ENCLOSURE

٠

.

9012110150 901130 PDR ADDCK 05000259 PDC PDC PROPOSED TECHNICAL SPECIFICATION

BROWNS FERRY NUCLEAR PLANT

UNITS 1, 2 AND 3

(TVA BFN TS 292, SUPPLEMENT 1)

3.11/4.11 FIRE PROTECTION SYSTEMS



- 3.11.B <u>FIRE PUMPS AND WATER</u> <u>DISTRIBUTION MAINS</u> (Cont'd)
 - 2. With only the diesel or one or more of the three electric pumps OPERABLE, restore the inoperable equipment to OPERABLE status within 7 days or provide an alternate backup pump or supply.
 - 3. With no high-pressure fire pumps OPERABLE, establish a backup fire water system within 24 hours or be in COLD SHUTDOWN CONDITION within the following 24 hours.

SURVEILLANCE REQUIREMENTS

- 4.11.B <u>FIRE PUMPS AND WATER</u> <u>DISTRIBUTION MAINS</u> (Cont'd)
 - e. At least yearly 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 actuation of the system throughout its operating sequence, and:
 - Verifying that each automatic valve in the flow path actuates to its correct position,
 - (2) Verifying that each electric high-pressure fire pump develops at least 2250 gpm at a system head of 300 feet.
 - (3) Verifying the diesel-driven high-pressure fire pump develops at least 2250 gpm at a system head of 300 feet.

3.11/4.11-3

3.11/4.11 FIRE PROTECTION SYSTEMS



LIMITING CONDITIONS FOR OPERATION

3.11.B <u>FIRE PUMPS AND WATER</u> <u>DISTRIBUTION MAINS</u> (Cont'd) SURVEILLANCE REQUIREMENTS

- 4.11.B <u>FIRE PUMPS AND WATER</u> <u>DISTRIBUTION MAINS</u> (Cont'd)
 - (4) Verifying that after initial high-pressure fire pump actuation each subsequent high-pressure fire pump starts sequentially to maintain the High-Pressure Fire Protection System pressure greater than or equal to 120 psig.
 - g. At least once per 3 years by performing a flow test of the system in accordance with the Fire Protection Handbook published by the National Fire Protection Association.
 - The diesel-driven high-pressure fire pump shall be demonstrated OPERABLE:
 - a. At least monthly by:
 - (1) Verifying the fuel tank contains at least 150 gallons of fuel.
 - (2) Starting the pump from ambient
 conditions and operating for greater than or equal to 30 minutes on recirculation flow.

AMENDMENT NO. 162

	1		к		•
		-14	N		•
1				F	

9. # .

.



2 3+ *** · · ·

۴ م

. **

ч У ата" (т. с.

4

FIRE PROTECTION SYSTEMS

The OPERABILITY of the fire protection systems ensures that adequate fire protection features are available to detect, confine, and extinguish fires occurring in any portion of the facility where safety-related equipment is located. The fire protection system consists of fire detection instrumentation, fire pumps, and water distribution mains, spray and/or sprinkler systems, CO2 systems, fire hose stations, yard fire hydrants and hose house stations and fire barriers. 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. OPERABILITY of the detection instrumentation ensures that both adequate warning capability is available for prompt detection of fires and that fire suppression systems that are actuated by fire detectors will discharge extinguishing agent in a timely manner. Prompt detection and suppression 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 portions of the fire protection 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.

If in the event that all the high-pressure fire pumps become inoperable, an alternate backup pump or supply is available, such as using the additional fire pump which normally protects outlying areas and mobile fire apparatus to maintain the 2250 gpm water supply at a system head of 300 feet.

Fire protection water systems protecting areas containing redundant safe shutdown systems, as defined in BFN's Fire Hazard Analysis, warrant more stringent compensatory measures (i.e., continuous fire watches) than areas containing only one division of safe shutdown systems or safety-related equipment not required for safe shutdown under fire conditions.

The surveillance requirements provide assurances that the minimum OPERABILITY requirements of the fire protection systems are met. All fire protection equipment surveillances required by this technical specification can be performed when the unit is in any operating mode.

