

# Nebraska Public Power District

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March 4, 1988

U.S. Nuclear Regulatory Commission  
Document Control Desk  
Washington, D.C. 20555

Gentlemen:

Subject: Supplemental Submittal; Proposed Change No. 32 to  
Technical Specifications  
Cooper Nuclear Station  
NRC Docket No. 50-298, DPR-46

- References:
- 1) Letter from L. G. Kunc1 to USNRC, dated June 10, 1987, "Proposed Change No. 32 to Technical Specifications, Cooper Nuclear Station, NRC Docket No. 50-298, DPR-46."
  - 2) Letter from W. O. Long to G. A. Trevors, dated July 15, 1987, "Technical Specifications Amendment Request-Change No. 32 to the Cooper Nuclear Station (TAC No. 65623)"

The District submitted a proposed Technical Specification Amendment in Reference 1, to revise certain fire protection requirements. In Reference 2, certain additional changes were identified as necessary to conform with the staff position on fire barriers and penetration fire seals.

Accordingly, the District proposes to revise Technical Specification Change Request No. 32 as indicated in the enclosed attachment and revised Technical Specification pages. The attachment contains a description of the additional changes and a revised evaluation with respect to 10CFR50.92. The enclosed attachment and Technical Specification pages are marked Attachment 2 and are submitted to replace Attachment 2 to Reference 1. Changes are identified by revision bars in the right hand margin.

Also enclosed is an uncontrolled copy of the current Cooper Nuclear Station Fire Hazards Analysis. This document is submitted for information, since it is referenced in the attachment.

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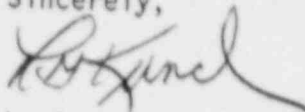
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By copy of this letter and the attachment, the appropriate State of Nebraska Official is being notified in accordance with 10CFR50.91(b).

This supplement to Proposed Technical Specification Change No. 32 has been reviewed by the necessary Safety Review Committees. In addition to the original, 37 copies are also submitted for your use.

Should you have any questions or require additional information, please contact this office.

Sincerely,



L. G. Kunc1  
Nuclear Power Group Manager

LGK/mtb:dmr7/3  
Attachment

cc: H. R. Borchert  
Department of Health  
State of Nebraska

NRC Regional Office  
Region IV  
Arlington, TX

NRC Resident Inspector  
Cooper Nuclear Station



Revised Technical Specifications for  
Fire Protection

Revised Pages: 216h, 216m, 216ml

The first proposed change would revise the applicability of the operability and surveillance requirements for Fire Barriers and Penetration Fire Seals. The current requirements apply to all fire barriers and fire seals. The proposed change would revise Section 3/4.19 to apply only to those fire area barriers and penetration fire seals that protect fire areas containing safe shutdown systems, equipment or components and those fire barriers that separate portions of redundant safe shutdown systems within a fire area. The bases for Section 3/4.19 on page 216m will also be revised. The bases will clarify that the fire area barriers are only those barriers between "fire areas" identified in the current CNS Fire Hazards Analysis (copy enclosed).

Also, the bases will be clarified to identify which fire barriers separate redundant portions of safe shutdown systems within a fire area. 10CFR50 Appendix R, Section III.G.2, requires: 1) separation of redundant portions of safe shutdown systems by a 3 hour rated fire barrier; 2) 20 feet of separation between portions of redundant safe shutdown systems with no intervening combustibles; or 3) a 1 hour fire barrier with fire detectors and an automatic fire suppression system. Of approximately one hundred ten separate locations in the plant that contain safe shutdown equipment, only eleven areas do not meet the literal requirements of III.G.2. That is, in all but eleven areas, portions of redundant safe shutdown systems are either separated by a three hour rated "fire area barrier" or are separated by twenty feet with no intervening combustibles (III.G.2.c is not applicable). For five of the eleven areas, the District installed alternate shutdown capability in accordance with Section III.G.3 of Appendix R. Thus, only six areas of the plant required modifications to provide alternative fire protection commensurate with the level of protection required by Appendix R. In only three of these six cases did the District install alternative fire barriers (thermal shields or cable wraps) to separate portions of redundant safe shutdown systems within a fire area. These cases where fire barriers are used to separate portions of redundant safe shutdown systems are identified as exemptions to 10CFR50 Appendix R. The NRC approved exemptions are listed in the "CNS Response to 10CFR50 Appendix R 'Fire Protection of Safe Shutdown Capability'." This change is consistent with the safety objective of the fire protection program - to minimize the effects of a fire on the ability to shut down the plant and maintain it in a safe shutdown condition.

