

## NEDO-32339 Supplement 4

### 3.2 POWER DISTRIBUTION LIMITS

#### 3.2.5 Fraction of Core Boiling Boundary (FCBB)

LCO 3.2.5 FCBB shall be  $\leq 1.0$ .

APPLICABILITY: THERMAL POWER and core flow in the Restricted Region as specified in the COLR.  
MODE 1 when RPS Function 2.b, APRM Flow Biased Simulated Thermal Power-High, Allowable Value is "Setup" as specified in the COLR.

#### ACTIONS

| CONDITION  | REQUIRED ACTION  | COMPLETION TIME  |
|--|--|--|
| A. FCBB not within limit for reasons other than unexpected loss of feedwater heating or unexpected reduction in core flow.   | A. 1 Restore FCBB to within limit.   | 2 hours  |
| B. Required Action and associated Completion Time of Condition A not met.<br><br><u>OR</u><br><br>-----NOTE-----<br>Required Action B.1 and Required Action B.2 shall be completed if this Condition is entered due to an unexpected loss of feedwater heating or unexpected reduction in core flow.<br><br>FCBB not within limit due to an unexpected loss of feedwater heating or unexpected reduction in core flow. | B.1 Initiate action to exit the Restricted Region.<br><br><u>AND</u><br><br>3.2 Initiate action to return APRM Flow Biased Simulated Thermal Power-High, Allowable Value to "non-Setup" value. | Immediately<br><br><br>Immediately following exit of Restricted Region |

#### SURVEILLANCE REQUIREMENTS

#### SURVEILLANCE FREQUENCY

|           |  |  |
|-----------|--|--|
| SR3.2.5.1 | -----NOTE-----<br>Not required to be performed until 15 minutes after entry into the Restricted Region if entry was the result of an unexpected transient.<br><br>Verify FCBB $\leq 1.0$ . | 24 hours<br><br><u>AND</u><br><br>Once within 15 minutes following unexpected transient. |
|-----------|--|--|

## PILGRIM TECHNICAL SPECIFICATIONS

### 3.11 REACTOR FUEL ASSEMBLY

#### D. Power/Flow Relationship During Power Operation

The power/flow relationship shall not exceed the limiting values specified in the CORE OPERATING LIMITS REPORT.

If at any time during power operation it is determined by normal surveillance that the limiting value for the power/flow relationship is being exceeded, action shall be initiated within 15 minutes to restore operation to within the prescribed limits. If the power/flow relationship is not returned to within the prescribed limits within two (2) hours, the reactor shall be brought to the Cold Shutdown condition within 36 hours. Surveillance and corresponding action shall continue until reactor operation is within the prescribed limits.

### 4.11 REACTOR FUEL ASSEMBLY

#### D. Power/Flow Relationship During Power Operation

Compliance with the power/flow relationship in Section 3.11.D shall be determined daily during reactor operation.

#### 3.6.6 Thermal-Hydraulic Stability

Core thermal power shall not exceed 25% of rated thermal power without forced recirculation.

## PILGRIM NUCLEAR POWER STATION PNPS CORE OPERATING LIMITS REPORT

### 3.4 Power/Flow Relationship During Power Operation

Refer Technical Specification 3.11.D

The power/flow relationship shall not exceed the limiting values shown on the Power/Flow Operating Map in Figure 3.4-1.

### 3.3 INSTRUMENTATION

#### 3.3.1.1 Reactor Protection System Instrumentation

[Note: There is no change to the LCO, Applicability, Surveillance Requirements or Actions specification of the Standard Improved Technical Specifications.]

