

ATTACHMENT 1  
AEP:NRC:0660D

DONALD C. COOK - UNIT 1  
PROPOSED TECHNICAL SPECIFICATIONS

3/4.3.3.7

3/4.7.9.1

3/4.7.9.2

3/4.7.9.3

3/4.7.9.4

3/4.7.9.5

3/4.7.10

BASES 3/4.3.3.7

BASES 3/4.7.9

BASES 3/4.7.10

## INSTRUMENTATION

### FIRE DETECTION INSTRUMENTATION

#### LIMITING CONDITION FOR OPERATION

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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 instrument(s) is required to be OPERABLE.

#### ACTION:

With the number of OPERABLE fire detection instrument(s) less than the minimum number OPERABLE requirement of Table 3.3-10:

- 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 4.6.1.5.
- 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

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4.3.3.7.1 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.

4.3.3.7.2 The NFPA Standard 72D Class B 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.

TABLE 3.3-10

FIRE DETECTION INSTRUMENTATION

<u>INSTRUMENT LOCATION</u>	<u>MINIMUM INSTRUMENTS OPERABLE**</u>		
	<u>SMOKE (IONIZATION)</u>	<u>HEAT (THERMISTOR)</u>	<u>OPTICAL (INFRARED)</u>
1a. Outside Containment			
Quadrant 1 Cable Tunnel	3		2
Quadrant 2 Cable Tunnel	5		3
Quadrant 3N Cable Tunnel	3		2
Quadrant 3M Cable Tunnel	3		2
Quadrant 3S Cable Tunnel	2		2
Quadrant 4 Cable Tunnel	5		4
1b. Inside Containment			
Quadrant 1		14	
Quadrant 2		3	
Quadrant 3		18	
Quadrant 4		11	
1-HV-CFT-1 Charcoal Filters		1	
1-HV-CFT-2 Charcoal Filters		1	
2. Control Room	24		
3. Cable Spreading Rooms			
Switchgear Cable Vault	10		8
Auxiliary Cable Vault	5		
Control Room Cable Vault (Zone 17)	24		
Control Room Cable Vault (Zone 18)	25		
4. Diesel Generator			
Diesel Generator Room 1AB		1	
Diesel Generator Room 1CD		1	
5. Diesel Fuel Oil Room		1	

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

TABLE 3.3-10 (Cont'd)

FIRE DETECTION INSTRUMENTATION

<u>INSTRUMENT LOCATION</u>	<u>MINIMUM INSTRUMENTS OPERABLE**</u>		
	<u>SMOKE (IONIZATION)</u>	<u>HEAT (THERMISTOR)</u>	<u>OPTICAL (INFRARED)</u>
6. Auxiliary Building			
Elevation 573 ft.*	5		
Elevation 587 ft.*	42		
Elevation 609 ft.*	22		
Elevation 633 ft.*	31		
Elevation 650 ft.*	26		
4 Kv Switchgear	3		5
Engineered Safety Switchgear	7		4
CRD, Transformer, Switchgear	6		4
1-HV-AES-1 Charcoal Filters		1	
1-HV-AES-2 Charcoal Filters		1	
12-HV-AFX Charcoal Filters*		1	
1-HV-CPR Charcoal Filters		1	
1-HV-CIPX Charcoal Filters		1	
1-HV-ACRF Charcoal Filters		1	
7. Fuel Storage			
New Fuel Storage Room*	3		

\*Shared system with D.C. COOK - UNIT 2

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

## 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 pumps, one of which shall be a diesel driven pump, with their discharge aligned to the fire suppression header.
- b. An OPERABLE flow path capable of taking suction from Lake Michigan and transferring the water through distribution piping with OPERABLE sectionalizing control or isolation valves to the yard hydrant curb valves and the first valve ahead of the hose standpipe or spray system riser or water flow alarm device on each sprinkler, required to be OPERABLE per Specifications 3.7.9.2 and 3.7.9.5.

APPLICABILITY: At all times.

#### ACTION:

- a. With one pump 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 provide for the loss of redundancy in this system. 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. Submit a Special Report in accordance with Specification 6.9.2;
    - a) By telephone within 24 hours,
    - b) Confirmed by telegram, mailgram or facsimile transmission no later than the first working day following the event, and

\*Shared system with D.C. COOK - UNIT 2.

