15.3.14 FIRE PROTECTION SYSTEM

Applicability

Applies to the fire protection components which provide fire protection capability for equipment required for safe plant shutdown at all times when those systems are required to be operable.

Objective

To specify the requirements for fire protection components which would be employed to mitigate the consequences of fires which could affect equipment required for safe plant shutdown.

Specification

A. Fire Suppression Systems

1. Fire Main Loop Water Supply

a. Both fire pumps shall be operable; or

b. One fire pump may be inoperable provided that the second fire pump is tested to demonstrate operability and is tested once every 24 hours thereafter; or,

c. Both fire pumps may be inoperable provided that a backup fire main loop water supply is operable within 24 hours.

d. If a, b, or c cannot be fulfilled, both reactors shall be placed in hot shutdown within the next 6 hours and in cold shutdown within an additional 48 hours.

2. Water Sprinkler Systems

a. The water sprinkler systems listed in Table 15.3.14-1 shall be operable.

b. A water sprinkler system listed in Table 15.3.14-1 may be inoperable provided:

(1) Fire hose station suppression equipment for the affected area is provided within one hour;

(2) Portable fire suppression equipment is provided for the affected area is provided within one hour;

(3) A fire watch inspection is performed in the affected area twice per 8-hour shift;

(4) Activity within the affected area is restricted to that which is necessary for continued operation.

3. Fire Hose Stations

a. Fire hose stations for the areas listed in Table 15.3.14-1 shall be operable.

b. Fire hose stations for areas listed in Table 15.3.14-1 may be inoperable provided:

(1) Backup water suppression capability for the affected area is provided within one hour; or

(2) Portable fire suppression equipment for the affected area is provided within one hour.

4. Halon Gaseous Suppression Systems

a. The Halon gaseous suppression systems listed in Table 15.3.14-1 shall be operable.

b. One supply source of Halon for the gaseous suppression systems in Table 15.3.14-1 may be inoperable provided that fire hose station suppression capability for the affected area is provided within one hour.

c. Both supply sources of Halon for the gaseous suppression systems listed in Table 15.3.14-1 may be inoperable provided:

(1) Fire hose station suppression capability for the affected area is provided within one hour;

(2) Portable fire suppression equipment is provided for the affected area is provided within one hour;

(3) A fire watch inspection is performed in the affected area twice per 8-hour shift;

(4) Activity within the affected area is restricted to that which is necessary for continued operation.

B. Fire Detection

1. Fire Detection Systems

a. The fire detection system components for each area listed in Table 15.3.14-1 shall be operable.

b. The control room annunciation for the fire detection system may be inoperable, provided that the area control panels for each area listed in Table 15.3.14-1 are surveilled twice per 8-hour shift.

c. Area control panels for the areas listed in Table 15.3.14-1 may be inoperable provided:

(1) Within one hour of determining that the area control panel is inoperable, the affected area is inspected to assure that potential fire hazards are minimized;

(2) Activity in the affected area is restricted to that which is necessary for continued operation;

(3) A fire watch inspection is performed in the affected area twice per 8-hour shift.

d. For each area listed in Table 15.3.14-1 which is not protected by a Halon gaseous suppression system:

(1) A single detection device may be inoperable.

(2) As long as at least 75% of an area's detection devices remain operable, multiple non-adjacent detection devices may be inoperable.

(3) More than 25% of an area's detection devices or multiple adjacent detection devices may be inoperable provided that:

(a) Within one hour of determing that the detection devices are inoperable, the affected area is inspected to assure that potential fire hazards are minimized;

(b) Activity in the affected area is restricted to that which is necessary for continued operation;

(c) A fire watch inspection is performed in the affected area twice per 8-hour shift.

e. For each area listed in Table 15.3.14-1 which is protected by Halon gaseous suppression system, any number of detection device(s) may be inoperable provided that:

(1) Within one hour of determining that the detection device(s) are inoperable the affected area is inspected to assure that potential fire hazards are minimized:

(2) Activity in the affected area is restricted to that which is necesary for continued operation;

(3) A fire watch inspection is performed in the affected area twice per 8-hour shift.

