

ATTACHMENT 2 TO AEP:NRC:0692BS

PROPOSED REVISED TECHNICAL SPECIFICATION PAGES

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## INSTRUMENTATION

### FIRE DETECTION INSTRUMENTATION

#### LIMITING CONDITION FOR OPERATION

3.3.3.7 As a minimum, the fire detection instrumentation for each fire detection zone shown in Table 3.3-10 shall be OPERABLE.

**APPLICABILITY:** Whenever equipment protected by the fire detection system(s) is required to be OPERABLE.

#### ACTION:

When the number of OPERABLE fire detectors is less than the minimum number of required OPERABLE detectors given below:

- a. When any, but not more than one-half the total or no two adjacent\* in any fire detection zone, Function A detector(s) located outside of containment shown in Table 3.3-10 are inoperable:  
1) restore the inoperable detector(s) to OPERABLE status within 14 days, 2) after the 14 day time limit expires, within the next 1 hour establish an hourly fire watch patrol to inspect the zone(s) with the inoperable detector(s).
- b. For inoperable detectors located outside containment, within 1 hour establish an hourly fire watch patrol to inspect the zone(s) when:  
1) more than one-half of the Function A fire detectors in any fire detection zone shown in Table 3.3.10 are inoperable, or 2) any Function B fire detectors shown in Table 3.3.10 are inoperable, or 3) any two or more adjacent fire detectors\* shown in Table 3.3.10 are inoperable.
- c. For detector(s) located inside containment: 1) establish a fire watch patrol to inspect the containment zone at least once per 8 hours, or 2) monitor the containment air temperature at least once per hour at the locations listed in Specification 4.6.1.5.
- d. The provisions of Specifications 3.0.3 and 3.0.4 are not applicable.

\*Adjacent fire detectors is defined as any detectors physically adjacent in the fire detection zone.

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## INSTRUMENTATION

### SURVEILLANCE REQUIREMENTS

4.3.3.7 The fire detection system for each fire detection zone shown in Table 3.3-10 shall be demonstrated OPERABLE as follows.

4.3.3.7.1 Each of the detectors in the above required fire detection systems 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..

4.3.3.7.2 The supervised detector alarm circuits for the above required fire detection system shall be demonstrated OPERABLE at least once per 6 months. The supervised detector alarm circuits include the detector circuits, fire and trouble alarm circuits from the remote fire protection control panel to the Control Room emergency fire control panel, and audible fire and trouble alarm circuits.



TABLE 3.3-10  
Unit 1 and Common Area Fire Detection Systems

<u>Detector System Location</u>	<u>Total Number of Detectors</u>		
	<u>Heat</u> (x/y)*	<u>Flame</u> (x/y)*	<u>Smoke</u> (x/y)*
Auxiliary Building			
a) Elevation 587			23/0C
b) Elevation 587			55/0C
c) Elevation 609			41/0C
d) Elevation 633			41/0C
e) Elevation 650			34/0C
f) New Fuel STGE Area			4/0C
g) RP Access Control & Chem Labs			25/0
U1 East Main Steam Valve Enclosure			28/0**
U1 Main Steam Line Area			
E1. 612 (Around Containment)			13/0**
U1 NESW Valve Area			
E1. 612			2/0
U1 4KV Switchgear (AB)		0/3	0/2
U1 4KV Switchgear (CD)		0/3	0/2
U1 Engr. Safety System			
Switchgear & XFMR. Rm.		0/5	0/9
U1 CRD, XFMR. & Switchgear Rm.			
Inverter & Bttry. Rms.		0/5	0/8
U1 Pressurizer Heater XFMR. Rm.			12/0
U1 Diesel Fuel Oil Transfer Pump Rm.	0/1		
U1 Diesel Generator Rm. 1AB	0/2		
U1 Diesel Generator Rm. 1CD	0/2		
U1 Diesel Generator Ramp Corr.			4/0
U1&2 AFWP Vestibule			2/0C
U1 Control Room			45/0
U1 Switchgear Cable Vault		0/10***	0/13
U1 Control Room Cable Vault			0/65****
U1 Aux. Cable Vault			0/6
U1&2 ESW Basement Area			4/0C
U1 ESW Pump & MCC Rms.			9/0

C System protects area common to both Units 1 and 2

\*(x/y) x is number of Function A (early warning fire detection and notification only) instruments.

y is number of Function B (actuation of fire suppression systems and early warning and notification) instruments.

