

REACTIVITY CONTROL SYSTEMS

3/4.1.2 BORATION SYSTEMS

FLOW PATHS - SHUTDOWN

LIMITING CONDITION FOR OPERATION

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3.1.2.1 As a minimum, one of the following boron injection flow paths shall be OPERABLE:

- a. A flow path from the boric acid tanks via a boric acid transfer pump and charging pump to the Reactor Coolant System if only the boric acid storage tank in Specification 3.1.2.7a is OPERABLE, or
- b. The flow path from the refueling water storage tank via a charging pump to the Reactor Coolant System if only the refueling water storage tank in Specification 3.1.2.7b is OPERABLE.

APPLICABILITY: MODES 5 and 6.

ACTION:

With none of the above flow paths OPERABLE, suspend all operations involving CORE ALTERATIONS or positive reactivity changes until at least one injection path is restored to OPERABLE status.

SURVEILLANCE REQUIREMENTS

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4.1.2.1 At least one of the above required flow paths shall be demonstrated OPERABLE:

- a. At least once per 7 days by verifying that the temperature of the heat traced portion of the flow path is greater than or equal to 145°F when a flow path from the boric acid tanks is used.
- 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 in position, is in its correct position.

\* For purposes of this specification, addition of water from the RWST does not constitute a positive reactivity addition provided the boron concentration in the RWST is greater than the minimum required by Specification 3.1.2.7.b.2.

REACTIVITY CONTROL SYSTEMS

SURVEILLANCE REQUIREMENTS

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## REACTIVITY CONTROL SYSTEMS

### FLOW PATHS - OPERATING

#### LIMITING CONDITION FOR OPERATION

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3.1.2.2 Each of the following boron injection flow paths shall be OPERABLE:

- a. The flow path from the boric acid tanks via a boric acid transfer pump and a charging pump to the Reactor Coolant System, and
- b. The flow path from the refueling water storage tank via a charging pump to the Reactor Coolant system.

APPLICABILITY: MODES 1, 2, 3 and 4.

#### ACTION:

- a. With the flow path from the boric acid tanks inoperable, restore the inoperable flow path to OPERABLE status within 72 hours or be in at least HOT STANDBY and borated to a SHUTDOWN MARGIN equivalent to at least  $1\% \Delta k/k$  at  $200^{\circ}\text{F}$  within the next 6 hours; restore the flow path to OPERABLE status within the next 7 days or be in COLD SHUTDOWN within the next 30 hours.
- b. With the flow path from the refueling water storage tank inoperable, restore the flow path to OPERABLE status within one hour or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

#### SURVEILLANCE REQUIREMENTS

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4.1.2.2 Each of the above required flow paths shall be demonstrated OPERABLE:

- a. At least once per 7 days by verifying that the temperature of the heat traced portion of the flow path from the boric acid tanks is greater than or equal to  $145^{\circ}\text{F}$ ,



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REACTIVITY CONTROL SYSTEMS

SURVEILLANCE REQUIREMENTS

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- 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 18 months during shutdown by verifying that each automatic valve in the flow path actuates to its correct position on an RWST sequencing signal.

REACTIVITY CONTROL SYSTEMS  
CHARGING PUMP - SHUTDOWN

LIMITING CONDITION FOR OPERATION

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3.1.2.3

- a. One charging pump in the boron injection flow path required by Specification 3.1.2.1 shall be OPERABLE and capable of being powered from an OPERABLE emergency bus.
- b. One charging flowpath associated with support of Unit 2 shutdown functions shall be available.\*

APPLICABILITY: Specification 3.1.2.3.a. - MODES 5 and 6  
Specification 3.1.2.3.b. - At all times when Unit 2 is in MODES 1, 2, 3, or 4.

