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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

SUPPLEMENTAL REPORT ON THE FIRE PROTECTION SECTION PROGRAM

NORTHERN STATES POWER COMPANY

MONTICELLO NUCLEAR GENERATING PLANT

DOCKET NO. 50-263

1.0 INTRODUCTION

In our evaluation of the Appendix R exemption requests for Monticello Nuclear Generating Plant, dated December 28, 1982, we identified the following nine open items, from our fire protection safety evaluation (SE):

3.1.2(2) Automatic Water Suppression Systems
3.1.2(3) and 3.1.8(2) Automatic Water Suppression Systems and Fire Barriers/Penetration Seals
3.1.8(1) Fire Barriers/Penetration Seals
3.1.8(4) Fire Barriers/Penetration Seals
3.1.15 and 3.2.5 Fuses and Battery Rooms
3.2.3 Fire Pumps
3.2.7 Administrative Controls/Procedures

Because these SE open items were not resolved prior to the effective date of our fire protection rule for operating nuclear plants, February 17, 1981, they are subject to the applicable provisions of Appendix R to 10 CFR 50. As a result, to the extent that the Northern States Power Company's (the licensee) proposals to resolve these open items do not comply with the rule, these proposals are considered to represent exemption requests from Appendix R. As described in the sections below, the staff has concluded that the responses to the open items are acceptable and do not result in any exemption from the requirements of Appendix R to 10 CFR 50.

2.0 AUTOMATIC WATER SUPPRESSION SYSTEMS, SECTION 3.1.2(2)

In our Supplemental Safety Evaluation (SSE), dated February 12, 1981, we stated our concern that the pre-action sprinkler system in both diesel generator rooms and both day tank rooms was unacceptable because the design density was too low. We recommended that the design density be increased to provide 0.03 gpm/sq ft over the entire diesel generator area.

By letter dated June 30, 1982, the licensee stated that the pre-action sprinkler system has been upgraded to provide a design density of 0.03 gpm/sq ft over the entire diesel generator area.

We conclude that the pre-action sprinkler system meets the guidelines of Section E.3(c) of Appendix A to BTP ASB 9.5-1 and is, therefore, acceptable.

3.0 AUTOMATIC WATER SUPPRESSION SYSTEMS AND FIRE BARRIER/ PENETRATION SEALS, SECTIONS 3.1.2(3) AND 3.1.8(2)

In our SSE, we stated our concern that the proposed 2-hour fire barrier to separate fire zones 13B and fire zones 19A and 19B is not acceptable because of the high fire load in these zones. We recommended that the fire barrier be upgraded to be a 3-hour fire barrier.

By letter dated June 30, 1982, the licensee stated that the 2-hour walls between fire zones 13B and 19A and B have been upgraded to the requirements of Section III.G.2. The licensee has confirmed that the barrier will have a 3-hour fire rating.

We conclude that the 3-hour fire barrier separation of the redundant systems in fire zones 13B and fire zones 19A and 19B meets the requirements of Section III.G.2 of Appendix R to 10 CFR 50 and is, therefore, acceptable.

4.0 FIRE BARRIER/PENETRATION SEALS, SECTION 3.1.8(1)

In our SSE, we stated our concern that the penetration seals for material cable trays running from fire zone 13C into fire zone 19C and the fire dampers in the ventilation duct common to these zones are unacceptable because they do not have a 3-hour fire rating.

By letter dated June 30, 1982, the licensee stated that the cable tray run between fire zones 13C and 19C has been protected to the requirements of Section III.G.2. By letter dated June 7, 1983, the licensee stated that the cable tray penetrations and supply ducting between fire zones 13C and 19C have been verified to possess a 3-hour fire resistance.

We conclude that the 3-hour fire rating for the cable tray penetration seals and the ventilation duct fire damper meets Sections D.1(j) and D.3(d) of Appendix A to BTP ASB 9.5-1, and is, therefore, acceptable.

5.0 FIRE BARRIER/PENETRATION SEALS, SECTION 3.1.8(4)

In our SSE, we stated our concerns that (1) load center No. 1 (Fire Zone 12A) was not separated from load center No. 2 (Fire Zone 14A) by a 3-hour rated fire barrier and (2) the fire barriers separating these load centers from the hydrogen seal oil unit (Fire Zone 12B) and the valve gallery (Fire Zone 14B) has a 3-hour fire resistance in only one direction.

By letter dated June 7, 1983, the licensee proposed to upgrade the fire barrier between fire zones 12A and 14A to a 3-hour fire resistance. We find this acceptable.

By letters dated February 6, 1981 and June 7, 1983, the licensee indicated that the directional fire barrier between fire zones 12A and 12B and between 14A and 14B was separating safety areas from non-safety areas. The

3-hour fire rating protected the safety areas from fire in the non-safety area. In addition, the licensee estimated that an unsuppressed fire in the safety areas on the unrated side of the barrier would raise the steel temperature to 1100 degrees F in 67 minutes in fire zone 12A, and to 620 degrees F in 50 minutes in fire zone 14A. We find this acceptable.