\*\* circuit contains both smoke and flame detectors

\*\*\* two circuits of five detectors each

\*\*\*\* two circuits of 32 and 33 detectors each





TABLE 3.3-10 (Continued)

Unit 1 and Common Area Fire Detection Systems

<u>Detection System Location</u>	<u>Total Number of Detectors</u>		
	<u>Heat</u> (x/y)*	<u>Flame</u> (x/y)*	<u>Smoke</u> (x/y)*
U1 Cable Tunnels			
a) Quad 1 Cable Tunnel		0/3	0/4
b) Quad 2 Cable Tunnel		0/4	0/7
c) Quad 3N		0/3	0/4
d) Quad 3S		0/3	0/3
e) Quad 3M		0/3	0/4
f) Quad 4		0/5	0/6
U1 Charcoal Filter Ventilation Units			
a) 1-HV-AES-1	0/1*****		
b) 1-HV-AES-2	0/1*****		
c) 1-HV-ACRF	0/1*****		
d) 1-HV-CIPX	0/1*****		
e) 1-HV-CPR	0/1*****		
f) 12-HV-AFX	0/1*****C		
U1 Containment*****			
a) RCP 1	1/0		
b) RCP 2	1/0		
c) RCP 3	1/0		
d) RCP 4	1/0		
e) Quad 1	21/0*****		
f) Quad 2	6/0*****		
g) Quad 3	23/0*****		
h) Quad 4	12/0*****		

C System protects area common to both Units 1 and 2

\*(x/y) x is number of Function A (early warning fire detection and notification only) instruments.

y is number of Function B (actuation of fire suppression systems and early warning and notification) instruments.

\*\*\*\*\* Originally installed to automatically deluge charcoal filters. However, manual actions are now necessary.

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

\*\*\*\*\* Thermistors located in cable trays are assigned to a quadrant based on the location of the thermistor circuit startpoint.



PLANT SYSTEMS

3/4.7.9 FIRE SUPPRESSION SYSTEMS  
FIRE SUPPRESSION WATER SYSTEM

LIMITING CONDITION FOR OPERATION

3.7.9.1 The fire suppression water system shall be OPERABLE with:

- a. Two\* high demand 2000 GPM pumps, one of which shall be a diesel driven pump, with their discharge aligned to the fire suppression header.
- b. An OPERABLE open flow path capable of taking suction from Lake Michigan and transferring the water through distribution piping (with OPERABLE sectionalizing valves) up to the yard hydrant curb control valves and up to the hose station valve(s) or water suppression system controlling valve(s) required to be OPERABLE per Specifications 3.7.9.5 and 3.7.9.2, respectively.

APPLICABILITY: At all times.

ACTION:

- a. With only one pump OPERABLE, restore an inoperable pump (diesel, if required), and equipment to OPERABLE status within 7 days or establish a backup fire suppression water system within the next 7 days. The provisions of Specifications 3.0.3 and 3.0.4 are not applicable.
- b. With the fire suppression water system otherwise inoperable:
  1. Restore the fire suppression water distribution system to OPERABLE status within 24 hours, or
  2. Establish a backup fire suppression water system within 24 hours.

\*Four High Demand Fire Pumps (two per Unit) are shared between Units 1 and 2.



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## PLANT SYSTEMS

### SURVEILLANCE REQUIREMENTS

4.7.9.1.1 The fire suppression water system shall be demonstrated OPERABLE:

- a. 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.
- b. At least once per 31 days by verifying that each valve (manual, power operated, or automatic) in flow path that is not locked, sealed, or otherwise secured in position, is in its correct position.
- c. At least once per 6 months by performance of a system flush of above ground internal distribution headers and fire hydrants.
- d. At least once per 12 months by cycling each testable valve in the flow path through at least one complete cycle of full travel.
- e. 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 a flow of at least 2000 gpm at a system head of at least 300 feet of water by observing three points (minimum, rated, and peak) on the pump's performance curve.
  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 high pressure pump starts in its preplanned sequence to maintain the fire suppression water system pressure greater than or equal to 100 psig.
- f. At least once per 3 years by performing a series of flow tests so that every fire main segment (excluding individual system supplies) has been verified to be clear of obstructions by a full flow test.

## PLANT SYSTEMS

### SPRAY AND/OR SPRINKLER SYSTEMS

#### LIMITING CONDITION FOR OPERATION

3.7.9.2 The spray and/or sprinkler systems located in the areas shown in Tables 3.7-5A and 3.7-5B shall be OPERABLE:

APPLICABILITY: Whenever equipment in the spray/sprinkler protected area is required to be OPERABLE.