ACTION:

- a. With no charging pump OPERABLE, suspend all operations involving CORE ALTERATIONS or positive reactivity changes.\*\*
- b. With more than one charging pump OPERABLE or with a safety injection pump(s) OPERABLE when the temperature of any RCS cold leg is less than or equal to 170°F, unless the reactor vessel head is removed, remove the additional charging pump(s) and the safety injection pump(s) motor circuit breakers from the electrical power circuit within one hour.
- c. The provisions of Specification 3.0.3 are not applicable.
- d. In addition to the above, when Specification 3.1.2.3.b is applicable and the required flow path is not available, return the required flow path to available status within 7 days, or provide equivalent shutdown capability in Unit 2 and return the required flow path to available status within the next 60 days, or have Unit 2 in HOT STANDBY within the next 12 hours and HOT SHUTDOWN within the following 24 hours.
- e. The requirements of Specification 3.0.4 are not applicable when Specification 3.1.2.3.b applies.

SURVEILLANCE REQUIREMENTS

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4.1.2.3.1 The above required charging pump shall be demonstrated OPERABLE by verifying, that on recirculation flow, the pump develops a discharge pressure of greater than or equal to 2390 psig when tested pursuant to Specification 4.0.5.

\*A maximum of one centrifugal charging pump shall be OPERABLE whenever the temperature of one or more of the RCS cold legs is less than or equal to 170°F.

\*\* For purposes of this specification, addition of water from the RWST does not constitute a positive reactivity addition provided the boron concentration in the RWST is greater than the minimum required by Specification 3.1.2.7.b.2.

REACTIVITY CONTROL SYSTEMS

CHARGING PUMPS - OPERATING

LIMITING CONDITION FOR OPERATION

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3.1.2.4 At least two charging pumps shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3 and 4.

ACTION:

With only one charging pump OPERABLE, restore at least two charging pumps to OPERABLE status within 72 hours or be in HOT STANDBY within the next 6 hours; restore at least two charging pumps to OPERABLE status within the next 48 hours or be in COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

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4.1.2.4 At least two charging pumps shall be demonstrated OPERABLE by verifying, that on recirculation flow, each pump develops a discharge pressure of greater than or equal to 2405 psig when tested pursuant to Specification 4.0.5.





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## REACTIVITY CONTROL SYSTEMS

### BORIC ACID TRANSFER PUMPS - SHUTDOWN

#### LIMITING CONDITION FOR OPERATION

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3.1.2.5 At least one boric acid transfer pump shall be OPERABLE and capable of being powered from an OPERABLE emergency bus if only the flow path through the boric acid transfer pump of Specification 3.1.2.1a is OPERABLE.

APPLICABILITY: MODES 5 and 6.

ACTION:

With no boric acid transfer pump OPERABLE as required to complete the flow path of Specification 3.1.2.1a, suspend all operations involving CORE ALTERATIONS or positive reactivity changes\* until at least one boric acid transfer pump is restored to OPERABLE status.

#### SURVEILLANCE REQUIREMENTS

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4.1.2.5 No additional surveillance requirements other than those required by Specification 4.0.5.

\*For purposes of this specification, addition of water from the RWST does not constitute a positive reactivity addition provided the boron concentration in the RWST is greater than the minimum required by Specification 3.1.2.7.b.2.



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REACTIVITY CONTROL SYSTEMS

BORIC ACID TRANSFER PUMPS - OPERATING

LIMITING CONDITION FOR OPERATION

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3.1.2.6 At least one boric acid transfer pump in the boron injection flow path required by Specification 3.1.2.2a shall be OPERABLE and capable of being powered from an OPERABLE emergency bus if the flow path through the boric acid pump in Specification 3.1.2.2a is OPERABLE.

APPLICABILITY: MODES 1, 2, 3 and 4.

ACTION:

With no boric acid transfer pump OPERABLE, restore at least one boric acid transfer pump to OPERABLE STATUS within 72 hours or be in at least HOT STANDBY within the next 6 hours and borated to a SHUTDOWN MARGIN equivalent to  $1\% \Delta k/k$  at 200°F; restore at least one boric acid transfer pump to OPERABLE status within the next 7 days or be in COLD SHUTDOWN within the next 30 hours.

SURVEILLANCE REQUIREMENTS

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4.1.2.6 No additional surveillance requirements other than those required by Specification 4.0.5.