## 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

4.7.9.1.1 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 the 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.
- 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,
  - 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 (sequentially) to maintain the fire suppression water system pressure  $\geq$  100 psig.
- f. At least once per 3 years by performing a flow test of the system in accordance with Chapter 5, Section 11 of Fire Protection Handbook, 14th Edition published by National Fire Protection Association.

## PLANT SYSTEMS

### SURVEILLANCE REQUIREMENTS (Continued)

4.7.9.1.2 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 160 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 this class of standby service.

4.7.9.1.3 The fire pump diesel starting 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  $\geq$  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 packs 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

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

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

#### ACTION:

- a. With one or more of the above required spray and/or sprinkler systems inoperable, within 1 hour establish a continuous fire watch with backup fire suppression equipment for those areas\* in which redundant safe shutdown systems or components could be damaged. 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

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

- a. At least once per 12 months by cycling each testable valve in the flow path through at least one complete cycle of full travel.

\*- For the reactor coolant pumps preaction sprinklers inside the containment, a closed circuit television located in the lower containment, with periodic monitoring (and hourly logging) of the CCTV screen, shall be an acceptable substitute to an hourly fire watch patrol. For high radiation areas where closed circuit television coverage does not exist, an hourly fire watch patrol will be instituted.



PLANT SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

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- b. At least once per 18 months:
  - 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 inspection of deluge and preaction type system spray headers to verify their integrity.
  - 3. By inspection of each open head deluge nozzle to verify no blockage.
- c. At least once per 3 years by performing an air flow test through each open head deluge header and verifying each open head deluge nozzle is unobstructed.

TABLE 3.7-5

SPRAY AND/OR SPRINKLER SYSTEMS

A. OPEN HEAD DELUGE TYPE WATER SYSTEMS

<u>LOCATION</u>	<u>ACTUATION</u>
1-HV-AES-1 Charcoal Filters	Electric-heat
1-HV-AES-2 Charcoal Filters	Electric-heat
12-HV-AFX Charcoal Filters*	Electric-heat
1-HV-CPR-1 Charcoal Filters	Electric-heat
1-HV-CIPX-1 Charcoal Filters	Electric-heat
1-HV-ACRF-1 Charcoal Filters	Electric-heat

B. CLOSED HEAD SPRINKLER TYPE WATER SYSTEMS

<u>LOCATION</u>	<u>TYPE SYSTEM</u>	<u>ACTUATION</u>
Auxiliary Bldg. Cask Handling Area*	Preaction Sprinkler	Dry Pilot
Auxiliary Bldg. Drumming Area*	Preaction Sprinkler	Dry Pilot
Auxiliary Bldg. Elev. 587* & 609* (Corridors, charging, safety Inj. pump rooms, laundry area)	Preaction Sprinkler	Dry Pilot
Reactor Coolant Pumps (4)	Preaction Sprinkler	Manual

\*Shared system with D.C. COOK - UNIT 2.

## PLANT SYSTEMS

### LOW PRESSURE CO<sub>2</sub> SYSTEMS

#### LIMITING CONDITION FOR OPERATION

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3.7.9.3 The low pressure CO<sub>2</sub> systems located in the areas shown in Table 3.7-6 shall be OPERABLE.

APPLICABILITY: Whenever equipment in the low pressure CO<sub>2</sub> protected areas is required to be OPERABLE.

#### ACTION:

- a. With one or more of the above required low pressure CO<sub>2</sub> systems inoperable, within 1 hour establish a continuous fire watch with backup fire suppression equipment for those areas in which redundant safe shutdown 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

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4.7.9.3 Each of the above required low pressure CO<sub>2</sub> systems shall be demonstrated OPERABLE:

- a. At least once per 7 days by verifying the CO<sub>2</sub> storage tank level to be  $\geq 50\%$  and pressure to be  $\geq 285$  psig, and
- b. At least once per 18 months by verifying:
  1. The system valves, associated ventilation dampers and self closing fire doors actuate manually and automatically, upon receipt of a simulated actuation signal, and
  2. Flow from each nozzle during a "Puff Test."

