



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

OFFICE OF THE  
SECRETARY

March 17, 1980

MEMORANDUM FOR:

✓ J. Funches, OCM  
G. Eysymontt, OCM  
J. Guibert, OCM  
H. Fontecilla, OCM  
H. Thompson, OCM

FROM:

*SJS* S.J.S. Parry, SECY

SUBJECT:

SECY-80-88 - FIRE PROTECTION ACTIONS (CONSENT CALENDAR ITEM)

This paper is scheduled for affirmation on March 19, 1980. The attached draft memo summarizes individual Commissioner comments. May I have any comments on or concurrence in this memo promptly to permit the paper to be affirmed on 3/19/80.

Attachment:  
Draft Memo

cc:  
S. Chilk

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MEMORANDUM FOR: William J. Dircks, Acting EDO  
FROM: Samuel J. Chilk, Secretary  
SUBJECT: SECY-80-88 FIRE PROTECTION ACTIONS (CONSENT CALENDAR ITEM)

This is to advise you that the Commission (with three Commissioners concurring) has approved the staff's recommendation and proposed FRN subject to the modifications as attached and as noted below. Commissioner Gilinsky did not participate in this action. Commissioner Bradford disapproved the staff's recommendation.

The staff is requested to make the following additional changes:

- 1) The FRN is to be modified to make the minimum provisions for fire protection immediately effective.
- 2) Enclosures A & B, p.8, reword the phrase "visually indicating".

Individual Commissioner comments have been provided to you previously.

Attachment:  
Modified pages

cc:  
Commissioners  
Commission Staff Offices  
Director, Standards Development

DRAFT

[7000-01]

In response to the first recommendation, NRR developed Branch Technical Position Auxiliary Power Conversion Systems Branch 9.5-1, "Guidelines for Fire Protection for Nuclear Power Plants" (BTP 9.5-1), and Appendix A to BTP 9.5-1, "Guidelines for Fire Protection For Nuclear Power Plants Docketed Prior to July 1, 1976".<sup>1</sup> The guidance contained in BTP 9.5-1 was published for public comment in June 1976 as Regulatory Guide 1.120, "Fire Protection Guidelines for Nuclear Power Plants." As a result of public comments received, the staff proposed extensive changes to the guide and presented the proposed changes to the ACRS in an open meeting in May 1977. Additional written comments were solicited from the public following that meeting. Nineteen additional comment letters were received and they were also considered in Revision 1 of Regulatory Guide 1.120, which was published for a new one-year public comment period in November 1977. Comments received on Revision 1 of Regulatory Guide 1.120 were generally restatements of comments received during earlier comment periods and had already been considered and evaluated by the staff.

The guidelines in both the BTP 9.5-1 and Appendix A to BTP 9.5-1 were developed to provide a fire protection program that has two basic objectives:

1. to identify and distinguish between those consequences of fire that are acceptable and those consequences that are not.
2. to provide necessary means to minimize all consequences of fire and to prevent unacceptable consequences from occurring.

<sup>1</sup>Branch Technical Position 9.5-1 and its Appendix A are available from David P. Notley, Office of Standards Development.

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Because of the opportunities previously provided for public involvement in the development of the staff's fire protective guidelines during the two public comment periods and several open meetings of the ACRS Subcommittee when Regulatory Guide 1.120 was discussed, and because the positions of the staff and licensee are documented and well known with respect to fire protection, the staff believes that the public interest will be served by the issuance of this guidance without further public comment.

3

ENCLOSURE

instance, all agree on the need for a fire brigade on all shifts. The disagreement is "how large?" The staff says that five should be the minimum size permitted while some licensees say that a brigade of only three or four will be adequate. Similar disagreements exist with each of the basic requirements covered by this proposed rule Where the staff's safety evaluations contain open items, the position of the staff and the licensees are documented and well-known.

There are, however, a few instances where the staff has accepted certain fire protection alternatives that would not satisfy some of the requirements of this proposed rule. The minimum requirements contained in this rule were developed over a three-year period and, in each of these instances, the staff accepted a proposed alternative before these minimum requirements were established. All licensees will be expected to meet the requirements of this rule, in its effective form, including whatever changes result from public comments. The issues are not new, either for the staff or for the licensees involved. This proposed rule and its Appendix R address only these issues that are generic in nature; no plant-specific issues are included.

Because of the above-mentioned differences between the staff and the licensees in the interpretation of the staff's guidelines, it is timely and necessary for the Commission to state what the minimum fire protection requirements will be in each of these contested areas of concern. This proposed rule and its Appendix R have been developed to establish the minimum these acceptable minimum fire protection requirements necessary to resolve these contested areas of concern for nuclear power plants operating prior to January 1, 1979.