Based on our evaluation, we conclude that the fire barrier between fire zones 12A and 14B will meet the requirements of Section III.G.2 of Appendix R to 10 CFR 50 and is, therefore, acceptable. We also conclude that the directional fire barriers between fire zones 14A and 14B, and 12A and 12B provide acceptable protection for the safety areas and, therefore, are acceptable.

6.0 FUSES, SECTION 3.1.15

In our SSE, we stated that the fuses will be provided in the 250 volt battery rooms to preclude any electrical effects in the 250 distribution system which would preclude operation of the high pressure injection coolant (HPCI) and reactor core isolation cooling (RCIC) rotor generated valves due to fire damage to the 250 volt electrical distribution panel located in the northern-most 125 volt battery room.

By letter dated March 5, 1980, the licensee stated that as a result of the evaluation of the consequences of a fire in the Battery Room (3.2.5), an alternate 250 volt power supply will be provided for the valves of the HPCI or RCIC systems and, therefore, the additional fuses will not be needed. However, by letters dated June 30, 1982 and June 7, 1983, the licensee stated that HPCI and RCIC valves were not needed to achieve safe shutdown. (See Section 7.0.)

We conclude that the above-described fuses are not needed when an alternate power supply is provided from the HPCI or RCIC systems.

7.0 BATTERY ROOM, SECTION 3.2.5

In the Fire Protection SE, the concern was that an unsuppressed fire in either the northern-most 125-volt battery room or the 250-volt battery room would 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 systems. Additionally, the licensee has provided information regarding this modification by letter dated July 22, 1980. By letter dated February 6, 1981, the licensee committed to provide alternate 250 VDC power sources for the HPCI and the RCIC systems. However, by letters dated June 30, 1982 and June 7, 1983, the licensee stated that valves associated with the HPCI or RCIC systems would not be needed to achieve safe shutdown. However, the licensee committed to provide independent power supplies to three safety relief valves, the core spray system and the

manual operation of the residual heat removal (RHR) system. These power supplies would be separated in accordance with Section III.G.2 of Appendix R. The licensee has indicated that this separation will be by 3-hour rated fire barrier. We find this acceptable.

Based on our review, we conclude that the separation of the redundant power supplies by a 3-hour rated fire barrier meets the requirements of Section III.G.2 of Appendix R and is, therefore, acceptable.

8.0 FIRE PUMPS, SECTION 3.2.3

In our SSE, we stated our concern that the screen wash pumps installation was not suitable to be considered an alternate fire pump because it does not conform to the recommendations of NFPA 20. We also indicated that the licensee failed to consider flow from hose streams in its maximum demand determinations.

By letter dated February 8, 1981, the licensee stated that (1) the screen wash pump had a load capacity curve that was nearly identical to the fire pumps and (2) the controller for this pump would be replaced with a UL listed controller. By letter dated June 30, 1982, the licensee stated that a suction strainer would also be installed.

By letter dated February 6, 1981, the licensee provided an analysis of the maximum water demand which included allowances for hose streams at the fire scene. This analysis showed that the maximum demand could be provided by any two of the three 1500 gpm pumps.

By letter dated June 7, 1983, the licensee analyzed the water demand for fires that could disable two fire pumps. The electric fire pump and screenwash/fire pump are located immediately adjacent to each other in the intake structure and the power supplies are routed together through the intake structure and corridor to the turbine building, where they split and go to separate 4KV switchgear areas. The fire zones in which they are common are zones 23A, 23B and 16. A fire in these common zones could disable the two electric fire pumps, leaving only the diesel fire pump (less than 100% capacity) to extinguish the fire. The diesel fire pump would be adequate to suppress a fire in zones 23A, 23B or 16 which do not contain any large accumulation of combustibles.

Based on our review, we conclude that the fire pump installation, consisting of the screenwash pump with the modification described above, and the two fire pumps, meets the requirements of Section E 2(c) of Appendix A to BTP ASB 9.5-1 and Section III.A of Appendix R and is, therefore, acceptable.

9.0 ADMINISTRATIVE CONTROLS/PROCEDURES, SECTION 3.2.7

In the SSE, we stated our concern 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.

By letter dated June 7, 1983, the licensee committed to provide administrative controls and procedures which will satisfy the requirements of Sections III.H, I and K of Appendix R.

Based on this commitment, we conclude that the licensee's administrative controls and procedures will meet the requirements of Sections III.H, I and K of Appendix R and are, therefore, acceptable.

10.0 CONCLUSION

We conclude that the fire protection program is in conformance with the guidelines of Appendix A to BTP ASB 9.5-1 and the requirements of GDC-3 and Appendix R to 10 CFR 50.

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Dated: October 2, 1985