TABLE 3.7-6

LOW PRESSURE CARBON DIOXIDE SYSTEMS

17 TON CAPACITY

<u>LOCATION</u>	<u>ACTUATION METHOD</u>
Diesel Generator 1AB Room	Heat - 2 circuits
Diesel Generator 1CD Room	Heat - 2 circuits
Diesel Generator Fuel Oil Pump Room	Heat
4 kv Switchgear Rooms	Ionization and Infrared
Control Rod Drive, Transf. Switchgear Rooms	Ionization and Infrared
Emergency Safety Switchgear Room	Ionization and Infrared
Switchgear Room Cable Vault	Ionization and Infrared
Auxiliary Cable Vault	Ionization
Control Room Cable Vault	Manual (backup)
Penetration Cable Tunnel Quadrant 1	Ionization and Infrared
Penetration Cable Tunnel Quadrant 2	Ionization and Infrared
Penetration Cable Tunnel Quadrant 3N	Ionization and Infrared
Penetration Cable Tunnel Quadrant 3M	Ionization and Infrared
Penetration Cable Tunnel Quadrant 3S	Ionization and Infrared
Penetration Cable Tunnel Quadrant 4	Ionization and Infrared

## PLANT SYSTEMS

### HALON SYSTEM

#### LIMITING CONDITION FOR OPERATION

3.7.9.4 The Halon system located in the Unit 1 Control Room Cable Spreading Area shall be OPERABLE.

APPLICABILITY: Whenever equipment in the Halon protected areas is required to be OPERABLE.

#### ACTION:

- a. With the above required Halon system inoperable, within 1 hour verify that the fire detection system and the backup CO<sub>2</sub> fire suppression system are OPERABLE; otherwise, establish a continuous fire watch with backup fire suppression equipment for the Control Room Cable Spreading Area. 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

4.7.9.4 The above required Halon system shall be demonstrated OPERABLE:

- a. At least once per 6 months by verifying each Halon storage tank to be  $\geq 95\%$  of full charge weight and to be  $\geq 90\%$  of full charge pressure.
- b. At least once per 18 months by:
  1. Verifying the system, including associated ventilation dampers, actuates manually and automatically to a simulated test signal.
  2. Performance of an air flow test or CO<sub>2</sub> puff test through headers and nozzles to assure no blockage.

## PLANT SYSTEMS

### FIRE HOSE STATIONS

#### LIMITING CONDITION FOR OPERATION

3.7.9.5 The fire hose standpipe connections in the following locations shall be OPERABLE:

1. Auxiliary Building (minimum 12).
2. Access to Diesel Generators (minimum 1).
3. Access to Switchgear Rooms (minimum 1).
4. Access to Control Room (minimum 1).

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 above required hose standpipe connections inoperable, route an additional equivalent capacity fire hose to the unprotected area(s) from an OPERABLE hose standpipe connection 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

4.7.9.5 Each of the above required fire hose standpipe connections shall be demonstrated OPERABLE:

- a. At least once per 31 days by a visual inspection of the fire hose standpipe connections to assure all required equipment is at the connection.
- b. At least once per 18 months by:
  1. Removing the hose for inspection and re-racking, and
  2. Replacement of all degraded gaskets in couplings.
- c. At least once per 3 years by:
  1. Partially opening each hose standpipe connection 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 that hose standpipe connection.

## PLANT SYSTEMS

### 3/4.7.10 FIRE RATED ASSEMBLIES

#### LIMITING CONDITION FOR OPERATION

3.7.10 All fire rated assemblies (walls, floor/ceilings) separating safety related fire areas or separating portions of redundant systems important to safe shutdown within a fire area and all sealing devices in fire rated assembly penetrations (fire doors, fire dampers, cable and piping penetration seals) shall be OPERABLE.

APPLICABILITY: At all times.

#### ACTION:

- a. With one or more of the above required fire rated assemblies and/or sealing devices inoperable, within one hour either establish a continuous fire watch on at least one side of the affected assembly, or verify the OPERABILITY of fire detectors per Specification 4.3.3.7 on at least one side of the inoperable assembly and establish an hourly fire watch patrol or secure in the closed position the inoperable sealing device\* and establish an hourly fire watch patrol. Restore the inoperable fire rated assembly and sealing device 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 action taken, the cause of the inoperable fire rated assembly and/or sealing device and the plans and schedule for restoring the fire rated assembly and/or sealing device to OPERABLE status.
- b. The provisions of Specifications 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 the exposed surfaces of each fire rated assemblies.
- b. Performing a visual inspection of each fire damper and associated hardware.

