

REACTOR COOLANT SYSTEM

HOT STANDBY

LIMITING CONDITION FOR OPERATION

- 3.4.1.2 a. At least two reactor coolant loops and associated steam generators and reactor coolant pumps shall be in operation* when the rod control system is capable of control bank rod withdrawal.
- b. At least two reactor coolant loops and associated steam generators and reactor coolant pumps shall be OPERABLE and one reactor coolant loop shall be in operation* when the rod control system is incapable of control bank rod withdrawal.

APPLICABILITY: MODE 3.

ACTION:

- a. With less than the above required reactor coolant loops OPERABLE, restore the required loops to OPERABLE status within 72 hours or be in HOT SHUTDOWN within the next 12 hours.
- b. With less than two reactor coolant loops in operation, immediately de-energize all control rod drive mechanisms or align the rod control system so that it is incapable of control bank rod withdrawal.
- c. With no reactor coolant loop in operation, suspend all operations involving a reduction in boron concentration of the Reactor Coolant System and immediately initiate corrective action to return the required coolant loop to operation.

SURVEILLANCE REQUIREMENTS

4.4.1.2.1 With the rod control system capable of rod withdrawal, at least two cooling loops shall be verified to be in operation and circulating reactor coolant at least once per 12 hours.

4.4.1.2.2 With the rod control system incapable of rod withdrawal, at least two cooling loops, if not in operation, shall be determined to be OPERABLE once per 7 days by verifying correct breaker alignments and indicated power availability.

4.4.1.2.3 With the rod control system incapable of rod withdrawal, at least one cooling loop shall be verified to be in operation and circulating reactor coolant at least once per 12 hours.

* All reactor coolant pumps may be removed from operation for \leq 1 hour per 8 hour period provided: 1) no operations are permitted that would cause introduction into the Reactor Coolant System, coolant with boron concentration less than required to meet the SHUTDOWN MARGIN requirements of Specification 3.1.1.1 for Mode 3; and 2) core outlet temperature is maintained at least 10°F below saturation temperature.

REACTOR COOLANT SYSTEM

SHUTDOWN

LIMITING CONDITION FOR OPERATION

- 3.4.1.3 a. At least two⁽¹⁾ of the coolant loops listed below shall be OPERABLE⁽¹⁾:
1. Reactor Coolant Loop (A) and its associated steam generator and reactor coolant pump,⁽²⁾
 2. Reactor Coolant Loop (B) and its associated steam generator and reactor coolant pump,⁽²⁾
 3. Reactor Coolant Loop (C) and its associated steam generator and reactor coolant pump,⁽²⁾
 4. Residual Heat Removal Pump (A) and a heat exchanger,⁽³⁾
 5. Residual Heat Removal Pump (B) and a second heat exchanger.⁽³⁾
- b. At least one⁽⁴⁾ of the above coolant loops shall be in operation.

APPLICABILITY: Modes 4 AND 5.

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- (1) In MODE 5, one RHR loop may be inoperable for \leq 2 hours for surveillance testing provided that the other RHR loop is OPERABLE and in operation.
 - (2) The first reactor coolant pump in a non-isolated loop shall not be started with one or more non-isolated RCS cold leg temperatures less than or equal to the enable temperature specified in the PTLR, unless the secondary side water temperature of each steam generator in a non-isolated loop is less than 50°F above each of the non-isolated RCS cold leg temperatures.
 - (3) The normal or emergency power source may be inoperable in MODE 5.
 - (4) All reactor coolant pumps and Residual Heat Removal pumps may be removed from operation for \leq 1 hour per 8 hour period provided:
1) no operations are permitted that would cause introduction into the Reactor Coolant System, coolant with boron concentration less than required to meet the SHUTDOWN MARGIN requirements of Specification 3.1.1.1 for Mode 4 or Specification 3.1.1.2 for Mode 5; and 2) core outlet temperature is maintained at least 10°F below saturation temperature.

EMERGENCY CORE COOLING SYSTEMS

3/4.5.2 ECCS SUBSYSTEMS - $T_{avg} \geq 350^{\circ}\text{F}$

LIMITING CONDITION FOR OPERATION

3.5.2 Two separate and independent ECCS subsystems shall be OPERABLE⁽¹⁾ with each subsystem comprised of:

- a. One OPERABLE centrifugal charging pump,
- b. One OPERABLE low head safety injection pump, and
- c. An OPERABLE flow path capable of taking suction from the refueling water storage tank on a safety injection signal and transferring suction to the containment sump during the recirculation phase of operation.