Update the following in Table 3.3.1.1 - 1:

REACTOR PROTECTION SYSTEM INSTRUMENTATION

| FUNCTION                                      | APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS | REQUIRED CHANNELS PER TRIP SYSTEM | CONDITION REFERENCED FROM REQUIRED ACTION D.1 | SURVEILLANCE REQUIREMENTS   | ALLOWABLE VALUE |
|---|--|-----------------------------------|---|---|-----------------|
| 2 Average Power Range Monitors                |  |                                   |   |   |                 |
| b. Flow Biased Simulated Thermal Power - High | 1  | [3]                               | G   | SR 3.3.1.1.1<br>SR 3.3.1.1.2<br><del>SR 3.3.1.1.3</del><br>SR 3.3.1.1.8<br>SR 3.3.1.1.13<br>SR 3.3.1.1.9<br><del>SR 3.3.1.1.11</del><br>SR 3.3.1.1.14<br>SR 3.3.1.1.16<br>SR 3.3.1.1.17<br><del>SR 3.3.1.1.18</del> | (b)             |

(a)

(b) Allowable Value specified in COLR

[Reviewers Note: Function 2.b is not associated with a Limiting System Setting. Allowable values for Function 2.b are derived from associated operating limits reported in the COLR. The operating limits are based on licensed operating domain established for cycle specific fuel and core design characteristics.]

|               |   |  |
|---------------|---|--|
| SR 3.3.1.1.1  | Perform CHANNEL CHECK   | 12 hours   |
| SR 3.3.1.1.2  | <p>NOTE</p> <p>Not required to be performed until 12 hours after THERMAL POWER <math>\geq</math> 25% RTP.</p> <p>Verify the absolute difference between the average power range monitor (APRM) channels and the calculated power is <math>\leq</math> 2% RTP [plus any gain adjustment required by LCO 3.2.4, "Average Power Range Monitor (APRM) Setpoints"] while operating at <math>\geq</math> 25% RTP.</p> | 7 days   |
| SR 3.3.1.1.3  | Adjust the channel to conform to a calibrated flow signal.  | 7 days   |
| SR 3.3.1.1.8  | Calibrate the local power range monitors.   | 1000 MWD/T average core exposure   |
| SR 3.3.1.1.9  | Perform CHANNEL FUNCTIONAL TEST   | [92] days  |
| SR 3.3.1.1.11 | <p>NOTES</p> <p>1. Neutron detectors are excluded.</p> <p>2. For Function 2.a, not required to be performed when entering MODE 2 from MODE 1 until 12 hours after entering MODE 2.</p> <p>3. For Function 2.b, the digital components of the flow control trip reference cards are excluded.</p> <p>Perform CHANNEL CALIBRATION.</p>  | 184 days   |
| SR 3.3.1.1.14 | Verify the APRM Flow Biased Simulated Thermal Power - High time constant is $\leq$ [7] seconds.   | [18] months  |
| SR 3.3.1.1.15 | Perform LOGIC SYSTEM FUNCTIONAL TEST  | [18] months  |
| SR 3.3.1.1.17 | <p>NOTES</p> <p>1. Neutron detectors are excluded.</p> <p>2. For Function 5 "n" equals 4 channels for the purpose of determining the the STAGGERED TEST BASIS Frequency.</p> <p>Verify the RPS RESPONSE TIME is within limits</p>   | [18] months on a STAGGERED TEST BASIS  |
| SR 3.3.1.1.18 | <p>Adjust the flow card trip reference card to conform to reactor flow.</p> <p>[Reviewer's Note: Upon completion of the Enhanced Option I-A Stability solution this SR supercedes SR 3.3.1.1.3.]</p>  | Once, within 7 days after reaching equilibrium conditions following refueling outage |

## PILGRIM TECHNICAL SPECIFICATIONS

### Station Procedure 2.1.15 - Daily Log Test #10 "APRM Channel Check"

|                  |                  |                   |
|------------------|------------------|-------------------|
| PNPS TABLE 4.1.2 | Calibration Test | Minimum Frequency |
| APRM High Flux   | Heat Balance     | Once Every 3 Days |

|                  |                        |                                       |
|------------------|------------------------|---------------------------------------|
| PNPS TABLE 4.1.2 | Calibration Test       | Minimum Frequency                     |
| LPRM Signal      | TIP System Traverse    | Every 1000 Effective Full Power Hours |
| PNPS TABLE 4.1.1 | Functional Test        | Minimum Frequency (3)                 |
| APRM Flow Bias   | Trip Output Relays (4) | Every 3 Months                        |