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## REACTOR COOLANT SYSTEM

### SURVEILLANCE REQUIREMENTS

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4.4.9.3.1 Each PORV shall be demonstrated OPERABLE by:

- a. Performance of a CHANNEL FUNCTIONAL TEST on the PORV actuation channel, but excluding valve operation, within 31 days prior to entering a condition in which the PORV is required OPERABLE and at least once per 31 days thereafter when the PORV required OPERABLE.
- b. Performance of a CHANNEL CALIBRATION on the PORV actuation channel at least once per 18 months.
- c. Verifying the PORV isolation valve is open at least once per 72 hours when the PORV is being used for overpressure protection.
- d. Testing in accordance with the inservice test requirements for ASME Category B valves pursuant to Specification 4.0.5.
- e. Determining the emergency air tank OPERABLE by verifying:
  1. At least once per 31 days, air tank pressure greater than or equal to 900 psig.
  2. Air tank pressure instrumentation OPERABLE by performance of a:
    - (a) CHANNEL FUNCTIONAL TEST at least once per 31 days, and
    - (b) CHANNEL CALIBRATION at least once per 18 months,with the low pressure alarm setpoint greater than or equal to 900 psig.

4.4.9.3.2 The RHR safety valve shall be demonstrated OPERABLE by:

- a. Verifying that the RHR system suction is aligned to the RCS loop with the valves in the flow path open at least once per 12 hours when the RHR safety valve is being used for overpressure protection.
- b. Testing in accordance with the inservice test requirements for ASME Category C valves pursuant to Specification 4.0.5.

4.4.9.3.3 The RCS vent(s) shall be verified to be open at least once per 12 hours\* when the vent(s) is being used for overpressure protection.

\*Except when the vent pathway is provided with a valve which is locked, sealed, or otherwise secured in the open position, then verify these valves open at least once per 31 days.

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EMERGENCY CORE COOLING SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

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- d. At least once per 18 months by: \*
1. Verifying automatic isolation and interlock action of the RHR system from the Reactor Coolant System when the Reactor Coolant System pressure is above 600 psig.
  2. A visual inspection of the containment sump and verifying that the subsystem suction inlets are not restricted by debris and that the sump components (trash racks, screens, etc.) show no evidence of structural distress or abnormal corrosion.
- e. At least once per 18 months, during shutdown, by: \*
1. Verifying that each automatic valve in the flow path actuates to its correct position on a Safety Injection test signal.
  2. Verifying that each of the following pumps start automatically upon receipt of a safety injection test signal:
    - a) Centrifugal charging pump
    - b) Safety injection pump
    - c) Residual heat removal pump
- f. By verifying that each of the following pumps develops the indicated discharge pressure on recirculation flow when tested pursuant to Specification 4.0.5.
1. Centrifugal charging pump greater than or equal to 2405 psig
  2. Safety injection pump greater than or equal to 1345 psig
  3. Residual heat removal pump greater than or equal to 165 psig
- g. By verifying the correct position of each mechanical stop for the following Emergency Core Cooling system throttle valves:
1. Within 4 hours following completion of each valve stroking operation or maintenance on the valve when the ECCS sub-systems are required to be OPERABLE.

\*The provisions of Specification 4.0.6 are applicable.

CONTAINMENT SYSTEMS

3/4.6.2 DEPRESSURIZATION AND COOLING SYSTEMS

CONTAINMENT SPRAY SYSTEM

LIMITING CONDITION FOR OPERATION

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3.6.2.1 Two independent containment spray systems shall be OPERABLE with each spray system capable of taking suction from the RWST and transferring suction to the containment sump.

APPLICABILITY: MODES 1, 2, 3 and 4.

ACTION:

With one containment spray system inoperable, restore the inoperable spray system to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours; restore the inoperable spray system to OPERABLE status within the next 48 hours or be in GOLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

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4.6.2.1 Each containment spray system shall be demonstrated OPERABLE:

- a. At least once per 31 days by verifying that each valve (manual, power operated or automatic) in the flow path that is not locked, sealed, or otherwise secured in position, is in its correct position.
- b. By verifying, that on recirculation flow, each pump develops a discharge pressure of greater than or equal to 255 psig at a flow of greater than or equal to 700 gpm, when tested pursuant to Specification 4.0.5.
- c. At least once per 18 months during shutdown, by: \*
  1. Verifying that each automatic valve in the flow path actuates to its correct position on a Containment Pressure--High-High test signal.
  2. Verifying that each spray pump starts automatically on a Containment Pressure--High-High test signal.
- d. At least once per 5 years by performing an air or smoke flow test through each spray header and verifying each spray nozzle is unobstructed.

