

INSTRUMENTATION

FIRE DETECTION INSTRUMENTATION

LIMITING CONDITION FOR OPERATION

3.3.3.8 As a minimum, the fire detection instrumentation for each fire detection zone shown in Table 3.3-11 shall be OPERABLE.

APPLICABILITY: Whenever equipment protected by the fire detection instrument is required to be OPERABLE.

ACTION:

With the number of OPERABLE fire detection instrument(s) less than the minimum number OPERABLE requirement of Table 3.3-11:

- a. Within 1 hour establish a fire watch patrol to inspect the zone(s) with the inoperable instrument(s) at least once per hour, unless the instrument(s) is located inside the containment, then inspect the containment at least once per 8 hours or (monitor the containment air temperature at least once per hour at the locations listed in Specification 4.6.1.6).
- b. Restore the inoperable instrument(s) to OPERABLE status within 14 days, or in lieu of any other report required by Specification 6.9.1, prepare and submit a Special Report to the Commission pursuant to Specification 6.9.2 within the next 30 days outlining the action taken, the cause of the inoperability and the plans and schedule for restoring the instrument(s) to OPERABLE status.
- c. The provisions of Specifications 3.0.3 and 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

4.3.3.8.1 Each of the above required fire detection instruments which are accessible during plant operation shall be demonstrated OPERABLE at least once per 6 months by performance of a CHANNEL FUNCTIONAL TEST. Fire detectors which are not accessible during plant operation shall be demonstrated OPERABLE by the performance of a CHANNEL FUNCTIONAL TEST during each COLD SHUTDOWN exceeding 24 hours unless performed in the previous 6 months.

4.3.3.8.2 The NFPA Standard 72D supervised circuits supervision associated with the detector alarms of each of the above required fire detection instruments shall be demonstrated OPERABLE at least once per 6 months.

4.3.3.8.3 The non-supervised circuits, associated with detector alarms, between the instrument and the control room shall be demonstrated OPERABLE at least once per 31 days.

TABLE 3.3-11

FIRE DETECTION INSTRUMENTS

<u>INSTRUMENT LOCATION (Illustrative**)</u>	<u>MINIMUM INSTRUMENTS OPERABLE*</u>		
	<u>HEAT</u>	<u>FLAME</u>	<u>SMOKE</u>
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 _____			

*The fire detection instruments located within the Containment are not required to be OPERABLE during the performance of Type A Containment Leakage Rate Tests.

**List all detectors in areas required to insure the OPERABILITY of Safety related equipment and indicate instruments which automatically actuate fire suppression systems.

PLANT SYSTEMS

3/4.7.11 FIRE SUPPRESSION SYSTEMS

FIRE SUPPRESSION WATER SYSTEM

LIMITING CONDITION FOR OPERATION

3.7.11.1 The fire suppression water system shall be OPERABLE with:

- a. (Two) fire suppression pumps, each with a capacity of (2500) gpm, with their discharge aligned to the fire suppression header,
- b. Separate water supplies, each with a minimum contained volume of _____ gallons, and
- c. An OPERABLE flow path capable of taking suction from the _____ tank and the _____ tank and transferring the water through distribution piping with OPERABLE sectionalizing control or isolation valves to the yard hydrant curb valves, the last valve ahead of the water flow alarm device on each sprinkler or hose standpipe, and the last valve ahead of the deluge valve on each deluge or spray system required to be OPERABLE per Specifications 3.7.11.2, 3.7.11.5 and 3.7.11.6.

APPLICABILITY: At all times.

ACTION:

- a. With one pump and/or one water supply inoperable, restore the inoperable equipment to OPERABLE status within 7 days or, in lieu of any other report required by Specification 6.9.1, prepare and submit a Special Report to the Commission pursuant to Specification 6.9.2 within the next 30 days outlining the plans and procedures to be used to restore the inoperable equipment to OPERABLE status or to provide an alternate backup pump or supply. The provisions of Specifications 3.0.3 and 3.0.4 are not applicable.
- b. With the fire suppression water system otherwise inoperable:
 1. Establish a backup fire suppression water system within 24 hours, and
 2. In lieu of any other report required by Specification 6.9.1, submit a Special Report in accordance with Specification 6.9.2:
 - a) By telephone within 24 hours,
 - b) Confirmed by telegraph, mailgram or facsimile transmission no later than the first working day following the event, and

PLANT SYSTEMS

ACTION: (Continued)

- c) In writing within 14 days following the event, outlining the action taken, the cause of the inoperability and the plans and schedule for restoring the system to OPERABLE status.