|                  |                                |                   |
|------------------|--------------------------------|-------------------|
| PNPS TABLE 4.1.2 | Calibration Test               | Minimum Frequency |
| APRM High Flux   | Calibrate Flow Bias Signal (1) | Every 3 Months    |
| Flow Bias Signal |                                |                   |

|                  |                           |                     |
|------------------|---------------------------|---------------------|
| PNPS TABLE 4.1.2 | Calibration Test          | Minimum Frequency   |
| APRM High Flux   | Calibrate Flow Comparator | At least once every |
| Flow Bias Signal | and Flow Bias Network     | 18 Months           |

Response time testing same as LSFT

### Notes for Table 4.1.2

5. Response time is not a part of the routine instrument channel test, but will be checked once per operating cycle.

Note 1 to Table 4.1.2, "Adjust the flow bias trip reference, as necessary, to conform to a calibrated flow signal" is required along with the 3 month calibration of the flow biased signal.

## 3.3 INSTRUMENTATION

## 3.3.1.3 Period-Based Detection System Instrumentation (PBDS)

LCO 3.3.1.3 One channel of PBDS instrumentation shall be OPERABLE.

AND

Each OPERABLE channel of PBDS instrumentation shall not indicate High-High DR Alarm

APPLICABILITY: THERMAL POWER and core flow in the Restricted Region as specified in the COLR.  
THERMAL POWER and core flow in the Monitored Region as specified in the COLR.

ACTIONS

| CONDITION  | REQUIRED ACTION   | COMPLETION TIME |
|--|---|-----------------|
| A. Any OPERABLE PBDS channel indicating High-High DR Alarm.        | A.1 Place the reactor mode switch in the shutdown position  | Immediately     |
| B. Required PBDS channel inoperable while in the Restricted Region | B.1 <u>NOTE</u><br>Only applicable if RPS Function 2.b, APRM Flow Biased Simulated Thermal Power-High, Allowable Value is "Setup" | Immediately     |
|  | Initiate action to exit the Restricted Region   |                 |
|  | <u>OR</u><br>B.2 Place the reactor mode switch in the shutdown position   | Immediately     |
| C. Required PBDS channel inoperable while in the Monitored Region  | C.1 Initiate action to exit the Monitored Region  | 15 minutes      |

SURVEILLANCE REQUIREMENTS

| SURVEILLANCE  | FREQUENCY |
|---|-----------|
| SR 3.3.1.3.1 Verify each OPERABLE channel of PBDS instrumentation not in High-High DR Alarm | 12 hours  |
| SR 3.3.1.3.2 Perform Channel Check  | 12 hours  |
| SR 3.3.1.3.3 Perform Channel Functional   | 24 months |

3.11 REACTOR FUEL ASSEMBLYD. Power/Flow Relationship During Power Operation

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If at any time during power operation it is determined by normal surveillance that the limiting value for the power/flow relationship is being exceeded, action shall be initiated within 15 minutes to restore operation to within the prescribed limits. If the power/flow relationship is not returned to within the prescribed limits within two (2) hours, the reactor shall be brought to the Cold Shutdown condition within 36 hours. Surveillance and corresponding action shall continue until reactor operation is within the prescribed limits.

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.1 Recirculation Loops Operating

[Reviewer's Note: The only change to the RCS section is the LCO for Recirculation Loops Operating. The unchanged sections are not repeated herein.]

LCO 3.4.1 Two recirculation loops with matched flows shall be in operation,

OR

One recirculation loop may be in operation provided the following limits are applied when the associated LCO is applicable:

a. [no change]

b. [no change]

(RPS) c. LCO 3.3.1.1, "Reactor Protection System

Instrumentation, Function 2.b (Average Power Range Monitor Flow Biased Simulated Thermal Power-High) Allowable Value for Single-loop operation as specified in the COLR

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E. The reactor shall not be operated with one recirculation loop out of service for more than 24 hours. With the reactor operating, if one recirculation loop is out of service, the plant shall be placed in the hot shutdown condition within 24 hours unless the loop is sooner returned to service.