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L-2011-006
10 CFR 50.90

U. S. Nuclear Regulatory Commission
Attn.: Document Control Desk
Washington, D.C. 20555-0001

Re: Turkey Point Units 3 and 4
Docket Nos. 50-250 and 50-251
License Amendment Request No. 209
Relocation of Cycle Specific Parameters to the Core Operating Limits Report (COLR)

In accordance with the provisions of 10 CFR 50.90, Florida Power and Light Company (FPL) requests that Appendix A of Renewed Facility Operating Licenses DPR-31 and DPR-41 for Turkey Point Units 3 and 4 be amended to incorporate the enclosed Technical Specification (TS) revisions. The proposed amendments would relocate selected figures and values from the Technical Specifications (TS) to the COLR including TS Figure 2.1-1 cited in TS 2.1.1, selected portions of Note 1 on Overtemperature ΔT (OTΔT) and Note 3 on Overpower ΔT (OPΔT) in cited TS Table 2.2-1, TS Figure 3.1-1 cited in TS 3/4.1.1.1, Shutdown Margin value cited in TS 3/4.1.1.2, Moderator Temperature Coefficient (MTC) values cited in TS 3/4.1.1.3, and Departure from Nucleate Boiling (DNB) values cited in TS 3.2.5. The description of the COLR in TS 6.9.1.7 is also revised to reflect these proposed changes. The affected TS figures and technical limits cited above are only being relocated to the COLR and are not being changed under this license amendment request.

The Enclosure to this letter contains a description of the proposed changes with supporting technical justifications and includes a no significant hazards determination and environmental consideration.

The proposed changes have been evaluated in accordance with 10 CFR 50.91(a)(1), using the criteria provided in 10 CFR 50.92(c) and FPL has determined that the proposed changes do not involve a significant hazards consideration.

The proposed changes affect requirements with respect to the use of a facility component located within the restricted area as defined in 10 CFR Part 20. FPL has determined that the proposed amendments involve no significant increase in the amounts and no significant change in the types of any effluents that may be released offsite, and no significant increase in individual or cumulative occupational radiation exposure. Therefore, FPL has concluded that the proposed amendments meet the criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9) and, pursuant to 10 CFR 51.22(b), an environmental impact statement or environmental assessment need not be prepared in connection with issuance of the amendments.

The Turkey Point Plant Nuclear Safety Committee (PNSC) has reviewed the proposed license amendments. In accordance with 10 CFR 50.91(b)(1), a copy of this letter is being forwarded to the State Designee of Florida.

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This letter contains no new commitments and no revisions to existing commitments.

It is requested that issuance of this requested amendment be no later than December 31, 2011 prior to the Unit 3 Spring and Unit 4 Fall 2012 outages. Furthermore, implementation of this requested amendment shall be scheduled to be completed within 90 days of its receipt by FPL.

Should you have any questions regarding this submittal, please contact Mr. Robert J. Tomonto, Licensing Manager, at (305) 246-7327.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on February 21, 2011.

Very truly yours,

Michael Kiley
Site Vice President
Turkey Point Nuclear Plant

Enclosure

cc: USNRC Regional Administrator, Region II
USNRC Project Manager, Turkey Point Nuclear Plant
USNRC Senior Resident Inspector, Turkey Point Nuclear Plant
Mr. W. A. Passetti, Florida Department of Health

Turkey Point Units 3 and 4

LICENSE AMENDMENT REQUEST NO. 209
RELOCATION OF CYCLE SPECIFIC PARAMETERS
TO THE
CORE OPERATING LIMITS REPORT (COLR)

ENCLOSURE

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LICENSE AMENDMENT REQUEST

RELOCATION OF CYCLE SPECIFIC PARAMETERS TO THE CORE OPERATING LIMITS REPORT (COLR)

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1.0 Purpose and Scope

Florida Power and Light Company (FPL) proposes to revise the Turkey Point (PTN) Units 3 and 4 licensing basis by amending Appendix A of Renewed Facility Operating Licenses DPR-31 and DPR-41 for Turkey Point Units 3 and 4 to incorporate the enclosed Technical Specification (TS) revisions. The proposed TS changes relocate selected figures and technical values from the TS to the Core Operating Limits Report (COLR).

2.0 Background Information

FPL proposes changes to the PTN TS by implementing the guidance of NRC Generic Letter (GL) 88-16 "Removal of Cycle-Specific Parameter Limits from Technical Specifications" (Reference 1). Generic Letter 88-16, issued in October 1988, provided guidance for and "encouraged" licensees to pursue an alternative method to the practice of specifying cycle-specific parameter limits in TS. The GL 88-16 alternative method eliminates the necessity for the preparation and review of license amendments each refueling for the sole purpose of updating cycle-specific parameter limits. GL 88-16 specified that the alternative of including the values of cycle-specific parameter limits in the COLR rather than in the individual TSs consists of the following three actions:

1) The addition of the definition of a named formal report that includes the values of cycle-specific parameter limits that have been established using an NRC-approved methodology and consistent with all applicable limits of the safety analysis,
2) The addition of an administrative reporting requirement to submit the formal report on cycle-specific parameter limits to the Commission for information, and
3) The modification of individual TS to note that cycle-specific parameters shall be maintained within the limits provided in the defined formal report.

The above three actions specified in GL 88-16 are complied with by FPL in the proposed TS changes. A description of the proposed TS changes is provided below.

3.0 Description of Proposed Changes

This License Amendment Request (LAR) proposes changes to the Turkey Point Nuclear Plant (PTN) Unit 3 and 4 TS to relocate selected figures and technical limits from the TS to the COLR and for Reactor Core Safety Limits, a figure that is relocated to the COLR is replaced with fuel departure-from-nucleate-boiling (DNB) correlation design basis limit and peak fuel centerline temperature design basis limit. These proposed relocations affect the following TS sections:

1. TS 2.1.1, "Safety Limits," relocation of Figure 2.1-1, "Reactor Core Safety Limit – Three Loops in Operation," to the COLR is enabled by the insertion of fuel departure-from-nucleate-boiling (DNB) correlation design basis limit and peak fuel centerline temperature design basis limit in the TS;

2. TS 2.2.1, "Limiting Safety System Settings," relocation of the overtemperature ΔT ($OT\Delta T$) and overpower ΔT ($OP\Delta T$) T′ and T″ nominal T_{avg} at Rated Thermal Power values, P′ nominal Reactor Coolant System pressure value, K constant values, dynamic compensation tau (τ) values, and the breakpoint and slope values for the f(ΔI) penalty function(s) in TS Table 2.2-1 to the COLR;
3. TS 3/4.1.1.1, "Boration Control Shutdown Margin – T_{avg} Greater Than 200°F," relocation of Figure 3.1-1, "Required Shutdown Margin vs. Reactor Coolant Boron Concentration," to the COLR;
4. TS 3/4.1.1.2, "Boration Control Shutdown Margin – T_{avg} Less Than or Equal To 200°F," relocation of shutdown margin limit to the COLR.
5. TS 3/4.1.1.3, "Moderator Temperature Coefficient," relocation of the Moderator Temperature Coefficient (MTC) limits to the COLR;
6. TS 3.2.5, "DNB Parameters," relocation of Reactor Coolant System T_{avg} and Pressurizer Pressure limits to the COLR; and
7. TS 6.9.1.7, "Core Operating Limits Report," is revised to reflect the above changes.

The proposed changes are either based on:

1. NRC Generic Letter 88-16, "Removal of Cycle-Specific Parameter Limits from Technical Specifications," October 3, 1988 (Reference 1);
2. The NRC staff's acceptance of WCAP-14483-A, "Generic Methodology for Expanded Core Operating Limits Report;" January 1999 (Reference 2) and/or
3. Standard Technical Specifications (STS) – Westinghouse Plants, NUREG-1431, Revision 3.1 (Reference 3)

Relocation of cycle-specific parameters from the TS to the COLR (a licensee-controlled document subject to the requirements of TS 6.9.1.7 and the provisions of 10 CFR 50.59) would afford FPL the flexibility to revise cycle-specific parameters, in accordance with NRC approved methodologies, without the need for license amendment submittals. Specifically, TS 6.9.1.7 requires copies of the COLR to be submitted to the NRC for each reload cycle, including any mid-cycle revisions or supplements to the NRC, unless otherwise approved by the Commission. Thus resources, both FPL and NRC, would be saved by minimizing and or/eliminating repetitive LAR submittals associated with revising cycle-specific parameters.

A specific description and justification for each change is provided in Section 3.1 below. In addition, TS mark-ups are provided in Attachment 1 of this document.

3.1 Technical Specification, 2.1 Safety Limits, Reactor Core

Current TS

2.1.1 The combination of THERMAL POWER, pressurizer pressure, and the highest operating loop coolant temperature (T_{avg}) shall not exceed the limits shown in Figure 2.1-1, for 3 loop operation.

Figure 2.1-1 Reactor Core Safety Limit – Three Loops in Operation (T_{avg} vs Fraction of Nominal Power at 2455, 2400, 2250, 2000, and 1805 psia).

Proposed TS

2.1.1 The combination of THERMAL POWER, pressurizer pressure, and the highest operating loop coolant temperature (T_{avg}) shall not exceed the limits **specified in the COLR**, for 3 loop operation**; and the following Safety Limits shall not be exceeded:**

a. The departure from nucleate boiling ratio (DNBR) shall be maintained ≥ 1.17 for the WRB-1 DNB correlation.

b. The peak fuel centerline temperature shall be maintained < 5080°F, decreasing by 58°F per 10,000 MWD/MTU of burnup.

Figure 2.1-1 is being relocated from Technical Specifications to COLR.

