (Continued):

C. Coolant Chemistry

In the event of a steam line rupture outside the drywell, calculations show the resultant radiological dose at the exclusion area boundary to be less than 10% of the dose guidelines of 10 CFR 100. This dose was calculated on the basis of the radioiodine concentration limit of 2 μCi of I-131 dose equivalent per gram of water. In the event of a postulated high energy line break in the RWCU system outside the drywell, calculations show the resultant radiological dose at the exclusion area boundary to be less than 10% of the dose guidelines of 10 CFR 100. This dose was calculated on the basis of the radioiodine concentration limit of 0.25 μCi of I-131 dose equivalent per gram of water.

The reactor coolant sample will be used to assure that the limit of Specification 3.6.C.1 is not exceeded. The radioiodine concentration would not be expected to change rapidly during steady state operation over a period of 96 hours. In addition, the trend of the radioactive gaseous effluents, which is continuously monitored, is a good indicator of the trend of the radioiodine concentration in the reactor coolant. When a significant increase in radioactive gaseous effluents is indicated, as specified, an additional reactor coolant sample shall be taken and analyzed for radioactive iodine.

Whenever an isotopic analysis is performed, a reasonable effort will be made to determine a significant percentage of those contributors representing the total radioactivity in the reactor coolant sample. Usually at least 80 percent of the total gamma radioactivity can be identified by the isotopic analysis.

It has been observed that radioiodine concentration can change rapidly in the reactor coolant during transient reactor operations such as reactor shutdown, reactor power changes, and reactor startup if failed fuel is present. As specified, additional reactor coolant samples shall be taken and analyzed for reactor operations in which steady state radioiodine concentrations in the reactor coolant indicate various levels of iodine releases from the fuel. Since the radioiodine concentration in the reactor coolant is not continuously measured, reactor coolant sampling would be ineffective as a means to rapidly detect gross fuel element failures. However, some capability to detect gross fuel element failures is inherent in the radiation monitors in the off-gas system and on the main steam line.

Materials in the primary system are primarily 304 stainless steel and zircaloy. The reactor water chemistry limits are established to prevent damage to these materials. The limit placed on chloride concentration is to prevent stress corrosion cracking of the stainless steel.

3.0 LIMITING CONDITIONS FOR OPERATION	4.0 SURVEILLANCE REQUIREMENTS
b. When both filter trains of the control room emergency filtration system are inoperable, restore at least one train to operable status within 24 hours or be in hot shutdown within the next 12 hours following the 24 hours and reduce the reactor coolant water temperature to below 212°F within the following 24 hours.	
2. Performance Requirements	2. Performance Requirement Test
a. Periodic Requirements	The in-place performance testing of HEPA filter banks and charcoal adsorber banks shall be conducted in accordance with Sections 10 and 11 of ASME N510-1989 with exceptions described in Section 6.7 of the USAR. The carbon sample test for methyl iodide shall be conducted in accordance with ASTM D 3803-1989.
(1) The results of the in-place DOP tests at 1000 cfm (±10%) shall show ≤1% DOP penetration on each individual HEPA filter and shall show ≤0.05% DOP penetration on the combined HEPA filters.	a. At least once per 720 hours of system operation; or once per operating cycle, but not to exceed 18 months, whichever occurs first; or following painting, fire, or chemical release while the system is operating that could contaminate the HEPA filters or charcoal adsorbers, perform the following:
(2) The results of in-place halogenated hydrocarbon tests at 1000 cfm (±10%) shall show ≤0.05% penetration on the combined charcoal banks.	(1) In-place DOP test the HEPA filter banks.
(3) The results of laboratory carbon sample analysis shall show ≤0.4% methyl iodide penetration when tested at 30°C and 95% relative humidity.	(2) In-place test the charcoal adsorber banks with halogenated hydrocarbon tracer.
	(3) Remove one carbon test canister from the charcoal adsorber. Subject this sample to a laboratory analysis to verify methyl iodide removal efficiency.
	(4) Initiate from the control room 1000 cfm (±10%) flow through both trains of the emergency filtration treatment system.