C. Fire Barriers

1. Fire Barrier Penetration Seals

a. All fire barrier penetration seals protecting safety-related areas shall be operable.

b. A fire barrier penetration seal may be inoperable provided that:

(1) Within one hour of determining that the fire barrier penetration seal is inoperable, the immediate area on each side of the fire barrier is inspected to assure that potential fire hazards are minimized;

(2) Activity in the immediate area on each side of the fire barrier is restricted to that which is necessary:

(a) for continued operation;

(b) to enable restoration of penetration seal operability.

(3) A fire watch inspection shall be performed on each side of the fire barrier twice per 8-hour shift.

Basis

The overall fire protection program at Point Beach Nuclear Plant utilizes the principles of defense in depth. This includes early warning fire detection and redundant fire suppression capability. Collectively these measures ensure equipment operability, provide adequate capability to prevent and minimize damage to safety-related equipment, and allow safe plant shutdown in the event of a fire occurrence. Should a portion or component of the fire protection system be inoperable, these specifications provide assurance that redundant methods of fire protection are readily available and that the capability to mitigate the consequences of a fire is maintained.

Table 15.3.14-1

SAFE SHUTDOWN AREA FIRE PROTECTION

AREA	ELEVATION	AUTOMATIC SUPPRESSION		MANUAL SUPPRESSION FIRE HOSE STATION	FIRE DETECTION NUMBER OF DETECTORS
		WATER SPRINKLER	HALON GAS SUPPRESSION		
1. Auxiliary Building South	8'			X	15
2. Auxiliary Building Center A. Safety Injection Pumps B. Component Cooling Water Pumps	8'	X X			15
3. Auxiliary Building North	8'			X	9
4. Auxiliary Building West	8' & below			X	14
5. Auxiliary Building Center	26'			X	17
6. Auxiliary Feedwater Pump Room	8'		X		11
7. Vital Switchgear Room	8'		X		6
8. 3D Diesel Generator Room	8'	X			4
9. 4D Diesel Generator Room	8'	X			4
10. Cable Spreading Room	26'		X		17
11. Circulating Water Pumphouse A. Service Water Pumps	7'	X			15

15.4.15 FIRE PROTECTION SYSTEM

Applicability

Applies to the periodic inspection and testing requirements of fire protection equipment.

Objective

To verify the operability of fire protection system components.

Specification

A. Fire Suppression Systems

1. Fire Main Loop Water Supply

Test		Frequency
a.	Flowpath valve position verification	Monthly
b.	Fire pump functional test	Monthly
c.	Fire pump capacity test	Yearly
d.	Diesel driven fire pump engine	
	(1) Fuel volume verification	Monthly
	(2) Diesel fuel sample analysis	Quarterly
	(3) Periodic inspection	18 months
e.	Diesel driven fire pump battery and charger	
	(1) Battery voltage verification	Weekly
	(2) Electrolite level	Weekly
	(3) Electrolite specific gravity	Quarterly
	(4) Periodic inspection	18 months

2. Water Sprinkler Systems

a.	Flowpath valve position verification	Monthly
b.	Inspector's test	Yearly
c.	Visual header and nozzle inspection	18 months

3. Fire Hose Stations

	Test	Frequency
a.	Visual inspection	Monthly
b.	Hose hydrostatic test	2 years
c.	Valve cycle test	3 years

4. Halon Gaseous Suppression Systems

a.	Halon quantity verification	6 months
b.	Functional test	Yearly
c.	Visual header and nozzle inspection	Yearly

B. Fire Detection

1. Fire Detection System

a.	Channel functional test	6 months

C. Fire Barriers

1. Fire Barrier Penetration Seals

a.	Visual inspection	18 months

Basis

Normally, the fire protection system is not in use. However, the system components are required to perform as designed in the event of a fire emergency. The National Fire Protection Association and the plant insurance carrier have specified periodic tests and inspections to demonstrate fire protection equipment operability. The listed tests and inspection are based upon the requirements of these organizations. Testing more frequently than that listed is not considered necessary to ensure operability and performance.