

ATTACHMENT 1

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3.21 Fire Protection Features

Applicability

Applies to the operating status of the Fire Protection Features.

Objective

To define those conditions of the Fire Detection, Suppression Systems, and other fire protection features necessary to insure safe reactor operations.

These conditions relate to: Fire Detection Systems, Plant Fire Suppression Water System, Plant Spray and/or Sprinkler Systems, Plant CO₂ Systems, Plant Halon System, Plant Fire Hose Stations, Plant Fire Barrier Penetration Fire Seals and Yard Fire Hydrants.

Specifications:

A. Fire Protection Features

1. Fire Detection - the fire detection instrumentation for each fire detection zone shown in Table 3.21-1 shall be operable.
2. Fire Suppression Water System - shall be operable as defined below:
 - a. Two 2,500 gpm fire pumps
 - b. Automatic initiation logic for each fire pump
 - c. Two fire water tanks, each containing at least 250,000 gallons reserved for fire protection
 - d. The necessary piping and valves to insure that fire water is available, upon demand, to the spray and sprinkler systems, fire hose stations, and yard fire hydrant and hydrant hose houses.

3. Spray and Sprinkler System - that provide protection for the cable tunnel and cable vault shall be operable
4. Low Pressure CO₂ Storage Tank - shall be operable with a minimum level of 75% and a minimum pressure of 275 psig.
5. Low Pressure CO₂ System - shall be operable to the extent that when equipment in the below listed areas is required to be operable, fire suppression can be provided upon demand.
 - a. Cable tray rooms
 - b. Cable tunnels
 - c. Cable vaults
 - d. Safety related charcoal filter banks 3A and 3B
 - e. Emergency diesel generator rooms
6. High Pressure CO₂ System - shall be operable to the extent that when equipment in the below listed areas is required to be operable, fire suppression can be provided upon demand. The minimum level of High Pressure CO₂ system shall be 90% by weight.
 - a. Fuel oil storage tank room for emergency service water pumps
 - b. Fuel oil transfer pump rooms for emergency diesel generators
7. Halon System - shall be operable for station records storage vault. The storage tanks shall be at least 95% of full charge weight and 90% of full charge pressure.
8. Fire Hose Stations - the hose stations listed in Table 3.21-2 shall be operable when equipment in the areas served by the hose stations is required to be operable.

9. Yard Fire Hydrant and Hydrant Hose Houses - as listed in Table 3.21-3 shall be operable when equipment or structures served by the hydrant or hose house is required to be operable.
 10. Fire Barrier Penetration Fire Seals - protecting safety related areas shall be functional.
- B. Specifications 3.21.A.1 through 3.21.A.10 may be modified as described below provided immediate attention is directed to making repairs.
1. With the number of operable fire detection instruments less than required by Specification 3.21.A.1.
 - a. Restore the inoperable instruments to an operable status within 14 days, or
 - b. Establish a fire watch patrol to inspect the zone with the inoperable instruments at least once per hour.
 2. Specification 3.21.A.2 (Fire Water Suppression System)
 - a. With less than required equipment:
 - (1) Restore the inoperable equipment to an operable status, within 7 days, or provide an alternate means to accomplish the inoperable function.
 - b. With no Fire Suppression Water System, establish a backup Fire Suppression Water System within 24 hours.
 3. Specification 3.21.A.3 (Spray and Sprinkler Systems) - with a sprinkler system inoperable establish a continuous fire watch, with backup fire suppression equipment, for the unprotected areas within 1-hour.