The District recognizes that certain walls, floors, etc. previously designated as "fire barriers" in accordance with our commitment to establish and maintain a fire protection program under the guidelines of Appendix A to BTP-APCS 9.5-1, will not be inspected per the revised Technical Specifications. However, as further discussed in this response, the District does not believe that these barriers continue to require surveillance per Technical Specifications.

The District maintains and inspects fire area barriers for designated fire areas as defined by the requirements of 10CFR50.48 and Appendix R. The current designated fire area barriers resulted from a detailed reanalysis performed in accordance with the NRC staff interpretation provided in Generic Letter 83-33, and provide a level of safety beyond the earlier requirements.

The new fire area barriers are identified in the CNS Fire Hazards Analysis. The events prior to, and subsequent to, issuance of this generic letter are discussed below.

The basis for certain commitments, included in the fire protection program prior to 10CFR50 Appendix R, was provided in the SER, Section 2.0, issued for Cooper Nuclear Station (CNS) as follows:

"The overall objectives of the fire protection program embodied in BTP-APCSB 9.5-1 and Appendix A, are to: (1) reduce the likelihood of occurrence of fires; (2) promptly detect and extinguish fires if they occur; (3) maintain the capability to safely shut down the plant if fires occur; and (4) prevent the release of a significant amount of radioactive material if fires occur."

The original Fire Hazards Analysis for CNS designated certain rooms as "fire areas." These were reviewed against Appendix A to BTP APCS 9.5-1 and were either in conformance with or met objectives of the NRC guidance. The barriers surrounding these "fire areas" were inspected per the Technical Specifications that were issued for fire protection features approved in the NRC Fire Protection Safety Evaluation Report issued May 23, 1979.

On November 18, 1980, the NRC published the Fire Protection Rule, 10CFR50.48, and the requirements for implementation of that rule, Appendix R to 10CFR50. The effective date of the regulation was February 17, 1981. The separation requirements of Appendix R, Section III.G, provide guidance as to acceptable means of assuring that items (3) and (4) of the BTP objectives listed above are adequately addressed.

In a March 18, 1981 letter, the District requested exemption from the requirements of Section III.G of Appendix R, on the basis that previous modifications conducted in accordance with the 1979 SER assured the protection of the public health and safety, and additional modifications in accordance with Appendix R would not increase that protection significantly. The NRC subsequently denied the exemption from the requirements of 10CFR50 Appendix R, Section III.G. (Safe Shutdown Capability) and required the District to submit specific exemption requests and proposed modifications pertaining to 10CFR50.48 and Appendix R. On June 28, 1982, the District submitted the results of its Appendix R compliance review and specific exemption requests.

The following is the NRC's guidance regarding "Fire Areas" as described in Generic Letter 83-33:

## 2. Fire Areas

Staff Position: Section III.G of Appendix R sets forth the requirement for fire protection for safe shutdown capability on the basis of fire areas.

A fire area is defined as that portion of a building or plant that is separated from other areas by boundary fire barriers (walls, floors and ceilings with any openings or penetrations protected with seals or closures having a fire resistance rating equal to that required of the barrier). Open stairwells and hatchways in ceilings and floors are not fire area boundaries.



For boundary fire barrier, using walls, floors, ceilings, dampers, doors, etc., existing prior to Appendix R, the rating required of a boundary fire barrier is based on the guidance in Appendix A to BTP-APCSB 9.5-1; i.e., the rating of the barrier or boundary must exceed with margin the fire loading in the area and need not necessarily be a 3-hour rated boundary unless the fire loading warrants such a boundary. For modifications which involve the installation of new boundary fire barriers pursuant to Section III.G.2.a, the fire rating of such boundaries must be three hours, or an exemption must be justified and requested.

