ATTACHMENT IV

PROPOSED TECHNICAL SPECIFICATION CHANGES
Marked-up Technical Specification Pages

POWER DISTRIBUTION LIMITS

3/4.2.2 HEAT FLUX HOT CHANNEL FACTOR - F_Q~~(X,Y,Z)~~

LIMITING CONDITION FOR OPERATION

3.2.2 F_Q~~(X,Y,~~Z) shall be limited by the following relationships:

$$F_Q(Z) \le \frac{[F_Q^{RTP}]}{P}[K(Z)]$$ ~~$F_Q^{MA}(X,Y,Z) \le \frac{[F_Q^{RTP}]}{P}[K(Z)]$~~ for P > 0.5, and

$$F_Q(Z) \le \frac{[F_Q^{RTP}]}{0.5}[K(Z)]$$ ~~$F_Q^{MA}(X,Y,Z) \le \frac{[F_Q^{RTP}]}{0.5}[K(Z)]$~~ for P ≤ 0.5.

Where:

~~$F_Q^{MA}(X,Y,Z)$ = the measured heat flux hot channel factor, $F_Q^{M}(X,Y,Z)$, increased by 3% to account for manufacturing tolerances and further increased by 5% to account for measurement uncertainty,~~

F_Q^{RTP} = the F_Q **(Z)** Limit at RATED THERMAL POWER (RTP), as specified in the CORE OPERATING LIMITS REPORT (COLR),

P = $\frac{\text{THERMAL POWER}}{\text{RATED THERMAL POWER}}$, and

K(Z) = the normalized F_Q~~(X,Y,~~Z) limit as a function of core height, as specified in the COLR.

APPLICABILITY: MODE 1.

ACTION:

With F_Q~~(X,Y,~~Z) exceeding its limit:

a. Reduce THERMAL POWER at least 1% for each 1% F_Q^{MA}~~(X,Y,~~Z) exceeds the limit within 15 minutes and similarly reduce the Power Range Neutron Flux-High Trip Setpoints within the next 8 ~~4~~ hours; **POWER OPERATION may proceed for up to a total of 72 hours; subsequent POWER OPERATION may proceed provided the Overpower ΔT Trip Setpoints have been reduced at least 1% for each 1% F_Q (Z) exceeds the limit; and**

~~b. Control the AFD to within new AFD limits which are determined by reducing the allowable THERMAL POWER at each point along the AFD limit lines of Specification 3.2.1 at least 1% for each 1% F_Q^{MA}(X,Y,Z) exceeds the limit within 2 hours and declare the AFD monitor alarm inoperable until the AFD alarm setpoints are reset to the modified limits; and~~

~~c. POWER OPERATION may proceed for up to a total of 72 hours; subsequent POWER OPERATION may proceed provided the Overpower ΔT Trip Setpoints have been reduced at least 1% for each 1% F_Q^{MA}(X,Y,Z) exceeds the limit; and~~

POWER DISTRIBUTION LIMITS

3/4.2.2 HEAT FLUX HOT CHANNEL FACTOR - F_Q(X,Y,Z)

LIMITING CONDITION FOR OPERATION (Continued)

db. Identify and correct the cause of the out-of-limit condition prior to increasing THERMAL POWER above the reduced limit required by ACTION a., above; THERMAL POWER may then be increased provided F_Q(X,Y,Z) is demonstrated through incore mapping to be within its limit.

POWER DISTRIBUTION LIMITS

SURVEILLANCE REQUIREMENTS

4.2.2.1 The provisions of Specification 4.0.4 are not applicable.

4.2.2.2 ~~$F_Q^M(X,Y,Z)$~~ $F_Q(Z)$ shall be evaluated to determine if $F_Q(Z)$ ~~$F_Q(X,Y,Z)$~~ is within its limit by:

a. Using the movable incore detectors to obtain a power distribution map at any THERMAL POWER greater than 5% of RATED THERMAL POWER;

b. **Increasing the measured** ~~Measuring~~ $F_Q(Z)$ ~~$F_Q^M(X,Y,Z)$ at the earliest of:~~ **component of the power distribution map by 3% to account for manufacturing tolerances and further increasing the value by 5% to account for measurement uncertainties. Verify that the requirements of Specification 3.2.2 are satisfied.**

~~1. At least once per 31 Effective Full Power Days, or~~

~~2. After exceeding by 20% or more of RATED THERMAL POWER the THERMAL POWER at which $F_Q^M(X,Y,Z)$ was last determined*;~~

~~c. Satisfying the relationship presented in Specification 3.2.2;~~

c~~d~~. Satisfying the following relationship:

~~$F_Q^M(X,Y,Z) \le [F_Q(X,Y,Z)]^{NOM}$~~

$$F_Q^M(Z) \le \frac{[F_Q^{RTP}][K(Z)]}{[P][W(Z)]} \quad \text{for } P > 0.5$$

$$F_Q^M(Z) \le \frac{[F_Q^{RTP}][K(Z)]}{[0.5][W(Z)]} \quad \text{for } P \le 0.5$$

where **$F_Q^M(Z)$ is the measured $F_Q(Z)$ increased by the allowances for** ~~$[F_Q(X,Y,Z)]^{NOM}$ represents the nominal design power distribution increased by an allowance for the expected deviation between the nominal design power distribution and the measurement and is specified in the COLR.~~ **manufacturing tolerances and measurement uncertainty and W(Z) is the cycle dependent function that accounts for power distribution transients encountered during normal operation. This function is provided in the COLR.**

~~If the above relationship is not satisfied, then for that location perform the following:~~

~~1. Calculate the % margin to the maximum allowable design as follows:~~

~~% Operational Margin =~~ $\left(1 - \frac{F_Q^M(X, Y, Z)}{[F_Q^L(X, Y, Z)]^{OP}}\right) 100$

~~% Reactor Protection Setpoint (RPS) Margin =~~ $\left(1 - \frac{F_Q^M(X, Y, Z)}{[F_Q^L(X, Y, Z)]^{RPS}}\right) 100$

~~where, $F_Q^L(X,Y,Z)^{OP}$ and $F_Q^M(X,Y,Z)^{RPS}$ are the Operational and RPS design peaking limits and are specified in the COLR~~