SURVEILLANCE REQUIREMENTS

4.7.11.1.1 The fire suppression water system shall be demonstrated OPERABLE:

- a. At least once per 7 days by verifying the contained water supply volume.
- b. At least once per 31 days on a STAGGERED TEST BASIS by starting each electric motor driven pump and operating it for at least 15 minutes on recirculation flow.
- c. At least once per 31 days by verifying that each valve (manual, power operated or automatic) in the flow path is in its correct position.
- d. (At least once per 6 months by performance of a system flush.)
- e. At least once per 12 months by cycling each testable valve in the flow path through at least one complete cycle of full travel.
- f. At least once per 18 months by performing a system functional test which includes simulated automatic actuation of the system throughout its operating sequence, and:
 1. Verifying that each automatic valve in the flow path actuates to its correct position,
 2. Verifying that each pump develops at least (2500) gpm at a system head of (250) feet,
 3. Cycling each valve in the flow path that is not testable during plant operation through at least one complete cycle of full travel, and
 4. Verifying that each fire suppression pump starts (sequentially) to maintain the fire suppression water system pressure greater than or equal to ___ psig.
- g. At least once per 3 years by performing a flow test of the system in accordance with Chapter 5, Section 11 of the Fire Protection Handbook, 14th Edition, published by the National Fire Protection Association.

PLANT SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

4.7.11.1.2 The fire pump diesel engine shall be demonstrated OPERABLE:

- a. At least once per 31 days by verifying:
 1. The fuel storage tank contains at least ___ gallons of fuel, and
 2. The diesel starts from ambient conditions and operates for at least 30 minutes on recirculation flow.
- b. At least once per 92 days by verifying that a sample of diesel fuel from the fuel storage tank, obtained in accordance with ASTM-D270-65, is within the acceptable limits specified in Table 1 of ASTM D975-74 when checked for viscosity, water and sediment.
- c. At least once per 18 months, during shutdown, by subjecting the diesel to an inspection in accordance with procedures prepared in conjunction with its manufacturer's recommendations for the class of service.

4.7.11.1.3 The fire pump diesel starting 24-volt battery bank and charger shall be demonstrated OPERABLE:

- a. At least once per 7 days by verifying that:
 1. The electrolyte level of each battery is above the plates, and
 2. The overall battery voltage is greater than or equal to 24 volts.
- b. At least once per 92 days by verifying that the specific gravity is appropriate for continued service of the battery.
- c. At least once per 18 months by verifying that:
 1. The batteries, cell plates and battery racks show no visual indication of physical damage or abnormal deterioration, and
 2. The battery-to-battery and terminal connections are clean, tight, free of corrosion and coated with anti-corrosion material.

PLANT SYSTEMS

SPRAY AND/OR SPRINKLER SYSTEMS

LIMITING CONDITION FOR OPERATION

3.7.11.2 The following spray and/or sprinkler systems shall be OPERABLE:

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

APPLICABILITY: Whenever equipment protected by the spray/sprinkler system is required to be OPERABLE.

ACTION:

- a. With one or more of the above required spray and/or sprinkler systems inoperable, within one hour establish a continuous fire watch with backup fire suppression equipment for those areas in which redundant systems or components could be damaged; for other areas, establish a hourly fire watch patrol. Restore the system to OPERABLE status within 14 days or, in lieu of any other report required by Specification 6.9.1, prepare and submit a Special Report to the Commission pursuant to Specification 6.9.2 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.
- b. The provisions of Specification 3.0.3 and 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

4.7.11.2 Each of the above required spray and/or sprinkler systems shall be demonstrated OPERABLE:

- a. At least once per 31 days by verifying that each valve (manual, power operated or automatic) in the flow path is in its correct position.
- b. At least once per 12 months by cycling each testable valve in the flow path through at least one complete cycle of full travel.
- c. At least once per 18 months:

PLANT SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

1. By performing a system functional test which includes simulated automatic actuation of the system, and:
 - a) Verifying that the automatic valves in the flow path actuate to their correct positions on a _____ test signal, and
 - b) Cycling each valve in the flow path that is not testable during plant operation through at least one complete cycle of full travel.
2. By a visual inspection of the dry pipe spray and sprinkler headers to verify their integrity, and
3. By a visual inspection of each nozzle's spray area to verify the spray pattern is not obstructed.
- d. At least once per 3 years by performing an air flow test through each open head spray/sprinkler header and verifying each open head spray/sprinkler nozzle is unobstructed.

