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February 12, 1981

Docket No. 50-263

Mr. L. O. Mayer, Manager
Nuclear Support Services
Northern States Power Company
414 Nicollet Mall - 8th Floor
Minneapolis, Minnesota 55401

Dear Mr. Mayer:

The Commission has issued the enclosed Amendment No. 1 to Facility Operating License No. DPR-22 for the Monticello Nuclear Generating Plant. This amendment revises the license conditions relating to the completion of facility modifications for fire protection in accordance with the requirements of 10 CFR 50.48 and 10 CFR 50 Appendix R. These regulations were published in the Federal Register on November 19, 1980, and become effective on February 17, 1981.

By letter dated November 24, 1980, you were provided with requirements concerning the "open" items of previous NRC staff fire protection reviews of your facility. As noted in that letter, the fire protection requirements pertaining to "open" items are to be implemented by the dates established by 10 CFR 50.48(c).

Fire Protection features required by Sections III-G, III-J, and III-O of Appendix R are to be implemented at your facility by the dates established by 10 CFR 50.48(c).

Previously approved fire protection modifications are to be completed at your facility by the dates established by 10 CFR 50.48(d).

Copies of Supplement 1 to the NRC's Fire Protection Safety Evaluation and Notice of Issuance are also enclosed.

Sincerely,

Thomas A. Ippolito, Chief
Operating Reactors Branch #2
Division of Licensing

RECEIVED
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Enclosures:
1. Amendment No. 1
2. Supplement 1 to Safety Evaluation
3. Notice

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JVW 2/10/81

No legal objection
Amendment
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OFFICE	DL:ORB#2	DL:ORB#2	DL:ORB#2	DL:OR	OELD	
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DATE	2/9/81	2/9/81	2/10/81	2/12/81	2/10/81	

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Docket

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

February 12, 1981

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Northern States Power Company
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Sincerely,

T. A. Ippolito

Thomas A. Ippolito, Chief
Operating Reactors Branch #2
Division of Licensing

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3. Notice

cc: See next page

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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, UNIT NO. 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 1
License No. DPR-22

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

   A. The filings* by Northern States Power Company (the licensee) comply 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 filing, 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 changing paragraph 2.C.4 to read as follows:

   4. Fire Protection

   The licensee may proceed with and is required to complete the modifications identified in the NRC's Fire Protection Safety Evaluation (SE) of the facility dated August 29, 1979 and Supplement 1 to this SE dated February 12 , 1981. The modifications identified in this SE and its Supplement shall be completed on the following schedule:

*which are being handled by the Commission as an application

8103 040224

a) Approved modifications in section 3.1 of the SE or Supplement 1 thereto, other than those pertaining to requirements set forth in Sections III-G, III-J, and III-O of 10 CFR 50 Appendix R, are to be completed by February 17, 1981, unless the Director of Nuclear Reactor Regulation determines that there is good cause for extending this date in accordance with 10 CFR 50.48(d)

b) Approved modifications in section 3.2 of the SE or Supplement 1 thereto, other than those pertaining to requirements set forth in Sections III-G, III-J, and III-O of 10 CFR 50 Appendix R, are to be completed by the dates established by 10 CFR 50.48(d).

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

FOR THE NUCLEAR REGULATORY COMMISSION

Thomas A. Ippolito, Chief
Operating Reactors Branch #2
Division of Licensing

Date of Issuance: February 12, 1981

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

FIRE PROTECTION

SAFETY EVALUATION REPORT

BY THE

OFFICE OF NUCLEAR REACTOR REGULATION

U. S. NUCLEAR REGULATORY COMMISSION

IN THE MATTER OF

NORTHERN STATES POWER COMPANY

MONTICELLO NUCLEAR GENERATING PLANT

DOCKET NO. 50-263

Supplement No. 1

Item 3.1.1 Fire Detection System

Item 3.1.1 of the Monticello SER describes Northern States Power Company's (the licensee) proposal to install early warning fire detectors in various locations of the plant. Part B of this item indicates that the existing fire detection systems will be upgraded, and in situ tests will be conducted to verify the adequacy of smoke detector locations.

By letter dated December 27, 1979, the licensee provided a description of the new fire detection systems they have installed or intend to install in compliance with SER Item 3.1.1. The submittal includes a listing of the plant areas where additional detectors have been provided. The submittal also includes a detailed description of the new and upgraded fire detection systems with manufacturer model numbers of the components used. The design of the system conforms with the applicable provisions of NFPA 72D including an annunciator panel in the control room and electrically supervised circuits. The types of detection devices selected include ionization type detectors, flame detectors and rate compensated/fixed temperature thermal detectors. The submittal also indicates that battery powered ionization type detectors will be provided in the control room in areas not visible from the area in front of the console. These detectors will be located within enclosed cabinets and in the area above open cabinets. The sketch of the control room accompanying the submittal indicates the proposed location of these battery powered detectors. The licensee's submittal states that the existing detectors in the plant will be integrated with the new system and that the adequacy of the detectors located in each area will be verified by in situ testing.