Basis for the Change:

Relocating Figure 2.1-1, "Reactor Core Safety Limit – Three Loops in Operation," to the COLR and replacing it with the fuel departure-from-nucleate-boiling (DNB) correlation design basis limit and the peak fuel centerline temperature design basis limit is consistent with the NRC Safety Evaluation for expanding the COLR as described in WCAP-14483-A (Reference 2). This relocated cycle-specific parameter is determined by the use of WCAP-9272-P-A, "Westinghouse Reload Safety Evaluation Methodology," July 1985 (Reference 4), which is listed in the PTN TS 6.9.1.7, "Core Operating Limits Report." The proposed revision of this TS is also consistent with the STS (Reference 3).

Relocating the Reactor Core Safety Limit figure to the COLR and replacing it with the DNB correlation design basis limit and the peak fuel centerline temperature design basis limit will provide operating flexibility and avoid the need for frequent revision of the TS.

3.2 Technical Specification Table 2.2-1 RTS Instrumentation Trip Setpoints Function 5, Overtemperature ΔT, Note 1

Current TS

NOTE 1: OVERTEMPERATURE ΔT

Equation variables are defined as follows:

- $K_1 = 1.24$
- $K_2 = 0.017/^oF$
- $K_3 = 0.001/psig$
- $T' \leq 577.2^oF$ (Nominal T_{avg} at Rated Thermal Power)
- $P' \geq 2235$ psig (Nominal RCS operating pressure)
- τ_1, τ_2, and $\tau_3 = 0$ sec
- $\tau_4 = 25$ sec
- $\tau_5 = 3$ sec
- $\tau_6 = 0$ sec
- $f_1(\Delta I)$, item (1), "For $q_t - q_b$ between - 50% and + 2%, ..."
- $f_1(\Delta I)$, item (2), "...$q_t - q_b$ exceeds - 50% ... automatically reduced by 0.0% ..."
- $f_1(\Delta I)$, item (3), "...$q_t - q_b$ exceeds + 2% ... automatically reduced by 2.19% ..."

Proposed TS

NOTE 1 OVERTEMPERATURE ΔT **(Values denoted with [*] are specified in COLR.)**

Equation variables are defined as follows:

- $K_1 =$ **[*]**
- $K_2 =$ **[*]**$/^oF$
- $K_3 =$ **[*]**/psig
- $T' \leq$ **[*]**^oF (Nominal T_{avg} at Rated Thermal Power)
- $P' \geq$ **[*]**psig (Nominal RCS operating pressure)
- τ_1, τ_2, τ_3, τ_4, τ_5, and $\tau_6 =$ **[*]**sec
- $f_1(\Delta I)$, item (1), "For $q_t - q_b$ between – **[*]**% and + **[*]**%, ..."
- $f_1(\Delta I)$, item (2), "...$q_t - q_b$ exceeds – **[*]**% ... automatically reduced by **[*]**% ..."
- $f_1(\Delta I)$, item (3), "...$q_t - q_b$ exceeds + **[*]**% ... automatically reduced by **[*]**% ..."

Basis for the Change:

Note 1 values (Ks, τs, T', P' and the breakpoint and slope values for the $f_1(\Delta I)$ function) are being relocated to the COLR. This relocation is consistent with the NRC Safety Evaluation for WCAP-14483-A (Reference 2). These relocated cycle-specific parameters are determined by the use of WCAP-8745-P-A, "Design Basis for the Thermal Overpower ΔT and Thermal Overtemperature ΔT Trip Functions," September 1986 (Reference 5) and WCAP-9272-P-A (Reference 4). The first WCAP will be listed in PTN TS 6.9.1.7, "Core Operating Limits Report" as part of this LAR. The second WCAP is already listed in the same PTN TS section. Relocation of this information to the COLR is also consistent with the STS (Reference 3).

Moving the Overtemperature ΔT parameters to the COLR will provide operating flexibility and avoid the need for frequent revision of the TS.

3.3 Technical Specification Table 2.2-1 RTS Instrumentation Trip Setpoints Function 6, Overpower ΔT, Note 3

Current TS

NOTE 3: OVERPOWER ΔT

Equation variables are defined as follows:

- $K_4 \leq 1.10$
- $K_5 \geq 0.02/^{\circ}F$ for increasing average temperature and
  0 for decreasing average temperature
- $K_6 = 0.0016/^{\circ}F$ for $T > T''$
  $= 0$ for $T \leq T''$
- $T'' \leq 577.2^{\circ}F$ (Nominal T_{avg} at Rated Thermal Power)
- $\tau_7 \geq 10$ sec
- $f_2(\Delta I) = 0$ for all ΔI

Proposed TS

NOTE 3: OVERPOWER ΔT **(Values denoted with [*] are specified in COLR.)**

Equation variables are defined as follows:

- $K_4 \leq$ **[*]**
- $K_5 \geq$ **[*]**$/^{\circ}F$ for increasing average temperature
  $\geq$ **[*]** for decreasing average temperature
- $K_6 =$ **[*]**$/^{\circ}F$ for $T > T''$
  $=$ **[*]** for $T \leq T''$
- $T'' \leq$ **[*]**$^{\circ}F$ (Nominal T_{avg} at Rated Thermal Power)

- $\tau_7 \geq$ [*]sec
- $f_2(\Delta I)$ = [*]

Basis for the Change:

Note 3 values (Ks, τ_7, T'' and $f_2(\Delta I)$) are being relocated to the COLR). This relocation is consistent with the NRC Safety Evaluation for WCAP-14483-A (Reference 2). These relocated cycle-specific parameters are determined by the use of WCAP-8745-P-A (Reference 5) and WCAP-9272-P-A (Reference 4). The first WCAP will be listed in PTN TS 6.9.1.7, "Core Operating Limits Report" as part of this LAR. The second WCAP is already listed in the same PTN TS section. Relocation of this information to the COLR is also consistent with the STS (Reference 3).

Moving the Overpower ΔT parameters to the COLR will provide operating flexibility and avoid the need for frequent revision of the TS.

3.4 Technical Specification 3/4.1.1.1, Reactivity Control Systems, Boration Control, Shutdown Margin – T_{avg} Greater than 200°F

Current TS

LCO 3.1.1.1: The SHUTDOWN MARGIN shall be greater than or equal to the applicable value shown in Figure 3.1-1.

ACTION: With the SHUTDOWN MARGIN less than the applicable value shown in Figure 3.1-1, immediately initiate and continue boration at greater than or equal to 16 gpm of a solution containing greater than or equal to 3.0 wt% (5245 ppm) boron or equivalent until the required SHUTDOWN MARGIN is restored.

Figure 3.1-1 provides the required shutdown margin ($\Delta k/k$) as a function of RCS boron concentration (ppm).

SR 4.1.1.1.1: The SHUTDOWN MARGIN shall be determined to be greater than or equal to the applicable value shown in Figure 3.1-1.

Proposed TS

LCO 3.1.1.1: The SHUTDOWN MARGIN shall be **within** the **limits specified in the COLR**.

ACTION: With the SHUTDOWN MARGIN **not within the limits**, immediately initiate and continue boration at greater than or equal to 16 gpm of a solution containing greater than or equal to 3.0 wt% (5245 ppm) boron or equivalent until the required SHUTDOWN MARGIN is restored.

Figure 3.1-1 is being relocated from Technical Specifications to COLR.

SR 4.1.1.1.1 The SHUTDOWN MARGIN shall be determined to be **within** the **limits specified in the COLR**.

Basis for the Change:

For this specification, Figure 3.1-1, "Required Shutdown Margin vs Reactor Coolant Boron Concentration" is relocated to the COLR. This change is consistent with the guidance provided in the STS (Reference 3) for relocating shutdown limits to the COLR. This relocated cycle-specific parameter is determined by the use of WCAP-9272-P-A (Reference 4) which is listed in the PTN TS 6.9.1.7, "Core Operating Limits Report." The reference to this figure in LCO 3.1.1.1, associated ACTION, and SR 4.1.1.1.1 are also revised to be consistent with the relocation of this figure to the COLR.

Relocating the shutdown margin limit figure to the COLR will provide operating flexibility and avoid the need for frequent revision of the TS.

3.5 Technical Specification 3/4.1.1.2, Reactivity Control Systems, Boration Control, Shutdown Margin – T_{avg} Less Than or Equal to 200°F

Current TS

LCO 3.1.1.2: The SHUTDOWN MARGIN shall be greater than or equal to 1% Δk/k.

ACTION: With the SHUTDOWN MARGIN less than 1% Δk/k, immediately initiate and continue boration at greater than or equal to 16 gpm of a solution containing greater than or equal to 3.0 wt% (5245 ppm) boron or equivalent until the required SHUTDOWN MARGIN is restored.

SR 4.1.1.2: The SHUTDOWN MARGIN shall be determined to be greater than or equal to 1% Δk/k.

Proposed TS

LCO 3.1.1.2: The SHUTDOWN MARGIN shall be **within the limit specified in the COLR**.

ACTION: With the SHUTDOWN MARGIN **not within the limit**, immediately initiate and continue boration at greater than or equal to 16 gpm of a solution containing greater than or equal to 3.0 wt% (5245 ppm) boron or equivalent until the required SHUTDOWN MARGIN is restored.

SR 4.1.1.2: The SHUTDOWN MARGIN shall be determined to be **within the limit specified in the COLR**.

Basis for the Change:

The shutdown margin limit specified in the LCO 3.1.1.2 is relocated to the COLR. This change is consistent with the guidance provided in the STS (Reference 3) for relocating the shutdown margin limit to the COLR. This relocated cycle-specific parameter is determined by the use of WCAP-9272-P-A (Reference 4) which is listed in the PTN TS 6.9.1.7, "Core Operating Limits Report." Reference to this shutdown margin limit in the

associated LCO, ACTION and SR 4.1.1.2 are also revised to be consistent with the relocation of the shutdown margin limit to the COLR.

Relocating the shutdown margin limit figure to the COLR will provide operating flexibility and avoid the need for frequent revision of the TS.

