

Revised Technical Specifications for  
Halon Fire Suppression System

Revised Pages:   iii       216j       216m  
                  216f       216k  
                  216g       216kl (new page)

- Reference: 1) NPPD Letter, J. M. Pilant to D. B. Vassallo, "Fire Protection Rule 10CFR50, Appendix R" dated June 28, 1982
- 2) USNRC Letter, D. B. Vassallo to J. M. Pilant, "Exemption Requests - 10CFR50.48 Fire Protection and Appendix R to 10CFR Part 50" dated September 21, 1983

In Reference 1, the District requested an exemption to Appendix R requirements for the service water intake structure because of inadequate separation criteria between service water pumps. As part of the exemption request the District committed to provide an automatic fire suppression and detection system to cover all parts of the fire area. In Reference 2, the NRC granted this exemption and issued a safety evaluation report concluding the District's proposal satisfied safety requirements.

In order to meet its Appendix R deadline, the District will be constructing and testing the halon fire suppression system in the near future. Accordingly, the District requests that limiting conditions for operation (LCO) and surveillance requirements for the halon system be added to the Cooper Nuclear Station Technical Specifications. In particular, the following changes are proposed:

1. Table of Contents, page iii, add the words "AND HALON SYSTEM" to Section 3.17.
2. Addition of applicable LCO's and surveillance requirements for the halon system in Sections 3/4.17 on pages 216f and 216g.
3. Addition of the words "H = Halon 1301" to the legend at the bottom of page 216j.
4. Addition of six smoke detectors and six thermal detector instruments for the service water pumps on page 216k.
5. Add mention of the halon system to the bases of Sections 3.15-3.18/4.15-4.18 "FIRE SUPPRESSION SYSTEMS" on page 216m.

The LCO and surveillance requirements were based on the example given in NUREG-0123, Revision 3, standard Technical Specifications for General Electric BWR's, Specifications 3.7.7.4 and 4.7.7.4. The requirement to verify at least once per 31 days that each valve in the flow path is in its correct position was not included because the system includes only check valves and explosive-actuated discharge valves.

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:

The proposed amendment addresses the addition of a halon fire suppression system in the service water intake structure and as such does not involve a significant increase in the probability or consequences of an accident previously evaluated. In fact, the amendment would reduce the consequences of a fire in the service water intake structure by increasing the number of fire detectors and supplying a halon system to suppress any fires in the area.

2. Does the proposed license amendment create the possibility for a new or different kind of accident from any accident previously evaluated?

Evaluation:

The proposed amendment does not introduce any new mode of operation so it does not create the possibility for 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:

The proposed amendment addresses the addition of a halon fire suppression system and fire detectors and hence will increase the margin of safety for a fire in the intake structure.

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 (48FR14870). The examples include: "(ii) A change that constitutes an additional limitation, restriction, or control not presently included in the Technical Specifications . . ."

## TABLE OF CONTENTS (Cont'd)

<u>LIMITING CONDITIONS FOR OPERATION</u>	<u>SURVEILLANCE REQUIREMENTS</u>	<u>Page No.</u>
3.12 ADDITIONAL SAFETY RELATED PLANT CAPABILITIES	4.12	215 - 215f
A. Main Control Room Ventilation	A	215
B. Reactor Building Closed Cooling Water System	B	215b
C. Service Water System	C	215c
D. Battery Room Vent	D	215c
3.13 RIVER LEVEL	4.13	216
3.14 FIRE DETECTION SYSTEM	4.14	216b
3.15 FIRE SUPPRESSION WATER SYSTEM	4.15	216b
3.16 SPRAY AND/OR SPRINKLER SYSTEM (FIRE PROTECTION)	4.16	216e
3.17 CARBON DIOXIDE AND HALON SYSTEMS	4.17	216f
3.18 FIRE HOSE STATIONS	4.18	216g
3.19 FIRE BARRIER PENETRATION FIRE SEALS	4.19	216h
3.20 YARD FIRE HYDRANT AND HYDRANT HOSE HOUSE	4.20	216i
3.21 ENVIRONMENTAL/RADIOLOGICAL EFFLUENTS	4.21	216n
5.0 MAJOR DESIGN FEATURES		
5.1 Site Features		217
5.2 Reactor		217
5.3 Reactor Vessel		217
5.4 Containment		217
5.5 Fuel Storage		218
5.6 Seismic Design		218
5.7 Barge Traffic		218
6.0 ADMINISTRATIVE CONTROLS		
6.1 Organization		219
6.1.1 Responsibility		219
6.1.2 Offsite		219
6.1.3 Plant Staff - Shift Complement		219
6.1.4 Plant Staff - Qualifications		219a