8103 040232

The licensee's installation of additional fire detectors conforms with the area listed in SER Item 3.1.1. The components and design of the new fire detection system meets the applicable provisions of the code as well as the intent of the proposed modification. The licensee's intention of providing battery powered ionization type detectors within the enclosed cabinets and above open cabinets in the control room is considered acceptable providing the licensee establishes an administrative procedure for weekly testing of the battery powered detectors. The design and arrangement of the new fire alarm system and the integration of the existing detectors with the new system is acceptable.

Fire Detection System, Section 3.1.1A(1)

In the Fire Protection SER, it was our concern that a fire in the control room area or in closed cabinets in the control room could go undetected.

By letter dated December 27, 1979, the licensee proposed to install battery powered ionization detectors in the control room in areas not visible from front of the console. These detectors will be located within enclosed cabinets and in the area above open cabinets. We informed the licensee that we would accept the system provided that an administrative procedure for weekly testing of the battery powered detectors be established. By letter dated July 18, 1980 the licensee committed to test and inspect the detectors weekly.

Based on the licensee's commitment, we find the licensee's detector system for the control room to be acceptable.

Fire Detection Systems, Section 3.1.1B(1)

In the Fire Protection SER, the concern was that the smoke detectors might not respond to the products of combustion for the combustibles in the areas where smoke detectors are installed. We were also concerned that ventilation air flow patterns in the area might reduce or prevent detector response and we recommended that the licensee perform an in-situ smoke detector test.

By letter dated May 23, 1980, the licensee informed us that they were going to develop procedures for an in-situ test program for the fire detectors. However, the licensee has found that the performance of in-situ testing of fire detectors is more complex than originally thought.

The required methodology for an in-situ fire detector test is beyond the state-of-the-art and, therefore, such a test cannot be performed at this time.

We find that since the fire detectors will be bench tested and considering that the fire detection systems meet appropriate NFPA Codes, we find the existing fire detectors acceptable.

Fire Detection Systems, Section 3.1.1B(2)

In the Fire Protection SER, the concern was that the existing fire detection systems do not comply with the recommendations of NFPA 72D and therefore may be unreliable to provide the required early warning fire detection.

By letter dated April 2, 1980, the licensee stated that the existing smoke detection systems have been upgraded to comply with NFPA 72D by providing supervision and remote alarming at a single location for all systems.

Based on this information, we find that the existing detection systems as upgraded by the licensee will meet Section E.1 of Appendix A to BTP 9.5-1 and are, therefore, acceptable.

Item 3.1.2(1) Automatic Water Suppression Systems

Item 3.1.2(1) of the Monticello SER describes the licensee's proposal to extend the deluge system in fire zone 13A to cover the entire lube oil reservoir and turbine oil reservoir area.

On December 11, 1979 the licensee provided by letter a description of their proposed method of extending the deluge system coverage in fire zone 13A. The submittal indicates that the deluge system was extended to provide complete coverage of fire zones 13B and a portion of fire zone 13C. The original discharge density of 0.35 gallons per minute per square foot was maintained for the extended coverage by adding an additional supply line. Automatic actuation was also extended over the entire area by adding additional heat actuated devices, "HAD'S." The revised system was shown on a drawing accompanying the submittal and the hydraulic calculations were reviewed and approved by the insurance carrier.

The extension of the deluge system in the lube oil and turbine oil reservoir area is in accordance with the modification as listed under item 3.1.2(1) of the SER. The discharge density of 0.35 qpm/sq. ft. is adequate for the type of hazard protected.

Automatic Water Suppression, Section 3.1.2(2)

In the Fire Protection SER the concern was that a fire in one of the diesel generator rooms could breach the fire barrier wall between the two diesel generator rooms and damage the redundant diesel generator. We required that the licensee provide a pre-action sprinkler system in the diesel generator rooms.

By letters dated May 8 and August 26, 1980, the licensee committed to install a water suppression system for this area.

The proposed systems will be pre-action type sprinkler fire extinguishing systems which will be installed in both diesel generator rooms and both day tank rooms. Fire detection subsystems will be included for fire detection, local alarm, annunciation in the control room and actuation of the extinguishing system.

Operation of the deluge valve will also transmit a water flow alarm locally and in the control room. The design density will be 0.20 gpm/sq. ft. for the diesel generator room and 0.28 gpm/sq. ft. for the day tank room.