~~2. Find the minimum Operational Margin of all locations examined in 4.2.2.2.d.1, above. If the minimum margin is less than 0, EITHER of the following actions shall be taken:~~

d. **Measuring $F_Q^M(Z)$ according to the following schedule:**

1. **Upon achieving equilibrium conditions after exceeding, by 10% or more of RATED THERMAL POWER, the THERMAL POWER at which $F_Q(Z)$ was last determined,* or**

2. **At least once per 31 Effective Full Power Days, whichever occurs first.**

e. **With measurements indicating**

$$\underset{\text{over } z}{\text{maximum}} \left(\frac{F_Q^M(Z)}{K(Z)} \right)$$

has increased since the previous determination of $F_Q^M(Z)$, either of the following actions shall be taken:

1. **$F_Q^M(Z)$ shall be increased over that specified in 4.2.2.2.c by an appropriate factor specified in the COLR, or**

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*During power escalation at the beginning of each cycle, THERMAL POWER may be increased until a power level for extended operation has been achieved **after which**~~and~~ a power distribution map may be obtained.

POWER DISTRIBUTION LIMITS

SURVEILLANCE REQUIREMENTS (Continued)

2. $F_Q^M(Z)$ shall be measured at least once per 7 Effective Full Power Days until two successive maps indicate that

$$\underset{\text{over z}}{\text{maximum}} \left(\frac{F_Q^M(Z)}{K(Z)} \right) \text{ is not increasing.}$$

a. Within 2 hours, control the AFD to within new AFD limits that are determined by:

Reduced negative AFD Limit =

The negative AFD Limit in Specification 3.2.1
plus
the absolute value of the quantity
[Op Mar NSLOPE * Minimum Operational Margin],

Reduced positive AFD Limit =

The positive AFD Limit in Specification 3.2.1
minus
the absolute value of the quantity
[Op Mar PSLOPE * Minimum Operational Margin],

where, the Op Mar NSLOPE and Op Mar PSLOPE are specified in the COLR, and

declare the AFD monitor alarm inoperable until the AFD alarm setpoints are modified to the limits of 4.2.2.2.d.2.a, or

b. Comply with the ACTION requirements of Specification 3.2.2, treating the margin violation in 4.2.2.2.d.1, above, as the amount by which $F_Q^{MA}(X,Y,Z)$ is exceeding its limit.

3. Find the minimum RPS margin of all locations examined in 4.2.2.2.d.1, above. If the minimum margin is less than O, the following action shall be taken:

Within 72 hours, reduce the negative $f_1(\Delta I)$ limit and the positive $f_1(\Delta I)$ limit of the OTΔT as follows:

Reduced negative $f_1(\Delta I)$ Limit =
$f_1(\Delta I)$ of Table 2.2-1
plus
the absolute value of the quantity
[the RPS Mar NSLOPE * Minimum RPS Margin],

Reduced positive $f_1(\Delta I)$ Limits
$f_1(\Delta I)$ of Table 2.2-1
minus
the absolute value of the quantity
[the RPS Mar PSLOPE * Minimum RPS Margin].

f. With the relationships specified in 4.2.2.2.c above not being satisfied:

1. Calculate the percent $F_Q^M(Z)$ exceeds its limit by the following expression:

$$\left\{ \left(\frac{\text{maximum}}{\text{over Z}} \left[\frac{F_Q^M(Z) \ X \ W(Z)}{\frac{F_Q^{RTP}}{P} \ X \ K(Z)} \right] \right) - 1 \right\} X \ 100 \quad \text{for } P \geq 0.5$$

$$\left\{ \left(\frac{\text{maximum}}{\text{over Z}} \left[\frac{F_Q^M(Z) \ X \ W(Z)}{\frac{F_Q^{RTP}}{0.5} \ X \ K(Z)} \right] \right) - 1 \right\} X \ 100 \quad \text{for } P < 0.5$$

2. Either one of the following actions shall be taken:

   a. Within 2 hours, control the AFD to within new AFD limits which are determined by tightening both the negative and positive AFD limits of Specification 3.2.1 by 1% AFD for each percent $F_Q^M(Z)$ exceeds its limit and declare the AFD monitor alarm inoperable until the AFD alarm setpoints are changed to the modified limits, or

   b. Comply with the requirements of Specification 3.2.2 for $F_Q(Z)$ exceeding its limit by the percent calculated above.

g. The limits in Specification 4.2.2.2.c, 4.2.2.2.e and 4.2.2.2.f are not applicable in the following core plane regions as measured in percent of core height from the bottom of the fuel:

1. Lower core region from 0 to 15%, inclusive,

2. Upper core region from 85 to 100%, inclusive,

POWER DISTRIBUTION LIMITS

SURVEILLANCE REQUIREMENTS (Continued)

where, RPS Mar NSLOPE and RPS Mar PSLOPE are specified in the COLR.

e. The limits in Specification 4.2.2.2.d are not applicable in the following core plane regions as measured in percent of core height from the bottom of the fuel:

1. Lower core region from O to 15%, inclusive,

2. Upper core region from 85 to 100%, inclusive,

3. Grid Plane Regions, and

4. Core plane regions within +/- 2% of core height (+/- 2.88 inches) about the bank demand position of the Bank "D" control rods.

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POWER DISTRIBUTION LIMITS

3/4.2.3 NUCLEAR ENTHALPY RISE HOT CHANNEL FACTOR - $F^N_{\Delta H}$ $F_{\Delta H}(X,Y)$

LIMITING CONDITION FOR OPERATION

3.2.3 $F^N_{\Delta H}$ $F_{\Delta H}(X,Y)$ shall be limited by the following relationship:

$F^N_{\Delta H}$ $F\Delta HR^M(X,Y) \le F^{RTP}_{\Delta H}$ [1.0 + $PF_{\Delta H}$ (1.0 - P)]$F\Delta HR^L(X,Y)$

where,

$F^{RTP}_{\Delta H}$ = The $F^N_{\Delta H}$ limit at RATED THERMAL POWER (RTP) specified $F\Delta HR^M(X,Y)$ = the maximum measured radial peak ratio defined in the Core Operating Limits Report (COLR).