## LIMITING CONDITIONS FOR OPERATION

### 3.16 (cont'd)

#### SPECIFICATIONS

- A. The Automatic Sprinkler Systems protecting the Cable Spreading Room, Cable Expansion Room, and Northeast Corner - 903 Ft. Elev. of Reactor Building shall be operable.
- B. If the requirement of 3.16.A cannot be met, establish a continuous fire watch with backup fire suppression equipment for the unprotected area within 1 hour; restore the system to OPERABLE status within 14 days or prepare and submit a Special Report to the Commission within the next 30 days outlining the action taken, the cause of the inoperability and the plans and schedule for restoring the system to OPERABLE status.

### 3.17 CARBON DIOXIDE AND HALON SYSTEMS

#### APPLICABILITY

Applies to the operational status of the High Pressure Carbon Dioxide Extinguishing System protecting the Diesel Generator Rooms and the Halon Suppression System protecting the Service Water Intake Structure.

#### OBJECTIVE

To assure continuous Automatic Fire Protection for the Diesel Generator Rooms and the Service Water Intake Structure.

#### SPECIFICATIONS

- A. The High Pressure Carbon Dioxide Extinguishing System protecting the Diesel Generator Rooms shall be operable.
- B. The Halon 1301 Fire Suppression System protecting the Service Water Pump Room shall be operable with at least one storage tank having at least 95% of full charge weight and 90% of full charge pressure.

## SURVEILLANCE REQUIREMENTS

### 4.16 (cont'd)

#### SPECIFICATIONS

- A. The Automatic Sprinkler Systems protecting the Cable Spreading Room, Cable Expansion Room, and Northeast Corner - 903 Ft. Elev. of Reactor Building shall be demonstrated to be operable by:
  - 1. At least once per 12 months by cycling each testable valve in the flow path through at least one complete cycle of full travel.
  - 2. At least once per 18 months:
    - a) By performing a system functional test which includes simulated automatic actuation of the system, and
      - 1) Verifying that the automatic valves in the flow path actuate to their correct positions on a test signal, and
      - 2) Cycling each valve in the flow path that is not testable during plant operation through at least one complete cycle of full travel.
    - b) By inspection of the spray headers to verify their integrity.

### 4.17 CARBON DIOXIDE AND HALON SYSTEMS

#### APPLICABILITY

Applies to the operational status of the High Pressure Carbon Dioxide Extinguishing System protecting the Diesel Generator Rooms and the Halon Suppression System protecting the Service Water Intake Structure.

#### SPECIFICATIONS

- A. The High Pressure Carbon Dioxide Extinguishing System protecting the Diesel Generator Rooms shall be demonstrated operable by:
  - 1. At least once per 6 months, the High Pressure Carbon Dioxide storage cylinders should be weighed.



## LIMITING CONDITIONS FOR OPERATION

### 3.17 (cont'd)

- C. If the requirement of 3.17.A and 3.17.B cannot be met:
1. Establish a continuous fire watch with backup fire suppression equipment for the unprotected area(s) within 1 hour; restore the system to OPERABLE status within 14 days or prepare and submit a Special Report to the Commission within the next 30 days outlining the action taken, the cause of the inoperability and the plans and schedule for restoring the system to OPERABLE status.

### 3.18 FIRE HOSE STATIONS

#### APPLICABILITY

Applies to the operational status of the Fire Hose Stations in the Control and Reactor buildings.