We find the licensee's proposed pre-action sprinkler system does not meet the design density requirements for extra-hazard-group 2 in NFPA 13 and therefore does not comply with the guidelines of Section E.3.(c) of Appendix A to BTP 9.5-1 and is therefore unacceptable.

The licensee should revise the design density of the proposed pre-action sprinkler system to provide 0.30 gpm/sq. ft. over the entire diesel generator area.

Automatic Water Suppression Systems and Fire Barrier/Penetration Seals, Sections 3.1.2(3) and 3.1.8(2)

In the Fire Protection SER, the concern was that a fire involving the lube oil in the Lube Oil Reservoir and Reactor Feed Water Pump Area (Fire Zone 13B) could damage redundant safe shutdown systems in that area and in the Lube Oil Storage Tank Room (Fire Zone 13A), the ESF Motor Control Center (Fire Zone 13C), the Water Treatment Area (Fire Zone 19A), the ESF Motor Control Area (Fire Zone 19B), and the Pipe and Cable Tray Penetration Area (Fire Zone 19C). We required that the licensee provide a sprinkler system to cool hot gases that enter the cable tray area in the water treatment and ESF motor control center area. We also required that a minimum 1/2-hour fire barrier be provided to enclose cables that support hot shutdown in the Division II cable trays located in this area.

By letter dated August 5, 1980 the licensee proposed to install a 2-hour rated fire barrier wall around the opening in the floor between fire zones 13B and 19A and B. The proposed fire wall would be similar in design to Underwriters Laboratories, Fire Resistance Director, January 1978 edition, Design No. U303. The wall will be provided with 1-1/2 hour rated fire dampers to facilitate normal ventilation from the water treatment and ESF motor control center area to the turbine operating floor.

We find that the licensee's proposal to provide a 2-hour fire barrier to separate the Division II cables from the area containing Division I cables and the lube oil is not sufficient to prevent a lube oil fire from breaching the two hour barrier since an unmitigated lube oil fire would burn for more than 2 hours. The licensee's proposal is, therefore, not acceptable. To meet Section III G of Appendix R to 10 CFR Part 50, the licensee should modify the design of the proposed fire barrier to provide a 3-hour ASTM E-119 rated barrier including the provision of 3-hour rated fire door dampers in the ventilation penetrations.

Gas Suppression Systems and Cables, Sections 3.1.3 and 3.1.9(1)

In the Fire Protection SER, the concern was that a single fire in the cable spreading room could damage redundant safe shutdown systems.

By letters dated May 8 and August 5, 1980, the licensee committed to install Halon 1301 automatic suppression systems in the cable spreading room. The licensee also proposed to reroute either the HPCI or RCIC system cables and one division of the emergency diesel generator and emergency service water system cables to provide separation between redundant safe shutdown systems. The licensee is also providing alternate shutdown capability for this area.

We conclude that with the proposed modifications, the cable spreading room has adequate fire protection and, therefore is acceptable.

Ventilation Equipment, Section 3.1.7(2)

In the Fire Protection SER, the concern was that the hydrogen control measures for the battery rooms is not sufficient to preclude hydrogen buildup if the ventilation systems fail.

By letter dated June 24, 1980, the licensee committed to install in each battery room a ventilation air flow monitor that alarms and annunciates in a continuously manned area upon loss of air flow.

Based on our review, we conclude that the licensee's commitment meets Section F.7 of Appendix A to BTP APCSB 9.5-1, and is, therefore acceptable.

Ventilation Equipment, Section 3.1.7(3)

In the Fire Protection SER, the concern was that a fire in the Motor Generator Set Room (Fire Zone 3A) would propagate through the undampered ventilation openings to the Contaminated Records Storage Area (Fire Zone 3E) and to the ventilation equipment above Fire Zone 3A.

By letter dated June 23, 1980, the licensee proposed to cover the ventilation ducts in fire zone 3A which lead to the adjacent zones, with an expanded metal lath and a two-inch thick coating of Pyrocrete 241 (a fireproofing material). Additional vent duct supports will be provided to support the added load on the duct. The duct supports will also be protected with metal lath and 2 inches of Pyrocrete 241. We have reviewed the licensee's commitment and conclude that the proposed modification will provide the ventilation duct with a fire resistance which is equivalent to the fire barrier separating the fire zones.

We find that the licensee's modification meets Section D.1(j) of Appendix A to BTP PACSB 9.5-1 and, therefore, is acceptable.

Fire Barrier/Penetration Seals, Section 3.1.8(1)

In the Fire Protection SER, the concern was that a fire could spread via the vertical cable trays in the opening between the ESF motor control center and the cable tray penetration area at the south wall of the pipe and cable tray penetration area. We required that fire stops be provided in the vertical cable trays in the opening between the ESF motor control center and the cable tray penetration area.