3.0 LIMITING CONDITIONS FOR OPERATION	4.0 SURVEILLANCE REQUIREMENTS
b. The system shall be shown to be operable with: (1) Combined filter pressure drop $\leq$8 inches water. (2) Inlet heater power output 5kw $\pm$ 10%. (3) Automatic initiation upon receipt of a high radiation signal.	b. At least once per operating cycle, but not to exceed 18 months, the following conditions shall be demonstrated for each emergency filtration system train: (1) Pressure drop across the combined filters of each train shall be measured at 1000 cfm ($\pm$10%) flow rate. (2) Operability of inlet heater at nominal rated power shall be verified. (3) Verify that on a simulated high radiation signal, the train switches to the pressurization mode of operation and the control room is maintained at a positive pressure with respect to adjacent areas at the design flow rate of 1000 cfm ($\pm$10%).
3. Post Maintenance Requirements a. After any maintenance or testing that could affect the HEPA filter or HEPA filter mounting frame leak tight integrity, the results of the in-place DOP tests at 1000 cfm ($\pm$10%) shall show $\leq$1% DOP penetration on each individual HEPA filter and shall show <0.05% DOP penetration on the combined HEPA filters. b. After any maintenance or testing that could affect the charcoal adsorber leak tight integrity, the results of in-place halogenated hydrocarbon tests at 1000 cfm ($\pm$10%) shall show $\leq$0.05% penetration on the combined charcoal adsorber banks.	3. Post Maintenance Testing a. After any maintenance or testing that could affect the leak tight integrity of the HEPA filters, perform in-place DOP tests on the HEPA filters. b. After any maintenance or testing that could affect the leak tight integrity of the charcoal adsorber banks, perform halogenated hydrocarbon tests on the charcoal adsorbers.

Bases 3.17:

A. Control Room Ventilation System

The Control Room Ventilation System provides air conditioning and heating as required to maintain a suitable environment in the main control room and portions of the first and second floors of the Emergency Filtration Train (EFT) building. The system is designed to maintain a nominal temperature of 78°F dry bulb in the main control room in the summer and a nominal temperature of 72°F in the winter. During normal operation, the CRV system recirculates the air in the control room envelope as needed. During a high radiation event, the Control Room Ventilation System continues to operate, and the Control Room Emergency Filtration Train system will start automatically to pressurize the control room protective envelope. The Emergency Filtration Train system can also be started manually.

All toxic substances which are stored onsite or stored/shipped within a 5 mile radius of the plant have been analyzed for their affect on the control room operators. It has been concluded that the operators will have at least two minutes to don protective breathing apparatus before incapacitation limits are exceeded. For toxic substance which are transported on highways within 5 miles of the plant, it has been determined that the probability of a release from the plant due to incapacitation of the operators caused by a spill is sufficiently low that this scenario may be excluded. Protection for toxic chemicals is provided through operator training.

B. Control Room Emergency Filtration System

The Control Room Emergency Filtration System assures that the control room operators will be adequately protected against the effects of radioactive leakage which may by-pass secondary containment following a loss of coolant accident or radioactive releases from a steam line break accident. The system is designed to slightly pressurize the control room on a radiation signal in the ventilation air. Two completely redundant trains are provided.

Each train has a filter unit consisting of a prefilter, HEPA filters, and charcoal adsorbers. The HEPA filters remove particulates from the Control Room pressurizing air and prevent clogging of the iodine adsorbers. The charcoal adsorbers are installed to remove any radioiodines from the pressurizing air. The verification of performance parameters combined with the qualification testing conducted on new filters and adsorbers provide a high level of assurance that the Emergency Filtration System will perform as predicted in reducing doses to plant personnel below those level stated in Criterion 19 of Appendix A to 10 CFR 50.

Dose calculations have been performed for the Control Room Emergency Filtration System which show that, assuming 85% standby gas treatment system adsorption and filtration efficiency and 98% control room emergency filtration system adsorption and filtration efficiency and radioiodine plateout, whole body and organ doses remain within NRC guidelines.

Bases 4.17:

A. Control Room Ventilation System

Control room air temperature is checked each shift to ensure that the continuous duty rating for the instrumentation and equipment cooled by this system is not exceeded.