The evaluations by some licensees made prior to Appendix R were based on fire zones which do not meet the strict definition of fire areas clarified above. In some cases, the separation of redundant trains under consideration within the "fire zone boundaries" and the separation between fire zones does not comply with the separation, i.e., barrier or distance, requirements of Appendix R. Such configurations need to be evaluated under the exemption process.

The fire protection requirements are intended to provide reasonable assurance that at least one safe shutdown division is free of fire damage after a postulated fire in any fire area. The definition of "fire areas," noted above, is predicated on sound fire protection engineering principles as they apply to limiting the fire and fire suppressant damage to redundant shutdown equipment and cables. Fire areas defined by non-physical boundaries, such as "logical divisions or equipment groupings," may not necessarily restrict fire and smoke spread, and do not necessarily provide reasonable assurance that the limits of fire or fire suppressant damage to shutdown systems have been defined.

Based on this NRC guidance, the District applied the new definition of "fire area" to the reanalysis of "fire barriers". This resulted in additional supplemental analyses and information submittals dated March 18, and June 2, 1983. The documents submitted to NRC in the June 28, 1982, March 18 and June 2, 1983 letters were Volumes I, II and III of the "Cooper Nuclear Station Response to 10CFR50 Appendix R 'Fire Protection of Safe Shutdown Capability'." Fire barrier upgrades, penetration sealing and qualification testing, engineering analysis and walkdowns, drawing revisions, procedure changes, and other efforts associated with the reanalysis resulted in costs of several million dollars. The NRC approved the exemptions to 10CFR50 Appendix R, Section III.G., in a letter dated September 21, 1983.

The current fire barrier surveillances, performed to meet the requirements of the Technical Specifications, comply with the current fire protection program guidance. Those barriers previously inspected under the Appendix A to BTP-ASCB 9.5-1 requirements, which are not inspected under the current programs, do not meet the definition of a "fire area boundary" under the most current guidance provided by the NRC, in Appendix R and Generic Letter 83-33. Further, the analyses performed and modifications made to ensure compliance with Appendix R have established a level of safety beyond that of BTP 9.5-1, Appendix A. The District believes that the addition of surveillance requirements for fire barriers previously committed to under Appendix A does not increase the level of protection in meeting the objectives of the fire protection program. The surveillance program, based on the fire area barriers as required by Appendix R, provides adequate safety and adequate protection of the health and safety of the public.

The second proposed change is to change the phrase "fire barrier" to "fire area barrier" and to change "fire wall penetration fire seal" to "fire area barrier penetration fire seal" in multiple locations on pages 216h and 216m. This is an editorial change to clarify the wording and to be consistent with the intent of the Cooper Nuclear Station Fire Hazards Analysis.

The third proposed change is to allow the use of an hourly fire watch patrol when the integrity of a fire area barrier or penetration fire seal cannot be maintained, provided the operability of fire detectors on at least one side of the nonfunctional barrier can be verified. This is consistent with the Standard Technical Specifications.

The fourth proposed change revises Section 4.19.A and adds 4.19.B on page 216h. The current surveillance requirements for Fire Area Barriers and Penetration Fire Seals require a visual inspection of all fire barriers and all fire wall penetration seals (where possible) at least every eighteen months. Also, a visual inspection is required prior to declaring the barrier or seal functional following maintenance. This proposed change would revise the fire area barrier and fire area barrier penetration fire seal surveillance requirements to meet the intent of the Standard Technical Specifications. Also, a requirement to conduct certain surveillances on fire doors through fire area barriers is being added as Section 4.19.B. These requirements do not currently exist in the CNS Technical Specifications. The new fire door surveillances will require a functional verification once per 31 days and verification of operability of electrically supervised fire doors once per 31 days.

The fifth change is to define "Fire Area Barriers" on page 216m. This is an administrative change to the bases, for clarification.

The final proposed change would delete extraneous bases for the Halon System. These bases do not support any specification in Section 3.0 or 4.0, and are, therefore, being eliminated.

#### Evaluation of this Revision with Respect to 10CFR50.92

- A. The enclosed Technical Specification change is judged to involve no significant hazards based on the following:
1. Does the proposed license amendment involve a significant increase in the probability or consequences of an accident previously evaluated?