3.6 Technical Specification 3/4.1.1.3, Moderator Temperature Coefficient

Current TS

LCO 3.1.1.3: The moderator temperature coefficient (MTC) shall be:

a. Less positive than or equal to 5.0×10^{-5} $\Delta k/k/°F$ for all rods withdrawn, beginning of the cycle life (BOL), hot zero THERMAL POWER (HZP) conditions; and

b. Less positive than or equal to 5.0×10^{-5} $\Delta k/k/°F$ from HZP to 70% RATED THERMAL POWER condition; and

c. Less positive than or equal to 5.0×10^{-5} $\Delta k/k/°F$ from 70% RATED THERMAL POWER decreasing linearly to less positive than or equal to 0 $\Delta k/k/°F$ at 100% RATED THERMAL POWER conditions; and

d. Less negative than -3.5×10^{-4} $\Delta k/k/°F$ for the all rods withdrawn, end of cycle life (EOL), RATED THERMAL POWER condition.

Applicability:

Specification 3.1.1.3a, b and c. – MODES 1 and 2* only**.

Specification 3.1.1.3d – MODES 1, 2, and 3 only**.

ACTION:

a. With the MTC more positive than the limit of Specification 3.1.1.3a, b or c above, operation in MODES 1 and 2 may proceed provided:

    1. Control rod withdrawal limits are established and maintained sufficient to restore the MTC to less positive or equal to limits described in 3.1.1.3a, b and c above within 24 hours or be in HOT STANDBY within the next 6 hours. These withdrawal limits shall be in addition to the insertion limits of Specification 3.1.3.6.

b. With the MTC more negative than the limit of Specification 3.1.1.3d. above, be in HOT SHUTDOWN within 12 hours.

SR 4.1.1.3: The MTC shall be determined to be within its limits during each fuel cycle as follows:

a. The MTC shall be measured and compared to the BOL limit of Specification 3.1.1.3a, above, prior to initial operation above 5% of RATED THERMAL POWER, after each fuel loading; and

b. The MTC shall be measured at any THERMAL POWER and compared to -3.0×10^{-4} $\Delta k/k/°F$ (all rods withdrawn, RATED THERMAL POWER condition) within 7 EFPD after reaching an equilibrium boron concentration of 300 ppm. In the event this comparison indicates the MTC is more negative than -3.0×10^{-4} $\Delta k/k/°F$, the MTC shall be remeasured, and compared to the EOL MTC limit of Specification 3.1.1.3d., at least once per 14 EFPD during the remainder of the fuel cycle.

c. Perform design calculation to verify conformance to Specifications 3.1.1.3b and c.

Proposed TS

LCO 3.1.1.3: **The moderator temperature coefficient (MTC) shall be within the limits specified in the COLR. The maximum upper limit shall be less positive than or equal to $+5.0 \times 10^{-5}$ Δ k/k/°F for all the rods withdrawn, beginning of cycle life (BOL), for power levels up to 70% RATED THERMAL POWER with a linear ramp to 0 Δ k/k/°F at 100% RATED THERMAL POWER.**

Applicability:

Beginning of cycle life (BOL) – MODES 1 and 2* only**.

End of cycle life (EOL) – MODES 1, 2, and 3 only**.

ACTION:

a. With the MTC more positive than the **BOL limit specified in the COLR**, operation in MODES 1 and 2 may proceed provided:

    1. Control rod withdrawal limits are established and maintained sufficient to restore the MTC to less positive or equal to **the BOL limit specified in the COLR** within 24 hours or be in HOT STANDBY within the next 6 hours. These withdrawal limits shall be in addition to the insertion limits of Specification 3.1.3.6.

b. With the MTC more negative than **the EOL limit specified in the COLR**, be in HOT SHUTDOWN within 12 hours.

SR 4.1.1.3: The MTC shall be determined to be within its limits during each fuel cycle as follows:

a. The MTC shall be measured and compared to the BOL limit **specified in the COLR** prior to initial operation above 5% of RATED THERMAL POWER, after each fuel loading; and

b. The MTC shall be measured at any THERMAL POWER and compared to **the 300 ppm surveillance limit specified in the COLR** (all rods withdrawn, RATED THERMAL POWER condition) within 7 EFPD after reaching an equilibrium boron concentration of 300 ppm. In the event this comparison indicates the MTC is **more negative than the 300 ppm surveillance limit specified in the COLR**, the MTC shall be remeasured, and compared to the EOL MTC limit **specified in the COLR**, at least once per 14 EFPD during the remainder of the fuel cycle.

~~c. Perform design calculation to verify conformance to Specifications 3.1.1.3b and c.~~

Basis for the Change:

The BOL limits of LCO 3.1.1.3.a, LCO 3.1.1.3.b. and LCO 3.1.1.3.c are retained as maximum upper limits in the TS and the corresponding cycle specific limits are provided in the COLR. The EOL negative limit of LCO 3.1.1.3.d is relocated to the COLR. Both sets of these COLR MTC Limits [i.e., BOL/upper limits and the EOL/lower limit] allow the establishment of cycle specific limits without the need for TS changes so long as the BOL/upper limits in TS are not exceeded. This permits the unit to take advantage of improved fuel management and changes in unit operating schedule.

The BOL LCO, which is combined into a single statement, retains the maximum positive value that cannot be exceeded without written approval from the NRC. This ensures that the BOL MTC is such that inherently stable power operations result during normal operation and accidents events. The changes are consistent with the guidance provided in the STS (Reference 3) for relocating MTC limits to the COLR. The determination of the MTC limit is conducted in accordance with WCAP-9272-P-A (Reference 4) which is listed in the Turkey Point (PTN) TS 6.9.1.7, "Core Operating Limits Report."

Consistent with the above changes to the LCO, changes are made to the applicability statements; ACTIONS "a", "a.1" and "b" and surveillance requirements 4.1.1.3.a and 4.1.1.3 b.

The 3.0×10^{-4} $\Delta k/k/^{\circ}F$ value in SR 4.1.1.3.b is relocated to the COLR. In conjunction with this relocation, the phrase "300 ppm surveillance limit" is inserted into both places where this value previously existed in this surveillance requirement (SR). This is done to ensure that when this SR is performed, a comparison is made to the acceptance criteria of 300 ppm associated with this SR and not the relocated EOL MTC limit from LCO 3.1.1.3.d. The relocation of this limit and the insertion of the precautionary phrase "300 ppm surveillance limit" are consistent with the NRC methodology for expanding the COLR as presented in the STS (Reference 3).

SR 4.1.1.3.c is deleted as this activity is performed as part of the reload process during the core design. Specifically, during the reload core safety evaluation, the MTC is analyzed to determine that its value remains within the bounds of the original accident analysis during operation. This change is consistent with the guidance provided in the STS (Reference 3).

Relocating the MTC limits to the COLR will provide operating flexibility and avoid the need for frequent revision of the TS.

3.7 Technical Specification 3.2.5, DNB Parameters

Current TS

LCO 3.2.5: The following DNB-related parameters shall be maintained within the following limits:

a. Reactor Coolant System $T_{avg} \leq 581.2°F$

b. Pressurizer Pressure ≥ 2200 psig*, and

Proposed TS

LCO 3.2.5: The following DNB-related parameters shall be maintained within the following limits:

a. Reactor Coolant System T_{avg} **is less than or equal to the limit specified in the COLR**

b. Pressurizer Pressure **is greater than or equal to the limit specified in the COLR***, and

Basis for the Change:

The relocation of TS LCO 3.2.5.a and b limits (i.e., Reactor Coolant System T_{avg} and Pressurizer Pressure) to the COLR is consistent with the guidance provided by the STS (Reference 3) and WCAP-14483-A (Reference 2) for relocating these limits to the COLR. These relocated cycle-specific parameters are determined by the methodology in WCAP-9272-P-A (Reference 4) which is listed in PTN TS 6.9.1.7, "Core Operating Limits Report."

Relocating the MTC limits to the COLR will provide operating flexibility and avoid the need for frequent revision of the TS.

3.8 Technical Specification 6.9.1.7 Core Operating Limits Report

Current TS

6.9.1.7 Core operating limits shall be established and documented in the CORE OPERATING LIMITS REPORT (COLR) before each reload cycle or any remaining part of a reload cycle for the following:

1. Axial Flux Difference for Specification 3.2.1.
2. Control Rod Insertion Limits for Specification 3.1.3.6.
3. Heat Flux Hot Channel Factor - $F_Q(Z)$ for Specification 3/4.2.2.
4. All Rods Out position for Specification 3.1.3.2.
5. Nuclear Enthalpy Rise Hot Channel Factor for Specification 3/4.2.3

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The analytical methods used to determine $F_Q(Z)$, $F_\Delta H$ and the K(Z) curve shall be those previously reviewed and approved by the NRC in:

7. WCAP-12610-P-A, "VANTAGE+ Fuel Assembly Reference Core Report," S. L. Davidson and T. L. Ryan, April 1995.

The analytical methods used to determine Rod Bank Insertion Limits and the All Rods Out position shall be those previously reviewed and approved by the NRC in:

1. WCAP-9272-P-A, "Westinghouse Reload Safety Evaluation Methodology," July 1985.

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The AFD, $F_Q(Z)$, $F_\Delta H$, K(Z) and Rod Bank Insertion Limits shall be determined such that all applicable limits of the safety analyses are met. The CORE OPERATING LIMITS REPORT, including any mid-cycle revisions or supplements thereto, shall be provided upon issuance, for each reload cycle, to the NRC Document Control Desk with copies to the Regional Administrator and Resident Inspector, unless otherwise approved by the Commission.

