

# NSP

NORTHERN STATES POWER COMPANY

MINNEAPOLIS, MINNESOTA 55401

PDR

July 5, 1977

Mr Victor Stello, Director  
Division of Operating Reactors  
U S Nuclear Regulatory Commission  
Washington, DC 20555

Regulatory

File Cys



Dear Mr Stello:

MONTICELLO NUCLEAR GENERATING PLANT  
Docket No. 50-263 License No. DPR-22

Completion of Fire Protection Review

- Ref (a): Letter dated December 10, 1976 from L O Mayer, NSP, to Victor Stello, USNRC, "Comparison of Existing Fire Protection Provisions to the Guidelines Contained in Standard Review Plan 9.5.1"
- Ref (b): Letter dated March 11, 1977 from L O Mayer, NSP, to Victor Stello, USNRC, "Fire Hazards Analysis"

Reference (a) provided you with a comparison of the existing fire protection provisions at the Monticello Nuclear Generating Plant with the recommendations contained in Standard Review Plan 9.5.1. Reference (b) provided you with a fire protection study for the Monticello facility. The purpose of this letter is to address all of the items in reference (a) which were left open until the results of the fire protection study could be evaluated in detail.

This letter, combined with our two earlier submittals, completes our fire protection review of the Monticello facility. We have shown that the original plant design offers a high degree of assurance that a fire occurring anywhere in the plant will not prevent an orderly safe shutdown. We have also found a number of procedural and equipment changes that should be made to enhance our existing fire protection provisions. Many of these changes have been completed and others are scheduled for completion in the near future. When these changes are completed, we will conform to all of the recommendations contained in Standard Review Plan 9.5.1 that are applicable to our plant and have a significant impact on safety.

The attached table lists each of the recommendations contained in Standard Review Plan 9.5.1 that were not addressed in reference (a) along with actions identified in the fire hazards analysis that are required to conform to the recommendations.

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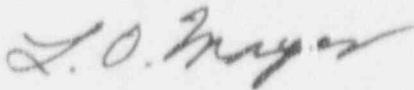
Work is now underway to complete all of the outstanding procedural and equipment changes identified in reference (a) and the attached table. With five exceptions, work will be completed by July 1, 1978. Many of the relatively simple changes will be scheduled for completion during the autumn 1977 refueling outage. Exceptions are modifications proposed in response to the following items:

<u>Item No.</u>	<u>Modification</u>
16	Cable Spreading Room Suppression System
136, 137, 173	Fire Detection System
145	Controlroom Ionization Detectors
182	Diesel Generator Room Suppression System
186 - 188	Diesel Fuel Storage Area Suppression System

These modifications will require extensive engineering and material procurement. In addition, equipment installation may not be possible during normal plant operation and will have to be deferred to refueling outages. It is not possible to predict a completion date in these five cases at this time.

If you have any questions concerning the attached table, or our earlier submittals on this subject, please contact us.

Yours very truly,



L O Mayer, PE  
Manager of Nuclear Support Services

LOM/DMM/deh

cc: J G Keppler  
G Charnoff  
MPCA  
Attn: J W Ferman

Attachment

Supplementary Information - Review of Guidelines  
in Standard Review Plan 9.5.1, December 10, 1976

Item No.

16. The cable spreading room (zone 8) layout is such that, lacking either automatic systems actuation or fire brigade response, redundant systems could be subject to damage from a single fire. Fire brigades are established and capable of adequate response. A fixed automatic gas system will be installed.
- The turbine building layout (zones 13B and 19A) is such that, if the lube oil deluge system were impaired, a potential exists for damage to redundant safety cabling. A barrier will be installed to preclude such damage.
- No other inadequacies in plant layout were identified by the fire hazards analysis.
17. A fire hazards analysis which identified fire areas and provided analyses of fire consequences was submitted on March 11, 1977.
- The adequacy of cable separation and fire barriers associated with the cable spreading room is addressed in the fire hazards analysis of fire zone 8 and in the response to items 16 and 158.
22. The ventilation opening in the diesel generator building is located about 22 ft horizontally and 18 ft above the curbed area of #11 auxiliary transformer at the closest point. The curb and drain system prevents an oil spill beyond the curbed area. The transformer is protected by a water deluge system. In the extremely unlikely event that a fire were to propagate through this vent opening, the immediate exposure would be only to the ventilation equipment room above the No. 12 diesel generator room. The No. 11 diesel generator would not be exposed, thereby assuring safe shutdown capability.
- The ventilation opening in the recombiner building directly exposes an access corridor. This corridor is separated from the remainder of the building by a poured concrete shield wall having no unsealed penetrations.
- Based on the above, no additional protective measures are considered necessary.
27. In the event that the automatic sprinkler systems for the recirculation MG sets fail, exposed structural steel in the ceiling may be damaged. This steel will be provided with a protective coating.
- No other inadequacies in floors, walls or ceilings were identified by the fire hazards analysis.
28. The adequacy of fire area barrier penetrations is addressed in the fire hazards analysis.

