

3/4.7.4 ESSENTIAL SERVICE WATER SYSTEM

LIMITING CONDITION FOR OPERATION

- 3.7.4.1 a. At least two independent essential service water loops shall be OPERABLE.
- b. At least one essential service water flowpath associated with support of Unit 2 shutdown functions shall be available.

APPLICABILITY: Specification 3.7.4.1.a – Either Unit in MODES 1, 2, 3, and 4.
Specification 3.7.4.1.b - At all times when Unit 2 is in MODES 1, 2, 3 or 4.

ACTION:

- a. When Unit 1 is in MODES 1, 2, 3, and 4:

With only one essential service water loop OPERABLE, restore at least two loops to OPERABLE status within 72 hours, or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

- b. When Unit 2 is in MODES 1, 2, 3 and 4:

1. With any Unit 1 essential service water pump not OPERABLE, within one hour close at least one crosstie valve on the associated header or have Unit 2 enter ACTION a for Unit 2 Specification 3.7.4.1 for the Unit 2 essential service water pump sharing the same header with the inoperable Unit 1 essential service water pump.
2. With no essential service water flow path available in support of Unit 2 shutdown functions, return at least one flow path to available status within 7 days, or have Unit 2 in HOT STANDBY within the next 12 hours and HOT SHUTDOWN within the following 24 hours. The requirements of Specification 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

- 4.7.4.1 At least two essential service water loops shall be demonstrated OPERABLE:
- a. At least once per 31 days by verifying that each valve (manual, power operated or automatic) servicing safety related equipment that is not locked, sealed, or otherwise secured in position, is in its correct position.
 - b. At least once per 18 months during shutdown, by verifying that each automatic valve servicing safety related equipment actuates to its correct position on a Safety Injection test signal.
 - c. By verifying pump performance pursuant to Specification 4.0.5.
 - d. At least once per 92 days by verifying that each closed crosstie valve, in the available essential service water flowpath associated with support of Unit 2 shutdown functions, can be cycled from the control room.

3/4.7.2 STEAM GENERATOR PRESSURE/TEMPERATURE LIMITATION

The limitation on steam generator pressure and temperature ensures that the pressure induced stresses in the steam generators do not exceed the maximum allowable fracture toughness stress limits. The limitations of 70°F and 200 psig are based on average steam generator impact values taken at +10°F and are sufficient to prevent brittle fracture.

3/4.7.3 COMPONENT COOLING WATER SYSTEM

The OPERABILITY of the component cooling water system ensures that sufficient cooling capacity is available for continued operation of safety related equipment during normal and accident conditions. The redundant cooling capacity of this system, assuming a single failure, is consistent with the assumptions used in the accident analyses.

3/4.7.4 ESSENTIAL SERVICE WATER SYSTEM

The OPERABILITY of the essential service water (ESW) system ensures that sufficient cooling capacity is available for continued operation of safety related equipment during normal and accident conditions. The redundant cooling capacity of this system, assuming a single failure, is consistent with the assumptions used in the analyses.

The ESW system consists of two independent headers shared between the two units. Each unit has two ESW pumps, one connected to each header. The portion of the header associated with each unit is designated as a loop and consists of that unit's ESW pump and associated cooling loads. Each header may be split into the two independent loops by closing one of two crosstie valves.

Limiting Condition for Operation 3.7.4.1.a also ensures that an inoperable Unit 1 ESW pump does not result in flow being diverted from an OPERABLE Unit 2 ESW pump sharing the same header. To be considered OPERABLE for supporting Unit 2 operation in MODES 1, 2, 3, and 4, the Unit 1 ESW pump must meet the OPERABILITY requirements for MODES 1, 2, 3, and 4. A Unit 1 ESW pump that is not OPERABLE, but is available to be started manually, may be considered part of the shutdown flowpath required by Specification 3.7.4.1.b provided at least one crosstie valve in the shutdown flowpath is closed and capable of being opened from the control room.

Limiting Condition for Operation 3.7.4.1.b ensures a shutdown cooling flow path from Unit 1 is maintained available for Unit 2. The available shutdown cooling flow path is necessary to support Unit 2 in the event of a complete loss of ESW in Unit 2 or a 10 CFR 50 Appendix R fire. The available flowpath may have a closed crosstie valve(s) when required by Action b.1. Specification 4.7.4.1.d ensures a closed crosstie valve can be opened from the control room to support the shutdown flow path during a complete loss of ESW in Unit 2. For 10 CFR 50 Appendix R, it is assumed that the valve can be opened by local manual operation.

3/4.7.3 and 3/4.7.4

The OPERABILITY of the Unit 1 flowpaths which support Unit 2 shutdown functions ensures the availability of cooling functions on Unit 2 and addresses the requirements of 10 CFR 50 Appendix R. The required flowpath consists of a pump and associated water supplies and delivery systems. Fire watches posted in the affected opposite unit areas (i.e., Unit 2 areas requiring use of the Unit 1 component cooling water system in the event of a fire) may serve as the equivalent shutdown capability specified in the action statement of Specification 3.7.3.1. In the affected areas, either establish continuous fire watches or verify the OPERABILITY of fire detectors per Specification 4.3.3.7 and establish hourly fire watch patrols. The required opposite unit equipment along with the surveillance requirements necessary to ensure that this equipment is capable of fulfilling its intended Appendix R alternate safe shutdown functions have been established and are included in a plant procedure. An additional plant procedure details how the above noted fire watches will be implemented.