#### ACTION:

- a. With one or more of the water spray systems as listed in Table 3.7-5A inoperable, within 1 hour: 1) verify that the detection system for the affected filtration unit is OPERABLE per Specification 4.3.3.7, or 2) establish a continuous fire watch patrol.\*
- b. With one or more of the sprinkler systems as listed in Table 3.7-5B inoperable, within 1 hour: 1) verify that at least one of the detection systems, where provided (electric per Specification 4.3.3.7 or pneumatic per Table 3.7-5B), for the affected area is OPERABLE and establish an hourly fire watch patrol, or 2) establish a continuous fire watch patrol.\*
- c. The provisions of Specifications 3.0.3 and 3.0.4 are not applicable.

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\*For high radiation areas, periodic monitoring (and hourly logging) of the closed circuit television coverage is an acceptable substitute for a continuous fire watch. For high radiation areas where closed circuit television coverage does not exist, an hourly fire watch patrol will be instituted.



## PLANT SYSTEMS

### 3/4.7.10 FIRE RATED ASSEMBLIES

#### LIMITING CONDITION FOR OPERATION

3.7.10 Fire rated assemblies shall be OPERABLE as follows:

- a. All fire rated assemblies (walls, floor/ceilings, and cable tray and conduit enclosures), separating safe shutdown fire areas or separating portions of redundant systems important to safe shutdown within a fire area shall be OPERABLE.
- b. All penetration sealing devices (fire door assemblies, fire dampers, and penetration seals for cable, around conduit, cable tray, piping and ventilation duct work) in the above fire rated assemblies shall be OPERABLE.

APPLICABILITY: At all times.

#### ACTION:

- a. With any of the above fire rated assemblies and/or sealing devices inoperable, within 1 hour: 1) verify that the fire detectors and/or fire suppression system on at least one side of the inoperable assembly are OPERABLE and establish an hourly fire watch patrol, or 2) establish a continuous fire watch patrol on one side of the penetration, or 3) secure the inoperable sealing device\* in the closed position, and establish an hourly fire watch patrol, or 4) for fire dampers and normally locked fire doors, secure the inoperable sealing device in the closed position.\*\*\*
- b. The provisions of Specification 3.0.3 and 3.0.4 are not applicable.

#### SURVEILLANCE REQUIREMENTS

4.7.10.1 At least once per 18 months the above required fire rated assemblies and penetration sealing devices shall be verified OPERABLE by:

- a. Performing a visual inspection of all accessible surfaces, of each fire rated assembly, for open penetrations.
- b. Performing a visual inspection of each fire damper and its associated hardware.
- c. Performing a Functional Test, requiring closure testing on 10% of the fire dampers.\*\*

\*Except fire doors on Turbine Driven Auxiliary Feedwater Pump and Hallway enclosures which must remain open due to HELB considerations.

\*\*This testing is in addition to the testing required by Specifications 4.7.9.3.c.1 and 4.7.9.4.b.1.

\*\*\*Option (4) should be used for fire dampers only after the appropriate HVAC and radiological reviews have been performed.





## INSTRUMENTATION

### BASES

#### 3/4.3.3.7 FIRE DETECTION INSTRUMENTATION (SYSTEMS/DETECTORS)

OPERABILITY of the fire detection systems/detectors ensures that adequate detection 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 the fires will reduce the potential for damage to safety related systems or components in the areas of the specified systems and is an integral element in the overall facility fire protection program. In the event that a portion of the fire detection systems is inoperable, the action statements provided maintain the facility's fire protection program and allows for continued operation of the facility until the inoperable system(s)/detector(s) are restored to OPERABILITY. However, it is not our intent to rely upon the compensatory action for an extended period of time and action will be taken to restore the minimum number of detectors to OPERABLE status within a reasonable period.

#### 3/4 3.3.8 POST-ACCIDENT INSTRUMENTATION

The OPERABILITY of the post-accident instrumentation ensures that sufficient information is available on selected plant parameters to monitor and assess these variables during and following an accident.

The containment water level and containment sump level transmitters will be modified or replaced and OPERABLE by the end of the refueling outage to begin in February 1989. \*

\*Amendment 112 (Effective before startup following refueling outage currently scheduled in 2/89.)