Other fire protection criteria that have been used by the staff during its plant-specific fire protection program reviews are contained in Appendix A to BTP 9.5-1. The combination of the guidance contained in Appendix A to BTP 9.5-1 and the requirements set forth in this proposed rule define the essential elements for an acceptable fire protection program at nuclear power plants docketed for Construction Permit prior to July 1, 1976, for demonstration of compliance with General Design Criterion 3 of Appendix <sup>(A)</sup> to 10 CFR Part 50. Similar acceptable guidance is provided in BTP 9.5-1 for nuclear power plants docketed for Construction Permit after July 1, 1976. These regulations state these fire protection requirements for nuclear power facilities that are considered minimum generic requirements to satisfy General Design Criterion No. 2 of Appendix A to 10 CFR 50. The proposed Appendix R specifies both general and specific requirements of an acceptable fire protection program.

All modifications (except for alternate shutdown capability) would be required to be implemented by November 1, 1980, ~~[or, for good cause shown, by the end of the first refueling outage thereafter. No plant would be permitted to start up after that date unless all modifications have been implemented. In the case of alternate shutdown capability, the licensee would be required to prepare a schedule to be acceptable to and approved by the staff.]~~ ] ADD INSERT 2

A brief description of the major parts of the proposed rule, including the need for each of the specific requirements, follows:

I. Introduction and Scope

This section states that the basic objective of the proposed Appendix R is to specify ~~the~~ minimum fire protection requirements for nuclear power plants operating prior to January 1, 1979. It limits application to commercial nuclear power electric generating stations and also states that the proposed Appendix R does not rescind any requirements set forth in any Safety Evaluation Report for any nuclear power facility.

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II. General Requirements

This section states in general terms the need for a comprehensive fire protection program at each nuclear power plant.

A. Fire Protection Program

The concept of defense in depth is here extended to fire protection (1) to prevent fires from starting, (2) to rapidly detect, control, and promptly extinguish those fires that do occur, and (3) to arrange the structures, systems, and components important to safety so that a fire that starts in spite of the fire prevention activities and that is not promptly extinguished by the fixed automatic or manual fire suppression activities will not prevent the safe shutdown of the plant.

B. Loss of Offsite Power

This section requires that any fire detection or suppression system protecting systems necessary to achieve and maintain safe plant shutdown be capable of functioning with or without offsite power.



that fires in electrical equipment (which may be subject to water damage) should be extinguished as quickly as possible. Water may not be excluded from an area as a fire extinguishant only on the basis of potential water damage to safe shutdown equipment. If such water damage hazard is severe, other protective measures such as shields for equipment or alternate shutdown capability would be required.

A separate fire water distribution system would be required at each plant to ensure the necessary water supply with adequate pressure and volume for any combination of automatic and manual fire suppression demands.

A looped fire main with appropriate isolation valves provides a higher reliability of furnishing this necessary water supply to fire suppression systems by providing alternate directions of flow during maintenance or repair on part of the system.

Similarly, at least two water sources--tanks and pumps or pumps alone from a large body of water such as a lake or a river--are necessary to ensure continuity of water supply. In the case of two intakes from a single large body of water, the intakes must be separated from each other so as to really ensure two separate sources.

B. Sectional Control Valves

This item requires that valves installed in the yard fire main to permit isolation of part of the main for maintenance or repair without shutting off the entire system be visually indicating.

C. Hydrant Block Valves

This item requires block valves to be installed in hydrant laterals if necessary to isolate a hydrant from the yard main without

Pursuant to the Atomic Energy Act of 1954, as amended, the Energy Reorganization Act of 1974, as amended, and section 553 of title 5 of the United States Code, notice is hereby given that adoption of the following amendments to 10 CFR Part 50 is contemplated.

PART 50 - DOMESTIC LICENSING OF  
PRODUCTION AND UTILIZATION FACILITIES

1. A new Section 50.48 is added to read as follows:

§ 50.48 Fire Protection:

- (a) Each operating nuclear power facility shall have a fire protection plan which meets the requirements of Criterion 3 of Appendix A to this part. This fire protection plan should consist of two sections. The first section should describe the overall fire protection program for the facility, identify the various positions within the licensee's organization that are responsible for the program, state the authorities that are delegated to each of these positions to implement those responsibilities, and outline the plans for fire protection, fire detection and suppression capability, and limitation of fire damage. The second section should describe specific features necessary to implement the first section, such as: administrative controls and personnel requirements for fire prevention and manual fire suppression activities; automatic and manually operated fire detection and suppression systems; and means to ensure capability to safely shutdown the plant in spite of fire damage to safety related or safe shutdown structures, systems or components.



