

## INSTRUMENTATION

### FIRE DETECTION

#### LIMITING CONDITION FOR OPERATION

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3.3.3.8 As a minimum, the fire detection instrumentation for each fire detection zone shown in Table 3.3-8 shall be OPERABLE.

APPLICABILITY: At all times when equipment in that fire detection zone is required to be OPERABLE.

#### ACTION:

With the number of OPERABLE fire detection instruments less than required by Table 3.3-8;

1. Within 1 hour, establish a fire watch patrol to inspect the zone with the inoperable instrument(s) at least once per hour, and
2. Restore the inoperable instrument(s) to OPERABLE status within 14 days or prepare and submit a special report to the Commission pursuant to Specification 6.9.2 within the next 10 days outlining the cause of the malfunction and the plans for restoring the instrument(s) to OPERABLE status.
3. The provisions of Specifications 3.0.3 and 3.0.4 are not applicable.

#### SURVEILLANCE REQUIREMENTS

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4.3.3.8.1 Each of the above fire detection instruments shall be demonstrated OPERABLE:

- a. At least once per 6 months by a CHANNEL FUNCTIONAL TEST, and
- b. At least once per 12 months by performance of a Channel Calibration.

4.3.3.8.2 The circuitry associated with the detector alarms shall be demonstrated OPERABLE at least once per 62 days for all NFPA Code 72D Class A supervised circuits.

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TABLE 3.3-8

## FIRE DETECTION INSTRUMENTS

INSTRUMENT LOCATION (Illustrative)*	MINIMUM INSTRUMENTS OPERABLE	
	HEAT	SMOKE
1. Containment		
Zone 1 Elevation _____		
Zone 2 Elevation _____		
2. Control Room		
3. Cable Spreading		
Zone 1 Elevation _____		
Zone 2 Elevation _____		
4. Computer Room		
5. Switchgear Room		
6. Remote Shutdown Panels		
7. Station Battery Rooms		
Zone 1 Elevation _____		
Zone 2 Elevation _____		
8. Turbine		
Zone 1 Elevation _____		
Zone 2 Elevation _____		
9. Diesel Generator		
Zone 1 Elevation _____		
Zone 2 Elevation _____		
10. Diesel Fuel Storage		
11. Safety Related Pumps		
Zone 1 Elevation _____		
Zone 2 Elevation _____		
12. Fuel Storage		
Zone 1 Elevation _____		
Zone 2 Elevation _____		

\*List all detectors protecting safety related equipment or located in areas which contain potential fire hazards to safety related equipment.

PLANT SYSTEMS

FIRE SUPPRESSION

WATER SYSTEM

LIMITING CONDITION FOR OPERATION

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- 3.7.11.1 The FIRE SUPPRESSION WATER SYSTEM shall be OPERABLE with;
- a. (2) high pressure pumps each with a capacity of \_\_\_\_\_ gpm. with their discharge aligned to the fire suppression header.
  - b. Separate water supplies each containing a minimum of \_\_\_\_\_ gallons.
  - c. Automatic initiation logic for each fire pump.

APPLICABILITY: At all times.

ACTION:

- a. With less than the above required equipment, restore the inoperable equipment to OPERABLE status within 7 days or prepare and submit a Special Report to the Commission pursuant to Specification 6.9.2 within the next 10 days outlining the plans and procedures to be used to provide for the loss of redundancy in this system.
- b. With no FIRE SUPPRESSION WATER SYSTEM OPERABLE, within 24 hours;
  1. Establish a backup FIRE SUPPRESSION WATER SYSTEM.
  2. Notify the Commission pursuant to Specification 6.9.2 outlining the actions taken and the plans and schedule for restoring the system to OPERABLE status.
- c. Restore the FIRE SUPPRESSION WATER SYSTEM to OPERABLE status within 14 days or prepare and submit a Special Report to the Commission pursuant to Specification 6.9.2 within the next 10 days outlining the cause of the malfunction and the plans for restoring the system to OPERABLE status.

