

ENCLOSURE 1

PROPOSED CHANGES TO TECHNICAL SPECIFICATIONS

BROWNS FERRY NUCLEAR PLANT UNIT 1

DOCKET NO. 50-259

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## LIMITING CONDITIONS FOR OPERATION

### 3.4 STANDBY LIQUID CONTROL SYSTEM

#### Applicability

Applies to the operating status of the Standby Liquid Control System.

#### Objective

To assure the availability of a system with the capability to shut down the reactor and maintain the shutdown condition without the use of control rods.

#### Specification

##### A. Normal System Availability

1. The standby liquid control system shall be operable at all times when there is fuel in the reactor vessel and the reactor is not in a shutdown condition with all operable control rods fully inserted except as specified in 3.4.B.1.

## SURVEILLANCE REQUIREMENTS

### 4.4 STANDBY LIQUID CONTROL SYSTEM

#### Applicability

Applies to the surveillance requirements of the Standby Liquid Control System.

#### Objective

To verify the operability of the Standby Liquid Control System.

#### Specification

##### A. Normal System Availability

Inservice testing of ASME Code Class 1, Class 2, and Class 3 pumps and valves shall be performed in accordance with Section XI of the ASME Boiler and Pressure Vessel Code and applicable Addenda as required by 10 CFR 50, Section 50.55a(g), except where specific written relief has been granted by NRC pursuant to 10 CFR 50, Section 50.55a(g)(6)(i).

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## LIMITING CONDITIONS FOR OPERATION

### 3.4 STANDBY LIQUID CONTROL SYSTEM

#### B. Operation with Inoperable Components:

1. From and after the date that a redundant component is made or found to be inoperable, Specification 3.4.A.1 shall be considered fulfilled and continued operation permitted provided that the component is returned to an operable condition within seven days.

## SURVEILLANCE REQUIREMENTS

### 4.4 STANDBY LIQUID CONTROL SYSTEM

#### B. Surveillance with Inoperable Components:

1. When a component is found to be inoperable, its redundant component shall be demonstrated to be operable immediately and daily thereafter until the inoperable component is repaired.

BASES:

A minimum quantity of 4,160 gallons of solution having a 13.4 percent sodium pentaborate concentration or the equivalent is required to meet this shutdown requirement as defined in Figure 3.4.1.

## LIMITING CONDITIONS FOR OPERATION

### 3.5 CORE AND CONTAINMENT COOLING SYSTEMS

#### Applicability

Applies to the operational status of the core and containment cooling systems.

#### Objective

To assure the operability of the core and containment cooling systems under all conditions for which this cooling capability is an essential response to plant abnormalities.

#### Specification

##### A. Core Spray System (CSS)

1. The CSS shall be operable:
  - (1) prior to reactor startup from a cold condition, or
  - (2) when there is irradiated fuel in the vessel and when the reactor vessel pressure is greater than atmospheric pressure, except as specified in specifications 3.5.A.2, 3.5.B.2, or 3.9.B.3.

## SURVEILLANCE REQUIREMENTS

### 4.5 CORE AND CONTAINMENT COOLING SYSTEMS

#### Applicability

Applies to the surveillance requirements of the core and containment cooling systems when the corresponding limiting condition for operation is in effect.

#### Objective

To verify the operability of the core and containment cooling systems under all conditions for which this cooling capability is an essential response to plant abnormalities.

#### Specification

##### A. Core Spray System (CSS)

##### 1. Core Spray System Testing.

| <u>Item</u>  | <u>Frequency</u>            |
|--|-----------------------------|
| a. Simulated Automatic Actuation test  | Once/<br>Operating<br>Cycle |
| b. Inservice testing of ASME Code Class 1, Class 2, and Class 3 pumps and valves shall be performed in accordance with Section XI of the ASME Boiler and Pressure Vessel Code and applicable Addenda as required by 10 CFR 50, section 50.55a(g), except where specific written relief has been granted by NRC pursuant to 10 CFR 50, Section 50.55a(g)(6)(i). |                             |

