

ENCLOSURE

PROPOSED AMENDMENT TO TECHNICAL SPECIFICATION

SECTION 3/4.2.3 and BASES 3/4.2.3

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A. DESCRIPTION OF THE PROPOSED AMENDMENT REQUEST

The proposed amendment changes the Technical Specification Section 3/4.2.3 Azimuthal Power Tilt limit with Core Operating Limit Supervisory System (COLSS) out of service from ≤ 0.10 (10%) to ≤ 0.03 (3%).

B. PURPOSE OF THE TECHNICAL SPECIFICATION

The Azimuthal Power Tilt is normally calculated and continually monitored by COLSS. The azimuthal power is not directly monitored by the plant protection system; rather, an azimuthal power tilt allowance, based on the maximum tilt anticipated to exist during normal operation, is provided as an addressable constant in the plant protection system. This tilt allowance is used in the low Departure from Nucleate Boiling Ratio (DNBR) and high local power density trip calculations. An alarm is initiated in the event that the azimuthal power tilt exceeds the allowance setting in the plant protection system.

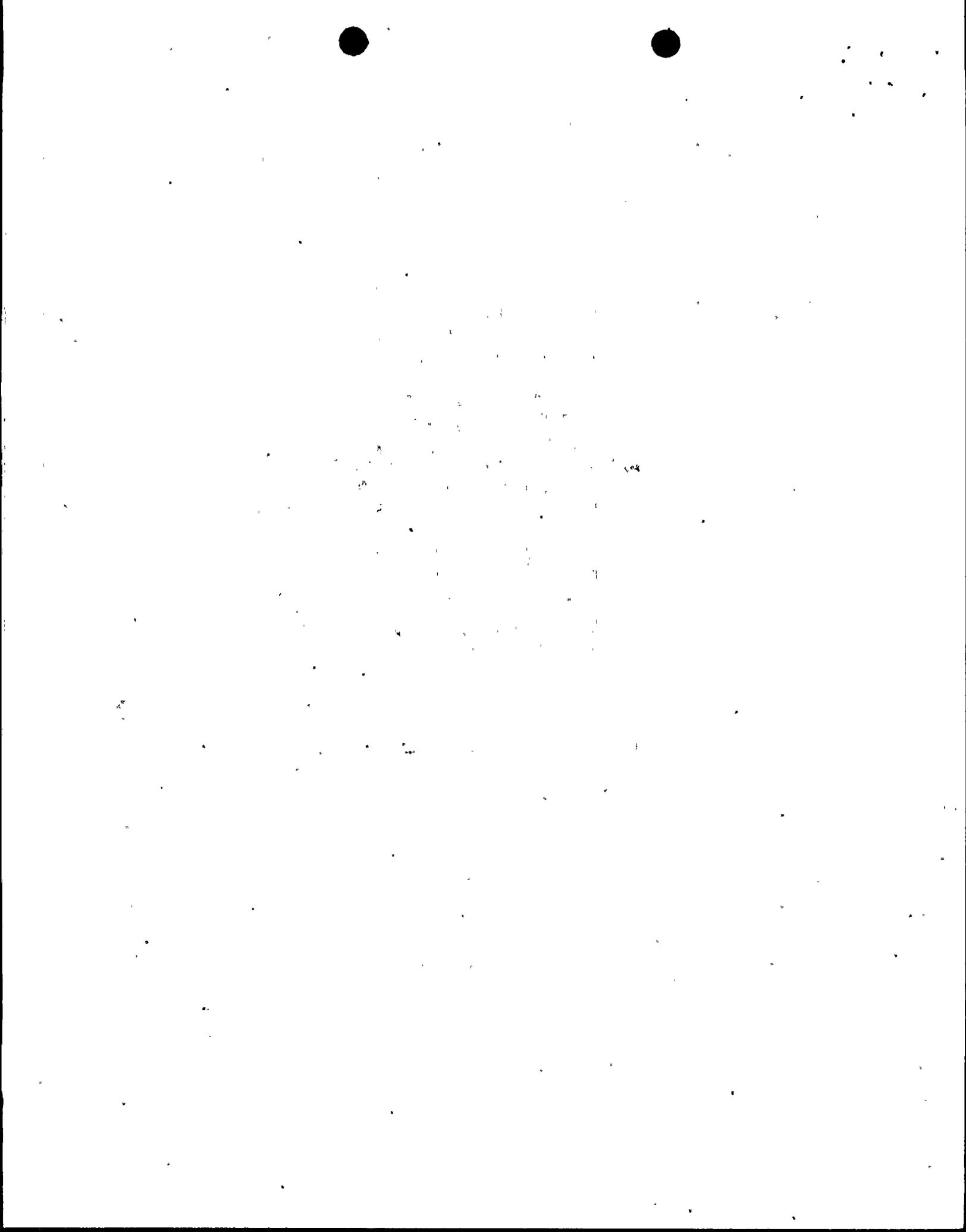
When COLSS is out of service, operators perform a surveillance test to verify that the specification limits on DNBR margin, Linear Heat Rate (LHR), Azimuthal Power Tilt (APT), and Axial Shape Index (ASI) are not violated. These verifications are accomplished using Core Protection Calculator data.