$PF_{\Delta H}$ = the power factor multiplier for $F^N_{\Delta H}$ specified in the COLR, $F\Delta HR^L(X,Y)$ = the maximum allowable radial peak ratio defined and specified in the COLR.

$$P = \frac{\text{THERMAL POWER}}{\text{RATED THERMAL POWER}}$$, and

$F^N_{\Delta H}$ = Measured values of $F^N_{\Delta H}$ obtained by using the movable incore detectors to obtain a power distribution map. The measured values of $F^N_{\Delta H}$ shall be used since an uncertainty of 4% for incore measurement of $F^N_{\Delta H}$ has been included in the above limit.

APPLICABILITY: MODE 1

ACTION:

With $F^N_{\Delta H}$ $F_{\Delta H}(X,Y)$ exceeding its limit:

a. Within 4 2 hours, either

1. Restore $F^N_{\Delta H}$ to within the above limit, or

2. rReduce the allowable THERMAL POWER to less than 50% of from RATED THERMAL POWER and reduce the Power Range Neutron Flux - High Trip Setpoint to less than or equal to 55% of RATED THERMAL POWER within the next 4 hours.

at least RRH%* for each 1% that $F\Delta HR^M(X,Y)$ exceeds the limit, and

b. Within 6 hours either:

1. Restore $F\Delta HR^M(X,Y)$ to within the limit for RATED THERMAL POWER, or

2. Reduce the Power Range Neutron Flux - High Trip Setpoint at least RRH% for each 1% that $F\Delta HR^M(X,Y)$ exceeds that limit, and

bc. Within 72 hours of initially being outside the above limit, verify through incoreeither flux mapping that $F^N_{\Delta H}$ has been restored to within the above limit, or reduce THERMAL POWER to less than 5% of RATED THERMAL POWER within the the next 6 hours.

~~1. Restore $F\Delta HR^{M}(X,Y)$ to within the limit for RATED THERMAL POWER, or~~

~~2. Perform the following actions:~~

~~a. Reduce the OTΔT K_1 term by at least TRH** for each 1% that $F\Delta HR^{M}(X,Y)$ exceeds the limit, and~~

~~b. Verify through incore mapping that $F\Delta HR^{M}(X,Y)$ is restored to within the limit for the THERMAL POWER allowed by ACTION a, or reduce THERMAL POWER to less than 5% of RATED THERMAL POWER within the next 2 hours, and~~

c. **Identify and correct the cause of the out-of-limit condition prior to increasing THERMAL POWER above the reduced limit required by Actions a. or b., above; subsequent POWER OPERATION may proceed provided that $F^{N}_{\Delta H}$ is demonstrated through in-core flux mapping to be within its limit at a nominal 50% of RATED THERMAL POWER prior to exceeding this THERMAL POWER, at a nominal 75% of RATED THERMAL POWER prior to exceeding this THERMAL POWER and within 24 hours after attaining 95% or greater RATED THERMAL POWER.**

~~* RRH is the amount of THERMAL POWER reduction required to compensate for each 1% that $F\Delta HR^{M}(X,Y)$ exceeds $F\Delta HR^{L}(X,Y)$ and is specified in the COLR.~~

~~**TRH is the amount of OTΔT K_1 setpoint reduction required to compensate for each 1% that $F\Delta HR^{M}(X,Y)$ exceeds the limit and is specified in the COLR.~~

POWER DISTRIBUTION LIMITS

LIMITING CONDITION FOR OPERATION

ACTION (Continued)

d. Identify and correct the cause of the out-of-limit condition prior to increasing THERMAL POWER above the reduced THERMAL POWER limit required by ACTION a and/or c.2.b, above; subsequent POWER OPERATION may proceed provided that $F\Delta HR^M(X,Y)$ is demonstrated, through incore flux mapping, to be within the limit specified in the COLR prior to exceeding the following THERMAL POWER levels:

1. A nominal 50% of RATED THERMAL POWER,
2. A nominal 75% of RATED THERMAL POWER, and
3. Within 24 hours of attaining greater than or equal to 95% of RATED THERMAL POWER.

SURVEILLANCE REQUIREMENTS

4.2.3.1 $F^N_{\Delta H}$ shall be determined to be within its limit by using the movable incore detectors to obtain a power distribution map:

a. Prior to operation above 75% of RATED THERMAL POWER after each fuel loading, and

b. At least once per 31 Effective Full Power Days, and

c. The provisions of Specification of 4.0.4 are not applicable.

The provisions of Specification 4.0.4 are not applicable.

4.2.3.2 $F\Delta HR^M(X,Y)$ shall be evaluated to determine whether $F_{\Delta H}(X,Y)$ is within its limit by:

a. Measuring $F\Delta HR^M(X,Y)$ according to the following schedule:

1. Prior to operation above 75% of RATED THERMAL POWER at the beginning of each cycle, and

2. At least once per 31 Effective Full Power Days.

b. Satisfying the following relationship:

$F\Delta HR^M(X,Y) \leq F\Delta HR^{NOM}(X,Y)$

where, $F\Delta HR^{NOM}(X,Y)$ represents the nominal design power distribution increased by an allowance for the expected deviation between the nominal design power distribution and the measurement and is specified in the COLR.

If the above relationship is not satisfied, then for that location perform the following:

1. Calculate the % margin to the maximum allowable design as follows:

$$\% F\Delta H \text{ Margin} = \left(1 - \frac{F\Delta HR^M(X, Y)}{F\Delta HR^L(X, Y)}\right) 100$$

2. Find the minimum margin for all locations examined in 4.2.3.2.b.1, above. If the minimum margin is less than 0, comply with the ACTION requirements of Specification 3.2.3.

CORE OPERATING LIMITS REPORT (COLR)

6.9.1.9 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. Specification 3.1.1.3: Moderator Temperature Coefficient (MTC) EOL limits

2. Specification 3.1.3.5: Shutdown Rod Insertion Limit

3. Specification 3.1.3.6: Control Rod Insertion Limits

4. Specification 3.2.1: Axial Flux Difference (AFD)

5. Specification 3.2.2: Heat Flux Hot Channel Factor - F_Q(~~X,Y,~~Z)

6. Specification 3.2.3: Nuclear Enthalpy Rise Hot Channel Factor - ~~$F_{\Delta H}$(X,Y)~~ $F_{\Delta H}^N$

7. Specification 3.9.1.b: Refueling Boron Concentration

The analytical methods used to determine the core operating limits shall be those previously reviewed and approved by the NRC, specifically those described in the following documents.

a. NRC Safety Evaluation Report dated October 29, 1992, for the "Core Thermal Hydraulic Analysis Methodology for the Wolf Creek Generating Station" (ET-90-0140, ET 92-0103)

(Methodology for Specification 3.2.3 - Nuclear Enthalpy Rise Hot Channel Factor - $F_{\Delta H}^N$ ~~$F_{\Delta H}$(X,Y)~~

b. NRC Safety Evaluation Report dated January 17, 1989, for the "Acceptance for Referencing of Licensing Topical Report WCAP-11397, Revised Thermal Design Procedure."