\* Except fire doors on Turbine Driven Auxiliary Feedwater Pump and Hallway enclosures which cannot be locked closed for HELB considerations.

## PLANT SYSTEMS

### SURVEILLANCE REQUIREMENTS (Continued)

- c. Performing a visual inspection of at least 10 percent of each type of sealed penetration. If apparent changes in appearance or abnormal degradations are found, a visual inspection of an additional 10 percent of each type of sealed penetration shall be made. This inspection process shall continue until a 10 percent sample with no apparent changes in appearance or abnormal degradation is found.

4.7.10.2 Each of the above required fire doors shall be verified OPERABLE by inspecting the hold-open, release and closing mechanism and latches at least once per 6 months, and by verifying:

- a The position of each closed fire door at least once per 24 hours.
- b. That doors with hold-open and release mechanisms are free of obstructions at least once per 24 hours.
- c. The position of each locked closed fire door at least once per 7 days.

4.7.10.3 Each of the above required fire rated assemblies or sealing devices in fire rated assembly penetrations shall be verified to be OPERABLE prior to declaring a penetration fire barrier OPERABLE following repairs or maintenance.



## INSTRUMENTATION

### BASES

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#### 3/4.3.3.7 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 restored to OPERABILITY. Use of containment temperature monitoring is allowed once per hour if containment fire detection is inoperable.

#### 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.

## 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 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 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.

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.

In the event 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.

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.

#### 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, fire barrier penetrations for conduits, cable trays and piping, fire dampers, and fire doors are periodically inspected to verify their OPERABILITY.

ATTACHMENT 2  
AEP:NRC:0660D

DONALD C. COOK - UNIT 2  
PROPOSED TECHNICAL SPECIFICATION

3/4.3.3.8  
3/4.7.9.1  
3/4.7.9.2  
3/4.7.9.3  
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3/4.7.9.4  
3/4.7.9.5  
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3/4.7.10  
BASES 3/4.3.3.8  
BASES 3/4.7.9  
BASES 3/4.7.10

## INSTRUMENTATION

### FIRE DETECTION INSTRUMENTATION

#### 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 3.3-11 shall be OPERABLE.

APPLICABILITY: Whenever equipment protected by the fire detection instrument(s) 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 4.6.1.5.
- 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

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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 Class B 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.

TABLE 3.3-11

FIRE DETECTION INSTRUMENTATION

<u>INSTRUMENTATION LOCATION</u>	<u>MINIMUM INSTRUMENTS OPERABLE**</u>		
	<u>SMOKE IONIZATION</u>	<u>HEAT (THERMISTOR)</u>	<u>OPTICAL (INFRARED)</u>
1a. Outside Containment			
Quadrant 1 Cable Tunnel	3		2
Quadrant 2 Cable Tunnel	5		3
Quadrant 3N Cable Tunnel	3		2
Quadrant 3M Cable Tunnel	3		2
Quadrant 3S Cable Tunnel	2		2
Quadrant 4 Cable Tunnel	5		4
1b. Inside Containment			
Quadrant 1		12	
Quadrant 2		5	
Quadrant 3		23	
Quadrant 4		11	
2-HV-CFT-1 Charcoal Filters		1	
2-HV-CFT-2 Charcoal Filters		1	
2. Control Room	22		
3. Cable Spreading Rooms			
Switchgear Cable Vault	8		8
Auxiliary Cable Vault	5		
Control Room Cable Vault (Zone 12)	24		
Control Room Cable Vault (Zone 13)	25		
4. Diesel Generator			
Diesel Generator Room 2AB		1	
Diesel Generator Room 2CD		1	
5. Diesel Fuel Oil Room		1	

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

TABLE 3.3-11 (Cont'd)

FIRE DETECTION INSTRUMENTATION

<u>INSTRUMENTATION LOCATION</u>	<u>MINIMUM INSTRUMENTS OPERABLE**</u>		
	<u>SMOKE</u> <u>(IONIZATION)</u>	<u>HEAT</u> <u>(THERMISTOR)</u>	<u>OPTICAL</u> <u>(INFRARED)</u>
6. Auxiliary Building			
Elevation 573 ft.*	5		
Elevation 587 ft.*	42		
Elevation 609 ft.*	22		
Elevation 633 ft.*	31		
Elevation 650 ft.*	26		
4 Kv Switchgear	3		5
Engineered Safety Switchgear	7		4
CRD, Transformer, Switchgear	6		4
2-HV-AES-1 Charcoal Filters		1	
2-HV-AES-2 Charcoal Filters		1	
12-HV-AFX Charcoal Filters*		1	
2-HV-CPR Charcoal Filters		1	
2-HV-CIPX Charcoal Filters		1	
2-HV-ACRF Charcoal Filters		1	
7. Fuel Storage			
New Fuel Storage Room*	3		