Proposed TS

6.9.1.7 Core operating limits shall be established and documented in the CORE OPERATING LIMITS REPORT (COLR) before each reload cycle or any remaining part of a reload cycle for the following:

1. **Reactor Core Safety Limits for Specification 2.1.1**
2. **Overtemperature ΔT, Note 1 of Table 2.2-1 for Specification 2.2.1, determination of values for K_1, K_2, K_3,T′, P′, τ_1, τ_2, τ_3, τ_4, τ_5, τ_6, and the breakpoint and slope values for the $f_1(\Delta I)$.**
3. **Overpower ΔT, Note 3 of Table 2.2-1 for Specification 2.2.1, determination of values for K_4, K_5, K_6, T″, τ_7, and $f_2(\Delta I)$.**
4. **Shutdown Margin - T_{avg} > 200°F for Specification 3/4.1.1.1**
5. **Shutdown Margin - $T_{avg} \leq$ 200°F for Specification 3/4.1.1.2**
6. **Moderator Temperature Coefficient for Specification 3/4.1.1.3**
7. Axial Flux Difference for Specification 3.2.1.
8. Control Rod Insertion Limits for Specification 3.1.3.6.
9. Heat Flux Hot Channel Factor - $F_Q(Z)$ for Specification 3/4.2.2.
10. All Rods Out position for Specification 3.1.3.2.
11. Nuclear Enthalpy Rise Hot Channel Factor for Specification 3/4.2.3
12. **DNB Parameters for Specification 3.2.5, determination of values for Reactor Coolant System T_{avg} and Pressurizer Pressure.**

.....

The analytical methods used to determine $F_Q(Z)$, $F_\Delta H$ and the K(Z) curve shall be those previously reviewed and approved by the NRC in:

7. WCAP-12610-P-A, "VANTAGE+ Fuel Assembly Reference Core Report," S. L. Davidson and T. L. Ryan, April 1995.

The analytical methods to determine Overtemperature ΔT and Overpower ΔT shall be those previously reviewed and approved by the NRC in:

1. **WCAP-8745-P-A, "Design Basis for the Thermal Overtemperature ΔT and Thermal Overpower ΔT Trip Functions," September 1986**

2. **WCAP-9272-P-A, "Westinghouse Reload Safety Evaluation Methodology," July 1985.**

The analytical methods used to determine **Safety Limits, Shutdown Margin - T_{avg} > 200°F, Shutdown Margin - $T_{avg} \leq$ 200°F, Moderator Temperature Coefficient, DNB Parameters,** Rod Bank Insertion Limits and the All Rods Out position shall be those previously reviewed and approved by the NRC in:

1. WCAP-9272-P-A, "Westinghouse Reload Safety Evaluation Methodology," July 1985.

.....

The AFD, $F_Q(Z)$, $F_\Delta H$, K(Z), **Safety Limits, Overtemperature ΔT, Overpower ΔT, Shutdown Margin - T_{avg} > 200°F, Shutdown Margin - $T_{avg} \leq$ 200°F, Moderator Temperature Coefficient, DNB Parameters,** and Rod Bank Insertion Limits shall be determined such that all applicable limits of the safety analyses are met. The CORE OPERATING LIMITS REPORT, including any mid-cycle revisions or supplements thereto, shall be provided upon issuance, for each reload cycle, to the NRC Document Control Desk with copies to the Regional Administrator and Resident Inspector, unless otherwise approved by the Commission.

Basis for the Change:

The proposed changes incorporate updated NRC-approved methodologies.

4.0 List of Commitments

None

5.0 Conclusion

FPL proposes changes to the PTN TS by implementing the guidance of NRC Generic Letter (GL) 88-16 (Reference 1).

Generic Letter 88-16 (Reference 1) provided guidance for the preparation of a license amendment request to provide an alternative to identifying cycle-specific parameter limits within the TS. This alternative included three separate actions to modify the plant's TS:

1. The addition of the definition of a named formal report that includes the values of cycle-specific parameter limits that have been established using an NRC-approved methodology and consistent with all applicable limits of the safety analysis;
2. The addition of an administrative reporting requirement to submit the formal report on cycle-specific parameter limits to the Commission for information, and
3. The modification of individual TS to note that cycle-specific parameters shall be maintained within the limits provided in the defined formal report.

The above three actions specified in GL 88-16 are complied with by FPL in the proposed TS changes.

Specifically, the proposed changes to the TS involve the relocation of cycle-specific parameters, which are generated by using NRC-approved methodologies. These methodologies are listed in the PTN Unit 3 and 4 TS 6.9.1.7, "Core Operating Limits Report." As discussed above, through the issuance of GL 88-16, the NRC has determined that such cycle-specific variables may be removed from the TS and placed in a licensee-controlled Core Operating Limits Report; thus obviating prior NRC review and approval for subsequent changes. The PTN COLR ensures that changes to these relocated cycle-specific parameters will continue to be performed in accordance with NRC-approved methodologies, as controlled by TS 6.9.1.7, without requiring a license amendment every time a relocated cycle-specific value is changed.

The proposed changes to the PTN TS to relocate cycle-specific TS parameter limits to the COLR will maintain adequate controls upon these parameters during normal plant operations and anticipated operational occurrences. The subject parameter limits will be administratively controlled in accordance with TS 6.9.1.7. Specifically, this TS section requires the COLR to be submitted to the NRC each reload cycle, including any mid-cycle revisions or supplements.

In conclusion, the cycle-specific parameter limits controlled by the subject Specifications do not need to be included within the scope of the TS. The subject limits are adequately controlled by the COLR. Relocation of such cycle-specific limits from the TS to the COLR are consistent with the Commission's position established by GL 88-16 (Reference 1), and the STS (Reference 3) and are determined using NRC-approved methodologies documented in TS 6.9.1.7. Accordingly, the proposed changes to the TS are acceptable as they satisfy the appropriate regulatory guidance with regard to this matter.

6.0 No Significant Hazards Determination

The Commission has provided standards in 10 CFR 50.92(c) for determining whether a significant hazards consideration exists. A proposed amendment to an operating license for a facility involves no significant hazard if operation of the facility in accordance with the proposed amendment would not: (1) involve a significant increase in the probability or consequences of an accident previously evaluated; or (2) create the possibility of a new

or different kind of accident from any accident previously evaluated; or (3) involve a significant reduction in a margin of safety.

The proposed license amendments to Renewed Facility Operating Licenses DPR-31 for Turkey Point Unit 3 and DPR-41 for Turkey Point Unit 4 will revise the Technical Specifications to relocate cycle-specific TS parameter limits to the COLR in accordance with the guidance of GL 88-16 (Reference 1). The affected TS include:

1. Safety Limits for TS 2.1.1
2. Overtemperature ΔT, Note 1 of Table 2.2-1 for TS 2.2.1
3. Overpower ΔT, Note 3 of Table 2.2-1 for TS 2.2.1
4. Boration Control Shutdown Margin – T_{avg} Greater Than 200°F for TS 3/4.1.1.1
5. Boration Control Shutdown Margin – T_{avg} Less Than or Equal To 200°F for TS 3/4.1.1.2
6. Moderator Temperature Coefficient for TS 3/4.1.1.3
7. DNB Parameters for TS 3.2.5
8. COLR for TS 6.9.1.7

Relocation of such cycle-specific limits from the TS to the COLR are consistent with the Commission's position established by the Safety Evaluation of WCAP-14483-A (Reference 2), and/or the STS (Reference 3). FPL has reviewed this proposed license amendment for FPL's Turkey Point Units 3 and 4 and determined that its adoption would not involve a significant hazards consideration. The bases for this determination are discussed below:

The proposed amendment does not involve a significant hazards consideration for the following reasons:

1. **Does the proposed amendment involve a significant increase in the probability or consequences of an accident previously evaluated?**

   No. The proposed changes to relocate cycle-specific parameters from TS to the COLR are administrative in nature and do not adversely affect accident initiators or precursors nor alter the design assumptions, conditions, and configuration of the facilities or the manner in which the units are operated. The proposed changes do not alter or prevent the ability of structures, systems or components to perform their intended function to mitigate the consequences of an initiating event within the acceptance limits assumed in the PTN Updated Final Safety Report (UFSAR).

   The subject parameter limits will continue to be administratively controlled in accordance with Technical Specification 6.9.1.7. Specifically, this TS requires the COLR to be submitted to the NRC each reload cycle, including any mid-cycle revisions or supplements.

Therefore, the proposed amendment does not involve a significant increase in the probability or consequences of an accident previously evaluated.

2. **Does the proposed amendment create the possibility of a new or different kind of accident from any accident previously evaluated?**

   No. The proposed changes do not alter the design assumptions, conditions, or configurations of the facilities or the manner in which the units are operated. The proposed changes have no adverse impact on component or system interactions. The proposed changes will not degrade the ability of systems, structures or components important to safety to perform their safety function nor change the response of any system, structure or component important to safety as described in the PTN UFSAR. The proposed changes are administrative in nature and do not change the level of programmatic and procedural details that assure safe operation of the facilities.

   Since there are no changes to the design assumptions, parameters, conditions and configuration of the facilities, or the manner in which the plants are operated and surveilled, the proposed amendment does not create the possibility of a new or different accident from any previously analyzed.

3. **Does the proposed amendment involve a significant reduction in the margin of safety?**

   No. There is no adverse impact on equipment design or operation and there are no changes being made to Technical Specification cycle-specific parameter limits themselves that would adversely affect plant safety. The proposed changes are administrative in nature and impose alternative procedural and programmatic controls on these parameter limits in accordance with the Commission's position established by Generic Letter 88-16 (Reference 1). Any needed changes to these limits will continue to be submitted to the NRC in accordance with TS 6.9.1.7 requirements.

   Therefore, the proposed amendment does not involve a significant reduction in the margin of safety.

Based on the above discussion, FPL has determined that the proposed change does not involve a significant hazards consideration.