(Methodology for Specification 3.2.3 - Nuclear Enthalpy Rise Hot Channel Factor - $F_{\Delta H}^N$.

cb. NRC Safety Evaluation Report **dated September 30, 1993,** ~~(upon issuance)~~ for the "Transient Analysis Methodology for the Wolf Creek Generating Station" (ET-91-0026, ET 92-0142, WM 93-0010, WM 93-0028)

(Methodology for Specification 3.1.1.3 - Moderator Temperature Coefficient [MTC])

c. NRC Safety Evaluation Report dated March 26, 1993, for the "Qualification of the Steady State Core Physics Methodology for the Wolf Creek Generating Station" (ET 92-0011, WM 93-0038)

(Methodology for Specification 3.1.1.3 - Moderator Temperature Coefficient (MTC); Specification 3.1.3.5 - Shutdown Rod Insertion Limit; Specification 3.1.3.6 - Control Rod Insertion Limits; Specification 3.2.1 - Axial Flux Difference; Specification 3.2.2 - Heat Flux Hot Channel Factor - $F_Q(X,Y,Z)$; Specification 3.2.3 - Nuclear Enthalpy Rise Hot Channel Factor - $F_{\Delta H}(X,Y)$; Specification 3.9.1.b - Refueling Boron Concentration)

CORE OPERATING LIMITS REPORT (COLR) (Continued)

d. NRC Safety Evaluation Report dated November 26, 1993, "Acceptance for Referencing of Revised Version of Licensing Topical Report WCAP-10216-P-A, Relaxation of Constant Axial Offset Control - F_Q Surveillance Technical Specification" (TAC No. M88206).

(Methodology for Specification 3.2.2 - Heat Flux Hot Channel Factor - $F_Q(Z)$: Specification 3.1.1.3 - Moderator Temperature Coefficient (MTC): Specification 3.1.3.5 - Shutdown Rod Insertion Limit: Specification 3.1.3.6 - Control Rod Insertion Limits: Specification 3.2.1 - Axial Flux Difference: Specification 3.2.3 Nuclear Enthalpy Rise Hot Channel Factor - $F_{\Delta H}^{N}$: Specification 3.9.1.b - Refueling Boron Concentration).

ed. NRC Safety Evaluation Report dated March 10, 1993, for the "Reload Safety Evaluation Methodology for the Wolf Creek Generating Station" (ET 92-0032, ET 93-0017)

(Methodology for Specification 3.1.3.6 - Control Rod Insertion Limits; Specification 3.2.1 - Axial Flux Difference)

fe. NRC Safety Evaluation Report dated March 30, 1993, for the "Revision to Technical Specification for Cycle 7" (NA 92-0073, NA 93-0013, NA 93-0054)

(Methodology for Specification 3.2.3 - Nuclear Enthalpy Rise Hot Channel Factor - $F_{\Delta H}^{N}$ ~~$F_{\Delta H}(X,Y)$~~, [Use of WRB-2 Correlation with VIPRE-01 Code])

gf. NRC Safety Evaluation Report dated November 13, 1986, for "The 1981 Version of the Westinghouse ECCS Evaluation Model Using the BASH Code" (WCAP-10266-P-A, Rev. 2)

(Methodology for Specification 3.2.2 - Heat Flux Hot Channel Factor - F_Q(~~X,Y,~~Z)

h. NRC Safety Evaluation Report dated May 17, 1988, "Acceptance for Referencing of Westinghouse Topical report WCAP-11596 - Qualification of the Phoenix-P/ANC Nuclear Design System for Pressurized Water Reactor Cores."

(Methodology for Specification 3.2.2 - Heat Flux Hot Channel Factor - $F_Q(Z)$: Specification 3.1.1.3 - Moderator Temperature Coefficient (MTC): Specification 3.1.3.5 - Shutdown Rod Insertion Limit: Specification 3.1.3.6 - Control Rod Insertion Limits: Specification 3.2.1 - Axial Flux Difference: Specification 3.2.3 Nuclear Enthalpy Rise Hot Channel Factor - $F_{\Delta H}^{N}$: Specification 3.9.1.b - Refueling Boron Concentration).

i) **NRC Safety Evaluation Report dated June 23, 1986, "Acceptance for Referencing of Topical Report WCAP 10965-P and WCAP 10966-NP-ANC: A Westinghouse Advanced Nodal Computer Code."**

(Methodology for Specification 3.2.2 - Heat Flux Hot Channel Factor - $F_Q(Z)$: Specification 3.1.1.3 - Moderator Temperature Coefficient (MTC): Specification 3.1.3.5 - Shutdown Rod Insertion Limit: Specification 3.1.3.6 - Control Rod Insertion Limits: Specification 3.2.1 - Axial Flux Difference: Specification 3.2.3 Nuclear Enthalpy Rise Hot Channel Factor - $F_{\Delta H}^{N}$: Specification 3.9.1.b - Refueling Boron Concentration).

The core operating limits shall be determined so that all applicable limits (e.g., fuel thermal-hydraulic limits, core thermal-hydraulic limits, ECCS limits, nuclear limits such as shutdown margin, and transient and accident analysis limits) of the safety analysis 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.

SPECIAL REPORTS

6.9.2 Special reports shall be submitted to the Regional Administrator of the NRC Regional Office within the time period specified for each report.

6.10 RECORD RETENTION

In addition to the applicable record retention requirements of Title 10, Code of Federal Regulations, the following records shall be retained for at least the minimum period indicated.