(b) For nuclear power facilities that commenced operation prior to January 1, 1979, appropriate portions of Criterion 3 of Appendix A to this part will be satisfied by meeting the requirements contained in Appendix R to this part.<sup>1/</sup>

~~Operating nuclear power facilities that commenced operation prior to January 1, 1979, shall meet the requirements of Criterion 3 of Appendix A to this part by satisfying the requirements contained in Appendix R to this part.~~

ADD INSERT 3

~~(c) The implementation of the requirements contained in Appendix R to this part (except for alternate shutdown capability) shall be completed by November 1, 1980, or for good cause shown, the first refueling outage thereafter. In the case of alternate shutdown capability, the licensee shall prepare a schedule to be acceptable to and approved by the staff.~~

2. A new Appendix R to 10 CFR Part 50 is added to read as follows:

APPENDIX R--FIRE PROTECTION PROGRAM FOR NUCLEAR POWER FACILITIES  
OPERATING PRIOR TO JANUARY 1, 1979

<sup>1/</sup> The combination of the guidance contained in Appendix A to Branch Technical Position 9.5-1, "Guidelines for Fire Protection for Nuclear Power Plants Docketed Prior to July 1, 1976", as implemented by the staff in its plant-specific fire protection program reviews of operating nuclear power plants, and the requirements set forth in Appendix R to this Part define the minimum necessary conditions for demonstration of compliance with General Design Criterion 3 of Appendix A to this Part for nuclear power facilities that commenced operation prior to January 1, 1979.

## I. INTRODUCTION AND SCOPE

This Appendix sets forth the minimum fire protection requirements needed for nuclear power facilities to satisfy Criterion 3 of Appendix A to this part with respect to certain recurring generic issues for nuclear power plants that were operating prior to January 1, 1979.<sup>1/</sup>

This Appendix applies only to licensed commercial nuclear power electric generating stations operating prior to January 1, 1979; it does

- c. The drills shall be preplanned to establish the training objectives of the drill and shall be critiqued to determine how well the training objectives have been met. Unannounced drills shall be planned and critiqued by members of the management staff responsible for plant safety and security. Performance deficiencies of a fire brigade or of individual fire brigade members shall be remedied by scheduling additional training for the brigade or members. Unsatisfactory drill performance shall be followed by a repeat drill within 30 days.
- d. At three-year intervals, drills shall be critiqued by qualified individuals independent of the licensee's staff. A copy of the written report from such individuals shall be submitted to NRC for evaluation.
- e. Drills shall as a minimum include the following:
- (1) Assessment of fire alarm effectiveness, time required to notify and assemble fire brigade, and selection, placement and use of equipment, and firefighting strategies.
  - (2) Assess<sup>ment of</sup> each brigade member's knowledge of his role in the firefighting strategy for the area assumed to contain the fire. Assess<sup>ment of</sup> the brigade

These records of training shall be available for review. Retraining or broadened training for fire fighting within buildings shall be scheduled for all those brigade members whose performance records show deficiencies.

J. Emergency Lighting

Emergency lighting consisting of either lighting not <sup>readily (?)</sup> damaged by fire in a given area or fixed sealed beam or fluorescent units with an individual 8-hour minimum battery power supply shall be provided in all areas needed for operation of safe shutdown equipment and in access routes to all safety-related areas and other areas presenting a fire hazard to safety-related areas.

K. Administrative Controls

Administrative controls shall be established to minimize fire hazards in areas containing structures, systems, and components important to safety. These controls shall establish procedures to:

1. Govern the handling and limitation of the use of ordinary combustible materials, combustible and flammable gases and liquids, high efficiency particulate air and charcoal filters, dry ion exchange resins, or other combustible supplies in safety-related areas.
2. Prohibit the storage of combustibles in safety-related areas or establish designated storage areas and fire protection therefor.
3. Govern the handling of and limit transient fire loads such as combustible and flammable liquids, wood and plastic

3. The reactor heat removal function shall be capable of achieving and maintaining decay heat removal.
4. The process monitoring function shall be capable of providing direct readings of the process variables necessary to perform and control the above functions.
5. The supporting functions shall be capable of providing the process cooling, lubrication, etc., necessary to permit the operation of the equipment used for safe shutdown functions.

The equipment and systems used to achieve and maintain hot standby conditions (hot shutdown for a BWR) shall be (1) free of fire damage, (2) capable of maintaining such conditions for at least 72 hours if the equipment required to achieve and maintain cold shutdown is not available because of fire damage, and (3) capable of being powered by both onsite and offsite electric power systems or by onsite power systems that are independent of the onsite and offsite electric power systems. The number of operating shift personnel, exclusive of fire brigade members, required to operate the equipment and systems shall be onsite at all times.