BFN Unit 1

•

*

· ,

		٠				
	х и б р к	~> : dgz	8 4 •	X *	т с' я	÷
27	al p	3	٠			
						,
	•					

•

s.

¢ #95

4

. ______

**

4% *

њ 98,

FIRE PROTECTION SYSTEMS (Cont'd)

Flushing of the high-pressure fire protection system mains and building headers assures that sediment and marine growth is removed from the system to prevent obstruction. Subsequent biocide addition reduces further marine organism growth. Individual hose stations and fire hydrants are not included in the overall flush requirements, but are flushed periodically during specific operability verifications. Hydraulic performance of the water fire suppression system is tested in accordance with the 16th Edition of the Fire Protection Handbook, published by the National Fire Protection Association.

The functional integrity of the fire barrier assemblies and penetration sealing devices ensures that fires will be confined or adequately retarded from spreading to adjacent portions of the facility. This design feature minimizes the possibility of a single fire from involving several areas of the facility prior to detection and extinguishment. The fire barrier penetrations are a passive element in the facility fire protection program and are subject to periodic inspections.

The barrier penetrations, including fire doors, fire dampers, and cable and pipe penetration seals, are considered functional when the visually observed condition indicates no significant degradation.

UNIT 2 EFFECTIVE PAGE LIST

REMOVE

INSERT

3.11/4.11-3	3.11/4.11-3
3.11/4.11-4	3.11/4.11-4*
3.11/4.11-21	3.11/4.11-21
3.11/4.11-22	3.11/4.11-22*

*Denotes overleaf or spillover page.

.

•

K ; . ×

. ,

۰ ۳ لک ۲

.

. .

.

3.11/4.11 FIRE PROTECTION SYSTEMS



LIMITING CONDITIONS FOR OPERATION

- 3.11.B <u>FIRE PUMPS AND WATER</u> <u>DISTRIBUTION MAINS</u> (Cont'd)
 - 2. With only the diesel or one or more of the three electric pumps OPERABLE, restore the inoperable equipment to OPERABLE status within 7 days or provide an alternate backup pump or supply.
 - With no high-pressure fire pumps OPERABLE, establish a backup fire water system within 24 hours or be in COLD SHUTDOWN CONDITION within the following 24 hours.

SURVEILLANCE REQUIREMENTS

- 4.11.B <u>FIRE PUMPS AND WATER</u> <u>DISTRIBUTION MAINS</u> (Cont'd)
 - e. At least yearly 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 actuation of the system throughout its operating sequence, and:
 - Verifying that each automatic valve in the flow path actuates to its correct position,
 - (2) Verifying that each electric high-pressure fire pump develops at least 2250 gpm at a system head of 300 feet.
 - (3) Verifying the diesel-driven high-pressure fire pump develops at least 2250 gpm at a system head of 300 feet.

• • • • • • • · .

	e e	٠		• •	w r
* *			· · ·		τ
Ð					
+					

··• • • · · · · ·

• • • •

,

r

9 f.s.



LIMITING CONDITIONS FOR OPERATION

3.11.B <u>FIRE PUMPS AND WATER</u> <u>DISTRIBUTION MAINS</u> (Cont'd) SURVEILLANCE REQUIREMENTS

- 4.11.B <u>FIRE PUMPS AND WATER</u> <u>DISTRIBUTION MAINS</u> (Cont'd)
 - (4) Verifying that after initial high-pressure fire pump actuation each subsequent high-pressure fire pump starts sequentially to maintain the High-Pressure Fire Protection System pressure greater than or equal to 120 psig.
 - g. At least once per 3 years by performing a flow test of the system in accordance with the Fire Protection Handbook published by the National Fire Protection Association.
 - The diesel-driven high-pressure fire pump shall be demonstrated OPERABLE:
 - a. At least monthly by:
 - Verifying the fuel tank contains at least 150 gallons of fuel.
 - (2) Starting the pump from ambient _conditions and operating for greater than or equal to 30 minutes on recirculation flow.