6.10.1 The following records shall be retained for at least 5 years:

a. Records and logs of unit operation covering time interval at each power level;

b. Records and logs of principal maintenance activities, inspections, repair and replacement of principal items of equipment related to nuclear safety;

3/4.2 POWER DISTRIBUTION LIMITS

BASES

The specifications of this section provide assurance of fuel integrity during Condition I (Normal Operation) and II (Incidents of Moderate Frequency) events by: (a) maintaining the minimum DNBR in the core greater than or equal to the DNBR design limit specified in the CORE OPERATING LIMITS REPORT (COLR) during normal operation and in short-term transients, and (b) limiting the fission gas release, fuel pellet temperature, and cladding mechanical properties to within assumed design criteria. In addition, limiting the peak linear power density during Condition I events provides assurance that the initial conditions assumed for the LOCA analyses are met and the ECCS acceptance criteria limit of 2200°F is not exceeded.

The definitions of certain hot channel and peaking factors as used in these specifications are as follows:

F_Q(~~X,Y,~~Z) Heat Flux Hot Channel Factor, is defined as the local heat flux on the surface of a fuel rod at core elevation Z divided by the average fuel rod heat flux, ~~allowing for manufacturing tolerances on fuel pellets and rods, at assembly (X,Y)~~.

~~$F_{\Delta H}$(X,Y)~~ $F_{\Delta H}^N$ Nuclear Enthalpy Rise Hot Channel Factor, is defined as the ratio of the integral of linear power along the rod with the highest integrated power to the average rod power. ~~at assembly (X,Y).~~

3/4.2.1 AXIAL FLUX DIFFERENCE

The limits on AXIAL FLUX DIFFERENCE (AFD) assure that the F_Q(~~X,Y,~~Z) and ~~$F_{\Delta H}$(X,Y)~~ $F_{\Delta H}^N$ limits are not exceeded during either normal operation or in the event of xenon redistribution following power changes. The AFD limits have been adjusted for measurement uncertainty.

Provisions for monitoring the AFD on an automatic basis are derived from the plant process computer through the AFD Monitor Alarm. The computer determines the 1-minute average of each of the OPERABLE excore detector outputs and provides an alarm message immediately if the AFD for at least 2 of 4 or 2 of 3 OPERABLE excore channels are outside the AFD limits and the THERMAL POWER is greater than 50% of RATED THERMAL POWER.

3/4.2.2 and 3/4.2.3 HEAT FLUX HOT CHANNEL FACTOR AND NUCLEAR ENTHALPY RISE HOT CHANNEL FACTOR

The limits on heat flux hot channel factor and nuclear enthalpy rise hot channel factor ensure that: (1) the design limits on peak local power density and minimum DNBR are not exceeded, and (2) in the event of a LOCA the peak fuel clad temperature will not exceed the 2200°F ECCS acceptance criteria limit.

POWER DISTRIBUTION LIMITS

BASES

3/4.2.2 and 3/4.2.3 HEAT FLUX HOT CHANNEL FACTOR AND NUCLEAR ENTHALPY RISE HOT CHANNEL FACTOR (Continued)

Each of these is measurable but will normally only be determined periodically as specified in Specifications 4.2.2 and 4.2.3. This periodic surveillance is sufficient to insure that the limits are maintained provided:

a. Control rods in a single group move together with no individual rod insertion differing by more than ± 12 steps, indicated, from the group demand position,

b. Control rod groups are sequenced with overlapping groups as described in Specification 3.1.3.6,

c. The control rod insertion limits of Specification 3.1.3.6 are maintained, and

d. The axial power distribution, expressed in terms of AXIAL FLUX DIFFERENCE, is maintained within the limits.

~~$F_{\Delta H}(X,Y)$~~ $F^N_{\Delta H}$ will be maintained within its limits provided Conditions a. through d. above are maintained. The limits on the nuclear enthalpy rise hot channel factor, ~~$F_{\Delta H}(X,Y)$~~ $F^N_{\Delta H}$, are specified in the COLR. ~~as Maximum Allowable Radial Peak Ratio Limits, obtained by dividing the Maximum Allowable Peak (MAP) limit by the axial peak for assembly location (X,Y). By definition, the Maximum Allowable Radial Peak Ratio limits will result in a DNBR for the limiting transient that is equivalent to the DNBR calculated with the design $F_{\Delta H}(X,Y)$ value specified in the COLR and a limiting reference axial power shape.~~

$F_Q{}^M$(~~X,Y,~~Z) and ~~$F\Delta HR^M(X,Y)$~~ $F^N_{\Delta H}$ are measured periodically to provide assurance that they remain within their limits. A peaking margin calculation is performed, when necessary, to provide the basis for reducing THERMAL POWER~~,~~ or for reducing the width of the AFD limits.~~, and for reducing the $f_1(\Delta I)$ limits of the OTΔT trip setpoints.~~ **The hot channel factor F_Q^M (Z) is measured periodically and increased by a cycle and height dependent factor, W(Z), to provide assurance that the limit of F_Q (Z) is met. W(Z) accounts for the effects of normal operation transients and is determined from expected power control maneuvers over the full range of burnup conditions in the core. The W(Z) functions are specified in the Core Operating Limits Report.**

3/4.2.4 QUADRANT POWER TILT RATIO

The QUADRANT POWER TILT RATIO limit assures that the radial power distribution satisfies the design values used in the power capability analysis. Radial power distribution measurements are made during STARTUP testing and periodically during power operation.

The limit of 1.02, at which corrective ACTION is required, provides DNB and linear heat generation rate protection with x-y plane power tilts. A limit of 1.02 was selected to provide an allowance for the uncertainty associated with the indicated power tilt.

ATTACHMENT V

PROPOSED TECHNICAL SPECIFICATION CHANGES
Draft (Clean Copy) Technical Specification Pages

POWER DISTRIBUTION LIMITS

3/4.2.2 HEAT FLUX HOT CHANNEL FACTOR - $F_Q(Z)$

LIMITING CONDITION FOR OPERATION

3.2.2 $F_Q(Z)$ shall be limited by the following relationships:

$$F_Q(Z) \leq \frac{[F_Q^{RTP}]}{P} [K(Z)] \text{ for } P > 0.5\text{, and}$$

$$F_Q(Z) \leq \frac{[F_Q^{RTP}]}{0.5} [K(Z)] \text{ for } P \leq 0.5.$$

Where:

F_Q^{RTP} = the F_Q (Z) Limit at RATED THERMAL POWER (RTP), as specified in the CORE OPERATING LIMITS REPORT (COLR),

P = $\frac{\text{THERMAL POWER}}{\text{RATED THERMAL POWER}}$, and

K(Z) = the normalized $F_Q(Z)$ limit as a function of core height, as specified in the COLR.