PLANT SYSTEMS

CO₂ SYSTEMS

LIMITING CONDITION FOR OPERATION

3.7.11.3 The following high pressure and low pressure CO₂ systems shall be OPERABLE.

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

APPLICABILITY: Whenever equipment protected by the CO₂ systems is required to be OPERABLE.

ACTION:

- a. With one or more of the above required CO₂ systems inoperable, within one hour establish a continuous fire watch with backup fire suppression equipment for those areas in which redundant systems or components could be damaged; for other areas, establish an hourly fire watch patrol. Restore the system to OPERABLE status within 14 days or, in lieu of any other report required by Specification 6.9.1, prepare and submit a Special Report to the Commission pursuant to Specification 6.9.2 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.
- b. The provisions of Specifications 3.0.3 and 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

4.7.11.3.1 Each of the above required CO₂ systems shall be demonstrated OPERABLE at least once per 31 days by verifying that each valve (manual, power operated or automatic) in the flow path is in its correct position.

4.7.11.3.2 Each of the above required low pressure CO₂ systems shall be demonstrated OPERABLE:

- a. At least once per 7 days by verifying the CO₂ storage tank level to be greater than ____ and pressure to be greater than ____ psig, and
- b. At least once per 18 months by verifying:
 1. The system valves and associated ventilation dampers and fire door release mechanisms actuate manually and automatically, upon receipt of a simulated actuation signal, and
 2. Flow from each nozzle during a "Puff Test."

PLANT SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

4.7.11.3.3 Each of the above required high pressure CO₂ systems shall be demonstrated OPERABLE:

- a. At least once per 6 months by verifying the CO₂ storage tank weight to be at least 90% of full charge weight.
- b. At least once per 18 months by:
 1. Verifying the system, including associated ventilation dampers and fire door release mechanisms, actuates manually and automatically, upon receipt of a simulated actuation signal, and
 2. Performance of a flow test through headers and nozzles to assure no blockage.

PLANT SYSTEMS

HALON SYSTEMS

LIMITING CONDITION FOR OPERATION

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

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

APPLICABILITY: Whenever equipment protected by the Halon system is required to be OPERABLE.

ACTION:

- a. With one or more of the above required Halon systems inoperable, within one hour establish a continuous fire watch with backup fire suppression equipment for those areas in which redundant systems or components could be damaged; for other areas, establish an hourly fire watch patrol. Restore the system to OPERABLE status within 14 days or, in lieu of any other report required by Specification 6.9.1, prepare and submit a Special Report to the Commission pursuant to Specification 6.9.2 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.
- b. The provisions of Specifications 3.0.3 and 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

4.7.11.4 Each of the above required Halon systems shall be demonstrated OPERABLE:

- a. At least once per 31 days by verifying that each valve (manual, power operated or automatic) in the flow path is in its correct position.
- b. At least once per 6 months by verifying Halon storage tank weight (level) and pressure.
- c. At least once per 18 months by:
 1. Verifying the system, including associated ventilation dampers and fire door release mechanisms, actuates manually and automatically, upon receipt of a simulated actuation signal, and
 2. Performance of a flow test through headers and nozzles to assure no blockage.

PLANT SYSTEMS

FIRE HOSE STATIONS

LIMITING CONDITION FOR OPERATION

3.7.11.5 The fire hose stations shown in Table 3.7-10 shall be OPERABLE.

APPLICABILITY: Whenever equipment in the areas protected by the fire hose stations is required to be OPERABLE.

ACTION:

- a. With one or more of the fire hose stations shown in Table 3.7-10 inoperable, route an additional equivalent capacity fire hose to the unprotected area(s) from an OPERABLE hose station within 1 hour if the inoperable fire hose is the primary means of fire suppression; otherwise, route the additional hose within 24 hours. Restore the fire hose station to OPERABLE status within 14 days or, in lieu of any other report required by Specification 6.9.1, prepare and submit a Special Report to the Commission pursuant to Specification 6.9.2 within the next 30 days outlining the action taken, the cause of the inoperability, and plans and schedule for restoring the station to OPERABLE status.
- b. The provisions of Specifications 3.0.3 and 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

4.7.11.5 Each of the fire hose stations shown in Table 3.7-10 shall be demonstrated OPERABLE:

- a. At least once per 31 days by a visual inspection of the fire hose station to assure all required equipment is at the station.
- b. At least once per 18 months by:
 1. Removing the hose for inspection and re-racking, and
 2. Inspecting all gaskets and replacing any degraded gaskets in the couplings.
- c. At least once per 3 years by:
 1. Partially opening each hose station valve to verify valve OPERABILITY and no flow blockage.
 2. Conducting a hose hydrostatic test at a pressure at least 50 psig greater than the maximum pressure available at any hose station.