Demonstrating automatic isolation of the control room using simulated accident signals assures control room isolation under accident conditions.

B. Control Room Emergency Filtration System

Air flow through the filters and charcoal adsorbers each month assures operability of the system.

The frequency of tests and sample analysis is necessary to show that the HEPA filters and charcoal adsorbers can perform as evaluated. The charcoal adsorber tray is installed which can accommodate a sufficient number of representative adsorber sample modules for estimating the amount of penetration the system adsorbs though its life. Sample modules will be installed with the same batch characteristics as the system adsorbent and will be withdrawn for the methyl iodide removal efficiency tests. Each module withdrawn will be replaced or blocked off. In-place testing procedures will be established utilizing applicable sections of ASME N510-1989 as described in Section 6.7 of the USAR. If test results are unacceptable, all adsorbent in the train is replaced. Any HEPA filters found defective are replaced.

Pressure drop across the combined HEPA filters and charcoal adsorbers of less than or equal to 8 inches of water at the system design flow rate will indicate that the filters and adsorbers are not clogged by excessive amounts of foreign matter.

Demonstrating automatic control room pressurization using simulated accident signals assures control room pressurization with respect to adjacent areas under accident conditions.

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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 101 TO FACILITY OPERATING LICENSE NO. DPR-22

NORTHERN STATES POWER COMPANY

MONTICELLO NUCLEAR GENERATING PLANT

DOCKET NO. 50-263

1.0 INTRODUCTION

By revised application dated June 19, 1998, as supplemented July 1, 1998, the Northern States Power Company (NSP, the licensee) requested an amendment to the Technical Specifications (TS) appended to Facility Operating License No. DPR-22 for the Monticello Nuclear Generating Plant (MNGP). The proposed amendment would revise Section 3.6.C, Coolant Chemistry, and 3/4.17.B, Control Room Emergency Filtration System, of the TS. The June 19, 1998, submittal superseded in its entirety NSP's previous letters dated July 26, 1996, and April 11, 1997. NSP letter dated May 5, 1997, "Supplementary Information to Revision One to License Amendment Request Dated July 26, 1996 Reactor Coolant Equivalent Radioiodine Concentration and Control Room Habitability (TAC M96256)," was also considered in the staff's review of the amendment request. Among other changes, this TS amendment proposes to establish TS requirements that are consistent with modified analysis inputs used for the evaluation of the radiological consequences of a postulated main steam line break accident and of a postulated line break in the reactor water cleanup system.

2.0 EVALUATION

2.1 In-Place Filter Testing Requirements

Current TS Sections 3.17.B.2.a(1), 3.17.B.2.a(2), 3.17.B.3.a, 3.17.B.3.b, 4.17.B.2.a(1), 4.17.B.2.a(2), 4.17.B.3.a, and 4.17.B.3.b require verification that the in-place testing of the high-efficiency particulate air (HEPA) filters and charcoal adsorbers for the control room emergency filtration (EFT) system shows a penetration of less than 1 percent when tested in accordance with ANSI [American National Standards Institute]/ASME [American Society of Mechanical Engineers] Standard N510-1980, "Testing of Nuclear Air-Cleaning Systems," at a flow rate of 1000 cfm [cubic feet per minute] (±10 percent).

Proposed TS Sections 3.17.B.2.a(1) and 3.17.B.3.a require that an in-place dioctyl phthalate (DOP) test of the HEPA filters in the EFT shall show a DOP penetration of less than 1 percent on each individual HEPA filter and a DOP penetration of 0.05 percent on the combined HEPA filters at a flow rate of 1000 cfm (±10 percent). Proposed TS Section 4.17.B.2 specifies that this in-place performance testing of the HEPA filters shall be conducted in accordance with Section 10 of ASME N510-1989 with exceptions as described in Exhibit F of the June 19, 1998,

submittal. The ASME standard is acceptable because it is an NRC-approved standard that is referenced in the improved Standard Technical Specifications (STS). The acceptance value of 1 percent per filter ensures that gross degradation of the individual filters is detected and it complies with the ASME N510-1989 guidance of testing HEPA filters in series, separately. The acceptance value of 0.05 percent for the combined results measured across both filters is consistent with Revision 2 of Regulatory Guide (RG) 1.52, "Design, Testing, and Maintenance Criteria for Postaccident Engineered Safety Feature Atmosphere Cleanup System Air Filtration Units of Light Water Cooled Nuclear Power Plants," and is therefore acceptable.