C. NEED FOR THE TECHNICAL SPECIFICATION AMENDMENT

The Combustion Engineering (CE) Safety Analysis assumes an Azimuthal Power Tilt of $\leq 3\%$. The existing Technical Specifications allow operation with an Azimuthal Power Tilt of $\leq 10\%$. The proposed Technical Specification amendment would establish the Technical Specification limit at $\leq 3\%$ to agree with the Safety Analysis assumptions. The discrepancy between the Safety Analysis and the Technical Specifications has existed for Units 1, 2, and 3 beginning with the Cycle 1 initial Safety Analysis performed by CE.

D. SAFETY ANALYSIS OF THE PROPOSED TECHNICAL SPECIFICATION AMENDMENT

The CE Safety Analysis assumes the Azimuthal Power Tilt is $\leq 3\%$. The Technical Specification allows operation with an Azimuthal Power Tilt of $\leq 10\%$. The proposed Technical Specification amendment reduces the Technical Specification limit to $\leq 3\%$ to conform to the safety analysis assumptions.



The proposed limit is more restrictive than the current limit; therefore, the proposed amendment will improve the margin of safety required by the Technical Specification limit.

A surveillance test must be performed once each 12 hours when COLSS is out of service. The Azimuthal Power Tilt is calculated and recorded during this surveillance test. Surveillance test data was reviewed to determine instances when COLSS was out of service and Azimuthal Power Tilt was $> 3\%$. Ten instances were identified and evaluated. The evaluation indicated that in each of the ten instances there existed a significant margin to the LHR and DNBR Limiting Conditions for Operation.

E. NO SIGNIFICANT HAZARDS CONSIDERATION DETERMINATION

The Commission has provided standards for determining whether a significant hazards consideration exists as stated in 10 CFR 50.92. A proposed amendment to an operating license for a facility involves a no significant hazards consideration if operation of the facility in accordance with a 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. A discussion of these standards as they relate to this amendment request follows:

Standard 1 -- Involve a significant increase in the probability or consequences of an accident previously evaluated.

Decreasing the COLSS out-of-service Azimuthal Power Tilt Technical Specification limit does not increase the probability or consequences of an accident previously evaluated. The Technical Specification operating limit is being conservatively reduced to conform to the assumptions used in the safety analysis. The reduced operating limit requires a more uniform power distribution in the reactor core. The uniform power distribution may reduce the consequences of an accident previously evaluated by not allowing regions in the core to operate at higher power levels.

Standard 2 -- Create the possibility of a new or different kind of accident from any accident previously evaluated.

The proposed amendment will result in an alarm setpoint change, but does not involve any equipment changes and will not alter the manner in which the plant will be operated. For this reason, this amendment will not create the possibility of a new or different kind of accident from any previously evaluated. The proposed operating range is smaller and completely within the existing Technical Specification limits; thus,



there are no mechanisms to create the possibility of a new or different kind of accident from those previously evaluated.

Standard 3 -- Involve a significant reduction in a margin of safety.