\*The provisions of Specification 4.0.6 are applicable.

CONTAINMENT SYSTEMS

SPRAY ADDITIVE SYSTEM

LIMITING CONDITION FOR OPERATION

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3.6.2.2 The spray additive system shall be OPERABLE with:

- a. A spray additive tank containing at least 4000 gallons of not less than 30 percent by weight NaOH solution, and
- b. Two spray additive eductors each capable of adding NaOH solution from the chemical additive tank to a containment spray system pump flow.

APPLICABILITY: MODES 1, 2, 3 and 4.

ACTION:

With the spray additive system inoperable, restore the system to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours; restore the spray additive system to OPERABLE status within the next 48 hours or be in COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

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4.6.2.2 The spray additive system shall be demonstrated OPERABLE:

- a. At least once per 31 days by verifying that each valve (manual, power operated or automatic) in the flow path that is not locked, sealed, or otherwise secured in position, is in its correct position.
- b. At least once per 6 months by:
  1. Verifying the solution level in the tank, and
  2. Verifying the concentration of the NaOH solution by chemical analysis.

CONTAINMENT SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

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- c. At least once per 18 months during shutdown, by verifying that each automatic valve in the flow path actuates to its correct\* position on a Containment Pressure -- High-High signal.
- d. At least once per 5 years by verifying a water flow rate of at least 20 gpm (greater than or equal to 20 gpm) but not to exceed 50 gpm (less than or equal to 50 gpm) from the spray additive tank test line to each containment spray system with the spray pump operating on recirculation with a pump discharge pressure greater than or equal to 255 psig.

\*The provisions of specification 4.0.6 are applicable.



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CONTAINMENT SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

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4.6.3.1.2 Each isolation valve specified in Table 3.6-1 shall be demonstrated OPERABLE during\* the COLD SHUTDOWN or REFUELING MODE at least once per 18 months by:

- a. Verifying that on a Phase A containment isolation test signal, each Phase A isolation valve actuates to its isolation position.
- b. Verifying that on a Phase B containment isolation test signal, each Phase B isolation valve actuates to its isolation position.
- c. Verifying that on a Containment Purge and Exhaust isolation signal, each Purge and Exhaust valve actuates to its isolation position.

4.6.3.1.3 The isolation time of each power operated or automatic valve of Table 3.6-1 shall be determined to be within its limit when tested pursuant to Specification 4.0.5.

\*The provisions of Specification 4.0.6 are applicable.

### 3/4.7 PLANT SYSTEMS

#### 3/4.7.1 TURBINE CYCLE

##### SAFETY VALVES

##### LIMITING CONDITION FOR OPERATION

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3.7.1.1 All main steam line code safety valves associated with each steam generator shall be OPERABLE.

APPLICABILITY: MODES 1, 2 and 3.

ACTION:

- a. With 4 reactor coolant loops and associated steam generators in operation and with one or more main steam line code safety valves inoperable, operation in MODES 1, 2 and 3 may proceed provided, that within 4 hours, either the inoperable valve is restored to OPERABLE status or the Power Range Neutron Flex High Setpoint trip is reduced per Table 3.7-1; otherwise, be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.
- b. With 3 reactor coolant loops and associated steam generators in operation and with one or more main steam line code safety valves associated with an operating loop inoperable, operation in MODE 3 may proceed provided, that within 4 hours, either the inoperable valve is restored to OPERABLE status or the reactor trip breakers are opened; otherwise, be in COLD SHUTDOWN within the next 30 hours.
- c. The provisions of Specification 3.0.4 are not applicable.

##### SURVEILLANCE REQUIREMENTS

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4.7.1.1 No additional surveillance requirements other than those required by Specification 4.0.5.