Proposed TS Sections 3.17.B.2.a(2) and 3.17.B.3.b require that an in-place halogenated hydrocarbon test of the charcoal adsorbers in the EFT shall show a penetration of less than 0.05 percent on the combined charcoal banks at a flow rate of 1000 cfm (±10 percent). Proposed TS Section 4.17.B.2 specifies that this in-place performance testing of the charcoal adsorbers shall be conducted in accordance with Section 11 of ASME N510-1989 with exceptions as described in Exhibit F of the June 19, 1998, submittal. The ASME standard is acceptable because it is an NRC-approved standard that is referenced in the improved STS. The acceptance value of 0.05 percent for the EFT is consistent with RG 1.52, Revision 2, and is therefore acceptable.

Exhibit F of the June 19, 1998, submittal provides the following exceptions to the ASME N510-1989 in-place testing:

1. Monticello performs a visual inspection of applicable items from Section 5.5.1 of ASME N510-1989. Examples of items that are not applicable to Monticello include dovetail type access gaskets with a seating surface suitable for a knife edge seal, and shaft seals.

2. The housing leak test in Section 6.2.2 and Table 1 of ASME N510-1989 is not performed at Monticello because the EFT was built to be tested to ANSI/ASME N510-1980 which does not require these tests to be performed periodically.

3. The mounting frame pressure leak test in Section 7.1 of ASME N510-1989 is not performed at Monticello. Leaks of this nature are detected by the visual inspection test or the in-place filter bypass test.

4. The housing component pressure drop airflow test in Section 8.5.1.4 of ASME N510-1989 is not performed at Monticello because the EFT was built to be tested to ANSI/ASME N510-1980 which does not require these tests to be performed periodically.

5. The periodic airflow distribution test in Section 8.5.2.2 of ASME N510-1989 is not performed at Monticello because the EFT was built to be tested to ANSI/ASME N510-1980 which does not require these tests to be performed periodically.

6. Section 10.3 of ASME N510-1989 states that sample points for the HEPA filter in-place testing shall be located downstream of the fan or downstream sample manifolds shall be qualified. Monticello samples upstream of the fan using a single injection point. No shaft seals are installed on the system's fans; therefore sampling downstream of the fan would obtain a diluted air sample. The EFT does not have any provisions for sampling manifolds.

7. Section 10.5.8 of ASME N510-1989 states that upstream and downstream DOP concentrations are repeated until readings within ±5 percent of respective previous readings are obtained. Monticello takes readings until the concentrations are within ±10 percent, and the highest penetration reading is conservatively used with a minimum of three readings taken. Because of the injection point location for the Monticello EFT system, it is difficult to consistently achieve ±5 percent between readings.

8. Section 11.3 of ASME N510-1989 states that sample points for the charcoal filter in-place testing shall be located downstream of the fan or downstream sample manifolds shall be qualified. Monticello samples upstream of the fan using a single injection point. No shaft seals are installed on the system's fans; therefore sampling downstream of the fan would obtain a diluted air sample. The EFT does not have any provisions for sampling manifolds.

9. Monticello reserves the ability to use alternate test gases that are found to be acceptable alternatives to R-11 by the industry because of future availability of the gases specified in ASME N510-1989.

10. The in-series charcoal adsorbers will be tested as a unit rather than testing each bank separately because testing individually was not a requirement under ASME N510-1980 and is not feasible at Monticello.

In its July 1, 1998 letter, the licensee proposed the following commitments with the understanding that these commitments will become license conditions:

> Within 9 months of the date of the approval of the Monticello license amendment request dated June 19, 1998, NSP will conduct an independent evaluation of the testing methodology and the testing configuration of the EFT system by HEPA and charcoal filter testing experts. The exceptions to the ASME N510-1989 testing standard listed in Exhibit F of the above license amendment request will be evaluated. The evaluation results will be reported to the staff. Within 24 months of the date of approval of this amendment request, NSP will initiate appropriate modifications to the EFT System to comply with the ASME N510-1989 testing standard or obtain staff approval for continued use of the exceptions.