APPLICABILITY: MODE 1.

ACTION:

With $F_Q(Z)$ exceeding its limit:

a. Reduce THERMAL POWER at least 1% for each 1% $F_Q(Z)$ exceeds the limit within 15 minutes and similarly reduce the Power Range Neutron Flux-High Trip Setpoints within the next 8 hours; POWER OPERATION may proceed for up to a total of 72 hours; subsequent POWER OPERATION may proceed provided the Overpower ΔT Trip Setpoints have been reduced at least 1% for each 1% F_Q (Z) exceeds the limit; and

POWER DISTRIBUTION LIMITS

3/4.2.2 HEAT FLUX HOT CHANNEL FACTOR - $F_Q(Z)$

LIMITING CONDITION FOR OPERATION (Continued)

b. Identify and correct the cause of the out-of-limit condition prior to increasing THERMAL POWER above the reduced limit required by ACTION a., above; THERMAL POWER may then be increased provided $F_Q(Z)$ is demonstrated through incore mapping to be within its limit.

POWER DISTRIBUTION LIMITS

SURVEILLANCE REQUIREMENTS

4.2.2.1 The provisions of Specification 4.0.4 are not applicable.

4.2.2.2 $F_Q(Z)$ shall be evaluated to determine if $F_Q(Z)$ is within its limit by:

a. Using the movable incore detectors to obtain a power distribution map at any THERMAL POWER greater than 5% of RATED THERMAL POWER;

b. Increasing the measured $F_Q(Z)$ component of the power distribution map by 3% to account for manufacturing tolerances and further increasing the value by 5% to account for measurement uncertainties. Verify that the requirements of Specification 3.2.2 are satisfied.

c. Satisfying the following relationship:

$$F_Q^M(Z) \leq \frac{[F_Q^{RTP}][K(Z)]}{[P][W(Z)]} \quad \text{for } P > 0.5$$

$$F_Q^M(Z) \leq \frac{[F_Q^{RTP}][K(Z)]}{[0.5][W(Z)]} \quad \text{for } P \leq 0.5$$

where $F_Q^M(Z)$ is the measured $F_Q(Z)$ increased by the allowances for manufacturing tolerances and measurement uncertainty and W(Z) is the cycle dependent function that accounts for power distribution transients encountered during normal operation. This function is provided in the COLR.

d. Measuring $F_Q^M(Z)$ according to the following schedule:

1. Upon achieving equilibrium conditions after exceeding, by 10% or more of RATED THERMAL POWER, the THERMAL POWER at which $F_Q(Z)$ was last determined,* or

2. At least once per 31 Effective Full Power Days, whichever occurs first.

e. With measurements indicating

$$\underset{\text{over } z}{\text{maximum}} \left(\frac{F_Q^M(Z)}{\text{K(Z)}} \right)$$

has increased since the previous determination of $F_Q^M(Z)$, either of the following actions shall be taken:

1. $F_Q^M(Z)$ shall be increased over that specified in 4.2.2.2.c by an appropriate factor specified in the COLR, or

*During power escalation at the beginning of each cycle, THERMAL POWER may be increased until a power level for extended operation has been achieved after which a power distribution map may be obtained.

POWER DISTRIBUTION LIMITS

SURVEILLANCE REQUIREMENTS (Continued)

2. $F_Q^M(Z)$ shall be measured at least once per 7 Effective Full Power Days until two successive maps indicate that

$$\underset{\text{over z}}{\text{maximum}} \left(\frac{F_Q^M(Z)}{K(Z)} \right) \text{ is not increasing.}$$

f. With the relationships specified in 4.2.2.2.c above not being satisfied:

1. Calculate the percent $F_Q^M(Z)$ exceeds its limit by the following expression:

$$\left\{ \left(\frac{\text{maximum}}{\text{over Z}} \left[\frac{F_Q^M(Z) \text{ X } W(Z)}{\frac{F_Q^{RTP}}{P} \text{ X } K(Z)} \right] \right) - 1 \right\} \text{ X } 100 \quad \text{for } P \geq 0.5$$

$$\left\{ \left(\frac{\text{maximum}}{\text{over Z}} \left[\frac{F_Q^M(Z) \text{ X } W(Z)}{\frac{F_Q^{RTP}}{0.5} \text{ X } K(Z)} \right] \right) - 1 \right\} \text{ X } 100 \quad \text{for } P < 0.5$$

2. Either one of the following actions shall be taken:

a. Within 2 hours, control the AFD to within new AFD limits which are determined by tightening both the negative and positive AFD limits of Specification 3.2.1 by 1% AFD for each percent $F_Q^M(Z)$ exceeds its limit and declare the AFD monitor alarm inoperable until the AFD alarm setpoints are changed to the modified limits, or

b. Comply with the requirements of Specification 3.2.2 for $F_Q(Z)$ exceeding its limit by the percent calculated above.

g. The limits in Specification 4.2.2.2.c, 4.2.2.2.e and 4.2.2.2.f are not applicable in the following core plane regions as measured in percent of core height from the bottom of the fuel:

1. Lower core region from 0 to 15%, inclusive,

2. Upper core region from 85 to 100%, inclusive.

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POWER DISTRIBUTION LIMITS

3/4.2.3 NUCLEAR ENTHALPY RISE HOT CHANNEL FACTOR - $F^N_{\Delta H}$

LIMITING CONDITION FOR OPERATION

3.2.3 $F^N_{\Delta H}$ shall be limited by the following relationship:

$$F^N_{\Delta H} \leq F^{RTP}_{\Delta H} [1.0 + PF_{\Delta H} (1.0 - P)]$$

where,

$F^{RTP}_{\Delta H}$ = The $F^N_{\Delta H}$ limit at RATED THERMAL POWER (RTP) specified in the Core Operating Limits Report (COLR).

$PF_{\Delta H}$ = the power factor multiplier for $F^N_{\Delta H}$ specified in the COLR,

$P = \frac{\text{THERMAL POWER}}{\text{RATED THERMAL POWER}}$, and

$F^N_{\Delta H}$ = Measured values of $F^N_{\Delta H}$ obtained by using the movable incore detectors to obtain a power distribution map. The measured values of $F^N_{\Delta H}$ shall be used since an uncertainty of 4% for incore measurement of $F^N_{\Delta H}$ has been included in the above limit.