#### Evaluation:

- a. The proposed change would revise the applicability of the operability and surveillance requirements for Fire Barriers and Penetration Seals from all to only those protecting safe shutdown equipment.

This change would eliminate the need to maintain the integrity or inspect fire area barriers or penetration fire seals that do not protect any safe shutdown equipment. The fire protection program has as its objectives: to prevent fires from starting; to detect rapidly, control and extinguish promptly those fires

that do occur; and to protect equipment important to safety so that a fire that is not promptly extinguished by fire suppression activities will not prevent the safe shutdown of the plant. The proposed change does not increase the probability of a fire starting, since this is a function of amount and location of combustible materials and the presence of an ignition source. Also, this proposed change will not affect the ability to detect and extinguish fires promptly. This is controlled by detection and suppression equipment, advanced planning and personnel training and availability. Finally, the proposed change will not affect the ability to protect equipment important to safety. In fact, this change focuses the operability and surveillance requirements on only those fire area barriers, fire barriers within a fire area and fire area barrier penetration fire seals that do protect safe shutdown equipment, rather than all fire barriers and penetration seals. This fulfills the objective of the fire protection program and is consistent with the Standard Technical Specifications. Those fire area barriers, fire barriers within a fire area and penetration fire seals that do not protect safe shutdown equipment cannot increase the probability or consequences of an accident, since failure of these fire barriers cannot impact the ability to safely shutdown and cooldown the plant.

Although this change may slightly increase the probability that a fire could spread into adjacent areas before being extinguished, it does not increase the probability of damaging any safe shutdown equipment. Therefore, eliminating the operability and surveillance requirements for those fire area barriers and penetration fire seals that don't protect any safe shutdown equipment does not increase the probability or consequences of an accident. This change, therefore, does not increase the probability or consequences of an accident.

- b. This proposed change would retitle "fire barriers" to "fire area barriers" and "fire wall penetration fire seals" to "fire area barrier penetration fire seals." This change is purely editorial in nature, to be consistent throughout the fire protection program. This change has no affect on the areas of the plant protected by fire detection and suppression equipment and no affect on fire fighting methodologies. Since this is strictly a title change, there is no increase in the probability or consequences of an accident previously evaluated.
- c. This proposed change will allow the use of an hourly fire watch patrol when the integrity of a fire barrier or penetration seal cannot be assured, provided the operability of fire detectors on at least one side of the nonfunctional barrier can be verified. The current requirement is for a continuous fire watch when the integrity of a fire barrier or penetration seal cannot be maintained. The net result of an hourly fire patrol and operable fire detectors instead of a continuous fire watch is not judged to be a significant increase in the probability or consequences of an accident.



The purpose of fire barriers and penetration seals is to confine or retard the spread of fires, to minimize the possibility of a single fire rapidly involving several areas of the facility prior to detection and extinguishment. When the integrity of a fire barrier or penetration seal cannot be maintained, some compensatory action must be taken to ensure that any fire which does occur in the area would be detected before it spread to adjacent areas. While the use of an hourly fire patrol instead of a continuous fire watch may result in a slight increase in the probability of an accident as a result of a fire, this increase is offset by the requirement to verify operable fire detectors on at least one side of the nonfunctional barrier. The net result will be continuous monitoring for fires by the operable fire detectors and an additional hourly fire patrol to provide a visual check for fires. This change is considered not to result in a significant increase in the probability or consequences of an accident due to a fire.

- d. The proposed changes to the surveillance requirements maintains the current requirement to perform a visual inspection of applicable fire area barriers each 18 months. Also, a specific requirement to inspect fire dampers and associated hardware is added. The major change is to the surveillance of fire area barrier penetration fire seals. Currently, Section 4.19.A requires a visual inspection of each fire wall penetration seal once every 18 months. The proposed change would only require visual inspection of 10 percent of each type of sealed penetration each 18 months. If degraded seals are found an additional 10 percent is sampled until no abnormal degradation is found. Each penetration seal will be inspected at least once each 15 years. This change reduces the number of inspections and increases the length between inspections. This could lead to a slight increase in the probability of a degraded penetration seal going undetected, and therefore, could slightly increase the consequences of a fire. However, this change is clearly in compliance with the Standard Technical Specifications, and therefore, meets accepted NRC criteria. Further, these fire seals provide passive protection and are highly reliable. The decreased inspection frequency is, therefore, justified. The proposed change to add fire door surveillance requirements in Section 4.19.B does not increase the probability or consequences of any accident previously evaluated. In fact, this change should slightly improve the reliability of fire doors through fire area barriers which could decrease the likelihood of the spread of a fire. This change may slightly increase the probability or consequences of a fire due to reduced penetration seal surveillance, but also adds specific fire door surveillances which improve the reliability of fire doors. Thus, overall, this change does not significantly increase the probability or consequences of an accident previously evaluated.