\*Shared system with D.C. COOK - UNIT 1

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

PLANT SYSTEMS

3/4.7.9 FIRE SUPPRESSION SYSTEMS

FIRE SUPPRESSION WATER SYSTEM

LIMITING CONDITION FOR OPERATION

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3.7.9.1 The fire suppression water system shall be OPERABLE with:

- a. Two\* high demand pumps, one of which shall be a diesel driven pump, with their discharge aligned to the fire suppression header.
- b. An OPERABLE flow path capable of taking suction from Lake Michigan and transferring the water through distribution piping with OPERABLE sectionalizing control or isolation valves to the yard hydrant curb valves and the first valve ahead of the hose standpipe or spray system riser or water flow alarm device on each sprinkler, required to be OPERABLE per Specifications 3.7.9.2 and 3.7.9.5.

APPLICABILITY: At all times.

ACTION:

- a. With one pump 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 provide for the loss of redundancy in this system. 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. Submit a Special Report in accordance with Specification 6.9.2.
    - a) By telephone within 24 hours
    - b) Confirmed by telegram, mailgram or facsimile transmission no later than the first working day following the event, and

\*Shared system with D. C. COOK - UNIT 1



## 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

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### 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 the 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.
- 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,
  - 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 (sequentially) to maintain the fire suppression water system pressure  $\geq$  100 psig.
- f. At least once per 3 years by performing a flow test of the system in accordance with Chapter 5, Section 11 of Fire Protection Handbook, 14th Edition published by National Fire Protection Association.

## PLANT SYSTEMS

### SURVEILLANCE REQUIREMENTS (Continued)

4.7.9.1.2 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 160 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 this class of standby service.

4.7.9.1.3 The fire pump diesel starting 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  $\geq$  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 anticorrosion material.

## 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 Table 3.7-5 shall be OPERABLE:

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

#### ACTION:

- a. With one or more of the above required spray and/or sprinkler systems inoperable, within 1 hour establish a continuous fire watch with backup fire suppression equipment for those areas\* in which redundant safe shutdown systems or components could be damaged. 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

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

- a. At least once per 12 months by cycling each testable valve in the flow path through at least one complete cycle of full travel.

\* - For the reactor coolant pumps preaction sprinklers inside the containment, a closed circuit television located in the lower containment, with periodic monitoring (and hourly logging) of the CCTV screen, shall be an acceptable substitute to an hourly fire watch patrol. For high radiation areas, where closed circuit television coverage does not exist, an hourly fire watch patrol will be instituted.

PLANT SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

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- b. At least once per 18 months:
  - 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 inspection of deluge and preaction system spray headers to verify their integrity.
  - 3. By inspection of each open head deluge nozzle to verify no blockage.
- c. At least once per 3 years by performing an air flow test through each open head deluge header and verifying each open head deluge nozzle is unobstructed.

TABLE 3.7-5

SPRAY AND/OR SPRINKLER SYSTEMS

A. OPEN HEAD DELUGE TYPE WATER SYSTEMS

<u>LOCATION</u>	<u>ACTUATION</u>
2-HV-AES-1 Charcoal Filters	Electric-heat
2-HV-AES-2 Charcoal Filters	Electric-heat
12-HV-AFX Charcoal Filters*	Electric-heat
2-HV-CPR-1 Charcoal Filters	Electric-heat
2-HV-CIPX-1 Charcoal Filters	Electric-heat
2-HV-ACRF-1 Charcoal Filters	Electric-heat

B. CLOSED HEAD SPRINKLER TYPE WATER SYSTEMS

<u>LOCATION</u>	<u>TYPE SYSTEM</u>	<u>ACTUATION</u>
Auxiliary Bldg Cask Handling Area*	Preaction Sprinkler	Dry Pilot
Auxiliary Bldg Drumming Area*	Preaction Sprinkler	Dry Pilot
Auxiliary Bldg Elev 587* & 609* (Corridors, charging, safety Inj pump rooms, laundry area)	Preaction Sprinkler	Dry Pilot
Reactor Coolant Pumps (4)	Preaction Sprinkler	Manual

\* Shared system with D C COOK - UNIT 1.