APPLICABILITY: MODES 1, 2 and 3.

ACTION:

- a. With one ECCS subsystem inoperable, restore the inoperable subsystem to OPERABLE status within 72 hours or be in HOT SHUTDOWN within the next 12 hours.
- b. In the event the ECCS is actuated and injects water into the Reactor Coolant System, a Special Report shall be prepared and submitted in accordance with 10 CFR 50.4 within 30 days describing the circumstances of the actuation and the total accumulated actuation cycles to date.

(1) In MODE 3, one of the required centrifugal charging pumps may be made incapable of injecting to support transition into or from the Applicability of Specification 3.4.9.3 for up to 4 hours or until the temperature of all RCS cold legs exceeds the OPPS enable temperature specified in the PTLR plus 25°F, whichever comes first.

EMERGENCY CORE COOLING SYSTEMS

3/4.5.3 ECCS SUBSYSTEMS - $T_{avg} < 350^{\circ}\text{F}$

LIMITING CONDITION FOR OPERATION

3.5.3 As a minimum, one ECCS subsystem comprised of the following shall be OPERABLE:

- a. One OPERABLE centrifugal charging pump,
- b. One OPERABLE Low Head Safety Injection Pump, and
- c. An OPERABLE flow path capable of taking suction from the refueling water storage tank upon being manually realigned and transferring suction to the containment sump during the recirculation phase of operation.

APPLICABILITY: MODE 4.

ACTION:

- - - - - GENERAL NOTE - - - - -
Specification 3.0.4.b is not applicable to ECCS centrifugal charging pumps.

- a. With no ECCS subsystem OPERABLE because of the inoperability of either the centrifugal charging pump or the flow path from the refueling water storage tank, restore at least one ECCS subsystem to OPERABLE status within 1 hour or be in COLD SHUTDOWN within the next 20 hours.
- b. In the event the ECCS is actuated and injects water into the Reactor Coolant System, a Special Report shall be prepared and submitted in accordance with 10 CFR 50.4 within 30 days describing the circumstances of the actuation and the total accumulated actuation cycles to date.

SURVEILLANCE REQUIREMENTS

4.5.3.1 The ECCS subsystem shall be demonstrated OPERABLE per the applicable Surveillance Requirements of 4.5.2.

REACTOR COOLANT SYSTEM

HOT STANDBY

LIMITING CONDITION FOR OPERATION

- 3.4.1.2 a. At least two reactor coolant loops and associated steam generators and reactor coolant pumps shall be in operation* when the rod control system is capable of control bank rod withdrawal.
- b. At least two reactor coolant loops and associated steam generators and reactor coolant pumps shall be OPERABLE and one reactor coolant loop shall be in operation* when the rod control system is incapable of control bank rod withdrawal.

APPLICABILITY: MODE 3**

ACTION:

- a. With less than the above required reactor coolant loops OPERABLE, restore the required loops to OPERABLE status within 72 hours or be in HOT SHUTDOWN within the next 12 hours.
- b. With less than two reactor coolant loops in operation, immediately deenergize all control rod drive mechanisms, or align the rod control system so that it is incapable of control bank rod withdrawal.
- c. With no reactor coolant loop in operation, suspend all operations involving a reduction in boron concentration of the Reactor Coolant System and immediately initiate corrective action to return the required reactor coolant loop to operation.

* All reactor coolant pumps may be removed from operation for \leq 1 hour per 8 hour period provided: 1) no operations are permitted that would cause introduction into the Reactor Coolant System, coolant with boron concentration less than required to meet the SHUTDOWN MARGIN requirements of Specification 3.1.1.1 for Mode 3; and 2) core outlet temperature is maintained at least 10°F below saturation temperature.

** See Special Test Exception 3.10.4.

REACTOR COOLANT SYSTEM

SHUTDOWN

LIMITING CONDITION FOR OPERATION

- 3.4.1.3 a. At least two⁽¹⁾ of the coolant loops listed below shall be OPERABLE⁽¹⁾.
1. Reactor Coolant Loop (A) and its associated steam generator and reactor coolant pump,⁽²⁾
 2. Reactor Coolant Loop (B) and its associated steam generator and reactor coolant pump,⁽²⁾
 3. Reactor Coolant Loop (C) and its associated steam generator and reactor coolant pump,⁽²⁾
 4. Residual Heat Removal Pump (A) and the (A) RHR heat exchanger,⁽³⁾
 5. Residual Heat Removal Pump (B) and the (B) RHR heat exchanger.
- b. At least one⁽⁴⁾ of the above coolant loops shall be in operation.