By letter dated June 26, 1980, the licensee stated that the referenced cable trays run from the ESF motor control center in fire zone 13C into a 2 inch thick double wall insulated galvanized sheet metal enclosure. The trays run vertically from inside this enclosure up into the pipe and cable tray area in fire zone 19C. Ventilation in the pipe and cable tray area is provided by a vent duct which ties into the 2 inch thick double insulated enclosure in fire zone 13C below. The licensee proposed to coat the cables in these trays with a 1/4 inch thick flame retardant coating for the width of the cable trays and for about 3 feet along the trays. A fire damper will also be installed in the ventilation duct as it enters the enclosure. We have reviewed the licensee's commitment and find that the vertical cable trays which penetrate the fire barrier are not sealed or closed to provide a 3-hour fire resistance, and therefore the proposed fire stops are not acceptable.

We find that the licensee's proposed fire stop design does not meet the guidelines of Section D.1(j) of Appendix A to BTP APCSB 9.5-1 and, therefore, is not acceptable.

To meet the requirements of Section III, Paragraph M of Appendix R to 10 CFR Part 50, the licensee should be required to provide a fire stop in the cable tray, which penetrates the barrier between the ESF motor control center and the cable tray penetration area, which has a fire resistance rating of 3-hours. The proposed damper should also be installed and should be a 3-hour fire door damper.

Item 3.1.8(3) Fire Barrier/Penetration Seals

Section 3.1.8(3) of the Monticello SER describes the licensee's proposal to provide a fire break along the cable trays between reactor building fire zones 4B and 4C.

By letter dated December 17, 1979 the licensee provided additional information describing the method used to implement this fire break. This fire break was made using Flamastic 71A which is a fire retardant coating. A 1/4" thick coating for the width of the tray and for about one foot along the tray was installed.

We further recommend that the staff request the licensee to document the installation of the flame retardant coating as to thickness measurements and installation procedures to assure that they are in accordance with manufacturer instructions.

This method of providing the fire break in the horizontal cable trays between fire zones 4B and 4C is considered acceptable.

Fire Barrier/Penetration Seals, Section 3.1.8(4)

In the SER, we indicated the concern was that a fire involving the hydrogen seal oil could damage load center No. 1 (Fire Zone 12A) which is not separated from the seal oil unit (Fire Zone 12B) and could also damage redundant load center 2 (Fire Zone 14A) in the area above due to an open stairwell and an open hatch between the two areas. Also, a fire in the valve operating gallery (Fire Zone 14B) could damage load center 2 located adjacent to it. By letter dated August 5, 1980, the licensee committed to install fire walls on the 911' elevation of the turbine building to separate the ESF motor control center located in fire zone 12-A from the hydrogen seal oil unit located in fire zone 12-B. A fire wall will also be installed on the 931' elevation of the turbine building to separate the ESF motor control center located in fire zone 14-A from any hot gases, generated by a hydrogen seal oil unit fire, which could be present in fire zone 14-B. Both of these walls will be seismically designed due to their proximity to the ESF motor control centers. The fire walls will be constructed of an I-beam framework covered on the hydrogen seal oil unit side of the wall with an approximate 2-inch thick coating of Pyrocrete 241 to provide a three-hour fire resistance on the wall from the hydrogen seal oil unit side only. The licensee has not considered the necessity of a wall between Load Center #2 and the valve operating gallery.

We find that the commitment to provide walls which have a fire rating of 3 hours from one side and are unrated from the opposite side is not acceptable. No fire resistance is provided for a fire originating on the unrated side of these walls. Such a fire could breach the wall and involve the other combustibles in adjacent areas.

To meet the requirements of Section III.G of Appendix R to 10 CFR Part 50, the licensee should provide fire barrier walls fire rated for 3 hours from both sides.

Fire Barrier/Penetration Seals, Sections 3.1.8(5 and 6) and 3.2.2(1)

In the Fire Protection SER, the concern was that the penetration seals used to close openings in fire rated walls and floors are not sufficient to prevent a fire from propagating between fire areas.

By letter dated February 20, 1980, the licensee described their approach in developing qualified seal designs. Included in the submittal were sketches illustrating the various constructions and combinations of materials which will be tested in order to determine the adequacy of the designs. The testing will be performed at southwest Research Laboratory and will conform to the provisions of ASTM E-119-76 and IEEE 634-1978.

In many areas, the existing polyurethane foam penetration seals will be upgraded by add-on materials over the existing seals. The configurations that will be tested for this purpose will include various combinations of Flamastic, pyrocrete, fiberglass wool, urethane foam, Kaowool Marinite board, Fiberfrax Hotboard, Intumastic 185 and a new material developed by Southwest Research called Silicate Gel.