TABLE 3.7-10
FIRE HOSE STATIONS

LOCATION*

ELEVATION

HOSE RACK IDENTIFICATION

*List all Fire Hose Stations required to ensure the OPERABILITY of safety related equipment.

H-STS

3/4 7-35

DEC 7 1979

PLANT SYSTEMS

YARD FIRE HYDRANTS AND HYDRANT HOSE HOUSES

LIMITING CONDITION FOR OPERATION

3.7.11.6 The yard fire hydrants and associated hydrant hose houses shown in Table 3.7-11 shall be OPERABLE.

APPLICABILITY: Whenever equipment in the areas protected by the yard fire hydrants is required to be OPERABLE.

ACTION:

- a. With one or more of the yard fire hydrants or associated hydrant hose houses shown in Table 3.7-11 inoperable, within 1 hour have sufficient additional lengths of 2 1/2 inch diameter hose located in an adjacent OPERABLE hydrant hose house to provide service to the unprotected area(s) if the inoperable fire hydrant or associated hydrant hose house is the primary means of fire suppression; otherwise, provide the additional hose within 24 hours. Restore the hydrant or hose house to OPERABLE status within 14 days or, in lieu of any other report required by Specification 6.9.1, prepare and submit a Special Report to the Commission pursuant to Specification 6.9.2 within the next 30 days outlining the action taken, the cause of the inoperability, and the plans and schedule for restoring the hydrant or hose house to OPERABLE status.
- b. The provisions of Specification 3.0.3 and 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

4.7.11.6 Each of the yard fire hydrants and associated hydrant hose houses shown in Table 3.7-11 shall be demonstrated OPERABLE:

- a. At least once per 31 days by visual inspection of the hydrant hose house to assure all required equipment is at the hose house.
- b. At least once per 6 months (once during March, April or May and once during September, October or November) by visually inspecting each yard fire hydrant and verifying that the hydrant barrel is dry and that the hydrant is not damaged.
- c. At least once per 12 months by:
 1. Conducting a hose hydrostatic test at a pressure at least 50 psig greater than the maximum pressure available at any yard fire hydrant.
 2. Inspecting all the gaskets and replacing any degraded gaskets in the couplings.
 3. Performing a flow check of each hydrant to verify its OPERABILITY.

TABLE 3.7-11

YARD FIRE HYDRANTS AND ASSOCIATED HYDRANT HOSE HOUSES

LOCATION*

HYDRANT NUMBER

*List all Yard Fire Hydrants and Hydrant Hose Houses required to ensure the OPERABILITY of safety related equipment.

PLANT SYSTEMS

3/4.7.12 FIRE BARRIER PENETRATIONS

LIMITING CONDITION FOR OPERATION

3.7.12 All fire barrier penetrations (including cable penetration barriers, firedoors and fire dampers), in fire zone boundaries, protecting safety related areas shall be functional.

APPLICABILITY: At all times.

ACTION:

- a. With one or more of the above required fire barrier penetrations non-functional, within one hour either, establish a continuous fire watch on at least one side of the affected penetration, or verify the OPERABILITY of fire detectors on at least one side of the non-functional fire barrier and establish a hourly fire watch patrol. Restore the non-functional fire barrier penetration(s) to functional status within 7 days or, in lieu of any other report required by Specification 6.9.1, prepare and submit a Special Report to the Commission pursuant to Specification 6.9.2 within the next 30 days outlining the action taken, the cause of the non-functional penetration and plans and schedule for restoring the fire barrier penetration(s) to functional status.
- b. The provisions of Specifications 3.0.3 and 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

4.7.12 Each of the above required fire barrier penetrations shall be verified to be functional:

- a. At least once per 18 months by a visual inspection.
- b. Prior to returning a fire barrier penetration to functional status following repairs or maintenance by performance of a visual inspection of the affected fire barrier penetration(s).