## LIMITING CONDITIONS FOR OPERATION

### 3.5.A Core Spray System (CSS)

2. If one CSS loop is inoperable, the reactor may remain in operation for a period not to exceed 7 days providing all active components in the other CSS loop and the RHR system (LPCI mode) and the diesel generators are operable.
3. If specification 3.5.A.1 or specification 3.5.A.2 cannot be met, the reactor shall be shutdown in the Cold Condition within 24 hours.
4. When the reactor vessel pressure is atmospheric and irradiated fuel is in the reactor vessel at least one core spray loop with one operable pump and associated diesel generator shall be operable, except with the reactor vessel head removed as specified in 3.5.A.5 or prior to reactor startup as specified in 3.5.A.1.
5. When irradiated fuel is in the reactor vessel and the reactor vessel head is removed, core spray is not required provided work is not in progress which has the potential to drain the vessel, provided the fuel pool gates are open and the fuel pool is maintained above the low level alarm point, and provided one RHRSW pump and associated valves supplying the standby coolant supply are operable.

## SURVEILLANCE REQUIREMENTS

### 4.5.A Core Spray System (CSS)

2. When it is determined that one core spray loop is inoperable, at a time when operability is required, the other core spray loop, the RHRS (LPCI mode), and the diesel generators shall be demonstrated to be operable immediately. The operable core spray loop shall be demonstrated to be operable daily thereafter.

## LIMITING CONDITIONS FOR OPERATION

### 3.5.B Residual Heat Removal System (RHRS) (LPCI and Containment Cooling)

1. The RHRS shall be operable:
  - (1) prior to a reactor startup from a Cold Condition; or
  - (2) when there is irradiated fuel in the reactor vessel and when the reactor vessel pressure is greater than atmospheric, except as specified in specifications 3.5.B.2, through 3.5.B.7 and 3.9.B.3.
2. With the reactor vessel pressure less than 105 psig, the RHRS may be removed from service (except that two RHR pumps—containment cooling mode and associated heat exchangers must remain operable) for a period not to exceed 24 hours while being drained of suppression chamber quality water and filled with primary coolant quality water provided that during cooldown two loops with one pump per loop or one loop with two pumps, and associated diesel generators, in the core spray system are operable.
3. If one RHR pump (LPCI mode) is inoperable, the reactor may remain in operation for a period not to exceed 7 days provided the remaining RHR pumps (LPCI mode) and both access paths of the RHRS (LPCI mode) and the CSS and the diesel generators remain operable.

## SURVEILLANCE REQUIREMENTS

### 4.5.B Residual Heat Removal System (RHRS) (LPCI and Containment Cooling)

- |  |                             |
|--|-----------------------------|
| <ol style="list-style-type: none"> <li>1. a. Simulated Automatic Actuation Test</li> </ol> | Once/<br>Operating<br>Cycle |
|--|-----------------------------|
- 
- b. Inservice testing of ASME Code Class 1, Class 2, and Class 3 pumps and valves shall be performed in accordance with Section XI of the ASME Boiler and Pressure Vessel Code and applicable Addenda as required by 10 CFR 50, Section 50.55a(g), except where specific written relief has been granted by NRC pursuant to 10 CFR 50, Section 50.55a(g)(6)(i).
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2. An air test on the drywell and torus headers and nozzles shall be conducted once/5 years. A water test may be performed on the torus header in lieu of the air test.
  3. When it is determined that one RHR pump (LPCI mode) is inoperable at a time when operability is required, the remaining RHR pumps (LPCI mode) and active components in both access paths of the RHRS (LPCI mode) and the CSS and the diesel generators shall be demonstrated to be operable immediately. The operable RHRS pumps (LPCI mode) shall be demonstrated to be operable every 10 days thereafter until the inoperable pump is returned to normal service.

## LIMITING CONDITIONS FOR OPERATION

## SURVEILLANCE REQUIREMENTS

13. If RHR cross-connection flow or heat removal capability is lost, the unit may remain in operation for a period not to exceed 10 days unless such capability is restored.
14. All recirculation pump discharge valves shall be operable prior to reactor startup (or closed if permitted elsewhere in these specifications).



3.5.C RHR Service Water and Emergency  
Equipment Cooling Water Systems  
(EECWS)

1. Prior to reactor startup from a cold condition, 9 RHRSW pumps must be operable, with 7 pumps (including pump D1 or D2)

assigned to RHRSW service and 2 automatically starting pumps assigned to EECW service.