All penetration seals will be subjected to a 3-hour fire test in accordance with ASTM #-119. Any test configuration that is good at 1-1/2 hours but fails at 3 hours, or fails the host stream test, will be candidate for retest in a 1-1/2 hour test. Configurations passing a 1-1/2 hour test plus the hose stream test may be used to upgrade seals in areas of the plant where a rating of less than 1-1/2 hours is sufficient and 3-hour rated seals were not explicitly required.

We have reviewed the licensee's proposed test methods, including the possible use of 1-1/2 hour seals, and find that they will adequately determine the fire rating of the penetration seals.

The licensee should conduct the proposed fire tests and replace any penetration seals which do not pass the 1-1/2 hour tests with 3-hour fire-rated penetration seals. Those seals that pass the 1-1/2 hour test but fail the 3-hour test should be replaced with 3-hour fire-rated seals.

Based on the licensee's proposed test plan and commitment to upgrade the penetration seals to those that passed the test, we find the penetration seals acceptable.

Cable, Section 3.1.9(2)

In the Fire Protection SER, the concern was that the redundant HPCI and RCIC systems routed through the pipe and cable tray penetration and the ESF motor control center areas could be damaged by a single fire. We required that the HPCI system cables be rerouted to circumvent this area.

By letter dated August 5, 1980, the licensee committed to reroute either the HPCI or the RCIC system cables outside the area depending on which system has the fewest cables in the area.

Based on this commitment, we find that the licensee has provided an adequate level of fire protection, meets our requirement and therefore, is acceptable.

Cables and Emergency Service Water System, Sections 3.1.9(3) and 3.1.16

In the Fire Protection SER, the concern was that a single fire in the T.I.P. System Drive and RCIC Room Entry Area (Fire Zone 2A) of the reactor building could damage redundant systems required for safe shutdown.

By letters dated June 27 and August 5, 1980, the licensee provided additional information. The licensee proposed to reroute either the RCIC or HPCI system cables so they no longer are in fire zone 2A. In addition, the licensee provided design information on proposed modification to the ESW system to enable that system to provide cooling capability for the RHR pump seals if redundant reactor building closed cooling system pumps are damaged by a fire in Zone 2A.

We find that the licensee has committed to provide adequate safe shutdown capability from outside fire zone 2A such that loss of all systems which will remain in zone 2A will not prevent safe plant shutdown, and is, therefore, acceptable.

Control of Combustibles, Section 3.1.10A(3)

In the Fire Protection SER, the concern was that the curb provided between the turbine lube oil reservoir and the ESF motor control center area was not adequate to contain a major lube oil spill and sufficient quantity of fire suppression water. Also curbs were not provided to prevent a fuel oil spill in one diesel generator room from spreading to the adjacent diesel generator room through the doorway between the two rooms.

By letters dated May 1 and August 26, 1980, the licensee provided design information on their proposed modifications.

A 9-inch high curb will be provided to isolate an uncontrolled spread of combustible liquids from communicating from one diesel generator to the other. The existing curb between the turbine lube oil storage tank/reactor feedwater pump area and the ESF motor control center area will be replaced with an 8-inch high curb and a second 8-inch high curb will be installed.

Based on our review, we find that the licensee's proposed modifications are sufficient to assure that the oil spills in these areas would be contained and are, therefore, acceptable.

Control of Combustibles, Section 3.1.10.A(4)

As stated in Section 3.1.10.A(4) of the Monticello fire protection SER, the licensee proposed to relocate diesel fuel oil piping presently located above safety-related pumps in the intake structure. By letter of October 4, 1979, Northern States Power Company submitted the design details of the proposed fuel oil piping modifications. We have reviewed the design of the proposed modification described in Section 3.1.10.A(4) of the SER and find it acceptable.

Hose Stations, Interior, Section 3.1.11A(1)

In the Fire Protection SER, the concern was that the manual hose and hose stations provided were not adequate to provide effective hose streams for manual fire suppression activities in all areas of the plant.

By letters dated January 24, and July 18, 1980, the licensee provided information describing their actions to provide the additional hose coverage. The licensee performed an evaluation to determine if all safety-related areas of the plant and all areas that could present a hazard to safety-related areas were adequately covered by hose stations. These areas included the reactor core isolation cooling pump room, the MG set room and the torus area. The evaluation showed that several areas could not be reached by the present hose stations. The licensee committed to install two additional hose stations in the reactor building torus area. Six existing hose stations will be provided with additional hose. The maximum quantity of hose at any hose station does not exceed 100 feet.

We find that, with the licensee's modifications ,the hose stations meet the guidelines of Section E.3(d) of Appendix A to BTP 9.5-1 and are, therefore, acceptable.