- e. The bases contain statements concerning the Halon System which do not support any requirements of Section 3.0 or 4.0 of the

Technical Specifications. Therefore, the proposed change eliminates these extraneous bases. This change is purely administrative. No changes to the Halon System hardware or operation are proposed. Therefore, this change does not involve an increase in the probability or consequences of an accident previously evaluated.

- f. A definition of "fire area barriers" is contained in this proposed change, to identify those components of construction to be included when following the operability and surveillance requirements. This addition is for clarification and is purely administrative. There is no change in fire detection or fire fighting capability and no change from the structures currently considered to be fire area barriers. Those components that are taken credit for in the Cooper Nuclear Station Fire Hazards Analysis as fire area barriers are included in the definition. Also, those fire barriers that separate portions of redundant safe shutdown systems within a fire area are defined. These fire barriers are defined as those barriers installed in lieu of the separation requirements of 10CFR50 Appendix R. The specific barriers are identified as exemptions to 10CFR50 Appendix R in the "CNS Response to 10CFR50 Appendix R, 'Fire Protection of Safe Shutdown Capability'." This change clarifies that each of these components must be considered and is subject to the operability and surveillance requirements. This clarification to the bases does not increase the probability or consequences of any accident previously evaluated.
2. Does the proposed license amendment create the possibility for a new or different kind of accident from any accident previously evaluated?

Evaluation:

- a. This proposed change does not change the nature of the design basis fire in any fire area and does not change the fire detection or fire suppression equipment for detecting and extinguishing a fire in any area. Further, this change has no affect on personnel response or fire fighting methods. This proposed change could have an affect on the ability to retard the spread of fires in fire areas that do not contain safe shutdown equipment. However, since this change does not affect the ability to safely shut down the plant and maintain it in a safe shutdown condition, the change does not create the possibility of any new or different kind of accident.
- b. This proposed change retitles "fire barriers" to "fire area barriers" and "fire wall penetration fire seals" to "fire area barrier penetration fire seals." This has no affect on the design basis fire in any fire area, no affect on the combustible loading in any area, no affect on fire protection equipment, personnel or methodologies. This change is purely editorial and, therefore, does not create the possibility of any new or different kind of accident.

- c. This proposed change only permits the use of an hourly fire watch patrol instead of a continuous fire watch, provided fire detectors are operable on at least one side of an inoperable fire barrier. This change does not alter the nature of the design basis fire, the amount of combustible material in an area or the mode of initiation of a fire. The only affect this change can have on an accident is the potential to allow a fire to propagate from one area to another through an inoperable fire barrier. This could lead to damage to unassociated equipment important to safety in two adjacent areas leading to a loss of equipment important to safety not previously evaluated. The combination of operable fire detectors and an hourly fire patrol is considered to provide protection against fire propagation equivalent to a continuous fire watch. Therefore, this change does not create the possibility for a new or different kind of accident.
- d. This proposed change only modifies the surveillance requirements for Fire Area Barriers and Fire Area Barrier Penetration Fire Seals and adds specific fire door surveillances. This change has no affect on the design basis fire since it does not affect combustible loading, detection or suppression capability or fire fighting capabilities. The only change which could affect safety is to the frequency of visual inspections on the fire barriers and seals. The only affect this could have is on the propagation of a fire from one fire area to another, leading to damage of redundant safe shutdown equipment not previously analyzed. This change could slightly increase the likelihood of seal failure going undetected, other than dampers and fire doors. However, these are highly reliable components that provide passive protection. Barring a fire or other extreme environment, these seals are not prone to failure. Also, since seals could fail due to aging, inspection of additional samples is required, if degradation is noted. Further, this change is in accordance with the NRC approved Standard Technical Specifications. Therefore, this change does not create any new or different kind of accident from any previously evaluated.
- e. The removal of extraneous bases for the Halon System is purely administrative. This proposed change will have no affect on the design basis fire or the method of detecting or fighting a fire. This change is only for clarification and streamlining and does not create the possibility for a new or different kind of accident.
- f. The proposed addition of a definition of fire area barrier and fire barriers within a fire area separating portions of redundant safe shutdown systems clarifies the components that must be considered subject to the operability and surveillance requirements. This is a clarification of the Technical Specification Bases. These definitions will not alter the design basis fire or the function of the fire barriers in any way. This change will not create the possibility of a new or different kind of accident from any accident previously evaluated.