PLANT SYSTEMS

SURVEILLANCE REQUIREMENTS

4.7.1.2 Each auxiliary feedwater pump shall be demonstrated OPERABLE when tested pursuant to Specification 4.0.5 by:

- a. Verifying that each motor driven pump develops an equivalent discharge pressure of greater than or equal to 1375 psig at 60°F in recirculation flow.
- b. Verifying that the steam turbine driven pump develops an equivalent discharge pressure of greater than or equal to 1285 psig at 60°F and at a flow of greater than or equal to 700 gpm when the secondary steam supply pressure is greater than 310 psig. The provisions of Specification 4.0.4 are not applicable for entry into MODE 3.
- c. Verifying that each non-automatic valve in the flow path that is not locked, sealed, or otherwise secured in position is in its correct position.
- d. Verifying that each automatic valve in the flow path is in the fully open position whenever the auxiliary feedwater system is placed in automatic control or when above 10% RATED THERMAL POWER. This requirement is not applicable for those portions of the Auxiliary Feedwater System being used intermittently to maintain steam generator water level.
- e. Verifying at least once per 18 months during shutdown that each automatic valve in the flow path actuates to its correct position upon receipt of the appropriate engineered safety features actuation test signal required by Specification 3/4.3.2.\*
- f. Verifying at least once per 18 months during shutdown that each auxiliary feedwater pump starts as designed automatically upon receipt of the appropriate engineered safety features actuation test signal required by Specification 3/4.3.2.\*
- g. Verifying at least once per 18 months during shutdown that the unit cross-tie valves can cycle full travel.\* Following cycling, the valves will be verified to be in their closed positions.

\*The provisions of Specification 4.0.6 are applicable.



PLANT SYSTEMS

STEAM GENERATOR STOP VALVES

LIMITING CONDITION FOR OPERATION

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3.7.1.5 Each steam generator stop valve shall be OPERABLE.

APPLICABILITY: MODES 1, 2 and 3.

ACTION:

MODES 1 - With one steam generator stop valve inoperable but open, POWER OPERATION may continue provided the inoperable valve is restored to OPERABLE status within 4 hours; otherwise, reduce power to less than or equal to 5 percent of RATED THERMAL POWER within the next 2 hours.

MODES 2 - With one steam generator stop valve inoperable, subsequent and 3 operation in MODES 2 or 3 may proceed provided:

- a. The stop valve is maintained closed.
- b. The provisions of Specification 3.0.4 are not applicable.

Otherwise, be in HOT SHUTDOWN within the next 12 hours.

SURVEILLANCE REQUIREMENTS

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4.7.1.5.1 Each steam generator stop valve that is open shall be demonstrated OPERABLE by verifying full closure within 5 seconds when tested pursuant to Specification 4.0.5.

4.7.1.5.2 The provisions of Specification 4.0.4 are not applicable for entry into MODE 3.

4.7.1.5.3 The provisions of Specification 4.0.4 are not applicable for entry into MODE 2 when performing PHYSICS TESTS at the beginning of a cycle provided the steam generator stop valves are maintained closed.

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PLANT SYSTEMS

3/4.7.3 COMPONENT COOLING WATER SYSTEM

LIMITING CONDITION FOR OPERATION

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3.7.3.1

- a. At least two independent component cooling water loops shall be OPERABLE.
- b. At least one component cooling water flowpath in support of Unit 2 shutdown functions shall be available.

APPLICABILITY: Specification 3.7.3.1.a. - MODES 1, 2, 3 and 4  
Specification 3.7.3.1.b. - At all times when Unit 2 is in  
MODES 1, 2, 3, or 4.

ACTION:

When Specification 3.7.3.1.a is applicable:

With only one component cooling 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.

When Specification 3.7.3.1.b is applicable:

With no flowpath to Unit 2 available, return at least one flow path to available status within 7 days, or provide equivalent shutdown capability in Unit 2 and return at least one flow path to available status within the next 60 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

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4.7.3.1 At least two component cooling 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 18 months during shutdown, by verifying that the cross-tie valves can cycle full travel. Following cycling, the valves will be verified to be in their closed positions.

\*The provisions of Specification 4.0.6 are applicable.