7.0 Environmental Consideration

10 CFR 51.22(c)(9) provides criteria for and identification of licensing and regulatory actions eligible for categorical exclusion from performing an environmental assessment. A proposed amendment of an operating license for a facility requires no environmental assessment, if the operation of the facility in accordance with the proposed amendment does not: (1) involve a significant hazards consideration, (2) result in a significant change in the types or significant increase in the amounts of any effluents that may be released offsite, and (3) result in a significant increase in individual or cumulative occupational radiation exposure. FPL has reviewed this LAR and determined that the proposed amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR

51.22(c)(9). Pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment needs to be prepared in connection with the issuance of this amendment. The basis for this determination follows.

Basis

This change meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9) for the following reasons:

1. As demonstrated in the 10 CFR 50.92 evaluation, the proposed amendment does not involve a significant hazards consideration.

2. The proposed amendment does not result in a significant change in the types or increase in the amounts of any effluents that may be released offsite. Implementation of the proposed changes to the TS involves the relocation of cycle-specific parameters from the TS to the COLR. The proposed changes are administrative in nature and impose alternative procedural and programmatic controls on the relocated parameters in accordance with the Commission's position established by GL 88-16 (Reference 1). These proposed TS changes do not result in changes to the design assumptions, conditions and configuration of the facilities, or the manner in which the plants are operated. Thus, the proposed amendment will not result in a significant change in the types or increase in the amounts of any effluents that may be released offsite.

3. The proposed amendment does not result in a significant increase in individual or cumulative occupational radiation exposure. There are no changes to the source term or radiological release assumptions used in evaluating the radiological consequences in the PTN UFSAR. The proposed changes have no adverse impact on component or system interactions. The proposed changes will not degrade the ability of systems, structures or components important to safety to perform their safety function nor change the response of any system, structure or component important to safety as described in the PTN UFSAR. The proposed changes do not alter the design assumptions, conditions, or configurations of the facilities or the manner in which the units are operated. Hence, the proposed amendment does not result in a significant increase in individual or cumulative occupational radiation exposure.

8.0 Summary of Results

The proposed license amendments to Renewed Facility Operating Licenses DPR-31 for Turkey Point Unit 3 and DPR-41 for Turkey Point Unit 4 will revise the Technical Specifications to relocate cycle-specific TS parameter limits to the COLR in accordance with the guidance of GL 88-16 (Reference 1). Relocation of such cycle-specific limits from the TS to the COLR is consistent with the Commission's position established by the Safety Evaluation of WCAP-14483-A (Reference 2), and/or the STS (Reference 3). The proposed changes will maintain adequate controls upon these parameters during normal plant operations and anticipated operational occurrences. The subject parameter limits will be administratively controlled in accordance with TS 6.9.1.7. This TS section requires the COLR to be submitted to the NRC each reload cycle, including any mid-cycle revisions or supplements. Hence these proposed changes would afford FPL the

flexibility to revise cycle-specific parameters, in accordance with NRC approved methodologies, without the need for license amendment submittals. Accordingly, resources, both FPL and NRC, would be saved by minimizing and or/eliminating repetitive LAR submittals associated with revising cycle-specific parameters.

9.0 References

1. NRC Generic Letter 88-16, "Removal of Cycle-Specific Parameter Limits from Technical Specifications," October 3, 1988
2. WCAP-14483-A, "Generic Methodology for Expanded Core Operating Limits Report;" January 1999
3. NUREG-1431, "Standard Technical Specifications – Westinghouse Plants," Revision 3.1
4. WCAP-9272-P-A, "Westinghouse Reload Safety Evaluation Methodology," July 1985
5. WCAP-8745-P-A, "Design Basis for the Thermal Overpower ΔT and Thermal Overtemperature ΔT Trip Functions," September 1986

Turkey Point Units 3 and 4

LICENSE AMENDMENT REQUEST NO. 209
RELOCATION OF CYCLE SPECIFIC PARAMETERS
TO THE
CORE OPERATING LIMITS REPORT (COLR)

ATTACHMENT 1

TECHNICAL SPECIFICATIONS MARKUPS

This coversheet plus 17 pages

Markup of Proposed Changes

The Attached markup reflects the currently issued revision of the Technical Specifications listed below. Pending Technical Specifications or Technical Specification changes issued subsequent to this submittal are not reflected in the enclosed markup.

The following Technical Specifications are included in the attached markup:

Technical Specification	Title	Page(s)
Index, Section 2.1	Safety Limits	iii
Index, Section 3/4.0	Applicability	iv
Specification 2.1	Safety Limits – Reactor Core	2-1
Figure 2.1-1	Reactor Core Safety Limit - Three Loops in Operation	2-2
Table 2.2-1	Table Notations, Note 1 Overtemperature ΔT	2-7, 2-8
Table 2.2-1	Table Notations, Note 3 Overpower ΔT	2-9, 2-10
Specification 3/4.1.1.1	Shutdown Margin – T_{avg} Greater Than 200°F	3/4 1-1
Figure 3.1-1	Required Shutdown Margin vs. Reactor Coolant Boron Concentration	3/4 1-3
Specification 3/4.1.1.2	Shutdown Margin – T_{avg} Less Than or Equal to 200°F	3/4 1-4
Specification 3/4.1.1.3	Moderator Temperature Coefficient	3/4 1-5 & 1-6
Specification 3/4.2.5	DNB Parameters	3/4 2-16
Section 6.9.1.7	Administrative Controls - Core Operating Limits Report	6-21 & 6-22

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2.0 SAFETY LIMITS AND LIMITING SAFETY SYSTEM SETTINGS

2.1 SAFETY LIMITS

specified in the COLR

REACTOR CORE

2.1.1 The combination of THERMAL POWER, pressurizer pressure, and the highest operating loop coolant temperature (T_{avg}) shall not exceed the limits ~~shown in Figure 2.1-1~~, for 3 loop operation.

APPLICABILITY: MODES 1 and 2.

ACTION:

Whenever the point defined by the combination of the highest operating loop average temperature and THERMAL POWER has exceeded the appropriate pressurizer pressure line, be in HOT STANDBY within 1 hour.

REACTOR COOLANT SYSTEM PRESSURE

2.1.2 The Reactor Coolant System pressure shall not exceed 2735 psig.

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

ACTION:

MODES 1 and 2:

Whenever the Reactor Coolant System pressure has exceeded 2735 psig, be in HOT STANDBY with the Reactor Coolant System pressure within its limit within 1 hour.

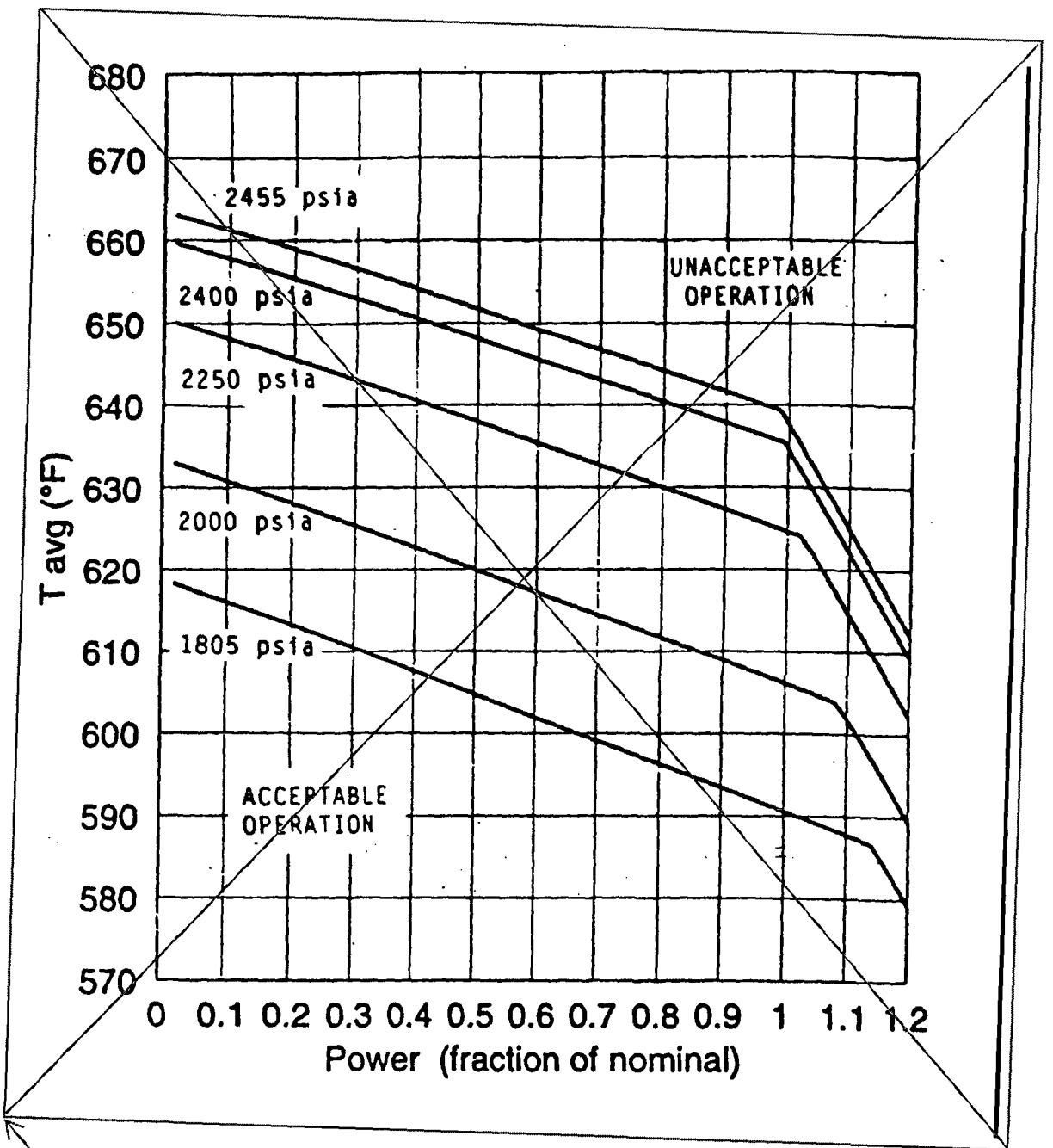
MODES 3, 4 and 5:

Whenever the Reactor Coolant System pressure has exceeded 2735 psig, reduce the Reactor Coolant System pressure to within its limit within 5 minutes.