Unsealed duct penetrations between the battery rooms (zones 7-A, 7-B, 7-C) and three unsealed conduit penetrations in room 167B (zone 7-B) could conceivably permit propagation of a fire beyond the boundaries of the involved room. These will be sealed.

Unsealed duct penetrations in the cable spreading room (zone 8) do not prevent involvement from external sources. These will be sealed.

In the event of sprinkler system impairment, a fire in the lube oil storage tank room (zone 13-A) could propagate to the water treatment area (zone 19-A) by burning of vapors above unsealed penetrations. These penetrations will be sealed.

The unsealed pipe penetration between the fuel oil day tank rooms (zone 15C & 15D) will be sealed to minimize available oxygen in the event of an oil spill fire.

29. The adequacy of door openings in fire area barriers is addressed in the fire hazards analysis.

Nonrated doors to the battery rooms (zones 7A, 7B, 7C) could conceivably permit propagation of a fire beyond the boundaries of the involved room. The doors will be replaced with 1½-hour rated fire doors.

The 1½-hour rated door separating the emergency diesel generator rooms (zones 15A & 15B) could be breached in the highly unlikely event of a fire involving the total quantity of oil in both the crank case and the integral day tank. This door will be replaced with a 3-hour rated fire door.

The nonrated door between zones 19B & 19C could be penetrated in the event of a fire. This door will be replaced with a 1½-hour rated fire door.

Many of the fire barrier doors which are assumed to be closed in the fire hazards analysis are presently locked or alarmed, or locked and alarmed for radiation protection or security purposes. All of the secondary containment entrances are provided with double door airlocks having interlocked doors. Fire barrier doors that are assumed to be closed in the fire hazards analysis, but are not in the above categories will be either alarmed or locked, except where normal access requirements make locking or alarming impractical. In the latter case, the doors will be provided with automatic closure devices.

30. The adequacy of ventilation system penetrations in fire area barriers was considered in the fire hazards analysis.

A fire damper will be installed in the ventilation duct between the radwaste and reactor buildings (zone 2C) to upgrade the barrier.

Fire door dampers will be installed in the vent openings between the fuel oil day tank rooms (zones 15C & 15D) and the diesel generator room (zone 15B) to upgrade the barriers.

31. The fire hazards analysis identified a need for the following additional special protection measures:

The deluge system for the turbine lube oil reservoir (zone 13B) will be extended to provide protection for a larger oil spill resulting from reservoir case rupture.

Additional barriers upgrading measures are identified in the response to items 16, 27, 28, 29 and 30.

39. The fire hazards analysis does not identify a need for cable tray sprinkler systems outside the cable spreading room.
43. See response to item 28.
44. A fire break will be installed to prevent fire propagation along the cable tray between fire zones 12-A and 12-B. A fire break will be installed to prevent fire propagation along the cable tray between fire zones 4C and 4B.
45. Investigation indicates that the insulation used on major control cables in the plant can pass the oil soaked burlap test specified in IEEE 383. The cable probably would not qualify using the gas flame test.
50. The means for removal of products of combustion were evaluated in the fire hazards analysis. No inadequacies were identified.
52. No modifications are required. If the normal ventilation for the diesel generator and intake structure pump room areas is inoperable, ventilation directly to safe outside locations can be provided by opening doors.
- There are no radioactive materials in these areas. If the normal reactor building ventilation system is inoperable, adequate control and monitoring is provided by ventilating via the Standby Gas Treatment System.
53. A charcoal fire in the SGTs system will be self limited and contained by isolating the filter train. Therefore, an automatic sprinkler system is not considered to be necessary.
73. Use of combustible materials was considered in the fire hazards analysis and the adequacy of installed fire protection systems was determined.
116. There is no practical way to modify the existing fire system supply piping to provide independent connection to the underground water main. The license amendment request dated January 31, 1977, proposed limiting conditions for operation in the event that the supply of fire suppression water to safety related structures, systems or components is interrupted.
133. Additional fire protection requirements applicable to secondary containment are included in the response to items 30 and 44. No additional provisions are planned for the primary containment.
134. The fire hazards analysis did not identify any hazards in the reactor building (secondary containment) which require fixed suppression.
- 136 & 137. Fire detection systems which alarm and annunciate in the control room will be installed in the following areas of the secondary containment:

RHR & Core Spray Pump Rooms	-	Zones 1A & 1B
RCIC Room	-	Zone 1C
HPCI Room	-	Zone 1E
TIP Drive and RCIC Room Entry	-	Zone 2A
CRD Hydraulic Unit Areas:	-	Zone 2B & 2C
MCC and SLC Areas	-	Zones 3B & 3C
Cooling Pump & Chiller Area	-	Zone 3D
Equipment Hatch Area	-	Zone 4A
Cooling Water Heat Exchanger Area	-	Zone 4B
Refueling Floor	-	Zone 6

Products of combustion from a fire in the lower levels of the building would be expected to rise through the open equipment hatch and stairwells. Therefore, general area fire protection capability will be provided by the detection system in fire zone 6.

141. The fire hazards analysis did not identify any inadequacies in the barriers protecting the control room.
145. Ionization type detectors will be installed in the control room and in closed control room cabinets or consoles containing or adjacent to safety related equipment. Audible alarms at each control room detector location will be sufficient to alert the operators and identify the fire location.
- 151 & 153. The fire hazards analysis indicates that an automatic CO<sub>2</sub> or Halon system will provide adequate protection while avoiding potential water damage to relays, controls and other equipment. Therefore, we do not plan to install a water spray system.
158. With the exception of the unsealed duct penetrations (addressed in the response to item 28) the fire hazards analysis did not identify any inadequacy in the cable spreading room walls.
- 165 & 166. The fire hazards analysis does not identify a need for any additional fire barriers for switchgear.
173. The general areas housing safety related panels located within secondary containment will be provided with automatic fire detectors as described in the response to items 136 and 137.

In addition, automatic fire detectors that alarm locally and alarm and annunciate in the control room will be installed in the following areas:

Battery Rooms	-	Zones 7A, 7B and 7C
ESF Motor Control Center Areas	-	Zones 13C and 19B
Diesel Generator Rooms	-	Zones 15A and 15B

176. See response to items 28 and 29.
180. The adequacy of separation and barriers between the turbine oil systems and safety related systems and equipment was considered in the fire hazards analysis. Modifications will be made as described in the response to items 16, 28, 29, 31 and 44.
181. The adequacy of the diesel generator fire barriers was considered in the fire hazards analysis. Modifications will be made as described in items 29 and 30.
182. Automatic fire suppression systems will be installed in the diesel generator rooms.
183. See response to item 173.
- 186 & 187 & 188. Modifications associated with the diesel generator day tank areas are described in the response to items 28 and 30.

In addition, automatic fire suppression systems will be installed.

101. The fire hazards analysis did not identify any inadequacies in fire protection equipment in pump houses and rooms housing safety related pumps from other areas of the plant.
191. The fire hazards analysis demonstrated that a fire in rooms housing safety related pumps would not endanger other safety related equipment required for safe plant shutdown. Therefore, automatic sprinkler protection is not required.
192. Additional early warning fire detection will be provided as described in the response to items 136, 137 and 173.
- 198 & 203. The detection system to be installed on the reactor building refueling floor (zone 6) will satisfy these guidelines.
204. See response to item 30.
- 205 & 206. The fire hazards analysis does not identify any unacceptable consequences of postulated fires in areas of the radwaste building where combustible materials are located. Therefore, automatic sprinklers or fire detectors are not necessary.
- 226 & 227. The fire hazards analysis does not identify any unacceptable consequences of postulated fires in resin storage areas. Therefore, automatic sprinklers and fire detectors are not necessary.
229. The fire hazards analysis did not identify a need for curbs or additional drains.