PLANT SYSTEMS

3/4.7.4 ESSENTIAL SERVICE WATER SYSTEM  
LIMITING CONDITION FOR OPERATION

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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. - 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:

When Specification 3.7.4.1.a is applicable:

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.

When Specification 3.7.4.1.b is applicable:

With no essential service water flow path available in support of Unit 2 shutdown functions, return at least one flow path available status within 7 days or provide equivalent shutdown capability in Unit 2 and return the equipment to available status within the next 60 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

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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.

\*The provisions of Specification 4.0.6 are applicable.



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## REACTOR COOLANT SYSTEM

### BASES

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#### 3/4.4.2 and 3/4.4.3 SAFETY VALVES

The pressurizer code safety valves operate to prevent the RCS from being pressurized above its Safety Limit of 2735 psig. Each safety valve is designed to relieve 420,000 lbs per hour of saturated steam at the valve set point. The relief capacity of a single safety valve is adequate to relieve an overpressure condition which could occur during shutdown. In the event that no safety valves are OPERABLE, an operation RHR loop, connected to the RCS, provides overpressure relief capability and will prevent RCS overpressurization.

During operation, all pressurizer code safety valves must be OPERABLE to prevent the RCS from being pressurized above its safety limit of 2735 psig. The combined relief capacity of all of these valves is greater than the maximum surge rate resulting from a complete loss of load assuming no reactor trip until the first Reactor Protective System trip set point is reached (i.e., no credit is taken for a direct reactor trip on the loss of load) and also assuming no operation of the power operated relief valves or steam dump valves.

Demonstration of the safety valves' lift settings will occur only during shutdown and will be performed in accordance with the provisions of Section XI of the ASME Boiler and Pressure Code.

#### 3/4.4.4 PRESSURIZER

A steam bubble in the pressurizer ensures that the RCS is not a hydraulically solid system and is capable of accommodating pressure surges during operation. The steam bubble also protects the pressurizer code safety valves and power operated relief valves against water relief. The power operated relief valves and steam bubble function to relieve RCS pressure during all design transients up to and including the design step load decrease with steam dump. Operation of the power operated relief valves minimizes the undesirable opening of the spring-loaded pressurizer code safety valves. The requirement that 150 kW of pressurizer heaters and their associated controls be capable of being supplied electrical power from an emergency bus provides assurance that these heaters can be energized during a loss of offsite power condition to maintain natural circulation conditions.

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PLANT SYSTEMS

SURVEILLANCE REQUIREMENTS

- 4.7.1.2 Each auxiliary feedwater pump shall be demonstrated OPERABLE when tested pursuant to Specification 4.0.5 by:
- a. Verifying that each motor driven pump develops an equivalent discharge pressure of greater than or equal to 1240 psig at 60°F in recirculation flow.
  - b. Verifying that the steam turbine driven pump develops an equivalent discharge pressure of greater than or equal to 1180 psig at 60°F and at a flow of greater than or equal to 700 gpm when the secondary steam supply pressure is greater than 310 psig. The provisions of Specification 4.0.4 are not applicable for entry into MODE 3.
  - c. Verifying that each non-automatic valve in the flow path that is not locked, sealed, or otherwise secured in position is in its correct position.
  - d. Verifying that each automatic valve in the flow path is in the fully open position whenever the auxiliary feedwater system is placed in automatic control or when above 10% RATED THERMAL POWER. This requirement is not applicable for those portions of the Auxiliary Feedwater System being used intermittently to maintain steam generator level.
  - e. Verifying at least once per 18 months during shutdown that each automatic valve in the flow path actuates to its correct position upon receipt of the appropriate engineered safety features actuation test signal required by Specification 3/4.3.2.\*
  - f. Verifying at least once per 18 months during shutdown that each auxiliary feedwater pump starts as designed automatically upon receipt of the appropriate engineered safety features actuation test signal required by Specification 3/4.3.2.\*
  - g. Verifying at least once per 18 months during shutdown that the unit cross-tie valves can cycle full travel.\* Following cycling, the valves will be verified to be in their closed positions.

\*The provisions of Specification 4.0.7 are applicable.





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