#### OBJECTIVE

To assure continuous manual fire fighting capability provided by existing Fire Hose Stations.

#### SPECIFICATIONS

- A. The Fire Hose Stations shown in Table 3.18 shall be operable.
- B. If the requirement of 3.18.A cannot be met, route an additional hose to the area protected by the inoperable Fire Hose Station from an operable Fire Hose Station of equivalent capacity within 1 hour.

## SURVEILLANCE REQUIREMENTS

### 4.17 (cont'd)

2. At least once per 18 months by verifying the system valves, alarms, and associated ventilation motor interlocks and dampers actuate to a simulated automatic and manual actuation signal. A brief air flow test ("Puff Test") shall be made to verify flow from each nozzle.
- B. The Halon 1301 Fire Suppression System protecting the Service Water Pump Room shall be demonstrated operable:
1. At least once per six months by weighing and recording the pressure of each Halon storage tank.
  2. At least once per 18 months by verifying the system valves, alarms, and associated ventilation motor interlocks and dampers actuate to a simulated automatic and manual actuation signal. A brief air flow test ("Puff Test") shall be made to verify flow from each nozzle.

### 4.18 FIRE HOSE STATIONS

#### APPLICABILITY

Applies to the operational status of the Fire Hose Stations in the Control and Reactor Buildings.

#### SPECIFICATIONS

- A. The Fire Hose Stations in the Control Building and Reactor Building shall be demonstrated to be operable by:
  1. At least once per 31 days by:
    - a) Visual inspection to assure all required equipment is at the station.
  2. At least once per 18 months by:
    - a) Removing the hose for inspection and re-racking, and
    - b) Replacement of all degraded gaskets in couplings.
  3. At least once per 3 years by:
    - a) Partially opening each hose station valve to verify valve OPERABILITY and no flow blockage, and

TABLE 3.14

## FIRE DETECTION INSTRUMENTS

	INSTRUMENT ID NO.
1 <u>Reactor Building</u>	
859 & 881 Elev. (Covers RCIC, Core Spray, RHR, and HPCI Pumps)	FD-TD-18-2 FP-TD-18-3 FP-TD-19-2 FP-TD-19-3 FP-TD-20-2 FP-TD-20-3 FP-TD-20-4 FP-TD-20-5 FP-TD-21-2 FP-TD-21-3
903 Elev.	FP-SD-18-1 FP-TD-18-4 FP-SD-19-1 FP-SD-20-1 FP-SD-21-1
931 Elev.	FP-SD-23-1 FP-SD-23-2 FP-SD-23-3 FP-SD-23-4
958 Elev.	FP-SD-24-1 FP-SD-24-2 FP-SD-24-3 FP-SD-24-4 FP-SD-24-5 FP-SD-24-6
976 Elev. Covers Standby Liquid Control Pump and Standby Gas Treatment	FP-SD-26-1 FP-SD-26-2 FP-SD-25-1 FP-SD-25-2 FP-SD-25-3 FP-SD-25-4 FP-TD-25-5
1001 Elev. Also Fuel Storage Area	FP-TD-26-3 FP-TD-26-4 FP-TD-25-6 FP-TD-25-7
<u>Legend</u>	
FP = Fire Protection	H = Halon 1301
TD = Thermal Detector	CO <sub>2</sub> = Carbon Dioxide
FD = Flame Detector	DG = Diesel Generator
SD = Smoke Detector	1st Digit Instr. ID No. = Zone
	2nd Digit Instr. ID No. = Instr. No.