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## BASES

### 3/4.7.9 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 systems 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 one or more CO<sub>2</sub> Suppression System requiring automatic actuation must be isolated for personal protection to permit entry for routine tours, maintenance, construction, or surveillance testing in the protected area, the fire detection system(s) required to be operable by Specification 3.3.3.7 shall be verified to be operable. Isolation of an automatic CO<sub>2</sub> suppression system temporarily puts this system in a manual actuation mode.

Reliance on the fire detection system, in conjunction with the ability to manually discharge the CO<sub>2</sub> suppression system will provide adequate fire protection for periods when personnel are required to work in these areas.

In the event that portions of the fire protection systems are inoperable, alternate backup fire fighting equipment is available in the affected areas until the inoperable equipment is restored to service. When the inoperable fire fighting equipment is intended for use as a backup means of fire suppression, a longer period of time is allowed to provide an alternate means of fire fighting than if the inoperable equipment is the primary means of fire suppression. Backup fire protection equipment will normally take the form of permanently mounted fire extinguishers and/or fire hose stations in or near the area, or fire hoses routed to the affected area. However, it is not our intent to rely on backup systems or other compensatory measures for an extended period of time and action will be taken to restore the inoperable portions of the fire suppression system to OPERABLE status within a reasonable period.

The surveillance requirements provide assurance that the minimum OPERABILITY requirements of the fire suppression systems are met. An allowance is made for ensuring a sufficient volume of Halon and CO<sub>2</sub> in the storage tanks by verifying either the weight, level, or pressure of the tanks.

BASES

3/4.7.10 Con't

detection and extinguishment. The fire barriers and fire barrier penetration sealing devices are periodically inspected to verify their OPERABILITY. The functional testing of the fire dampers is provided to ensure that the dampers remain functional. The ventilation seals area seals around ventilation duct work penetrating fire barriers. It is not our intent to rely on backup systems or other compensatory measures for an extended period of time and action will be taken to restore the inoperable portions of the fire rated assembly to OPERABLE status within a reasonable period.

For the purposes of determining OPERABILITY, an OPERABLE fire rated assembly and/or sealing device is one that is capable of performing its intended safety function.



## 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 system(s) is required to be OPERABLE.

#### ACTION:

When the number of OPERABLE fire detectors is less than the minimum number of required OPERABLE detectors given below:

- a. When any, but not more than one-half the total or no two adjacent\* in any fire detection zone, Function A detector(s) located outside of containment shown in Table 3.3-11 are inoperable:  
1) restore the inoperable detector(s) to OPERABLE status within 14 days, 2) after the 14 day time limit expires, within the next 1 hour establish an hourly fire watch patrol to inspect the zone(s) with the inoperable detector(s).
- b. For inoperable detectors located outside containment, within 1 hour establish an hourly fire watch patrol to inspect the zone(s) when:  
1) more than one-half of the Function A fire detectors in any fire detection zone shown in Table 3.3.11 are inoperable, or 2) any Function B fire detectors shown in Table 3.3.11 are inoperable, or 3) any two or more adjacent fire detectors\* shown in Table 3.3.11 are inoperable.
- c. For detector(s) located inside containment: 1) establish a fire watch patrol to inspect the containment zone at least once per 8 hours, or 2) monitor the containment air temperature at least once per hour at the locations listed in Specification 4.6.1.5.
- d. The provisions of Specifications 3.0.3 and 3.0.4 are not applicable.

\*Adjacent fire detectors is defined as any detectors physically adjacent in the fire detection zone.

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## INSTRUMENTATION

### SURVEILLANCE REQUIREMENTS

4.3.3.8 The fire detection system for each fire detection zone shown in Table 3.3-11 shall be demonstrated OPERABLE as follows.

4.3.3.8.1 Each of the detectors in the above required fire detection systems 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 supervised detector alarm circuits for the above required fire detection systems shall be demonstrated OPERABLE at least once per 6 months. The supervised detector alarm circuits include the detector circuits, fire and trouble alarm circuits from the remote fire protection control panel to the Control Room emergency fire control panel, and audible fire and trouble alarm circuits.