The equipment and systems used to achieve and maintain cold shutdown conditions shall be free of fire damage, or the fire damage to such systems shall be limited such that repairs can be made and cold shutdown conditions achieved within 72 hours. Materials for such repairs shall be readily available onsite and procedures shall be in effect to implement such repairs. Equipment and systems used prior to 72 hours

*Does this mean*  
*a) not previously damaged by*  
*b) not readily damaged by fire*

## U. S. NUCLEAR REGULATORY COMMISSION

10 CFR Part 50

Fire Protection Program for Nuclear Power Plants  
Operating Prior to January 1, 1979

AGENCY: U. S. Nuclear Regulatory Commission

ACTION: Proposed Rule

SUMMARY: The Nuclear Regulatory Commission (NRC) is proposing to amend its regulations to require certain minimum provisions for fire protection in operating nuclear power plants.

DATES: Comment period expires (30 days after publication). The position of the staff and the licensees regarding the provisions of this rule is documented and well known. In addition, the public has been afforded several opportunities to comment on the provisions of the rule during two extensive comment periods and in open meetings with the ACRS in which a regulatory guide on fire protection was considered. For these reasons no extension of the comment period will be granted. ADD INSERT 1

ADDRESSES: Written comments should be submitted to the Secretary of the Commission, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555, Attention: Docketing and Service Branch.

FOR FURTHER INFORMATION CONTACT: David P. Notley, Office of Standards Development, U. S. Nuclear Regulatory Commission, Washington, D. C. 20555, phone 301-443-5921.



Insert 1 - Enclosure A, page 1

Further, since the issues involved are well known and have been under discussion for several years, the Commission does not anticipate changes in the rule's action deadlines as a result of further comments received.

Insert 2 - Enclosure A, page 5a

unless, for good cause shown the Commission approves an extension. Since the issues involved are well-known and have been under discussion for several years, the Commission anticipates approving few, if any, extensions. No plant would be allowed to continue operating after November 1, 1980, or beyond an extended date approved by the Commission, unless all modifications (except for alternate or dedicated shutdown capability) have been implemented. The Commission recognizes that, in a few instances, approval has previously been given to particular licensees to extend the implementation dates for some modifications beyond November 1, 1980. The Commission will review these extensions on a case-by-case basis to determine whether continued approval or some revision of the extension is appropriate.

For alternate or dedicated shutdown capability, the proposed rule specifies implementation dates which depend on which kind of capability is to be implemented and whether the plant is under review in the Systematic Evaluation Program (SEP)\*. For non-SEP plants, the proposed implementation dates are April 1, 1981 for alternate shutdown capability and December 1, 1981 for dedicated shutdown capability. Licensees who have committed to earlier implementation dates will be expected to meet those commitments. For SEP plants, the proposed implementation dates are December 1, 1981 for alternate shutdown capability and October 1, 1982 for dedicated shutdown capability. Licensees will be required to submit plans and schedules to meet these implementation deadlines by August 1, 1980 (non-SEP plants) and November 1, 1980 (SEP plants). The Commission may revise the implementation deadlines for SEP plants to earlier dates following completion by the NRC staff of its review of the status of fire protection at those plants. The staff review is expected to be completed in August, 1980.

\* Plants under review in the SEP include Palisades, Dresden 1 and 2, Oyster Creek, Millstone 1, Ginna, Haddam Neck, San Onofre 1, La Crosse, Big Rock Point, and Yankee Rowe.

Insert 3 - Enclosure A, page 13a

(c) The implementation of the requirements contained in Appendix R to this part (except for alternate or dedicated shutdown capability) shall be completed by November 1, 1980 unless, for good cause shown, the Commission approves an extension. For alternate or dedicated shutdown capability, the following implementation schedule will apply.

(i) Plants not included in the Systematic Evaluation Program (SEP):\* Licensees implementing alternate shutdown capability shall complete implementation by April 1, 1981. Licensees who have previously committed to earlier implementation dates will be expected to meet the earlier dates. Licensees implementing dedicated shutdown capability shall complete implementation by December 1, 1981. Licensees shall submit, by August 1, 1980, plans and schedules for meeting these implementation deadlines.

(ii) Plants included in the SEP: Licensees implementing alternate shutdown capability shall complete implementation by December 1, 1981; licensees implementing dedicated shutdown shall complete implementation by October 1, 1982. Licensees shall submit, by November 1, 1980, plans and schedules for meeting these implementation deadlines. The Commission may revise these implementation deadlines to earlier dates following completion by the NRC staff of its review of the status of fire protection at SEP plants. The staff review is expected to be completed in August, 1980.

\* Plants under review in the SEP include Palisades, Dresden 1 and 2, Oyster Creek, Millstone 1, Ginna, Haddem Neck, San Onofre 1, La Crosse, Big Rock Point, and Yankee Rowe.