Based on these commitments, the above exceptions to the ASME N510-1989 in-place testing will be allowed for the next 24 months. The 9 months provides the licensee ample time to arrange for an independent HEPA and charcoal filter testing expert to evaluate and make recommendations for improving in-place filter testing. The 24 months provides the licensee ample time to initiate appropriate modifications or obtain the staff approval for continued use of the exceptions.

2.2 Laboratory Charcoal Sample Testing Requirements

Current TS Sections 3.17.B.2.a(3) and 4.17.B.2.a(3) require verification that the results of a laboratory carbon sample analysis shows ≥ 98 percent methyl iodide removal efficiency when tested in accordance with ASTM [American Society for Testing and Materials] Standard D3803-1979, "Standard Test Method for Nuclear-Grade Activated Carbon," at a temperature of

80 °C and a relative humidity (RH) of 95 percent. The essential elements of the current TS for testing per ASTM D3803-1979 are as follows:

- 95 percent RH
- Thermal stabilization until charcoal is at 80 °C
- 2-hour challenge, with gas at 80 °C and 95 percent RH
- A 2-hour elution time, with air at 80 °C and 95 percent RH

Proposed TS Section 3.17.B.2.a(3) requires verification that the results of a laboratory carbon sample analysis shows ≤ 0.4 percent methyl iodide penetration when tested at a temperature of 30 °C and an RH of 95 percent. Proposed TS Section 4.17.B.2.a(3) specifies that this carbon sample test for methyl iodide shall be conducted in accordance with ASME D3803-1989. However, the correct title of ASME D3803-1989 is ASTM D3803-1989. This correction was discussed with the licensee and TS Section 4.17.B.2.a(3) has been revised to specify ASTM D3803-1989 rather than ASME D3803-1989. The essential elements of the proposed TS change for testing per ASTM D3803-1989 are as follows:

- 95 percent RH
- 2-hour minimum thermal stabilization, at 30 °C
- 16-hour pre-equilibration time, with air at 30 °C and 95 percent RH
- 2-hour equilibration time, with air at 30 °C and 95 percent RH
- 1-hour challenge, with gas at 30 °C and 95 percent RH
- 1-hour elution time, with air at 30 °C and 95 percent RH

The major differences between the current and proposed TS requirements for carbon testing are:

	Proposed TS	**Current TS**
Thermal Stabilization Temperature	30 °C	80 °C
Pre-Equilibration Temperature	30 °C	NA
Challenge Temperature	30 °C	80 °C
Elution Temperature	30 °C	80 °C
Total Pre-Test Equilibration	18 hours	NA
Tolerances of Test Parameters	Smaller	Larger

The discussion below demonstrates that these differences make the proposed TS more conservative than the present TS requirements.

As stated above, ASTM D3803-1989 challenges the representative charcoal samples at 30 °C rather than at 80 °C. The quantity of water retained by charcoal is dependent on temperature, with less water being retained as the temperature rises. The water retained by the charcoal decreases its efficiency in adsorbing other contaminants. Because most charcoal is anticipated to be challenged at a temperature closer to 30 °C rather than 80 °C, the lower temperature test condition of ASTM D3803-1989 will yield more realistic results than a test performed at 80 °C.

ASTM D3803-1989 provides results that are reproducible compared to ASTM D3803-1979 because it has smaller tolerances on various test parameters, and it requires that the charcoal sample be pre-equilibrated. During the pre-equilibration, the charcoal is exposed to a flow of air controlled at the test temperature and RH before the challenge gas is fed through the charcoal. The purpose of the pre-equilibration phase of the test is to ensure that the charcoal has stabilized at the specified test temperature and RH for a period of time that results in the charcoal adsorbing all the available moisture before the charcoal is challenged with methyl iodide. This ensures reproducibility of the results by having every charcoal sample begin the test at the same initial conditions. Hence, the proposed testing in accordance with ASTM D3803-1989 standard would result in a more realistic prediction of the capability of the charcoal.