3. Does the proposed amendment involve a significant reduction in a margin of safety?

Evaluation:

- a. The proposed change would eliminate operability and surveillance requirements for fire barriers and penetration fire seals that do not protect safe shutdown equipment. This change could slightly affect the propagation of a fire in fire areas that do not contain equipment important to safety. However, the operability and surveillance requirements would remain in effect for, and be focused on, those fire area barriers and penetration fire seals that do protect equipment important to safety. It is the ultimate objective of the fire protection program to ensure that the plant can be safely shut down, even if a fire is not promptly extinguished. This change has no affect on the margin of safety for meeting this objective. Therefore, this change does not involve a significant reduction in a margin of safety.
- b. This proposed change would retitle "fire barriers" to "fire area barriers" and "fire wall penetration fire seals" to "fire area barrier penetration fire seals." The change is for consistency with the Fire Hazards Analysis and is purely editorial. This has no affect on the ability to detect and extinguish fires, prevent the spread of fires, or protect equipment important to safety from the affects of fires. Since this change is purely editorial, it does not involve a reduction in the margin of safety.
- c. The proposed change to an hourly fire watch patrol, provided fire detectors are operable on at least one side of an inoperable fire barrier, does not reduce any margin of safety. The combination of continuous fire detection and hourly patrols is considered to provide a margin of safety against fire propagation equivalent to a continuous fire watch. Therefore, this change does not reduce any margin of safety.
- d. The proposed change to the surveillance requirements may slightly reduce the margin of safety in that the frequency of fire area barrier penetration fire seal inspections is reduced. At the same time, specific inspections for fire doors through fire area barriers have been added which may slightly improve the margin of safety. In addition, this change complies with the Standard Technical Specifications and is within NRC accepted criteria. Therefore, this change does not significantly reduce any margin of safety.
- e. The proposed elimination of Halon System bases will not affect any margin of safety. The fire suppression capability of the Halon System will not be affected since no hardware changes or changes in mode of operation are proposed. This change only eliminates extraneous bases, and therefore, does not affect any margin of safety.



- f. The proposed addition of definitions for fire barriers has no affect on any margin of safety. This addition specifies what constitutes a fire area barrier and a fire barrier that separates portions of redundant safe shutdown systems within a fire area, and are therefore subject to fire area barrier operability and surveillance requirements. This has no affect on the ability to detect or fight fires. The fire area barriers will continue to retard the spread of fires and will continue to be subject to routine inspections. This change has no effect on any margin of safety.

B. Additional basis for proposed no significant hazards consideration determination:

The commission has provided guidance concerning the application of the standards for determining whether a significant hazards consideration exists by providing certain examples (48CFR14870). The examples include "(vi) a change which may result in some increase to the probability or consequences of a previously-analyzed accident . . . But where the results of the change are clearly within all acceptable criteria . . ." It is the District's belief that the proposed change to an hourly fire watch patrol and the changes to the surveillance requirements are encompassed by the above example, i.e, the clear acceptability of the change is demonstrated by the use of similar criteria in the Standard Technical Specifications. Retitling "fire barriers" to "fire area barriers," the elimination of the extraneous Halon System bases and the addition of a definition of fire area barriers and fire barriers that separate portions of redundant safe shutdown systems within a fire area fit within the example: "(i) a purely administrative change."