AMENDMENT NO. 159

3.11/4.11-4

- n nation a second se .

.

- ٣ **-**3'

- × *
- ı

- **P** 1 ≪ ′m,

- fast teks ~*****
 - lan.
 - ų

 - - .
- - **A** ^A 11

- 4

• '

- a data ۰,
 - . .
 - си, с си, с

 - i.
 - - - 14

FIRE PROTECTION SYSTEMS

The OPERABILITY of the fire protection systems ensures that adequate fire protection features are available to detect, confine, and extinguish fires occurring in any portion of the facility where safety-related equipment is located. The fire protection system consists of fire detection instrumentation, fire pumps, and water distribution mains, spray and/or sprinkler systems, CO₂ systems, fire hose stations, yard fire hydrants and hose house stations and fire barriers. 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. OPERABILITY of the detection instrumentation ensures that both adequate warning capability is available for prompt detection of fires and that fire suppression systems that are actuated by fire detectors will discharge extinguishing agent in a timely manner. Prompt detection and suppression 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 portions of the fire protection 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.

If in the event that all the high-pressure fire pumps become inoperable, an alternate backup pump or supply is available, such as using the additional fire pump which normally protects outlying areas and mobile fire apparatus to maintain the 2250 gpm water supply at a system head of 300 feet.

Fire protection water systems protecting areas containing redundant safe shutdown systems, as defined in BFN's Fire Hazard Analysis, warrant more stringent compensatory measures (i.e., continuous fire watches) than areas containing only one division of safe shutdown systems or safety-related equipment not required for safe shutdown under fire conditions.

The surveillance requirements provide assurances that the minimum OPERABILITY requirements of the fire protection systems are met. All fire protection equipment surveillances required by this technical specification can be performed when the unit is in any operating mode.

.

ы

r.

•

.

.

•

, , , and the state of t

* *** 5** +

FIRE PROTECTION SYSTEMS (Cont'd)

Flushing of the high-pressure fire protection system mains and building headers assures that sediment and marine growth is removed from the system to prevent obstruction. Subsequent biocide addition reduces further marine organism growth. Individual hose stations and fire hydrants are not included in the overall flush requirements, but are flushed periodically during specific operability verifications. Hydraulic performance of the water fire suppression system is tested in accordance with the 16th Edition of the Fire Protection Handbook, published by the National Fire Protection Association.

The functional integrity of the fire barrier assemblies and penetration sealing devices ensures that fires will be confined or adequately retarded from spreading to adjacent portions of the facility. This design feature minimizes the possibility of a single fire from involving several areas of the facility prior to detection and extinguishment. The fire barrier penetrations are a passive element in the facility fire protection program and are subject to periodic inspections.

The barrier penetrations, including fire doors, fire dampers, and cable and pipe penetration seals, are considered functional when the visually observed condition indicates no significant degradation.

· .

.

· · · ·

UNIT 3 EFFECTIVE PAGE LIST

REMOVE

INSERT

3.11/4.11-3	3.11/4.11-3
3.11/4.11-4	3.11/4.11-4*
3.11/4.11-23	3.11/4.11–23
3.11/4.11-24	3.11/4.11-24*

*Denotes overleaf or spillover page.

.

3.11/4.11 FIRE PROTECTION SYSTEMS



3.11.B <u>FIRE PUMPS AND WATER</u> <u>DISTRIBUTION MAINS</u> (Cont'd)

- 2. With only the diesel or one or more of the three electric pumps OPERABLE, restore the inoperable equipment to OPERABLE status within 7 days or provide an alternate backup pump or supply.
- 3. With no high-pressure fire pumps OPERABLE, establish a backup fire water system within 24 hours or be in COLD SHUTDOWN CONDITION within the following 24 hours.

SURVEILLANCE REQUIREMENTS

- 4.11.B <u>FIRE PUMPS AND WATER</u> <u>DISTRIBUTION MAINS</u> (Cont'd)
 - e. At least yearly 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 actuation of the system throughout its operating sequence, and:
 - Verifying that each automatic valve in the flow path actuates to its correct position,
 - (2) Verifying that each electric high-pressure fire pump develops at least 2250 gpm at a system head of 300 feet.
 - (3) Verifying the diesel-driven high-pressure fire pump develops at least 2250 gpm at a system head of 300 feet.