As stated above, the proposed TS requires that the laboratory testing of charcoal samples shows a methyl iodide penetration $\leq$ 0.4 percent. In the licensee's dose analysis, the 4-inch charcoal filters are credited with a filter efficiency of 98 percent. Therefore, the proposed TS acceptance criteria of $\leq$ 0.4 percent includes a safety factor of 5 which is consistent with RG 1.52, Revision 2, and is therefore acceptable.

The licensee has also revised the Bases for TS Sections 3.6/4.6, 3.17, and 4.17 consistent with the changes proposed in this amendment.

2.3 Radiological Consequences

In Monticello Licensee Event Report (LER) 96-008, "Reactor Water Cleanup Line Break Reanalysis Due to an Error Discovered During Re-evaluation," the licensee identified a discrepancy in the mass and energy release calculated for a postulated high energy line break in the reactor water cleanup (RWCU) system. As part of the corrective actions to address the discrepancy, the licensee established an administrative limit of 0.25 µCi of dose equivalent iodine-131 per gram of water in the reactor primary coolant (lowered from 5 µCi/gm). The licensee proposed to incorporate this administrative limit of 0.25 µCi/gm of dose equivalent iodine-131 into the TS. The licensee committed in LER 96-008 to submit a TS amendment request to establish the administrative limit on reactor primary coolant dose equivalent iodine concentration as a TS limiting condition for operation.

The staff reviewed the radiological consequence analysis submitted by the licensee in the June 19, 1998, submittal and finds that the calculational methods used are acceptable and that radiological consequences calculated by the licensee meet the relevant dose acceptance criteria. To verify the licensee's assessment, the staff performed an independent radiological consequence calculation resulting from a postulated high energy line break in the RWCU system using the limiting break mass flow rate of 719 pound-mass (lbm) per second provided by the licensee.

This break flow rate is approximately 3 times greater than the break flow rate previously used by the licensee in its original licensing-basis evaluation. The staff assumed that the break mass flow release to the environment would occur at ground level without filtration by the standby gas treatment system. The licensee proposed and the staff accepted that the control room operator will be able to isolate the postulated high energy line break within 10 minutes after initiation of the postulated break by closing remotely controlled and motor-operated isolation valves from the control room.

Based on the staff's review of the radiological consequence analyses submitted by the licensee and the staff's independent confirmatory analysis, the staff concludes that the radiological consequences with the proposed primary coolant iodine concentration of 0.25 µCi/gm dose equivalent iodine-131 are within the relevant dose criteria specified in 10 CFR Part 100 and General Design Criterion 19 of Appendix A to 10 CFR Part 50. Therefore, we find the requested amendment to be acceptable. The major parameters and assumptions used by the staff for the high energy line break accident and the resulting radiological consequences are provided below:

Assumptions Used in Computing High Energy Line Break Accident and Resulting Radiological Consequences

Parameter	Value
Power level, MWt	1918
Reactor primary coolant iodine concentrations (µCi/gm DEI-131)	0.25
Total mass release, lbm	4.43E+5
Operator Action Time, minutes	10
Iodine Partition factor	1.0
Dose conversion factor	FGR 11 and 12
Breathing rate, m^3/sec	3.74E-4
Atmospheric dispersion values, sec/m^3	
0 to 2 hours, EAB [exclusion area boundary]	9.20E-4
0 to 2 hours, LPZ [low-population zone]	7.93E-5
Control Room	
Dispersion value, sec/m^3	1.67E-3
Volume, ft^3	2.7E+4
Filter intake, cfm	9E+2
Filter Efficiency, %	98
Unfiltered inleakage, cfm	250
Iodine protection factor	4.29

Radiological consequences, rem	Thyroid	Whole Body
Exclusion area boundary	16	<1
Low population zone	1.4	<1
Control room operator	6.8	<1

3.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Minnesota State official was notified of the proposed issuance of the amendment. 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 and changes 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 the amendment involves no significant hazards consideration and there has been no public comment on such finding (63 FR 40321). 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 Commission 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 Contributors: J. Segala
J. Lee

Date: August 28, 1998