APPLICABILITY: MODE 1

ACTION:

With $F^N_{\Delta H}$ exceeding its limit:

a. Within 4 hours, either

   1. Restore $F^N_{\Delta H}$ to within the above limit, or

   2. Reduce THERMAL POWER to less than 50% of RATED THERMAL POWER and reduce the Power Range Neutron Flux - High Trip Setpoint to less than or equal to 55% of RATED THERMAL POWER within the next 4 hours.

b. Within 72 hours of initially being outside the above limit, verify through incore flux mapping that $F^N_{\Delta H}$ has been restored to within the above limit, or reduce THERMAL POWER to less than 5% of RATED THERMAL POWER within the the next 6 hours.

c. Identify and correct the cause of the out-of-limit condition prior to increasing THERMAL POWER above the reduced limit required by Actions a. or b., above; subsequent POWER OPERATION may proceed provided that $F^N_{\Delta H}$ is demonstrated through in-core flux mapping to be within its limit at a nominal 50% of RATED THERMAL POWER prior to exceeding this THERMAL POWER, at a nominal 75% of RATED THERMAL POWER prior to exceeding this THERMAL POWER and within 24 hours after attaining 95% or greater RATED THERMAL POWER.

POWER DISTRIBUTION LIMITS

LIMITING CONDITION FOR OPERATION

SURVEILLANCE REQUIREMENTS

4.2.3.1 $F^N_{\Delta H}$ shall be determined to be within its limit by using the movable incore detectors to obtain a power distribution map:

a. Prior to operation above 75% of RATED THERMAL POWER after each fuel loading, and

b. At least once per 31 Effective Full Power Days, and

c. The provisions of Specification of 4.0.4 are not applicable.

CORE OPERATING LIMITS REPORT (COLR)

6.9.1.9 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. Specification 3.1.1.3: Moderator Temperature Coefficient (MTC) EOL limits
2. Specification 3.1.3.5: Shutdown Rod Insertion Limit
3. Specification 3.1.3.6: Control Rod Insertion Limits
4. Specification 3.2.1: Axial Flux Difference (AFD)
5. Specification 3.2.2: Heat Flux Hot Channel Factor - $F_Q(Z)$
6. Specification 3.2.3: Nuclear Enthalpy Rise Hot Channel Factor - $F^N_{\Delta H}$
7. Specification 3.9.1.b: Refueling Boron Concentration

The analytical methods used to determine the core operating limits shall be those previously reviewed and approved by the NRC, specifically those described in the following documents.

a. NRC Safety Evaluation Report dated October 29, 1992, for the "Core Thermal Hydraulic Analysis Methodology for the Wolf Creek Generating Station" (ET-90-0140, ET 92-0103)

   (Methodology for Specification 3.2.3 - Nuclear Enthalpy Rise Hot Channel Factor - $F^N_{\Delta H}$

b. NRC Safety Evaluation Report dated January 17, 1989, for the "Acceptance for Referencing of Licensing Topical Report WCAP-11397, Revised Thermal Design Procedure."

   (Methodology for Specification 3.2.3 - Nuclear Enthalpy Rise Hot Channel Factor - $F^N_{\Delta H}$.

c. NRC Safety Evaluation Report dated September 30, 1993, for the "Transient Analysis Methodology for the Wolf Creek Generating Station" (ET-91-0026, ET 92-0142, WM 93-0010, WM 93-0028)

   (Methodology for Specification 3.1.1.3 - Moderator Temperature Coefficient [MTC])

CORE OPERATING LIMITS REPORT (COLR) (Continued)

d. NRC Safety Evaluation Report dated November 26, 1993, "Acceptance for Referencing of Revised Version of Licensing Topical Report WCAP-10216-P-A, Relaxation of Constant Axial Offset Control - F_Q Surveillance Technical Specification" (TAC No. M88206).

(Methodology for Specification 3.2.2 - Heat Flux Hot Channel Factor - $F_Q(Z)$: Specification 3.1.1.3 - Moderator Temperature Coefficient (MTC): Specification 3.1.3.5 - Shutdown Rod Insertion Limit: Specification 3.1.3.6 - Control Rod Insertion Limits: Specification 3.2.1 - Axial Flux Difference: Specification 3.2.3 Nuclear Enthalpy Rise Hot Channel Factor - $F_{\Delta H}^{N}$: Specification 3.9.1.b - Refueling Boron Concentration).

e. NRC Safety Evaluation Report dated March 10, 1993, for the "Reload Safety Evaluation Methodology for the Wolf Creek Generating Station" (ET 92-0032, ET 93-0017)

(Methodology for Specification 3.1.3.6 - Control Rod Insertion Limits; Specification 3.2.1 - Axial Flux Difference)

f. NRC Safety Evaluation Report dated March 30, 1993, for the "Revision to Technical Specification for Cycle 7" (NA 92-0073, NA 93-0013, NA 93-0054)

(Methodology for Specification 3.2.3 - Nuclear Enthalpy Rise Hot Channel Factor - $F_{\Delta H}^{N}$, [Use of WRB-2 Correlation with VIPRE-01 Code])

g. NRC Safety Evaluation Report dated November 13, 1986, for "The 1981 Version of the Westinghouse ECCS Evaluation Model Using the BASH Code" (WCAP-10266-P-A, Rev. 2)

(Methodology for Specification 3.2.2 - Heat Flux Hot Channel Factor - $F_Q(Z)$

h. NRC Safety Evaluation Report dated May 17, 1988, "Acceptance for Referencing of Westinghouse Topical report WCAP-11596 - Qualification of the Phoenix-P/ANC Nuclear Design System for Pressurized Water Reactor Cores."

(Methodology for Specification 3.2.2 - Heat Flux Hot Channel Factor - $F_Q(Z)$: Specification 3.1.1.3 - Moderator Temperature Coefficient (MTC): Specification 3.1.3.5 - Shutdown Rod Insertion Limit: Specification 3.1.3.6 - Control Rod Insertion Limits: Specification 3.2.1 - Axial Flux Difference: Specification 3.2.3 Nuclear Enthalpy Rise Hot Channel Factor - $F_{\Delta H}^{N}$: Specification 3.9.1.b - Refueling Boron Concentration).

