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LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS

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3/4.1 REACTIVITY CONTROL SYSTEMS

3/4.1.1 BORATION CONTROL

SHUTDOWN MARGIN

LIMITING CONDITION FOR OPERATION

3.1.1.1 The SHUTDOWN MARGIN shall be within the limits provided in the CORE OPERATING LIMITS REPORT (COLR).

APPLICABILITY: MODES 1, 2*, 3, 4, and 5.

ACTION:

With the SHUTDOWN MARGIN not within the limit initiate boration within 15 minutes and continue boration until the required SHUTDOWN MARGIN is restored.

SURVEILLANCE REQUIREMENTS

4.1.1.1.1 The SHUTDOWN MARGIN shall be determined to be within the limits specified in the COLR:

- a. Within 1 hour after detection of an inoperable control rod(s) and at least once per 12 hours thereafter while the rod(s) is inoperable. If the inoperable control rod is immovable or untrippable, the above required SHUTDOWN MARGIN shall be verified acceptable with an increased allowance for the withdrawn worth of the immovable or untrippable control rod(s);
- b. When in MODE 2 with K_{eff} less than 1, within 4 hours prior to achieving reactor criticality by verifying that the predicted critical control rod position is within the limits of Specification 3.1.3.6;
- c. Prior to initial operation above 5% RATED THERMAL POWER after each fuel loading, by consideration of the factors of Specification 4.1.1.1.d. below, with the control banks at the maximum insertion limit of Specification 3.1.3.6; and

*See Special Test Exceptions Specification 3.10.1.

REACTIVITY CONTROL SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

- d. When in MODE 3, 4, or 5, at least once per 24 hours by consideration of the following factors:
- 1) Reactor Coolant System boron concentration,
 - 2) Control rod position,
 - 3) Reactor Coolant System average temperature,
 - 4) Fuel burnup based on gross thermal energy generation,
 - 5) Xenon concentration, and
 - 6) Samarium concentration.

4.1.1.1.2 The overall core reactivity balance shall be compared to predicted values to demonstrate agreement within $\pm 1\% \Delta k/k$ at least once per 31 Effective Full Power Days (EFPD). This comparison shall consider at least those factors stated in Specification 4.1.1.1.1d., above. The predicted reactivity values shall be adjusted (normalized) to correspond to the actual core conditions prior to exceeding a fuel burnup of 60 EFPD after each fuel loading. The provisions of Specification 4.0.4 are not applicable.

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SOUTH TEXAS - UNITS 1 & 2

3/4 1-3

Unit 1 - Amendment No. 48,64,150
Unit 2 - Amendment No. 37,50,138

REACTIVITY CONTROL SYSTEMS

3.1.1.2 (This specification not used)

(This page not used)

SOUTH TEXAS - UNITS 1 & 2

3/4 1-5

Unit 1 - Amendment No. 64,150
Unit 2 - Amendment No. 50,138

3/4.9 REFUELING OPERATIONS

3/4.9.1 BORON CONCENTRATION

LIMITING CONDITION FOR OPERATION

3.9.1 The boron concentration of all filled portions of the Reactor Coolant System and the refueling canal shall be maintained uniform and sufficient to ensure that the more restrictive of the following reactivity conditions is met; either:

- a. A K_{eff} of 0.95 or less, or
- b. A boron concentration of greater than or equal to 2800 ppm.

APPLICABILITY: MODE 6.*

ACTION:

With the requirements of the above specification not satisfied, immediately suspend all operations involving CORE ALTERATIONS or positive reactivity changes and initiate and continue boration until K_{eff} is reduced to less than or equal to 0.95 or the boron concentration is restored to greater than or equal to 2800 ppm, whichever is the more restrictive.

SURVEILLANCE REQUIREMENTS

4.9.1.1 The more restrictive of the above two reactivity conditions shall be determined prior to:

- a. Removing or unbolting the reactor vessel head, and
- b. Withdrawal of any full-length control rod in excess of 3 feet from its fully inserted position within the reactor vessel.

4.9.1.2 The boron concentration of the Reactor Coolant System and the refueling canal shall be determined by chemical analysis at least once per 72 hours.

4.9.1.3 Valves FCV-110B, FCV-111B, CV0201A, and CV0221 shall be verified closed and secured in position by mechanical stops or by removal of air or electrical power at least once per 31 days.

*The reactor shall be maintained in MODE 6 whenever fuel is in the reactor vessel with the vessel head closure bolts less than fully tensioned or with the head removed.