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4. Specification 3.21.A.4, 3.21.A.5, 3.21.A.6, 3.21.A.7 (CO₂ and Halon Systems) - with one or more of the required systems inoperable establish a continuous fire watch, with backup fire suppression equipment, for the unprotected area(s) within 1 hour.
5. Specification 3.21.A.8 (Fire Hose Station) - with one or more of the fire hose stations listed in Table 3.21-2 inoperable, route an additional equivalent capacity fire hose to the unprotected area(s) within 1 hour. If the inoperable hose station is not the primary means of fire suppression for the affected area, then the above actions are to be completed within 24 hours.
6. Specification 3.21.A.9 (Fire Hydrants and Hose Houses) - with one or more of the yard hydrants or associated hydrant hose houses listed in Table 3.21-2 inoperable, locate sufficient additional lengths of hose in an operable hose house to provide service to the unprotected area(s) within 1 hour. If the inoperable hydrant or associated hydrant hose house is not the primary means of fire suppression for the affected area, then the above actions are to be completed within 24 hours.
7. Specification 3.21.A.10 (Fire Barriers) - with one or more fire barrier penetrations non-functional, establish a continuous fire watch on at least one side of the non-functional fire barrier within 1 hour.

C. The requirements of Specification 3.0.1 are not applicable.

BasesFire 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.

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, CO₂, Halon, 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 the fire suppression water systems are inoperable, immediate corrective measures must be taken since this system provides the major fire suppression capability of the plant.

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.

TABLE 3.21-1
FIRE DETECTION INSTRUMENTS

<u>INSTRUMENT LOCATION</u>	<u>MINIMUM INSTRUMENTS OPERABLE</u>	
	<u>Heat</u>	<u>Smoke</u>
1. Containment (Reactor Coolant Pumps Only)***	1 per RCP	-
2. Containment Cable Penetration Area		4
3. Containment Recirculation Air System		1
4. Cable Tray Room	3	4
5. Cable Tunnel	2	3
6. Cable Vault Area		
Lower Area	1	2
Upper Area	1	1
7. Charcoal Filter Banks	1 per bank	-
8. Emergency Diesel Generator Room	1 per room	-
9. Fuel Oil Tank Room (river)	1**	1
10. Fuel Oil Transfer Pump Houses	1 per house**	-
11. Control Room		4
12. Emergency Switchgear Room		3
13. Auxiliary Building General Area		12
14. Auxiliary Building Charging Pump Cubicles		1 per cubicle
15. Main Steam Valve House		3
16. Safeguards Area		1
17. Fuel Building		1
18. Fire Pump Building		2
19. Mechanical Equipment Room #3		1
20. Battery Room 1A		1
21. Battery Room 1B		1
22. Battery Room 2A		1
23. Battery Room 2B		1

**Rate of rise actuation devices for high pressure CO₂ system

***One heat detector installed per pump. RCP pump bearing and motor temperature will be monitored once per hour if the RCP heat detector is inoperable.

TABLE 3.21-2FIRE HOSE STATIONS

<u>STATION NUMBER</u>	<u>LOCATION</u>	<u>SIZE</u>
a. 37-51, 41A	Auxiliary Building	1 1/2"
b. 52, 53	Fuel Building	1 1/2"
*c. 12, 16, 20, 21A, 22 23, 33, 34, 54, 55, 56, 57	Turbine Building	1 1/2"
**d. 75-87	Unit 1 Containment	1 1/2"
**e. 60-72	Unit 2 Containment	1 1/2"

* These hose stations to be used as backup to Control Room, Emergency Switchgear Room and Emergency Diesel Generator Rooms

** These hose stations are designed to be dry and shall be operable when the main shutoff valves in the auxiliary building are opened.

TABLE 3.21-3

YARD FIRE HYDRANT AND HYDRANT HOSE HOUSES

<u>HOSE HOUSE NO.</u>	<u>HYDRANT VALVE NO.</u>	<u>LOCATION</u>
1	1-FP-154 1-FP-155 1-FP-156	North of Condensate Polishing Building
2	1-FP-66 1-FP-67 1-FP-68	Between Boron Recovery Tanks and Fuel Oil Storage
5	1-FP-82 1-FP-83 1-FP-84	Alleyway South of Unit 1 Containment
9	1-FP-50 1-FP-51 1-FP-52	South of Unit 2 Main Transformers Side
11	1-FP-62 1-FP-63 1-FP-64	East of Unit 2 Containment, Next To Underground Condensate Tank
12	1-FP-59 1-FP-60 1-FP-61	West of Unit 2 Containment in Alleyway Outside Health Physics