TABLE 3.3-11  
Unit 2 and Common Area Fire Detection Systems

<u>Detection System Location</u>	<u>Total Number of Detectors</u>		
	<u>Heat</u> (x/y)*	<u>Flame</u> (x/y)*	<u>Smoke</u> (x/y)*
Auxiliary Building			
a) Elevation 587			55/0C
b) Elevation 609			41/0C
c) Elevation 633			41/0C
d) Elevation 573			23/0C
e) Elevation 650			34/0C
f) New Fuel STGE Area			4/0C
U2 East Main Steam Valve Enclosure			28/0**
U2 Main Steam Line Area			
El. 612 (Around Containment)			13/0**
U2 NESW Valve Area			
El. 612			2/0
U2 4KV Switchgear (AB)		0/3	0/2
U2 4KV Switchgear (CD)		0/3	0/2
U2 Engr. Safety System			
Switchgear & XFMR. Rm.		0/5	0/11
U2 CRD, XFMR & Switchgear Rm.			
Inverter & AB Bttry. Rms.		0/5	0/16
U2 Pressurizer Heater XFMR. Rm.			12/0
U2 Diesel Fuel Oil XFMR. Rm.	0/1		
U2 Diesel Generator Rm. 2AB	0/2		
U2 Diesel Generator Rm. 2CD	0/2		
U2 Diesel Generator Ramp Corr.			4/0
U1&2 AFWP Vestibule			2/0C
U2 Control Room			42/0
U2 Switchgear Cable Vault		0/10***	0/13
U2 Control Rm. Cable Vault			0/76****
U2 Aux. Cable Vault			0/6
U1&2 ESW Basement Area			4/0C
U2 ESW Pump & MCC Rms.			9/0

G System protects area common to both Units 1 and 2

\*(x/y) x is number of Function A (early warning fire detection and notification only) instruments.

y is number of Function B (actuation of fire suppression systems and early warning and notification) instruments.

\*\* circuit contains both smoke and flame detectors

\*\*\* two circuits of five detectors each

\*\*\*\* two circuits of 38 detectors each



TABLE 3.3-11 (Continued)

Unit 2 and Common Area Fire Detection Systems

<u>Detection System Location</u>	<u>Total Number of Detectors</u>		
	<u>Heat</u> (x/y)*	<u>Flame</u> (x/y)*	<u>Smoke</u> (x/y)*
U2 Cable Tunnels			
a) Quad 1 Cable Tunnel		0/3	0/4
b) Quad 2 Cable Tunnel		0/4	0/7
c) Quad 3N		0/3	0/3
d) Quad 3S		0/3	0/4
e) Quad 3M		0/3	0/4
f) Quad 4		0/5	0/6
U2 Charcoal Filter Ventilation Units			
a) 2-HV-AES-1	0/1*****		
b) 2-HV-AES-2	0/1*****		
c) 2-HV-ACRF	0/1*****		
d) 2-HV-CIPX	0/1*****		
e) 2-HV-CPR	0/1*****		
f) 12-HV-AFX	0/1*****C		
U2 Containment*****			
a) RCP 1	1/0		
b) RCP 2	1/0		
c) RCP 3	1/0		
d) RCP 4	1/0		
e) Quad 1	16/0*****		
f) Quad 2	9/0*****		
g) Quad 3	29/0*****		
h) Quad 4	14/0*****		

C System protects area common to both Units 1 and 2 .

\*(x/y) x is number of Function A (early warning fire detection and notification only) instruments.

y is number of Function B (actuation of fire suppression systems and early warning and notification) instruments.

\*\*\*\*\* Originally installed to automatically deluge charcoal filters. However, manual actions are now necessary.

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

\*\*\*\*\* Thermistors located in cable trays are assigned to a quadrant based on the location of the thermistor circuit startpoint.



PLANT SYSTEMS

3/4.7.9 FIRE SUPPRESSION SYSTEMS  
FIRE SUPPRESSION WATER SYSTEM

LIMITING CONDITION FOR OPERATION

3.7.9.1 The fire suppression water system shall be OPERABLE with:

- a. Two\* high demand 2000 GPM pumps, one of which shall be a diesel driven pump, with their discharge aligned to the fire suppression header.
- b. An OPERABLE open flow path capable of taking suction from Lake Michigan and transferring the water through distribution piping (with OPERABLE sectionalizing valves) up to the yard hydrant curb control valves and up to the hose station valve(s) or water suppression system controlling valve(s) required to be OPERABLE per Specifications 3.7.9.5 and 3.7.9.2, respectively.

APPLICABILITY: At all times.

ACTION:

- a. With only one pump operable, restore an inoperable pump (diesel, if required), and equipment to OPERABLE status within 7 days or establish a backup fire suppression water system within the next 7 days. The provisions of Specifications 3.0.3 and 3.0.4 are not applicable.
- b. With the fire suppression water system otherwise inoperable:
  1. Restore the fire suppression water distribution system to OPERABLE status within 24 hours, or
  2. Establish a backup fire suppression water system within 24 hours.