CORE OPERATING LIMITS REPORT (COLR) (Continued)

i) NRC Safety Evaluation Report dated June 23, 1986, "Acceptance for Referencing of Topical Report WCAP 10965-P and WCAP 10966-NP-ANC: A Westinghouse Advanced Nodal Computer Code."

(Methodology for Specification 3.2.2 - Heat Flux Hot Channel Factor - $F_Q(Z)$: Specification 3.1.1.3 - Moderator Temperature Coefficient (MTC): Specification 3.1.3.5 - Shutdown Rod Insertion Limit: Specification 3.1.3.6 - Control Rod Insertion Limits: Specification 3.2.1 - Axial Flux Difference: Specification 3.2.3 Nuclear Enthalpy Rise Hot Channel Factor - $F_{\Delta H}^{N}$: Specification 3.9.1.b - Refueling Boron Concentration).

The core operating limits shall be determined so that all applicable limits (e.g., fuel thermal-hydraulic limits, core thermal-hydraulic limits, ECCS limits, nuclear limits such as shutdown margin, and transient and accident analysis limits) of the safety analysis 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.

SPECIAL REPORTS

6.9.2 Special reports shall be submitted to the Regional Administrator of the NRC Regional Office within the time period specified for each report.

6.10 RECORD RETENTION

In addition to the applicable record retention requirements of Title 10, Code of Federal Regulations, the following records shall be retained for at least the minimum period indicated.

6.10.1 The following records shall be retained for at least 5 years:

a. Records and logs of unit operation covering time interval at each power level;

b. Records and logs of principal maintenance activities, inspections, repair and replacement of principal items of equipment related to nuclear safety;

c. All REPORTABLE EVENTS;

d. Records of surveillance activities, inspections, and calibrations required by these Technical Specifications;

e. Records of changes made to the procedures required by Specification 6.8.1;

f. Records of radioactive shipments;

g. Records of sealed source and fission detector leak tests and results; and

h. Records of annual physical inventory of all sealed source material of record.

3/4.2 POWER DISTRIBUTION LIMITS

BASES

The specifications of this section provide assurance of fuel integrity during Condition I (Normal Operation) and II (Incidents of Moderate Frequency) events by: (a) maintaining the minimum DNBR in the core greater than or equal to the DNBR design limit specified in the CORE OPERATING LIMITS REPORT (COLR) during normal operation and in short-term transients, and (b) limiting the fission gas release, fuel pellet temperature, and cladding mechanical properties to within assumed design criteria. In addition, limiting the peak linear power density during Condition I events provides assurance that the initial conditions assumed for the LOCA analyses are met and the ECCS acceptance criteria limit of 2200°F is not exceeded.

The definitions of certain hot channel and peaking factors as used in these specifications are as follows:

$F_Q(Z)$ Heat Flux Hot Channel Factor, is defined as the local heat flux on the surface of a fuel rod at core elevation Z divided by the average fuel rod heat flux,

$F_{\Delta H}^N$ Nuclear Enthalpy Rise Hot Channel Factor, is defined as the ratio of the integral of linear power along the rod with the highest integrated power to the average rod power.

3/4.2.1 AXIAL FLUX DIFFERENCE

The limits on AXIAL FLUX DIFFERENCE (AFD) assure that the $F_Q(Z)$ and $F_{\Delta H}^N$ limits are not exceeded during either normal operation or in the event of xenon redistribution following power changes. The AFD limits have been adjusted for measurement uncertainty.

Provisions for monitoring the AFD on an automatic basis are derived from the plant process computer through the AFD Monitor Alarm. The computer determines the 1-minute average of each of the OPERABLE excore detector outputs and provides an alarm message immediately if the AFD for at least 2 of 4 or 2 of 3 OPERABLE excore channels are outside the AFD limits and the THERMAL POWER is greater than 50% of RATED THERMAL POWER.

3/4.2.2 and 3/4.2.3 HEAT FLUX HOT CHANNEL FACTOR AND NUCLEAR ENTHALPY RISE HOT CHANNEL FACTOR

The limits on heat flux hot channel factor and nuclear enthalpy rise hot channel factor ensure that: (1) the design limits on peak local power density and minimum DNBR are not exceeded, and (2) in the event of a LOCA the peak fuel clad temperature will not exceed the 2200°F ECCS acceptance criteria limit.

3/4.2.2 and 3/4.2.3 HEAT FLUX HOT CHANNEL FACTOR AND NUCLEAR ENTHALPY RISE HOT CHANNEL FACTOR (Continued)

Each of these is measurable but will normally only be determined periodically as specified in Specifications 4.2.2 and 4.2.3. This periodic surveillance is sufficient to insure that the limits are maintained provided:

a. Control rods in a single group move together with no individual rod insertion differing by more than ± 12 steps, indicated, from the group demand position,

b. Control rod groups are sequenced with overlapping groups as described in Specification 3.1.3.6,

c. The control rod insertion limits of Specification 3.1.3.6 are maintained, and

d. The axial power distribution, expressed in terms of AXIAL FLUX DIFFERENCE, is maintained within the limits.

$F^N_{\Delta H}$ will be maintained within its limits provided Conditions a. through d. above are maintained. The limits on the nuclear enthalpy rise hot channel factor, $F^N_{\Delta H}$, are specified in the COLR.

$F_Q(Z)$ and $F^N_{\Delta H}$ are measured periodically to provide assurance that they remain within their limits. A peaking margin calculation is performed, when necessary, to provide the basis for reducing THERMAL POWER or for reducing the width of the AFD limits. The hot channel factor $F^M_Q(Z)$ is measured periodically and increased by a cycle and height dependent factor, W(Z), to provide assurance that the limit of $F_Q(Z)$ is met. W(Z) accounts for the effects of normal operation transients and is determined from expected power control maneuvers over the full range of burnup conditions in the core. The W(Z) functions are specified in the Core Operating Limits Report.

3/4.2.4 QUADRANT POWER TILT RATIO

The QUADRANT POWER TILT RATIO limit assures that the radial power distribution satisfies the design values used in the power capability analysis. Radial power distribution measurements are made during STARTUP testing and periodically during power operation.

The limit of 1.02, at which corrective ACTION is required, provides DNB and linear heat generation rate protection with x-y plane power tilts. A limit of 1.02 was selected to provide an allowance for the uncertainty associated with the indicated power tilt.