3.11/4.11-3

н 2 4 =34 ₿.e

- •,
 - τ.

- , к т т

 - - - . . .

3.11/4.11 FIRE PROTECTION SYSTEMS

.

.



LIMITING CONDITIONS FOR OPERATION

SURVEILLANCE REQUIREMENTS

3.11.B	FIRE PUMPS AND WATER DISTRIBUTION MAINS (Cont'd)	4.11.B	FIRE PUMPS AND WATER DISTRIBUTION MAINS (Cont'd)
,	-		(4) Verifying that after initial high-pressure fire pump actuation each subsequent high-pressure fire pump starts sequentially to maintain the High-Pressure Fire Protection System pressure greater than or equal to 120 psig.
			g. At least once per 3 years by performing a flow test of the system in accordance with the Fire Protection Handbook published by the National Fire Protection Association.
	-		2. The diesel-driven high-pressure fire pump shall be demonstrated OPERABLE:
			 a. At least monthly by: (1) Verifying the fuel tank contains at least 150 gallons of fuel.
			 (2) Starting the pump from ambient conditions and operating for greater than or equal to 30 minutes on recirculation flow.

AMENDMENT NO. 133

1







- . •

- ۰.
- •
- 2. 200

- ٠^ψ,
- 7 E

- *...

- - 4 5
- ,

FIRE PROTECTION SYSTEMS

The OPERABILITY of the fire protection systems ensures that adequate fire protection features are available to detect, confine, and extinguish fires occurring in any portion of the facility where safety-related equipment is located. The fire protection system consists of fire detection instrumentation, fire pumps, and water distribution mains, spray and/or sprinkler systems, CO₂ systems, fire hose stations, yard fire hydrants and hose house stations and fire barriers. 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. OPERABILITY of the detection instrumentation ensures that both adequate warning capability is available for prompt detection of fires and that fire suppression systems that are actuated by fire detectors will discharge extinguishing agent in a timely manner. Prompt detection and suppression 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 portions of the fire protection 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.

If in the event that all the high-pressure fire pumps become inoperable, an alternate backup pump or supply is available, such as using the additional fire pump which normally protects outlying areas and mobile . fire apparatus to maintain the 2250 gpm water supply at a system head of 300 feet.

Fire protection water systems protecting areas containing redundant safe shutdown systems, as defined in BFN's Fire Hazard Analysis, warrant more stringent compensatory measures (i.e., continuous fire watches) than areas containing only one division of safe shutdown systems or safety-related equipment not required for safe shutdown under fire conditions.

The surveillance requirements provide assurances that the minimum OPERABILITY requirements of the fire protection systems are met. All fire protection equipment surveillances required by this technical specification can be performed when the unit is in any operating mode. .

5**7**

•

d 4: ۰ ۷

٠

•

n - Èùm Arr 1

FIRE PROTECTION SYSTEMS (Cont'd)

Flushing of the high-pressure fire protection system mains and building headers assures that sediment and marine growth is removed from the system to prevent obstruction. Subsequent blocide addition reduces further marine organism growth. Individual hose stations and fire hydrants are not included in the overall flush requirements, but are flushed periodically during specific operability verifications. Hydraulic performance of the water fire suppression system is tested in accordance with the 16th Edition of the Fire Protection Handbook, published by the National Fire Protection Association.

The functional integrity of the fire barrier assemblies and penetration sealing devices ensures that fires will be confined or adequately retarded from spreading to adjacent portions of the facility. This design feature minimizes the possibility of a single fire from involving several areas of the facility prior to detection and extinguishment. The fire barrier penetrations are a passive element in the facility fire protection program and are subject to periodic inspections.

The barrier penetrations, including fire doors, fire dampers, and cable and pipe penetration seals, are considered functional when the visually observed condition indicates no significant degradation.

• •

~ h