\*Four High Demand Fire Pumps (two per unit) are shared between Units 1 and 2.

## PLANT SYSTEMS

### SURVEILLANCE REQUIREMENTS

4.7.9.1.1 The fire suppression water system shall be demonstrated OPERABLE:

- a. 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.
- b. At least once per 31 days by verifying that each valve (manual, power operated, or automatic) in flow path that is not locked, sealed, or otherwise secured in position, is in its correct position.
- c. At least once per 6 months by performance of a system flush of above ground internal distribution headers and fire hydrants.
- d. At least once per 12 months by cycling each testable valve in the flow path through at least one complete cycle of full travel.
- e. 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 a flow of at least 2000 gpm at a system head of at least 300 feet of water by observing three points (minimum, rated and peak) on the pump's performance curve.
  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 high pressure pump starts in its preplanned sequence to maintain the fire suppression water system pressure greater than 100 psig.
- f. At least once per 3 years by performing a series of flow tests so that every fire main segment (excluding individual system supplies) has been verified to be clear of obstructions by a full flow test.





## PLANT SYSTEMS

### SPRAY AND/OR SPRINKLER SYSTEMS

#### LIMITING CONDITION FOR OPERATION

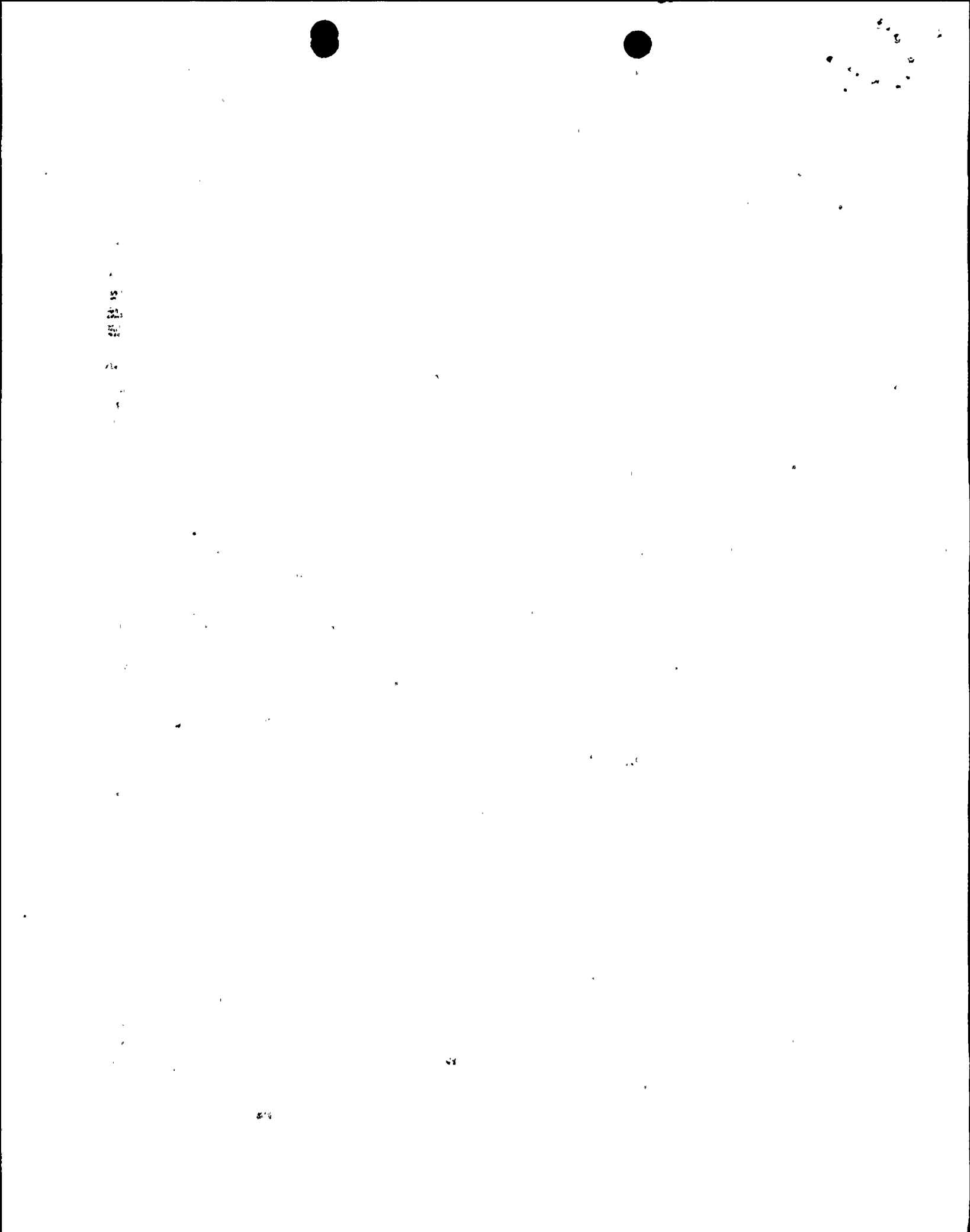
3.7.9.2 The spray and/or sprinkler systems located in the areas shown in Tables 3.7-5A and 3.7-5B shall be OPERABLE:

APPLICABILITY: Whenever equipment in the spray/sprinkler protected area is required to be OPERABLE.

#### ACTION:

- a. With one or more of the water spray systems as listed in Table 3.7-5A inoperable, within 1 hour: 1) verify that the detection system for the affected filtration unit is OPERABLE per Specification 4.3.3.8, or 2) establish a continuous fire watch patrol.
- b. With one or more of the sprinkler systems as listed in Table 3.7-5B inoperable, within 1 hour: 1) verify that at least one of the detection systems, where provided (electric per Specification 4.3.3.8 or pneumatic per Table 3.7-5B), for the affected area is OPERABLE and establish an hourly fire watch patrol, or 2) establish a continuous fire watch patrol.\*
- c. The provisions of Specifications 3.0.3 and 3.0.4 are not applicable.

\*For high radiation areas, periodic monitoring (and hourly logging) of the closed circuit television coverage is an acceptable substitute for a continuous fire watch. For high radiation areas where closed circuit television coverage does not exist, an hourly fire watch patrol will be instituted.



## PLANT SYSTEMS

### 3/4.7.10 FIRE RATED ASSEMBLIES

#### LIMITING CONDITION FOR OPERATION

3.7.10 Fire rated assemblies shall be OPERABLE as follows:

- a. All fire rated assemblies (walls, floor/ceilings, and cable tray and conduit enclosures), separating safe shutdown fire areas or separating portions of redundant systems important to safe shutdown within a fire area shall be OPERABLE.
- b. All penetration sealing devices (fire door assemblies, fire dampers, and penetration seals for cable, around conduit, cable tray, piping and ventilation duct work) in the above fire rated assemblies shall be OPERABLE.

APPLICABILITY: At all times.

#### ACTION:

- a. With any of the above fire rated assemblies and/or sealing devices inoperable, within 1 hour: 1) verify that the fire detectors and/or fire suppression system on at least one side of the inoperable assembly are OPERABLE and establish an hourly fire watch patrol, or 2) establish a continuous fire watch patrol on one side of the penetration, or 3) secure the inoperable sealing device\* in the closed position, and establish an hourly fire watch patrol, or 4) for fire dampers and normally locked fire doors, secure the inoperable sealing device in the closed position.\*\*\*
- b. The provisions of Specification 3.0.3 and 3.0.4 are not applicable.

#### SURVEILLANCE REQUIREMENTS

4.7.10.1 At least once per 18 months the above required fire rated assemblies and penetration sealing devices shall be verified OPERABLE by:

- a. Performing a visual inspection of all accessible surfaces, of each fire rated assembly, for open penetrations.
- b. Performing a visual inspection of each fire damper and its associated hardware.
- c. Performing a Functional Test, requiring closure testing on 10% of the fire dampers.\*\*

\*Except fire doors on Turbine Driven Auxiliary Feedwater Pump and Hallway enclosures which must remain open due to HELB considerations.

\*\*This testing is in addition to the testing required by Specifications 4.7.9.3.c.1 and 4.7.9.4.b.1.

\*\*\*Option (4) should be used for fire dampers only after the appropriate HVAC and radiological reviews have been performed.



### 3/4.3 INSTRUMENTATION

#### BASES

#### 3/4.3.3.8 FIRE DETECTION INSTRUMENTATION (SYSTEMS/DETECTORS)

OPERABILITY of the fire detection systems/detectors ensures that adequate detection 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 the fires will reduce the potential for damage to safety related systems or components in the areas of the specified systems and is an integral element in the overall facility fire protection program. In the event that a portion of the fire detection system is inoperable, the action statements provided maintain the facility's fire protection program and allows for continued operation of the facility until the inoperable system(s)/detector(s) are restored to OPERABILITY. However, it is not our intent to rely upon the compensatory action for an extended period of time and action will be taken to restore the minimum number of detectors to OPERABLE status within a reasonable period.