## INSTRUMENT LOCATION

## INSTRUMENT ID NO.

2    Control RoomFP-SD-17-1  
FP-SD-17-2  
FP-SD-17-33    Cable Spreading RoomFP-SD-16-1  
FP-SD-16-2  
FP-SD-16-3  
FP-SD-16-4  
FP-SD-16-5  
FP-SD-16-6Cable Expansion RoomFP-SD-16-7  
FP-SD-16-84    Switchgear Rooms

## DC Switchgear Rooms

FP-SD-15-2  
FP-SD-15-3

## Critical Switchgear Room

FP-SD-22-1  
FP-SD-22-25    Station Battery RoomsFP-SD-15-1  
FP-SD-15-4  
FP-SD-15-1A  
FP-SD-15-4A6    Diesel Generator RoomsFP-SD-10-1  
FP-SD-10-2  
FP-SD-10-3  
FP-SD-10-4  
CO2-SD-DG-1A  
CO2-SD-DG-1B  
CO2-SD-DG-1C  
CO2-SD-DG-1D  
CO2-SD-DG-2A  
CO2-SD-DG-2B  
CO2-SD-DG-2C  
CO2-SD-DG-2D7    Diesel Fuel Storage RoomsCO2-TD-DG-1A  
CO2-TD-DG-1B

## INSTRUMENT LOCATION

## INSTRUMENT ID NO.

8 Safety Related Equipment not in Reactor Building

RHR Service Water Booster Pumps

FP-SD-14-3

Emergency Condensate Storage Tanks

FP-SD-14-1

Service Water Pumps

FP-SD-32-1

FP-SD-32-2

FP-SD-32-3

FP-SD-32-4

FP-FD-32-5

FP-FD-32-6

HSW-SD-H1

HSW-SD-H2

HSW-SD-H3

HSW-SD-H4

HSW-SD-H5

HSW-SD-H6

HSW-TD-H11

HSW-TD-H12

HSW-TD-H13

HSW-TD-H14

HSW-TD-H15

HSW-TD-H16

9 Auxiliary Relay Room & Reactor Protection System Rooms

Auxiliary Relay Room

FP-SD-15-9

Reactor Protection System Room 1A

FP-SD-15-7

Reactor Protection System Room 1B

FP-SD-15-8



### 3.14-3.19/4.14-4.19 BASES

#### 3.14/4.14 FIRE DETECTION INSTRUMENTATION

OPERABILITY of the fire detection instrumentation ensures that adequate warning capability is available for the prompt detection of fires. This capability is required in order to detect and locate fires in their early stages. Prompt detection of fires will reduce the potential for damage to safety related equipment and is an integral element in the overall facility fire protection program.

In the event that a portion of the fire detection instrumentation is inoperable, the establishment of frequent fire patrols in the affected areas is required to provide detection capability until the inoperable instrumentation is returned to service.

#### 3.15-3.18/4.15-4.18 FIRE SUPPRESSION SYSTEMS

THE OPERABILITY of the fire suppression systems ensures that adequate fire suppression capability is available to confine and extinguish fires occurring in any portion of the facility where safety related equipment is located. The fire suppression system consists of the water system, spray and/or sprinklers, CO<sub>2</sub>, Halon 1301, and fire hose stations. The collective capability of the fire suppression systems is adequate to minimize potential damage to safety related equipment and is a major element in the facility fire protection program.

In the event that portions of the fire suppression systems are inoperable, alternate backup fire fighting equipment is required to be made available in the affected areas until the affected equipment can be restored to service.

In the event the fire suppression water system becomes inoperable, immediate corrective measures must be taken since this system provides the major fire suppression capability of the plant. The requirement for twenty-four hour report to the Commission provides for prompt evaluation of the acceptability of the corrective measures to provide adequate fire suppression capability for the continued protection of the nuclear plant.

#### 3.19/4.19 FIRE BARRIER PENETRATION SEALS

The functional integrity of the fire barrier penetration seals ensures that fires will be confined or adequately retarded from spreading to adjacent portions of the facility. This design feature minimizes the possibility of a single fire rapidly involving several areas of the facility prior to detection and extinguishment. The fire barrier penetration seals are a passive element in the facility fire protection program and are subject to periodic inspections.

During periods of time when the seals are not functional, a continuous fire watch is required to be maintained in the vicinity of the affected seal until the seal is restored to functional status.

Fire barrier penetration seals include cable penetration barriers, fire doors, and fire dampers.