## PLANT SYSTEMS

### LOW PRESSURE CO<sub>2</sub> SYSTEMS

#### LIMITING CONDITIONS FOR OPERATION

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3.7.9.3 The low pressure CO<sub>2</sub> systems located in the areas shown in Table 3.7-6 shall be OPERABLE.

APPLICABILITY: Whenever equipment in the low pressure CO<sub>2</sub> protected areas is required to be OPERABLE.

#### ACTION:

- a. With one or more of the above required low pressure CO<sub>2</sub> systems inoperable, within 1 hour establish a continuous fire watch with backup fire suppression equipment for those areas in which redundant safe shutdown 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

---

4.7.9.3 Each of the above required low pressure CO<sub>2</sub> systems shall be demonstrated OPERABLE:

- a. At least once per 7 days by verifying the CO<sub>2</sub> storage tank level to be  $\geq 50\%$  and pressure to be  $\geq 285$  psig, and
- b. At least once per 18 months by verifying:
  1. The system valves, associated ventilation dampers and self closing fire doors actuate manually and automatically, upon receipt of a simulated actuation signal, and
  2. Flow from each nozzle during a "Puff Test."

TABLE 3.7-6

LOW PRESSURE CARBON DIOXIDE SYSTEMS

17 TON CAPACITY

<u>LOCATION</u>	<u>ACTUATION METHOD</u>
Diesel Generator 2AB Room	Heat - 2 circuits
Diesel Generator 2CD Room	Heat - 2 circuits
Diesel Generator Fuel Oil Pump Room	Heat
4 kv Switchgear Rooms	Ionization and Infrared
Control Rod Drive, Transf. Switchgear Rooms	Ionization and Infrared
Emergency Safety Switchgear Room	Ionization and Infrared
Switchgear Room Cable Vault	Ionization and Infrared
Auxiliary Cable Vault	Ionization
Control Room Cable Vault	Manual (backup)
Penetration Cable Tunnel Quadrant 1	Ionization and Infrared
Penetration Cable Tunnel Quadrant 2	Ionization and Infrared
Penetration Cable Tunnel Quadrant 3N	Ionization and Infrared
Penetration Cable Tunnel Quadrant 3M	Ionization and Infrared
Penetration Cable Tunnel Quadrant 3S	Ionization and Infrared
Penetration Cable Tunnel Quadrant 4	Ionization and Infrared

## PLANT SYSTEMS

### HALON SYSTEM

#### LIMITING CONDITION FOR OPERATION

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3.7.9.4 The Halon system located in the Unit 2 Control Room Cable Spreading Area shall be OPERABLE.

APPLICABILITY: Whenever equipment in the Halon protected areas is required to be OPERABLE.

#### ACTION:

- a. With the above required Halon system inoperable, within 1 hour verify that the fire detection system and the backup CO<sub>2</sub> fire suppression system are OPERABLE; otherwise, establish a continuous fire watch with backup fire suppression equipment for the Control Room Cable Spreading Area. 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

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4.7.9.4 The above Halon system shall be demonstrated OPERABLE:

- a. At least once per 6 months by verifying each Halon storage tank to be  $\geq 95\%$  of full charge weight and to be  $\geq 90\%$  of full charge pressure.
- b. At least once per 18 months by:
  1. Verifying the system, including associated ventilation dampers, actuates manually and automatically to a simulated test signal.
  2. Performance of an air flow test or CO<sub>2</sub> puff test through headers and nozzles to assure no blockage.



## PLANT SYSTEMS

### FIRE HOSE STATIONS

#### LIMITING CONDITION FOR OPERATION

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3.7.9.5 The fire hose standpipe connections in the following locations shall be OPERABLE:

1. Auxiliary Building (minimum 12).
2. Access to Diesel Generators (minimum 1).
3. Access to Switchgear Rooms (minimum 1).
4. Access to Control Room (minimum 1).