APPLICABILITY: MODES 4 and 5.

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- (1) In MODE 5, one RHR loop may be inoperable for \leq 2 hours for surveillance testing provided that the other RHR loop is OPERABLE and in operation.
 - (2) The first reactor coolant pump in a non-isolated loop shall not be started with one or more non-isolated RCS cold leg temperatures less than or equal to the enable temperature specified in the PTLR, unless the secondary side water temperature of each steam generator in a non-isolated loop is less than 50°F above each of the non-isolated RCS cold leg temperatures.
 - (3) The normal or emergency power source may be inoperable in MODE 5.
 - (4) All reactor coolant pumps and Residual Heat Removal pumps may be removed from operation for \leq 1 hour per 8 hour period provided:
1) no operations are permitted that would cause introduction into the Reactor Coolant System, coolant with boron concentration less than required to meet the SHUTDOWN MARGIN requirements of Specification 3.1.1.1 for Mode 4 or Specification 3.1.1.2 for Mode 5; and 2) core outlet temperature is maintained at least 10°F below saturation temperature.

REACTOR COOLANT SYSTEM

LIMITING CONDITION FOR OPERATION

ACTION:

- a. With less than the above required loops OPERABLE, immediately initiate corrective action to return the required loops to OPERABLE status as soon as possible; be in COLD SHUTDOWN within 20 hours.
- b. With no coolant loop in operation, suspend all operations involving a reduction in boron concentration of the Reactor Coolant System and immediately initiate corrective action to return the required coolant loop to operation.

SURVEILLANCE REQUIREMENTS

4.4.1.3.1 The required residual heat removal loop(s) shall be determined OPERABLE per Specification 4.0.5.

4.4.1.3.2 The required reactor coolant pump(s), if not in operation, shall be determined to be OPERABLE once per 7 days by verifying correct breaker alignments and indicated power availability.

4.4.1.3.3 The required steam generator(s) shall be determined OPERABLE by verifying secondary side level greater than or equal to 15.5 percent narrow range at least once per 12 hours.

4.4.1.3.4 At least one coolant loop shall be verified to be in operation and circulating reactor coolant at least once per 12 hours.

REACTOR COOLANT SYSTEM

3/4.4.3 SAFETY VALVES

LIMITING CONDITION FOR OPERATION

3.4.3 All pressurizer code safety valves shall be OPERABLE with a lift setting* of 2485 psig + 1% - 3%.**

APPLICABILITY: MODES 1, 2, and 3,

MODE 4 with all RCS cold leg temperatures > the enable temperature specified in the PTLR.

ACTION:

- a. With one pressurizer code safety valve inoperable, either restore the inoperable valve to OPERABLE status within 15 minutes or be in HOT SHUTDOWN with any RCS cold leg temperature ≤ the enable temperature specified in the PTLR and apply RCS overpressure protection requirements in accordance with Specification 3.4.9.3 within 12 hours.
- b. After any pressurizer code safety valve lift, as indicated by the safety valve position indicator, involving loop seal or water discharge; be in at least HOT STANDBY within the next 6 hours, and in HOT SHUTDOWN with any RCS cold leg temperature ≤ the enable temperature specified in the PTLR and apply RCS overpressure protection requirements in accordance with Specification 3.4.9.3 within the following 6 hours.

SURVEILLANCE REQUIREMENTS

4.4.3 No additional requirements other than those required by Specification 4.0.5.

* The lift setting shall correspond to ambient conditions of the valve at nominal operating temperature and pressure.

** Within ± 1% following pressurizer code safety valve testing.

REACTOR COOLANT SYSTEM

OVERPRESSURE PROTECTION SYSTEMS

LIMITING CONDITION FOR OPERATION

3.4.9.3 An overpressure protection system shall be OPERABLE with a maximum of one charging pump⁽¹⁾ capable of injecting into the RCS and the accumulators isolated⁽²⁾ and either a or b below:

- a. Two power-operated relief valves (PORVs) with nominal maximum lift settings which vary with the RCS temperature and which do not exceed the limits specified in the PTLR, or
- b. The RCS depressurized and an RCS vent of greater than or equal to 3.14 square inches.

APPLICABILITY: MODE 4 when any RCS cold leg temperature is less than or equal to an enable temperature specified in the PTLR, MODE 5, MODE 6 when the reactor vessel head is on.