Item 3.1.11B (1 and 2) - Improve Hose House Access

Section 3.1.11B (1 and 2) of the Monticello SER describes the licensee's proposal to improve the access for hose handling at hose house Number 2 and to rotate hose houses 4 and 9 by 180°.

By letter dated January 25, 1980, the licensee provided information describing the manner in which they have implemented these modifications. Their letter indicates hose house Number 2 was modified by adding 3 feet to the existing 3 foot wide platform in front of the hose house access doors. As a result, the 3 foot hose house doors swing over the increased 6' x 6' platform leaving adequate room for hose handling on the platform while opening the doors. Hose houses numbers 4 and 9 were rotated 180° in order to improve clearance for attaching hose.

The licensee's implementation of these modifications meets the requirements of SER items 3.1.11.B (1 and 2) is acceptable.

Hose Stations, Exterios, Section 3.1.11B(5)

In the Fire Protection SER, the concern was that the unlined linen hose provided in the hydrant hose houses should not be left connected to the hydrant outlets.

By letter dated June 18, 1980, the licensee stated that the linen hoses have been replaced with synthetic lined hoses which are not subject to rot or mildew, and that NFPA 24 recommends that these hoses be left connected to the hydrant. The licensee stated that they intended to leave the new synthetic hose attached to the hydrant outlets.

We conclude that, since the licensee has replaced the linen hose with lined synthetic hose, the hose connected to the hydrants is in compliance with NFPA 24 and is, therefore, acceptable.

Yard Loop, Section 3.1.12(2)

In the Fire Protection SER, the concern was that a single failure of the fire protection water supply system could impair the ability to provide adequate water to an entire building complex.

By letter dated February 11, 1980, the licensee proposed to provide an 8-inch cross tie between the interior 8-inch supply lines for the reactor and turbine buildings. Appropriate valves will be installed in this line and in existing lines to provide for isolation of sections of the system to prevent a single failure in the bulk supply system from impairing the water supply to an entire building.

We conclude that the licensee's commitment meets the guidelines of Section E.3(a) of Appendix A to BTP 9.5-1 and is, therefore, acceptable.

Fuses and Battery Room, Sections 3.1.15 and 3.2.5

In the Fire Protection SER, the concern was that an unsuppressed fire in either the northern-most 125-volt battery room or the 250-volt battery room could result in the loss of power to valves of the HPCI and RCIC systems which are required for safe shutdown.

By letter dated March 5, 1980, the licensee committed to provide an alternate 250-volt power source for the valves of the HPCI or RCIC system. Additionally, the licensee has provided information regarding this modification by letter dated July 22, 1980. Our review of this information is ongoing.

To meet Section III, Paragraph G of Appendix R to 10 CFR Part 50, the licensee should provide a 250 volt power source to the HPCI or RCIC systems motor operated valves which is independent of the present 250 volt power source.

Fire Detection Systems and Safe Shutdown Analysis 3.2.1(1) and 3.2.8

In the Fire Protection SER, the concern was that a lube oil fire in the drywell could generate a sufficient amount of heat to damage redundant electrical cabling which may affect the plant's shutdown capability.

By letter dated February 29, 1980, the licensee provided the results of an evaluation on the need for automatic fire detection in the drywell. The licensee concluded that fire detectors are not necessary in the drywell.

The Monticello facility is required by Technical Specifications to operate with the primary containment atmosphere inerted using nitrogen gas; consequently, the primary containment at Monticello does not present or contain an exposure fire hazard. During refueling outages (or other shutdowns) portable equipment may be utilized to provide manual fire suppression activities in the drywell area as needed to assure fire fighting capability during shutdown conditions.

Based on these considerations, we find the licensee's submittal acceptable and no modifications are required.

Item 3.2.1(2) - Fire Detection Systems

Item 3.2.1(2) of the Monticello SER requires that the licensee submit test reports demonstrating the adequacy of their smoke detectors for detecting the products of combustion of the types of materials found in the plant.

By letter dated December 31, 1979 the licensee submitted test reports by Pyrotronics Inc. and Factory Mutual Engineering Corporation pertaining to the types of detectors installed at Monticello. The test report by Factory Mutual dated February 23, 1967 outlines the results of the detector sensitivity tests when subjected to the properties of combustion given off from heated PVC insulated cable. Cable by four different manufacturers was subjected to overvoltages causing heat build-up and outgassing. In all the tests, the detectors of the type used at Monticello responded to the properties of combustion within a reasonable time. In their report dated July 10, 1967 the licensee provided test results by the manufacturer covering various materials which might be involved in a fire. In general, these tests showed that the detectors were sensitive to the types of materials found at the plant.

Based on our review of the test data, the types of early warning fire detectors at the Monticello plant are adequate in sensitivity to the properties of combustion of the materials at the plant and are satisfactory.