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 above required hose standpipe connections inoperable, route an additional equivalent capacity fire hose to the unprotected area(s) from an OPERABLE hose standpipe connection 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

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4.7.9.5 Each of the above required fire hose standpipe connections shall be demonstrated OPERABLE:

- a. At least once per 31 days by a visual inspection of the fire hose standpipe connection to assure all required equipment is at the connection.
- b. At least once per 18 months by:

PLANT SYSTEMS

SURVEILLANCE REQUIREMENTS (Cont'd)

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1. Removing the hose for inspection and re-racking, and
  2. Replacement of all degraded gaskets in couplings.
- c. At least once per 3 years by:
1. Partially opening each hose standpipe connection 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 that hose standpipe connection.

## PLANT SYSTEMS

### 3/4.7.10 FIRE RATED ASSEMBLIES

#### LIMITING CONDITION FOR OPERATION

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3.7.10 All fire rated assemblies (walls, floor/ceilings) separating safety related fire areas or separating portions of redundant systems important to safe shutdown within a fire area and all sealing devices in fire rated assembly penetrations (fire doors, fire dampers, cable and piping penetration seals) shall be OPERABLE.

APPLICABILITY: At all times.

#### ACTION:

- a. With one or more of the above required fire rated assemblies and/or sealing devices inoperable, within one hour either establish a continuous fire watch on at least one side of the affected assembly, or verify the OPERABILITY of fire detectors per Specification 4.3.3.8 on at least one side of the inoperable assembly and establish an hourly fire watch patrol or secure in the closed position the inoperable sealing device\* and establish an hourly fire watch patrol. Restore the inoperable fire rated assembly and sealing device 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 action taken, the cause of the inoperable fire rated assembly and/or sealing device and the plans and schedule for restoring the fire rated assembly and/or sealing device to OPERABLE status.
- b. The provisions of Specifications 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 the exposed surfaces of each fire rated assemblies.
- b. Performing a visual inspection of each fire damper and associated hardware.

\* Except fire doors on Turbine Driven Auxiliary Feedwater Pump and Hallway enclosures which cannot be locked closed for HELB considerations.

PLANT SYSTEMS

SURVEILLANCE REQUIREMENTS (Cont'd)

- c. Performing a visual inspection of at least 10 percent of each type of sealed penetration. If apparent changes in appearance or abnormal degradations are found, a visual inspection of an additional 10 percent of each type of sealed penetration shall be made. This inspection process shall continue until a 10 percent sample with no apparent changes in appearance or abnormal degradation is found.

4.7.10.2 Each of the above required fire doors shall be verified OPERABLE by inspecting the hold-open, release and closing mechanism and latches at least once per 6 months, and by verifying:

- a. The position of each closed fire door at least once per 24 hours.
- b. That doors with hold-open and release mechanisms are free of obstructions at least once per 24 hours.
- c. The position of each locked closed fire door at least once per 7 days.

4.7.10.3 Each of the above required fire rated assemblies or sealing devices in fire rated assembly penetrations shall be verified to be OPERABLE prior to declaring a penetration fire barrier OPERABLE following repairs or maintenance.

### 3/4.3 INSTRUMENTATION

#### BASES

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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 restored to OPERABILITY. Use of containment temperature monitoring is allowed once per hour if containment fire detection is inoperable.

#### 3/4.3.4 TURBINE OVERSPEED PROTECTION

This specification is provided to ensure that the turbine overspeed protection instrumentation and the turbine speed control valves are OPERABLE and will protect the turbine from excessive overspeed. Protection from turbine excessive overspeed is required since excessive overspeed of the turbine could generate potentially damaging missiles which could impact and damage safety related components, equipment or structures.

## PLANT SYSTEMS

### BASES

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#### 3/4.7.8 SEALED SOURCE CONTAMINATION

The limitations on removable contamination for sources requiring leak testing, including alpha emitters, is based on 10 CFR 70.39(c) limits for plutonium. This limitation will ensure that leakage from byproduct, source, and special nuclear material sources will not exceed allowable intake values.

#### 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 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 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.

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.

## PLANT SYSTEMS

### 3/4.7.9 FIRE SUPPRESSION SYSTEMS (Cont'd)

In the event 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.

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 a continuous fire watch, if the fire suppression system becomes inoperable.

### 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, fire barrier penetrations for conduits, cable trays and piping, fire dampers, and fire doors are periodically inspected to verify their OPERABILITY.