ACTION:

- - - - - GENERAL NOTE - - - - -

Specification 3.0.4.b is not applicable when entering MODE 4 or MODE 5.

- - - - -
- a. With two or more charging pumps capable of injecting into the RCS, immediately initiate action to verify a maximum of one charging pump is capable of injecting into the RCS or depressurize and vent the RCS through a 3.14 square inch or larger vent within 12 hours.
 - b. With an accumulator not isolated when the accumulator pressure is greater than or equal to the maximum RCS pressure for the existing RCS cold leg temperature allowed by the heatup and cooldown curves in the PTLR, isolate the affected accumulator within 1 hour or increase the RCS cold

(1) Two charging pumps may be capable of injecting into the RCS for pump swap operation for less than or equal to 1 hour.

(2) Accumulator isolation with power removed from the discharge isolation valves is only required when the accumulator pressure is greater than or equal to the maximum RCS pressure for the existing RCS cold leg temperature allowed by the heatup and cooldown curves provided in the PTLR.

EMERGENCY CORE COOLING SYSTEMS

3/4.5.2 ECCS SUBSYSTEMS - T_{avg} ≥ 350°F

LIMITING CONDITION FOR OPERATION

3.5.2 Two separate and independent ECCS subsystems shall be OPERABLE⁽¹⁾ with each subsystem comprised of:

- a. One OPERABLE centrifugal charging pump,
- b. One OPERABLE low head safety injection pump,
- c. One OPERABLE recirculation spray pump⁽²⁾ capable of supplying the safety injection flow path during recirculation phase, and
- d. An OPERABLE flow path capable of taking suction from the refueling water storage tank on a safety injection signal and transferring suction to the containment sump during the recirculation phase of operation.

APPLICABILITY: MODES 1, 2 and 3.

ACTION:

- a. With one ECCS subsystem inoperable, restore the inoperable subsystem to OPERABLE status within 72 hours or be in HOT SHUTDOWN within the next 12 hours.
- b. In the event the ECCS is actuated and injects water into the Reactor Coolant System, a Special Report shall be prepared and submitted in accordance with 10 CFR 50.4 within 30 days describing the circumstances of the actuation and the total accumulated actuation cycles to date.

SURVEILLANCE REQUIREMENTS

4.5.2 Each ECCS subsystem shall be demonstrated OPERABLE:

- a.1. At least once per 12 hours by verifying that the following valves are in the indicated positions with power to the valve operator control circuits disconnected by removal of the plug in the lock out circuit from each circuit:

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- (1) In MODE 3, one of the required centrifugal charging pumps may be made incapable of injecting to support transition into or from the Applicability of Specification 3.4.9.3 for up to 4 hours or until the temperature of all RCS cold legs exceeds the OPPS enable temperature specified in the PTLR plus 25°F, whichever comes first.
 - (2) Recirculation spray pump 2RSS-P21C or 2RSS-P21D.

EMERGENCY CORE COOLING SYSTEMS

ECCS SUBSYSTEMS - $T_{avg} < 350^{\circ}\text{F}$

LIMITING CONDITION FOR OPERATION

3.5.3 As a minimum, one ECCS subsystem comprised of the following shall be OPERABLE:

- a. One OPERABLE centrifugal charging pump,
- b. One OPERABLE Low Head Safety Injection Pump, and
- c. One OPERABLE recirculation spray pump* capable of supplying the safety injection flow path during recirculation phase, and
- d. An OPERABLE flow path capable of taking suction from the refueling water storage tank upon being manually realigned and transferring suction to the containment sump during the recirculation phase of operation.

APPLICABILITY: MODE 4.

ACTION:

- - - - - GENERAL NOTE - - - - -

Specification 3.0.4.b is not applicable to ECCS centrifugal charging pumps.

- - - - -
- a. With no ECCS subsystem OPERABLE because of the inoperability of either the centrifugal charging pump or the flow path from the refueling water storage tank, restore at least one ECCS subsystem to OPERABLE status within 1 hour or be in COLD SHUTDOWN within the next 20 hours.
 - b. In the event the ECCS is actuated and injects water into the Reactor Coolant System, a Special Report shall be prepared and submitted in accordance with 10 CFR 50.4 within 30 days describing the circumstances of the actuation and the total accumulated actuation cycle to date.

SURVEILLANCE REQUIREMENTS

4.5.3.1 The ECCS subsystem shall be demonstrated OPERABLE per the applicable Surveillance Requirements of 4.5.2.

* Recirculation spray pump 2RSS-P21C or 2RSS-P21D.