Item 3.2.2(2) - Fire Barriers/Penetration Seals

Item 3.2.2(2) of the Monticello SER requires the licensee to evaluate the potential for a single fire to damage redundant safe shutdown equipment in load center No. 1 and load center No. 2. Based on this evaluation if such damage could occur, the licensee will install a three-hour fire rated barrier between the 2 load centers.

In their submittal dated November 30, 1979 Northern States Power Company responded to this item. In response to other items addressed by the SER the licensee agreed to provide a three-hour fire barrier between the hydrogen seal oil unit and load center No. 1 on the 931' elevation. They also agreed to install a three-hour barrier between load center No. 2 and the valve operating gallery. With the installation of these three-hour barriers the load centers are effectively isolated from fire damage exposure from adjacent areas. The only remaining concern is the possibility of a fire which originates in one of the load centers damaging the redundant load center. Based on the evaluation performed for the licensee by Bechtel Corporation, the fire loading presented by the load centers does not justify a fire barrier having a three-hour fire rating. In lieu of this, the licensee proposes to install a two-hour fire rated barrier similar to U.L. design U-303 between load center No. 1 and load center No. 2. The air duct passing between these areas will be provided with a 1-1/2 hour rated fire damper. Attached to the submittal by the licensee are drawings illustrating the construction of the proposed fire barrier.

Based on our review of the information pertaining to this item, we find that the licensee's proposal to provide a two-hour fire rated barrier between load centers 1 and 2 will provide adequate protection against a fire affecting both redundant load centers and is considered acceptable.

Fire Pumps, Section 3.2.3

In the Fire Protection SER, the concern was that the existing fire pump capacity is inadequate to supply the potential fire water demand for the plant.

By letters dated January 18 and July 18, 1980, the licensee provided the results of an evaluation of the water supply system. The evaluation listed the design sprinkler or deluge system flow rate at various areas in the plant, including the two largest demands of 2321 gpm for the turbine basement sprinkler system and 2102 gpm for the cooling tower deluge system (3 cell).

At the present time, the Monticello fire pumping capacity consists of one 1500 gpm diesel engine driven fire pump and one 1500 gpm electric motor driven fire pump powered from the emergency power bus which is supplied from the standby diesel generator. The fire water system can also be supplied by a 1500 gpm screen wash pump which is not supplied from the emergency bus.

Section E.2(c) of Appendix A to BTP APCSB 9.5-1 recommends that if pumps are required to meet system pressure or flow requirements, a sufficient number of pumps should be provided so that 100% capacity will be available with one pump inactive. (e.g., three 50% pumps or two 100% pumps). The highest flow demand at Monticello is 2321 gpm. Therefore, to meet the Appendix A requirement three 1500 gpm or two 2500 gpm fire pumps are needed. Section E.2(c) also

recommends that the pumps and controllers should conform to NFPA 20, "Standard for the Installation of Centrifugal Fire Pumps," which requires UL listed pumps and controllers. Therefore, the 1500 gpm screen wash pump cannot be considered a suitable backup fire pump because it is not independently powered from the plant system and it does not conform to the recommendation of NFPA 20.

The licensee has also failed to consider that the required flow for hose streams must be available at the fire screen, and that the total flow required for suppression systems and hose streams should be included in pressure loss calculations. We conclude that the existing fire pump capacity does not meet the guidelines of Section E.2(c) of Appendix A to BTP APCSB 9.5-1 and is, therefore, not acceptable.

To meet the guidelines of Section E(2) of Appendix A to BTP APCSB 9.5-1 and Section III A of Appendix R to 10 CFR Part 50, the licensee should provide an additional fire pump of at least 1500 gpm capacity at a pressure determined adequate to meet the highest demand of the system. This pump should meet the applicable provisions of NFPA 20.

Item 3.2.4(1) - Interior Hose Stations - Hose Reach Drywell

Item 3.2.4(1) of the Monticello SER requires that the licensee demonstrate that the location of hose stations and the available hose lengths are adequate to support manual firefighting operations in any portion of the drywell area.

By letter dated December 14, 1979 the licensee submitted their response to this item. Their submittal states that at the present time there is no hose station able to support manual firefighting operations in all portions of the drywell and stay within hose length limitations. Further, they indicate that coverage of the drywell is impossible by the addition of any new hose stations outside the drywell and still stay within hose length limitations.

The licensee proposes to provide hose station coverage to the drywell area as follows:

1. The existing 75 foot long linen hose will be replaced by a 100 foot long rubber lined hose. This will provide effective coverage to most of the main and lower levels of the drywell. It also enables effective hose streams to be applied to either Recirculation Pump. These pumps, with their lubricating oil, are the major fire hazard in the drywell.