; and the following Safety Limits shall not be exceeded:

a. The departure from nucleate boiling ratio (DNBR) shall be maintained ≥ 1.17 for the WRB-1 DNB correlation.

b. The peak fuel centerline temperature shall be maintained < 5080 °F, decreasing by 58 °F per 10,000 MWD/MTU of burnup.



~~Figure 2.1-1 Reactor Core Safety Limit – Three Loops in Operation~~

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TABLE 2.2-1 (Continued)
TABLE NOTATIONS

NOTE 1: OVERTEMPERATURE ΔT

(Those values denoted with [*] are specified in the COLR.)

$$\Delta T \quad \frac{(1+\tau_1 S)}{(1+\tau_2 S)} \left(\frac{1}{1+\tau_3 S}\right) \leq \Delta T_0 \left\{K_1 - K_2 \frac{(1+\tau_4 S)}{(1+\tau_5 S)} \left[T \frac{1}{(1+\tau_6 S)} - T'\right] + K_3(P - P') - f_1(\Delta I)\right\}$$

Where: ΔT = Measured ΔT by RTD Instrumentation

$\frac{1+\tau_1 S}{1+\tau_2 S}$ = Lead/Lag compensator on measured ΔT; τ_1 = ~~0~~s, τ_2 = ~~0~~s

$\frac{1}{1+\tau_3 S}$ = Lag compensator on measured ΔT; τ_3 = ~~0~~s

ΔT_0 = Indicated ΔT at RATED THERMAL POWER

K_1 = ~~1.24~~; [*]

K_2 = ~~0.017~~/°F; [*]

$\frac{1+\tau_4 S}{1+\tau_5 S}$ = The function generated by the lead-lag compensator for T_{avg} dynamic compensation;

τ_4 , τ_5 = Time constants utilized in the lead-lag compensator for T_{avg}, τ_4 = ~~25~~s, τ_5 = ~~3~~s;

T = Average temperature, °F;

$\frac{1}{1+\tau_6 S}$ = Lag compensator on measured T_{avg}; τ_6 = ~~0~~s

T′ ≤ ~~577.2~~ °F (Nominal T_{avg} at RATED THERMAL POWER); [*]

K_3 = ~~0.001~~/psig; [*]

P = Pressurizer pressure, psig;

TABLE 2.2-1 (Continued)

TABLE NOTATIONS (Continued)

NOTE 1: (Continued)

P' ≥ ~~2235~~ psig (Nominal RCS operating pressure);

S = Laplace transform operator, s^{-1};

And $f_1(\Delta I)$ is a function of the indicated difference between top and bottom detectors of the power-range neutron ion chambers; with gains to be selected based on measured instrument response during plant startup tests such that:

(1) For $q_t - q_b$ between ~~-50~~% and + ~~2~~%, $f_1(\Delta I) = 0$, where q_t and q_b are percent RATED THERMAL POWER in the top and bottom halves of the core respectively, and $q_t + q_b$ is total THERMAL POWER in percent of RATED THERMAL POWER;

(2) For each percent that the magnitude of $q_t - q_b$ exceeds ~~-50~~%, the ΔT Trip Setpoint shall be automatically reduced by ~~0.0~~% of its value at RATED THERMAL POWER; and

(3) For each percent that the magnitude of $q_t - q_b$ exceeds ~~+ 2~~%, that ΔT Trip Setpoint shall be automatically reduced by ~~2.19~~% of its value at RATED THERMAL POWER.

NOTE 2: The channels maximum trip setpoint shall not exceed its computed setpoint by more than ~~0.84~~% of instrument span.

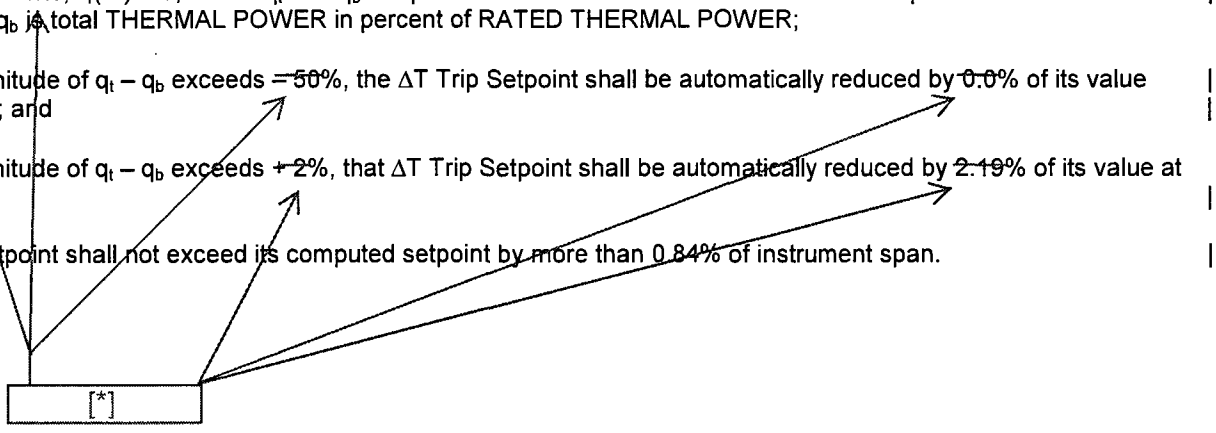


TABLE 2.2-1 (Continued)

TABLE NOTATIONS (Continued)

NOTE 3: OVERPOWER ΔT

$$\Delta T \frac{(1+\tau_1 S)}{(1+\tau_2 S)} \left(\frac{1}{1+\tau_3 S}\right) \leq \Delta T_0 \left\{K_4 - K_5 \frac{\tau_7 S}{1+\tau_7 S} \left(\frac{1}{1+\tau_6 S}\right) T - K_6 \left[T \frac{1}{1+\tau_6 S} - T''\right] - f_2(\Delta I)\right\}$$

(Those values denoted with [*] are specified in the COLR.)

Where: ΔT = As defined in Note 1,

$\frac{1+\tau_1 S}{1+\tau_2 S}$ = As defined in Note 1,

$\frac{1}{1+\tau_3 S}$ = As defined in Note 1,

ΔT_0 = As defined in Note 1,

K_4 $\leq$ ~~1.10~~, [*]

K_5 $\geq$ ~~0.02~~/°F for increasing average temperature and ~~0~~ for decreasing average temperature,

$\frac{\tau_7 s}{1+\tau_7 S}$ = The function generated by the lead-lag compensator for T_{avg} dynamic compensation;

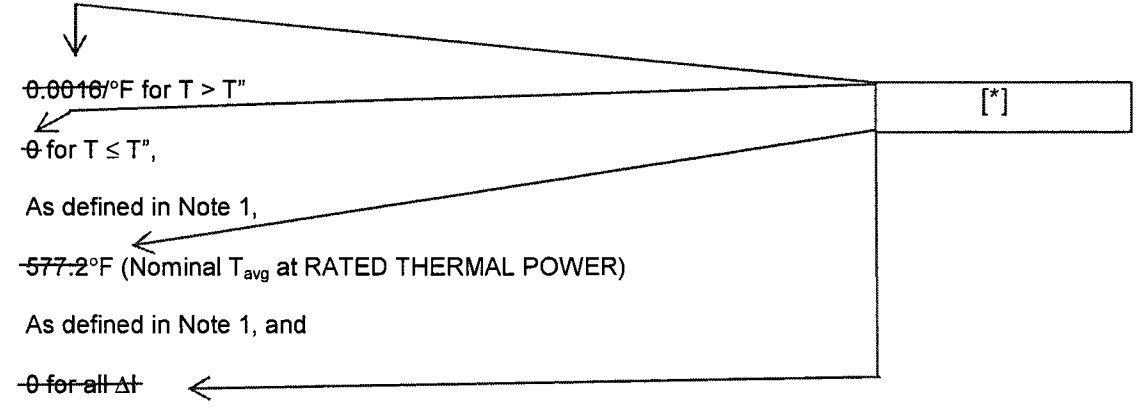
τ_7 = Time constants utilized in the lead-lag compensator for T_{avg}, $\tau_7 \geq$ ~~10~~ s,

$\frac{1}{1+\tau_6 S}$ = As defined in Note 1,

TABLE 2.2-1 (Continued)

TABLE NOTATIONS (Continued)

NOTE 3: (Continued)



K_6 = ~~0.0016~~/°F for T > T"

= ~~0~~ for T ≤ T",

T = As defined in Note 1,

T" ≤ ~~577.2~~°F (Nominal T_{avg} at RATED THERMAL POWER)

S = As defined in Note 1, and

$f_2(\Delta I)$ = ~~0 for all ΔI~~

[*]

NOTE 4: The channel's maximum trip setpoint shall not exceed its computed trip setpoint by more than 0.96% of instrument span.

within the limits specified in the COLR

3/4.1 REACTIVITY CONTROL SYSTEMS

3/4.1.1 BORATION CONTROL

SHUTDOWN MARGIN - T_{avg} GREATER THAN 200°F

LIMITING CONDITION FOR OPERATION

3.1.1.1 The SHUTDOWN MARGIN shall be ~~greater than or equal to the applicable value shown in Figure 3.1-1~~.

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

ACTION: not within limits

With the SHUTDOWN MARGIN ~~less than the applicable value shown in Figure 3.1-1~~, immediately initiate and continue boration at greater than or equal to 16 gpm of a solution containing greater than or equal to 3.0 wt% (5245 ppm) boron or equivalent until the required SHUTDOWN MARGIN is restored.