PLANT SYSTEMS

WATER SYSTEM

SURVEILLANCE REQUIREMENTS (Continued)

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- 4.7.11.1 The FIRE SUPPRESSION WATER SYSTEM shall be demonstrated OPERABLE:
- a. At least once per 7 days by verifying the water supply volume.
  - b. At least once per 31 days on a STAGGERED TEST BASIS by starting each pump and operating it for at least 15 minutes on recirculation flow.
  - c. At least once per 92 days by cycling each testable valve through one complete cycle.
  - d. (At least once per 6 months by performance of a system flush if required by local water conditions).
  - e. At least once per 18 months:
    1. By performing a system functional test which includes simulated automatic actuation of the system throughout its operating sequence and verifying that each automatic valve in the flow path actuates to its correct position.
    2. By verifying that each pump develops at least (2500) gpm at a system head of (250) feet.
  - f. At least once per 3 years by performing flow tests of the system in accordance with Chapter 5, Section 11 of Fire Protection Handbook, 14th Edition published by National Fire Protection Association.

## PLANT SYSTEMS

### SPRAY AND/OR SPRINKLER SYSTEMS

#### LIMITING CONDITION FOR OPERATION

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3.7.11.2 The following spray and/or sprinkler systems located in the following areas shall be OPERABLE:

- a. (Plant dependent - to be listed by name and location.)
- b.
- c.

APPLICABILITY: At all times when equipment in the area is required to be OPERABLE.

#### ACTION:

- a. With a spray and/or sprinkler system inoperable establish a continuous fire watch with backup fire suppression equipment for the unprotected area(s), within 1 hour.
- b. Restore the system to OPERABLE status within 14 days or prepare and submit a Special Report to the Commission pursuant to Specification 6.9.2 within the next 10 days outlining the cause of inoperability and the plans for restoring the system to OPERABLE status.

#### SURVEILLANCE REQUIREMENTS

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4.7.11.2 The spray and/or sprinkler systems shall be demonstrated to be OPERABLE:

- a. At least once per 92 days by cycling each testable valve through one complete cycle.
- b. At least once per 18 months:
  1. By performing a system functional test which includes simulated automatic actuation of the system and verifying that the automatic valves in the flow path actuate to their correct positions.
  2. By inspection of spray headers to verify their integrity.

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PLANT SYSTEMS

SPRAY AND/OR SPRINKLER SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

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3. By inspection of each nozzle to verify no blockage.
- c. At least once per 3 years by performing an air flow test through each spray/sprinkler header and verifying each spray/sprinkler nozzle is unobstructed.



PLANT SYSTEMS

CO<sub>2</sub> SYSTEM

LIMITING CONDITION FOR OPERATION

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3.7.11.3 The following CO<sub>2</sub> systems shall be OPERABLE with a minimum level of \_\_\_\_\_ and a minimum pressure of \_\_\_\_\_ in the associated storage tank(s).

- a. (Plant dependent - to be listed by name and location.)
- b.
- c.

APPLICABILITY: At all times when the equipment in the area is required to be OPERABLE.

ACTION:

- a. With a CO<sub>2</sub> system inoperable, establish a continuous fire watch with backup fire suppression equipment for the unprotected area(s), within 1 hour.
- b. Restore the system to OPERABLE status within 14 days or prepare and submit a Special Report to the Commission pursuant to Specification 6.9.2 within the next 10 days outlining the cause of inoperability and the plans for restoring the system to OPERABLE status.

SURVEILLANCE REQUIREMENTS

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4.7.11.3 The CO<sub>2</sub> system shall be demonstrated OPERABLE:

- a. At least once per 7 days by verifying each CO<sub>2</sub> storage tank level and pressure.
- b. At least once per 18 months by verifying the system valves and associated ventilation dampers actuate automatically and manually to a simulated actuation signal. A brief flow test shall be made to verify flow from each nozzle. ("Puff Test").

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## PLANT SYSTEMS

### HALON SYSTEM

#### LIMITING CONDITION FOR OPERATION

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3.7.11.4 The following Halon systems shall be OPERABLE with the storage tanks having at least 95% of full charge weight and 90% of full charge pressure.

- a. (Plant dependent - to be listed by name and location.)
- b.
- c.

APPLICABILITY: At all times when the equipment in the area is required to be OPERABLE.

#### ACTION:

- a. With a Halon system inoperable establish a continuous fire watch with backup fire suppression equipment for the unprotected area(s), within 1 hour.
- b. Restore the system to OPERABLE status within 14 days or prepare and submit a Special Report to the Commission pursuant to Specification 6.9.2 within the next 10 days outlining the cause of inoperability and the plans for restoring the system to OPERABLE status.