3/4.7.4 ESSENTIAL SERVICE WATER SYSTEM

LIMITING CONDITION FOR OPERATION

- 3.7.4.1 a. At least two independent essential service water loops shall be OPERABLE.
- b. At least one essential service water flowpath associated with support of Unit 1 shutdown functions shall be available.

APPLICABILITY: Specification 3.7.4.1.a - Either Unit in MODES 1, 2, 3, and 4.
Specification 3.7.4.1.b - At all times when Unit 1 is in MODES 1, 2, 3, or 4.

ACTION:

- a. When Unit 2 is in MODES 1, 2, 3, and 4:

With only one essential service water loop OPERABLE, restore at least two loops to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

- b. When Unit 1 is in MODES 1, 2, 3 and 4:

- 1. With any Unit 2 essential service water pump not OPERABLE, within one hour close at least one crosstie valve on the associated header or have Unit 1 enter ACTION a for Unit 1 Specification 3.7.4.1 for the Unit 1 essential service water pump sharing the same header with the inoperable Unit 2 essential service water pump.
- 2. With no essential service water flow path available in support of Unit 1 shutdown functions, return at least one flow path to available status within 7 days, or have Unit 1 in HOT STANDBY within the next 12 hours and HOT SHUTDOWN within the following 24 hours. The requirements of Specification 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

4.7.4.1 At least two essential service water loops shall be demonstrated OPERABLE:

- a. At least once per 31 days by verifying that each valve (manual, power operated or automatic) servicing safety related equipment that is not locked, sealed, or otherwise secured in position, is in its correct position.
- b. At least once per 18 months during shutdown, by verifying that each automatic valve servicing safety related equipment actuates to its correct position on a Safety Injection test signal.
- c. By verifying pump performance pursuant to Specification 4.0.5.
- d. At least once per 92 days by verifying that each closed crosstie valve, in the available essential service water flowpath associated with support of Unit 1 shutdown functions, can be cycled from the control room.

3/4.7.2 STEAM GENERATOR PRESSURE/TEMPERATURE LIMITATION

The limitation on steam generator pressure and temperature ensures that the pressure induced stresses in the steam generators do not exceed the maximum allowable fracture toughness stress limits. The limitations of 70°F and 200 psig are based on average steam generator impact values taken at +10°F and are sufficient to prevent brittle fracture.

3/4.7.3 COMPONENT COOLING WATER SYSTEM

The OPERABILITY of the component cooling water system ensures that sufficient cooling capacity is available for continued operation of safety related equipment during normal and accident conditions. The redundant cooling capacity of this system, assuming a single failure, is consistent with the assumptions used in the accident analyses.

3/4.7.4 ESSENTIAL SERVICE WATER SYSTEM

The OPERABILITY of the essential service water (ESW) system ensures that sufficient cooling capacity is available for continued operation of safety related equipment during normal and accident conditions. The redundant cooling capacity of this system, assuming a single failure, is consistent with the assumptions used in the accident analyses.

The ESW system consists of two independent headers shared between the two units. Each unit has two ESW pumps, one connected to each header. The portion of the header associated with each unit is designated as a loop and consists of that unit's ESW pump and associated cooling loads. Each header may be split into the two independent loops by closing one of two crosstie valves.

Limiting Condition for Operation 3.7.4.1.a also ensures that an inoperable Unit 2 ESW pump does not result in flow being diverted from an OPERABLE Unit 1 ESW pump sharing the same header. To be considered OPERABLE for supporting Unit 1 operation in MODES 1, 2, 3, and 4, the Unit 2 ESW pump must meet the OPERABILITY requirements for MODES 1, 2, 3, and 4. A Unit 2 ESW pump that is not OPERABLE, but is available to be started manually, may be considered part of the shutdown flowpath required by Specification 3.7.4.1.b provided at least one crosstie valve in the shutdown flowpath is closed and capable of being opened from the control room.

Limiting Condition for Operation 3.7.4.1.b ensures a shutdown cooling flow path from Unit 2 is maintained available for Unit 1. The available shutdown cooling flow path is necessary to support Unit 1 in the event of a complete loss of ESW in Unit 1 or a 10 CFR 50 Appendix R fire. The available flowpath may have a closed crosstie valve(s) when required by Action b.1. Specification 4.7.4.1.d ensures a closed crosstie valve can be opened from the control room to support the shutdown flow path during a complete loss of ESW in Unit 1. For 10 CFR 50 Appendix R, it is assumed that the valve can be opened by local manual operation.

3/4.7.3 and 3/4.7.4

The OPERABILITY of the Unit 2 flowpaths which support Unit 1 shutdown functions ensures the availability of cooling functions on Unit 1 and addresses the requirements of 10 CFR 50 Appendix R. The required flowpath consists of a pump and associated water supplies and delivery systems. Fire watches posted in the affected opposite unit areas (i.e., Unit 1 areas requiring use of the Unit 2 component cooling water system in the event of a fire) may serve as the equivalent shutdown capability specified in the action statement of Specification 3.7.3.1. In the affected areas, either establish continuous fire watches or verify the OPERABILITY of fire detectors per Specification 4.3.3.7 and establish hourly fire watch patrols. The required opposite unit equipment along with the surveillance requirements necessary to ensure that this equipment is capable of fulfilling its intended Appendix R alternate safe shutdown function have been established and are included in a plant procedure. An additional plant procedure details how the above noted fire watches will be implemented.