2. In order to provide coverage to the remainder of the drywell, an additional 100 feet of 2-1/2" rubber lined hose will be provided for installation on this hose station if necessary. There is only a 2-1/2 psi differential across 100 feet of rubber lined 2-1/2" hose at 100 gallon per minute flow rates. Addition of this hose would enable effective hose streams to be applied to the upper level of the drywell. Due to the minimal fire loads in the upper level of the drywell, this is felt to be adequate.

The licensee's analysis of hose station capability in the drywell shows that coverage of this area is not possible from the existing hose stations in adjacent areas having the normal hose complement of 75 feet. Because of the massive concrete enclosure surrounding the drywell, installing new hose stations within this area is impractical. The licensee's proposals as outlined above for providing additional lengths of hose at the closest existing hose station provides a practical solution to the lack of hose coverage in the drywell area. Based on the fact that the drywell is inerted with nitrogen during operating periods, and the addition of specified lengths of hose will not produce a significant friction loss affecting hose stream effectiveness, the licensee's proposal for complying with item 3.2.4(1) is satisfactory.

Interior Hose Stations, Section 3.2.4(2)

In the Fire Protection SER, the concern was that the fire water supply system was inadequate to supply each standpipe hose station with 100 gpm at 65 psi residual pressure.

By letter dated December 13, 1979, the licensee provided additional information showing that all the hose stations are capable of exceeding the 100 gpm at 65 psi residual pressure requirement with a single pump operating and the shortest leg of the loop out of service.

Based on the licensee's verification, we conclude that the standpipe and hose system satisfies the requirements of NFPA 14 regarding water supply and the guidelines of Section E.3(d) of Appendix A to BTP APCSB 9.5-1 and is, therefore, acceptable.

Item 3.2.6 - Emergency Service Water Pump Cables

Item 3.2.6 of the Monticello SER requires the licensee to verify that a single fire will not damage an emergency service water pump and the cables to the redundant pump.

By letter dated November 30, 1979 the licensee responded to this item with a description of the water pump and cabling arrangement. They also supplied a sketch showing the relative locations of the pumps and the routing of the cables serving the pumps. Their evaluation concludes that adequate separation is provided between the redundant pumps because the pumps and conduit feeds are 30 feet apart.

In a previous commitment, the licensee proposed to reroute the diesel fuel pump lines which removed a major fire hazard exposure to the cabling and pumps in the intake structure. Based on our review of the information submitted on this item, it is our opinion that a fire in this area is not a significant hazard to the redundant emergency service water pumps and cables. Based on our evaluation of fire loading and the adequate separation between the pumps and cabling we find the licensee's submittal on item 3.2.6 acceptable and no modifications are required.

Administrative Controls/Procedures 3.2.7

In the Fire Protection SER, the concern was that the licensee's administrative controls and procedures for fire protection were not in accordance with our guidelines. By letter dated May 28, 1980, the licensee was provided with staff requirements on this issue. To comply with our guidelines, the licensee should provide administrative controls and procedures which will satisfy the requirements of Sections III.H, I and K of Appendix R to 10 CFR Part 50.

Environmental Considerations

We have determined that this 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 this 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: February 12, 1981

7590-01

UNITED STATES NUCLEAR REGULATORY COMMISSION

DOCKET NO. 50-263

NORTHERN STATES POWER COMPANY

NOTICE OF ISSUANCE OF AMENDMENT TO FACILITY OPERATING LICENSE

The U. S. Nuclear Regulatory Commission (the Commission) has issued Amendment No. 1 to Facility Operating License No. DPR-22, issued to Northern States Power Company, which revises the license conditions 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 modifies the license conditions relating to the completion of facility modifications for fire protection in accordance with the requirements of 10 CFR 50.48 and 10 CFR 50, Appendix R.

The Commission has made appropriate findings as required by the Atomic Energy Act of 1954, as amended, 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.

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For further details with respect to this action, see (1) Amendment No. 1 to License No. DPR-22, and (2) Supplement 1 to the Commission's Fire Protection Safety Evaluation. Both of these items are available for public inspection at the Commission's Public Document Room, 1717 H Street, NW., Washington, D. C. and at the Environmental Conservation Library, Minneapolis Public Library, 300 Nicollet Mall, Minneapolis, Minnesota. A copy of items (1) and (2) may be obtained upon request addressed to the U. S. Nuclear Regulatory Commission, Washington, D. C. 20555, Attention: Director, Division of Licensing.

Dated at Bethesda, Maryland, this 12th day of February 1981.

FOR THE NUCLEAR REGULATORY COMMISSION

Thomas A. Ippolito, Chief
Operating Reactors Branch #2
Division of Licensing