#### SURVEILLANCE REQUIREMENTS

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4.7.11.4 The Halon system shall be demonstrated OPERABLE:

- a. At least once per 3 months by verifying each Halon storage tank weight and pressure.
- b. At least once per 18 months by:
  1. Verifying the system, including associated ventilation dampers, actuates automatically to a simulated test signal.
  2. Performance of a flow test through headers and nozzles to assure no blockage.

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PLANT SYSTEMS

HALCN SYSTEM

SURVEILLANCE REQUIREMENTS (Continued)

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3. Verifying the OPERABILITY of the manual initiating system.

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PLANT SYSTEMS

FIRE HOSE STATIONS

LIMITING CONDITIONS FOR OPERATION

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3.7.11.5 The following fire hose stations shall be OPERABLE:

1. (Plant dependent - to be listed by location and size.)
- 2.
- 3.

APPLICABILITY: At all times when the equipment in the area is required to be OPERABLE.

ACTION:

With a hose station inoperable, route an additional equivalent capacity hose to the unprotected area from an OPERABLE hose station within 1 hour.

SURVEILLANCE REQUIREMENTS

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4.7.11.5 Each fire hose station shall be verified OPERABLE:

- a. At least once per 31 days by visual inspection of the station to assure all equipment is available and the pressure in the standpipe is within limits.
- b. At least once per 18 months by removing the hose for inspection and re-racking and replacing all gaskets in the couplings that are degraded.
- c. At least once per 3 years, partially open each hose station valve to verify valve operability and no blockage.

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PLANT SYSTEMS

FIRE BARRIER PENETRATION FIRE SEALS

LIMITING CONDITIONS FOR OPERATION

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3.7.12 All penetration fire barriers protecting safety related areas shall be functional.

APPLICABILITY: At all times.

ACTION:

- a. With a penetration fire barrier non-functional, a continuous fire watch shall be established on at least one side of the affected penetration within 1 hour.
- b. The provisions of 3.0.3 and 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

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4.7.12.1 Penetration fire barriers shall be verified to be functional by a visual inspection;

- a. At least once per 18 months, and
- b. Prior to declaring a fire penetration seal functional following repairs or maintenance.

4.7.12.2 Penetration fire barriers that perform a pressure sealing function shall be verified to be functional by performance of a local leakage test prior to declaring a penetration fire barrier functional following repairs or maintenance.

The following items should be added to the appropriate indicated sections of the Technical Specifications.

DEFINITIONS:

"FIRE SUPPRESSION WATER SYSTEM:

1.27 A FIRE SUPPRESSION WATER SYSTEM shall consist of: a water source(s); gravity tank(s) or pump(s); and distribution piping with associated sectionalizing control or isolation valves. Such valves shall include yard hydrant curb valves, and the first valve ahead of the water flow alarm device on each sprinkler, hose standpipe or spray system riser."

ADMINISTRATION CONTROLS

6.2.2.f. A Fire Brigade of at least \_\_\_ members shall be maintained onsite at all times. This excludes \_\_\_ members of the minimum shift crew necessary for safe shutdown of the plant and any personnel required for other essential functions during a fire emergency.

Figures 6.2-1 and 6.2-2

Add provisions to include the organizational arrangement for performance and monitoring of the Fire Protection Program.

6.4.2 A training program for the Fire Brigade shall be maintained under the direction of the (Fire Protection Program Manager) and shall meet or exceed the requirements of Section 27 of the NFPA Code-1976.

6.5.2.8.i The Facility Fire Protection Program and implementing procedures at least once per 24 months.

6.5.2.8.j An independent fire protection and loss prevention inspection and audit shall be performed annually utilizing either qualified offsite licensee personnel or an outside fire protection firm.

6.5.2.8.k An inspection and audit of the fire protection and loss prevention program shall be performed by an outside qualified fire consultant at intervals no greater than 3 years.

6.8.1.f Fire Protection Program implementation.

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3/4.3.3.8 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.

3/4.7.11 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 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 that 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 a 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.

BASES (Continued)

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3/4.7.12 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.