4.5.C RHR Service Water and Emergency  
Equipment Cooling Water Systems  
(S)

1. a. Each of the RHRSW pumps normally assigned to automatic service on the EECW headers will be tested automatically each time the diesel generators are tested.
- b. Inservice testing of ASME Code Class 1, Class 2, and Class 3 pumps and valves shall be performed in accordance with Section XI of the ASME Boiler and Pressure Vessel Code and applicable Addenda as required by 10 CFR 50, Section 50.55a(g), except where specific written relief has been granted by NRC pursuant to 10 CFR 50, Section 50.55a(g)(6)(i).

## LIMITING CONDITIONS FOR OPERATION

### 3.5.D Equipment Area Coolers

1. The equipment area cooler associated with each RHR pump and the equipment area cooler associated with each set of core spray pumps (A and C or B and D) must be operable at all times when the pump or pumps served by that specific cooler is considered to be operable.
2. When an equipment area cooler is not operable, the pump(s) served by that cooler must be considered inoperable for Technical Specification purposes.

### E. High Pressure Coolant Injection System (HPCIS)

1. The HPCI system shall be operable:
  - (1) prior to startup from a Cold Condition; or
  - (2) whenever there is irradiated fuel in the reactor vessel and the reactor vessel pressure is greater than 122 psig, except as specified in specification 3.5.E.2.

## SURVEILLANCE REQUIREMENTS

### 4.5.D Equipment Area Coolers

1. Each equipment area cooler is operated in conjunction with the equipment served by that particular cooler; therefore, the equipment area coolers are tested at the same frequency as the pumps which they serve.

### E. High Pressure Coolant Injection System (HPCIS)

1. HPCI Subsystem testing shall be performed as follows:
  - a. Simulated Automatic Actuation Test      Once/operating cycle
  - b. Flow Rate at 150 psig      Once/operating cycle
  - c. Inservice testing of ASME Code Class 1, Class 2, and Class 3 pumps and vessels shall be performed in accordance with Section XI of the ASME Boiler and Pressure Vessel Code and applicable Addenda as required by 10 CFR 50, Section 50.55a(g), except where specific written relief has been granted by NRC pursuant to 10 CFR 50, Section 50.55a(g)(6)(i).

The HPCI pump shall deliver at least 5000 gpm during each flow rate test.

## LIMITING CONDITIONS FOR OPERATION

### 3.5.E High Pressure Coolant Injection System (HPCIS)

2. If the HPCI system is inoperable, the reactor may remain in operation for a period not to exceed 7 days, provided the ADS, CSS, RHRS (LPCI), and RCICS are operable.
3. If specifications 3.5...1 or 3.5.E.2 are not met, an orderly shutdown shall be initiated and the reactor vessel pressure shall be reduced to 122 psig or less within 24 hours.

### F. Reactor Core Isolation Cooling System (RCICS)

1. The RCIGS shall be operable:
  - (1) prior to startup from a Cold Condition; or
  - (2) whenever there is irradiated fuel in the reactor vessel and the reactor vessel pressure is above 122 psig, except as specified in 3.5.F.2.

## SURVEILLANCE REQUIREMENTS

### 4.5.E High Pressure Coolant Injection System (HPCIS)

2. When it is determined that the HPCIS is inoperable the ADS actuation logic, the RCICS, the RHRS (LPCI), and the CSS shall be demonstrated to be operable immediately: The RCICS and ADS logic shall be demonstrated to be operable daily thereafter.

### F. Reactor Core Isolation Cooling System (RCICS)

1. RCIC Subsystem testing shall be performed as follows:
  - a. Simulated Automatic Actuation Test      Once/operating cycle
  - b. Flow rate at 150 psig      Once/operating cycle
  - c. Inservice testing of ASME Code Class 1, Class 2, and Class 3 pumps and valves shall be performed in accordance with Section XI of the ASME Boiler and Pressure Vessel Code and applicable Addenda as required by 10 CFR 50 Section 50.55a(g), except where specific written relief has been granted by NRC pursuant to 10 CFR 50, Section 50.55a(g)(6)(i).

The RCIC pump shall deliver at least 600 gpm during each flow test,