3/4.10 SPECIAL TEST EXCEPTIONS

3/4.10.1 SHUTDOWN MARGIN

LIMITING CONDITION FOR OPERATION

3.10.1 The SHUTDOWN MARGIN requirement of Specification 3.1.1.1 may be suspended for measurement of control rod worth and SHUTDOWN MARGIN provided reactivity equivalent to at least the highest estimated control rod worth is available for trip insertion from OPERABLE control rod(s).

APPLICABILITY: MODE 2.

ACTION:

- a. With any full-length control rod not fully inserted and with less than the above reactivity equivalent available for trip insertion, initiate boration within 15 minutes and continue boration until the SHUTDOWN MARGIN required by Specification 3.1.1.1 is restored.
- b. With all full-length control rods fully inserted and the reactor subcritical by less than the above reactivity equivalent, initiate boration within 15 minutes and continue boration until the SHUTDOWN MARGIN required by Specification 3.1.1.1 is restored.

SURVEILLANCE REQUIREMENTS

4.10.1.1 The position of each full-length control rod either partially or fully withdrawn shall be determined at least once per 2 hours.

4.10.1.2 Each full-length control rod not fully inserted shall be demonstrated capable of full insertion when tripped from at least the 50% withdrawn position within 24 hours prior to reducing the SHUTDOWN MARGIN to less than the limits of Specification 3.1.1.1.

3/4.10 SPECIAL TEST EXCEPTIONS

3.10.6 (This specification not used)

SOUTH TEXAS - UNITS 1 & 2

3/4 10-6

**Unit 1 - Amendment No. 150
Unit 2 - Amendment No. 48, 138**

3/4.10 SPECIAL TEST EXCEPTIONS

3.10.7 (This specification not used)

SOUTH TEXAS - UNITS 1 & 2

3/4 10-7

**Unit 1 - Amendment No. 150
Unit 2 - Amendment No. 48, 138**

ADMINISTRATIVE CONTROLS

MONTHLY OPERATING REPORTS

6.9.1.5 Routine reports of operating statistics and shutdown experience, including documentation of all challenges to the PORVs or safety valves, shall be submitted on a monthly basis to the Director, Office of Resource Management, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555, with a copy to the Regional Administrator of the Regional Office of the NRC, no later than the 15th of each month following the calendar month covered by the report.

CORE OPERATING LIMITS REPORT

6.9.1.6.a Core operating limits shall be established and documented in the CORE OPERATING LIMITS REPORT before each reload cycle, or any part of a reload cycle for the following:

1. Safety limits for thermal power, pressurizer pressure, and the highest operating loop coolant temperature (T_{avg}) for Specification 2.1,
2. Limiting Safety System Settings for Reactor Coolant Flow-Low Loop design flow, Overtemperature ΔT , and Overpower ΔT setpoint parameter values for Specification 2.2,
3. SHUTDOWN MARGIN limits for Specification 3/4.1.1.1,
4. Moderator Temperature Coefficient BOL and EOL limits, and 300 ppm surveillance limit for Specification 3/4.1.1.3,
5. Shutdown Bank Insertion Limit for Specification 3/4.1.3.5,
6. Control Bank Insertion Limits for Specification 3/4.1.3.6,
7. Axial Flux Difference limits and target band for Specification 3/4.2. 1,
8. Heat Flux Hot Channel Factor, $K(Z)$, Power Factor Multiplier, and $(F_{xy})^{RTP}$ for Specification 3/4.2.2,
9. Nuclear Enthalpy Rise Hot Channel Factor, and Power Factor Multiplier for Specification 3/4.2.3, and
10. DNB related parameters for Reactor Coolant System T_{avg} Pressurizer Pressure, and the Minimum Measured Reactor Coolant System Flow for Specification 3/4.2.5.

The CORE OPERATING LIMITS REPORT shall be maintained available in the Control Room.

6.9.1.6.b The analytical methods used to determine the core operating limits shall be those previously reviewed and approved by the NRC in:

1. WCAP 9272-P-A, "WESTINGHOUSE RELOAD SAFETY EVALUATION METHODOLOGY," July, 1985 (W Proprietary).

(Methodology for Specification 3.1.1.1 – Shutdown Margin, Methodology for Specification 3.1.1.3 - Moderator Temperature Coefficient, 3.1.3.5 - Shutdown Rod Insertion Limit, 3.1.3.6 - Control Bank Insertion Limits, 3.2.1 - Axial Flux Difference, 3.2.2 - Heat Flux Hot Channel Factor, 3.2.3 - Nuclear Enthalpy Rise Hot Channel Factor, and 3.2.5 - DNB Parameters.)