SURVEILLANCE REQUIREMENTS

4.1.1.1.1 The SHUTDOWN MARGIN shall be determined to be ~~greater than or equal to the applicable value shown in Figure 3.1-1~~: within the limits specified in the COLR

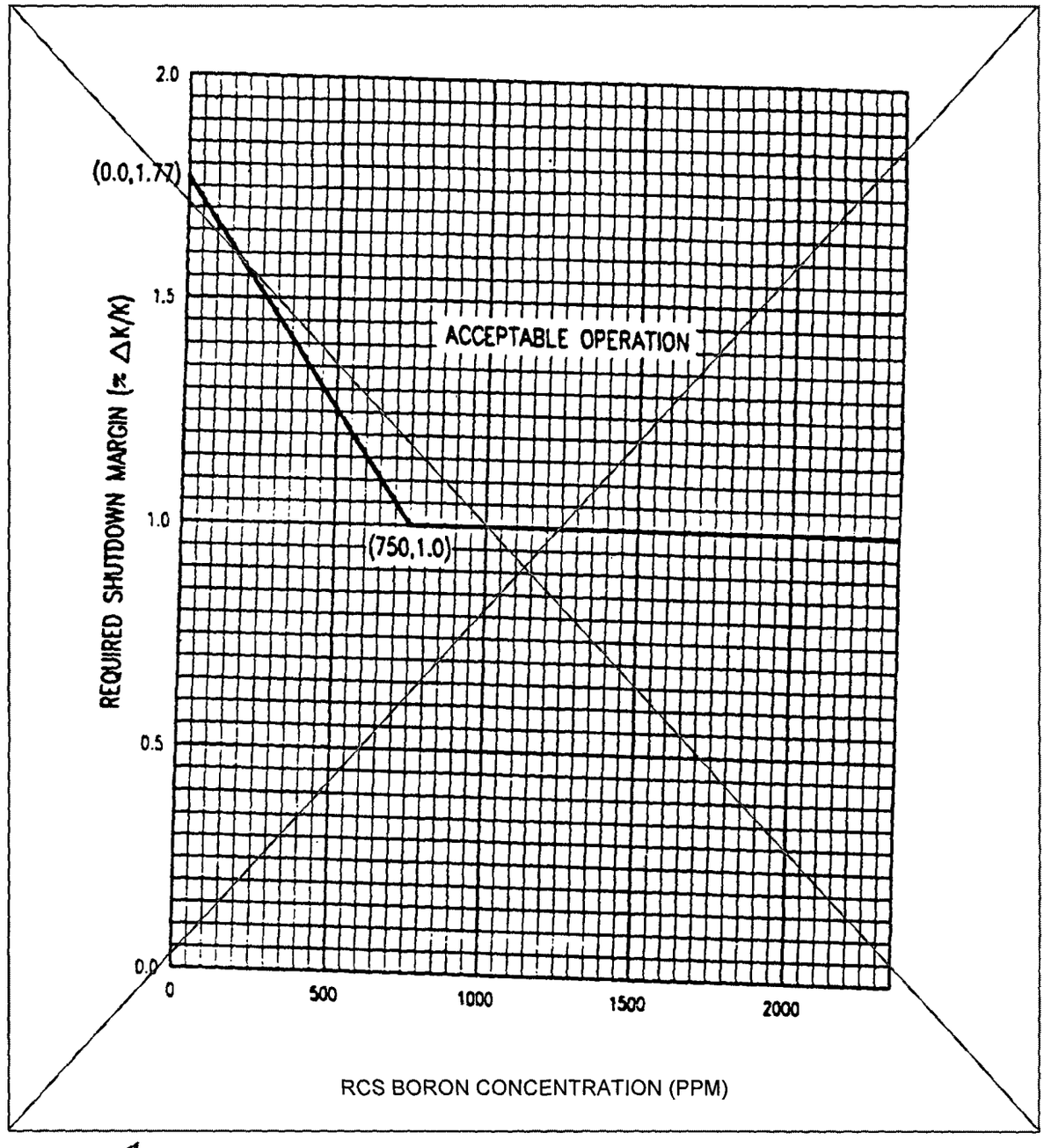
a. Within 1 hour after detection of an inoperable control rod(s) and at least once per 12 hours thereafter while the rod(s) is inoperable. If the inoperable control rod is immovable or untrippable, the above required SHUTDOWN MARGIN shall be verified acceptable with an increased allowance for the withdrawn worth of the immovable or untrippable control rod(s);

b. When in MODE 1 or MODE 2 with K_{eff} greater than or equal to 1 at least once per 12 hours by verifying that control bank withdrawal is within the limits of Specification 3.1.3.6;

c. 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;

d. Prior to initial operation above 5% RATED THERMAL POWER after each fuel loading, by consideration of the factors of Specification 4.1.1.1.1e. 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.



~~Figure 3.1-1~~
~~Required Shutdown Margin vs Reactor Coolant Boron Concentration~~

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within the limit specified in the COLR

REACTIVITY CONTROL SYSTEMS

SHUTDOWN MARGIN - T_{avg} LESS THAN OR EQUAL TO 200°F

LIMITING CONDITION FOR OPERATION

3.1.1.2 The SHUTDOWN MARGIN shall be ~~greater than or equal to 1% Δk/k~~.

APPLICABILITY: MODE 5.

not within the limit

ACTION:

With the SHUTDOWN MARGIN ~~less than 1% Δk/k~~, immediately initiate and continue boration at greater than or equal to 16 gpm of a solution containing greater than or equal to 3.0 wt% (5245 ppm) boron or equivalent until the required SHUTDOWN MARGIN is restored.

within the limit specified in the COLR

SURVEILLANCE REQUIREMENTS

4.1.1.2 The SHUTDOWN MARGIN shall be determined to be ~~greater than or equal to 1% Δk/k~~:

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 SHUTDOWN MARGIN shall be verified acceptable with an increased allowance for the withdrawn worth of the immovable or untrippable control rod(s); and

b. 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.

REACTIVITY CONTROL SYSTEMS

MODERATOR TEMPERATURE COEFFICIENT

LIMITING CONDITION FOR OPERATION

3.1.1.3 ~~The moderator~~ temperature coefficient (MTC) shall be:

a. ~~Less positive~~ than or equal to 5.0×10^{-5} $\Delta k/k/°F$ for all rods withdrawn, ~~beginning~~ of the cycle life (BOL), ~~hot zero~~ THERMAL POWER (HZP) conditions; and

b. ~~Less positive~~ than or equal to ~~5.0~~ $\times 10^{-5}$ $\Delta k/k/°F$ ~~from HZP~~ to 70% RATED THERMAL POWER condition; and

c. ~~Less positive~~ than or equal to ~~5.0~~ $\times 10^{-5}$ $\Delta k/k/°F$ ~~from 70%~~ RATED THERMAL POWER ~~decreasing linearly to less positive than or equal to 0 $\Delta k/k/°F$ at 100%~~ RATED THERMAL POWER conditions; and

d. ~~Less negative than -3.5×10^{-4} $\Delta k/k/°F$~~ for the all rods withdrawn, end of cycle life (~~EOL~~), RATED THERMAL POWER condition.

APPLICABILITY: ~~Specification 3.1.1.3a, b and c.~~ - MODES 1 and 2* only**.
~~Specification 3.1.1.3d.~~ - MODES 1, 2, and 3 only**.

BOL limit specified in the COLR

ACTION: Beginning of cycle life (BOL)

End of cycle life (EOL)

a. With the MTC more positive than the ~~limit of Specification 3.1.1.3a, b or c above~~, operation in MODES 1 and 2 may proceed provided:

the BOL limit specified in the COLR

1. Control rod withdrawal limits are established and maintained sufficient ~~to restore~~ the MTC to less positive or equal to ~~limits described in 3.1.1.3a, b and c above~~ within 24 hours or be in HOT STANDBY within the next 6 hours. These withdrawal limits shall be in addition to the insertion limits of Specification 3.1.3.6;

2. The control rods are maintained within the withdrawal limits established above until a subsequent calculation verifies that the MTC has been restored to within its limit for the all rods withdrawn condition; and

3. A Special Report is prepared and submitted to the Commission, pursuant to Specification 6.9.2, within 10 days, describing the value of the measured MTC, the interim control rod withdrawal limits, and the predicted average core burnup necessary for restoring the positive MTC to within its limit for the all rods withdrawn condition.

* With K_{eff} greater than or equal to 1.
** See Special Test Exceptions Specification 3.10.3.