#### 3/4.3.3.9 RADIOACTIVE LIQUID EFFLUENT INSTRUMENTATION

The radioactive, liquid effluent instrumentation is provided to monitor control, as applicable, the releases of radioactive materials in liquid effluents during actual or potential releases. The alarm/trip setpoints for these instruments shall be calculated in accordance with NRC approved methods in the ODCM to ensure that the alarm/trip will occur prior to exceeding the limits of 10 CFR Part 20. The OPERABILITY and use of this instrumentation is consistent with the requirements of General Design Criteria specified in Section 11.3 of the Final Safety Analysis Report for the Donald C. Cook Nuclear Plant.



## BASES

### 3/4.7.9 Con't

In the event that portions of the fire protection systems are inoperable, alternate backup fire fighting equipment is available in the affected areas until the inoperable equipment is restored to service. When the inoperable fire fighting equipment is intended for use as a backup means of fire suppression, a longer period of time is allowed to provide an alternate means of fire fighting than if the inoperable equipment is the primary means of fire suppression. Backup fire protection equipment will normally take the form of permanently mounted fire extinguishers and/or fire hose stations in or near the area, or fire hoses routed to the affected areas. However, it is not our intent to rely on backup systems or other compensatory measures for an extended period of time and action will be taken to restore the inoperable portions of the fire suppression system to OPERABLE status within a reasonable period.

The surveillance requirements provide assurance that the minimum OPERABILITY requirements of the fire suppression systems are met. An allowance is made for ensuring a sufficient volume of Halon and CO<sub>2</sub> in the storage tanks by verifying either the weight, level, or pressure of the tanks.

The purpose of the charcoal filter fire suppression Technical Specification is to account for detection and suppression of fires in the charcoal filters. Manual operation of these systems is allowed because two-point heat detection with control room and local annunciation of trouble conditions is provided for the charcoal filters. The OPERABILITY of the fire suppression system protecting the charcoal filters is only required when there is charcoal in the filters and the filters are required to be operable. Actuation of spray water onto the charcoal filters requires both the manual opening of the system isolation valve and reaching the high temperature alarm setpoint for the automatic opening of the system deluge valve.

Because of the inaccessibility of the lower containment to personnel during operation due to ALARA radiation exposure concerns, the use of one or more CCTVs in the lower containment to monitor for fire and smoke is an acceptable substitute to an hourly fire watch, if the fire suppression system becomes inoperable.



## BASES

### 3/4.7.9 Con't

All hourly fire watch patrols are performed at intervals of sixty minutes with a margin of 15 minutes.

A continuous fire watch requires that a trained individual be in the specified area at all times and that each fire zone within the specified area be patrolled at least once every 15 minutes with a margin of 5 minutes.

A control valve is defined as a valve that when closed does not leave an alternate open flow path to a system. A sectionalizing valve is defined as a valve that when closed does not prevent an alternate open flow path to a system and hence does not make the fire suppression water system inoperable. Under certain situations, the closure of a sectionalizing valve followed by the closure of a second valve will not leave an open flow path to one of the specified systems. In this instance, Action Statement b of Specification 3.7.9.1 is applicable.

Manual actuation of CO<sub>2</sub> fire suppression systems provides adequate fire protection for the protected areas based on operable fire detection in the area, low combustible loadings, and prompt fire brigade response to alarms.

Many of the action statements take credit for operable fire detection in lieu of a fire watch when a fire protection system is inoperable. Operable fire detection provides sufficient early warning capability of a fire to the appropriate Control Room.

### 3/4.7.10 FIRE RATED ASSEMBLIES

The OPERABILITY of the fire barriers and barrier penetrations ensure that fire damage will be limited. These design features minimize the possibility of a single fire involving more than one fire area prior to detection and extinguishment. The fire barriers and fire barrier penetration sealing devices are periodically inspected to verify their OPERABILITY. The functional testing of the fire dampers is provided to ensure that the dampers remain functional. The ventilation seals are seals around ventilation duct work penetrating fire barriers. It is not our intent to rely on backup systems or other compensatory measures for an extended period of time and action will be taken to restore the inoperable portions of the fire rated assembly to OPERABLE status within a reasonable period.

For the purposes of determining OPERABILITY, an OPERABLE fire rated assembly and/or sealing device is one that is capable of performing its intended safety function.