The moderator temperature coefficient (MTC) shall be within the limits specified in the COLR. The maximum upper limit shall be less positive than or equal to $+5.0 \times 10^{-5}$ Δ k/k/°F for all the rods withdrawn, beginning of cycle life (BOL), for power levels up to 70% RATED THERMAL POWER with a linear ramp to 0 Δ k/k/°F at 100% RATED THERMAL POWER.

the EOL limit specified in the COLR,

REACTIVITY CONTROL SYSTEMS

LIMITING CONDITION FOR OPERATION

ACTION: (Continued)

b. With the MTC more negative than ~~the limit of Specification 3.1.1.3d. above~~, be in HOT SHUTDOWN within 12 hours.

specified in the COLR,

SURVEILLANCE REQUIREMENTS

4.1.1.3 The MTC shall be determined to be within its limits during each fuel cycle as follows:

a. The MTC shall be measured and compared to the BOL limit ~~of Specification 3.1.1.3a., above,~~ prior to initial operation above 5% of RATED THERMAL POWER, after each fuel loading; and

b. The MTC shall be measured at any THERMAL POWER and compared to ~~-3.0×10^{-4} $\Delta k/k/°F$~~ (all rods withdrawn, RATED THERMAL POWER condition) within 7 EFPD after reaching an equilibrium boron concentration of 300 ppm. In the event this comparison indicates the MTC is ~~more negative than -3.0×10^{-4} $\Delta k/k/°F$~~, the MTC shall be remeasured, and compared to the EOL MTC limit ~~of Specification 3.1.1.3d.~~, at least once per 14 EFPD during the remainder of the fuel cycle.

specified in the COLR

~~c. Perform design calculation to verify conformance to Specifications 3.1.1.3b and c.~~

the 300 ppm surveillance limit specified in the COLR

more negative than the 300 ppm surveillance limit specified in the COLR

POWER DISTRIBUTION LIMITS

3/4.2.5 DNB PARAMETERS

LIMITING CONDITION FOR OPERATION

3.2.5 The following DNB-related parameters shall be maintained within the following limits:

a. Reactor Coolant System T_{avg} ~~≤ 581.2°F~~ is less than or equal to the limit specified in the COLR

b. Pressurizer Pressure ~~≥ 2200 psig*, and~~ is greater than or equal to the limit specified in the COLR*, and

c. Reactor Coolant System Flow ≥ 264,000 gpm

APPLICABILITY: MODE 1.

ACTION:

With any of the above parameters exceeding its limit, restore the parameter to within its limit within 2 hours or reduce THERMAL POWER to less then 5% of RATED THERMAL POWER within the next 4 hours.

SURVEILLANCE REQUIREMENTS

4.2.5.1 Reactor Coolant System T_{avg} and Pressurizer Pressure shall be verified to be within their limits at least once per 12 hours.

4.2.5.2 RCS flow rate shall be monitored for degradation at least once per 12 hours.

4.2.5.3 The RCS flow rate indicators shall be subjected to a CHANNEL CALIBRATION at least once per 18 months.

4.2.5.4 After each fuel loading, and at least once per 18 months, the RCS flow rate shall be determined by precision heat balance after exceeding 90% RATED THERMAL POWER. The measurement instrumentation shall be calibrated within 90 days prior to the performance of the calorimetric flow measurement. The provisions of 4.0.4 are not applicable for performing the precision heat balance flow measurement.

* Limit not applicable during either a THERMAL POWER ramp in excess of 5% of RATED THERMAL POWER per minute or a THERMAL POWER step in excess of 10% of RATED THERMAL POWER.

1. Reactor Core Safety Limits for Specification 2.1.1
2. Overtemperature ΔT, Note 1 of Table 2.2-1 for Specification 2.2.1, determination of values for K_1, K_2, K_3, T', P', τ_1, τ_2, τ_3, τ_4, τ_5, τ_6 and the breakpoint and slope values for the $f_1(\Delta I)$.
3. Overpower ΔT, Note 3 of Table 2.2-1 for Specification 2.2.1, determination of values for K_4, K_5, K_6, T", τ_7 and $f_2(\Delta I)$
4. Shutdown Margin - T_{avg} >200 °F for Specification 3/4.1.1.1
5. Shutdown Margin - T_{avg} ≤200 °F for Specification 3/4.1.1.2
6. Moderator Temperature Coefficient for Specification 3/4.1.1.3

PEAKING FACTOR LIMIT REPORT

6.9.1.6 The W(Z) function(s) for Base-Load Operation corresponding to a ± 2% band about the target flux difference and/or a ± 3% band about the target flux difference, the Load-Follow function $F_z(Z)$ and the augmented surveillance turnon power fraction P_T shall be provided to the U.S. Nuclear Regulatory Commission, whenever P_T is <1.0. In the event, the option of Baseload Operation (as defined in Section 4.2.2.3) will not be exercised, the submission of the W(Z) function is not required. Should these values (i.e., W(Z), $F_z(Z)$ and P_T) change requiring a new submittal or an amended submittal to the Peaking Factor Limit Report, the Peaking Factor Limit Report shall be provided to the NRC Document Control desk with copies to the Regional Administrator and the Resident Inspector within 30 days of their implementation, unless otherwise approved by the Commission.

The analytical methods used to generate the Peaking Factor limits shall be those previously reviewed and approved by the NRC. If changes to these methods are deemed necessary they will be evaluated in accordance with 10 CFR 50.59 and submitted to the NRC for review and approval prior to their use if the change is determined to involve an unreviewed safety question or if such a change would require amendment of previously submitted documentation.

CORE OPERATING LIMITS REPORT

6.9.1.7 Core operating limits shall be established and documented in the CORE OPERATING LIMITS REPORT (COLR) before each reload cycle or any remaining part of a reload cycle for the following:

~~1.~~ Axial Flux Difference for Specification 3.2.1.
~~2.~~ Control Rod Insertion Limits for Specification 3.1.3.6.
~~3.~~ Heat Flux Hot Channel Factor - $F_Q(Z)$ for Specification 3/4.2.2.
~~4.~~ All Rods Out position for Specification 3.1.3.2.
~~5.~~ Nuclear Enthalpy Rise Hot Channel Factor for Specification 3/4.2.3

7.
8.
9.
10.
11.

The analytical methods used to determine the AFD limits shall be those previously reviewed and approved by the NRC in:

1. WCAP-10216-P-A, RELAXATION OF CONSTANT AXIAL OFFSET CONTROL F_Q SURVEILLANCE TECHNICAL SPECIFICATION," June 1983.

2. WCAP-8385, "POWER DISTRIBUTION CONTROL AND LOAD FOLLOWING PROCEDURES - TOPICAL REPORT," September 1974.

The analytical methods used to determine F_Q (Z), $F_{\Delta}H$ and the K(Z) curve shall be those previously reviewed and approved by the NRC in:

1. WCAP-9220-P-A, Rev. 1, "Westinghouse ECCS Evaluation Model - 1981 Version," February 1982.

2. WCAP-10054-P-A, (proprietary), "Westinghouse Small Break ECCS Evaluation Model Using the NOTRUMP Code," August 1985.

12. DNB Parameters for Specification 3.2.5, determination of values for Reactor Coolant System T_{avg} and Pressurizer Pressure.

The analytical methods to determine Overtemperature ΔT and Overpower ΔT shall be those previously reviewed and approved by the NRC in:

1. WCAP-8745-P-A, "Design Basis for the Thermal Overtemperature ΔT and Thermal Overpower ΔT Trip Functions, " September 1986
2. WCAP-9272-P-A, "Westinghouse Reload Safety Evaluation Methodology," July 1985

ADMINISTRATIVE CONTROLS

3. WCAP-10054-P, Addendum 2, Revision 1 (proprietary), "Addendum to the Westinghouse Small Break ECCS Evaluation Model Using the NOTRUMP Code: Safety Injection in the Broken Loop and Improved Condensation Model," October 1995.*

4. WCAP-12945-P, "Westinghouse Code Qualification Document For Best Estimate LOCA Analysis," Volumes I-V, June 1996.**

5. USNRC Safety Evaluation Report, Letter from R. C. Jones (USNRC) to N. J. Liparulo (W), "Acceptance for Referencing of the Topical Report WCAP-12945(P) 'Westinghouse Code Qualification Document for Best Estimate Loss of Coolant Analysis,' " June 28, 1996.**

6. Letter dated June 13, 1996, from N. J. Liparulo (W) to Frank R. Orr (USNRC), "Re-Analysis Work Plans Using Final Best Estimate Methodology."**

7. WCAP-12610-P-A, "VANTAGE+ Fuel Assembly Reference Core Report," S. L. Davidson and T. L. Ryan, April 1995.

The analytical methods used to determine Rod Bank Insertion Limits and the All Rods Out position shall be those previously reviewed and approved by the NRC in:

1. WCAP-9272-P-A, "Westinghouse Reload Safety Evaluation Methodology," July 1985.

The ability to calculate the COLR nuclear design parameters are demonstrated in:

1. Florida Power & Light Company Topical Report NF-TR-95-01, "Nuclear Physics Methodology for Reload Design of Turkey Point & St. Lucie Nuclear Plants."

Topical Report NF-TR-95-01 was approved by the NRC for use by Florida Power & Light Company in:

1. Safety Evaluation by the Office of Nuclear Reactor Regulations Related to Amendment No. 174 to Facility Operating License DPR-31 and Amendment No. 168 to Facility Operating License DPR-41, Florida Power & Light Company Turkey Point Units 3 and 4, Docket Nos. 50-250 and 50-251.

The AFD, $F_Q(Z)$, $F_\Delta H$, K(Z), and Rod Bank Insertion Limits shall be determined such that all applicable limits of the safety analyses are met. The CORE OPERATING LIMITS REPORT, including any mid-cycle revisions or supplements thereto, shall be provided upon issuance, for each reload cycle, to the NRC Document Control Desk with copies to the Regional Administrator and Resident Inspector, unless otherwise approved by the Commission.

STEAM GENERATOR TUBE INSPECTION REPORT

6.9.1.8 A report shall be submitted within 180 days after the initial entry into MODE 4 following completion of an inspection performed in accordance with Specification 6.8.4.j, Steam Generator (SG) Program. The report shall include:

a. The scope of inspections performed on each SG,

b. Active degradation mechanisms found,

Safety Limits, Overtemperature ΔT, Overpower ΔT,
Shutdown Margin - T_{avg} > 200°F,
Shutdown Margin - T_{avg} ≤ 200°F,
Moderator Temperature Coefficient,
DNB Parameters,

*This reference is only to be used subsequent to NRC approval.
**As evaluated in NRC Safety Evaluation dated December 20, 1997.

Safety Limits,
Shutdown Margin - T_{avg} > 200°F.
Shutdown Margin - T_{avg} ≤ 200°F.
Moderator Temperature Coefficient,
DNB Parameters,