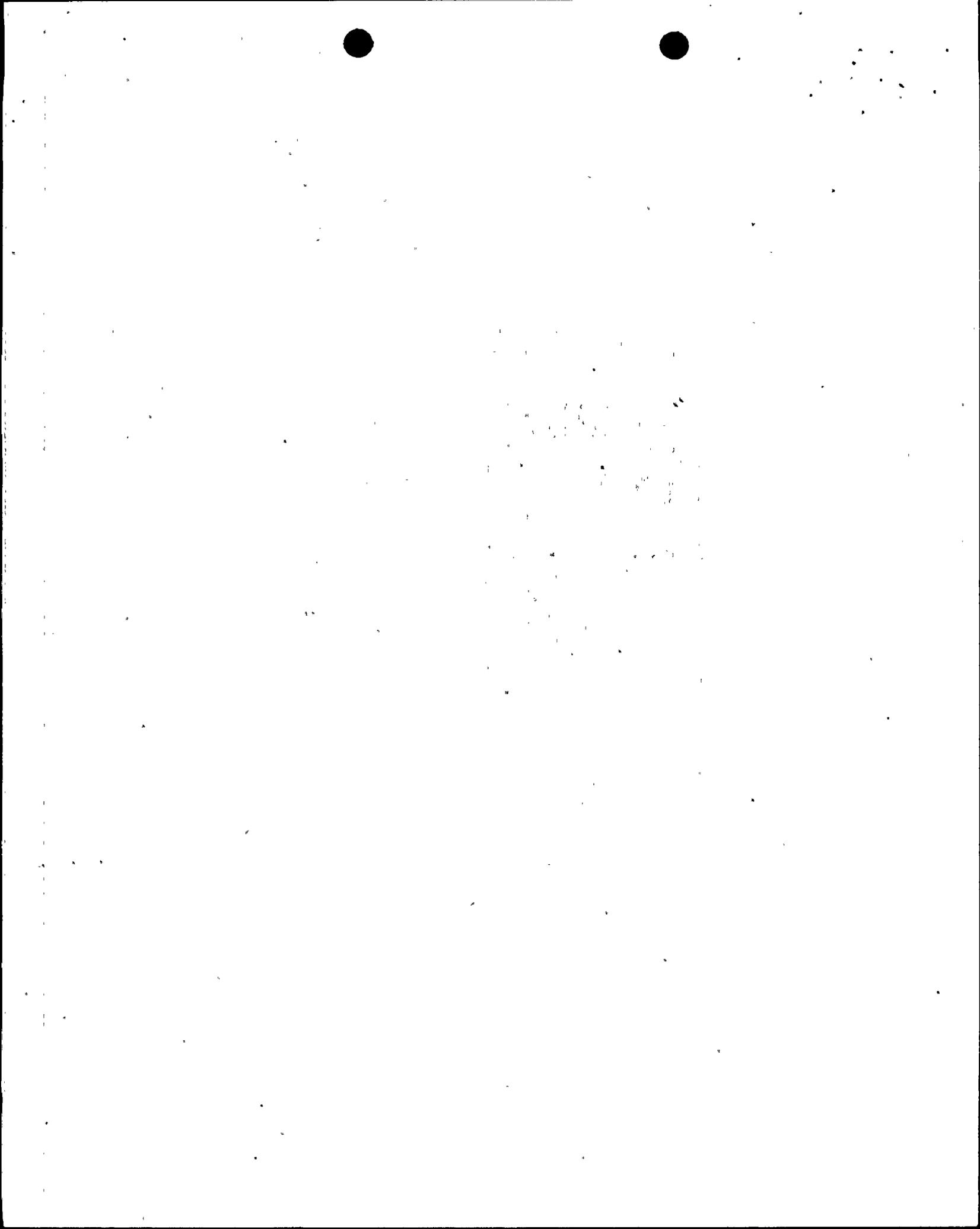
The proposed amendment conservatively reduces the COLSS out-of-service Azimuthal Power Tilt Technical Specification limit, thereby increasing the margin of safety. The proposed operating range is smaller and completely bounded by the existing Technical Specification limits.

F. ENVIRONMENTAL IMPACT CONSIDERATION DETERMINATION

The proposed amendment to the Technical Specifications involves no changes in the amount or type of effluent that may be released offsite, and there is no increase in individual or cumulative occupational radiation exposure. As such, operation in accordance with the proposed amendment does not involve an unreviewed environmental safety question.

G. MARKED-UP TECHNICAL SPECIFICATION PAGES

For PVNGS Units 1, 2, and 3
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POWER DISTRIBUTION LIMITS

3/4.2.3 AZIMUTHAL POWER TILT - T_q

LIMITING CONDITION FOR OPERATION

3.2.3 The AZIMUTHAL POWER TILT (T_q) shall be less than or equal to the following limits:

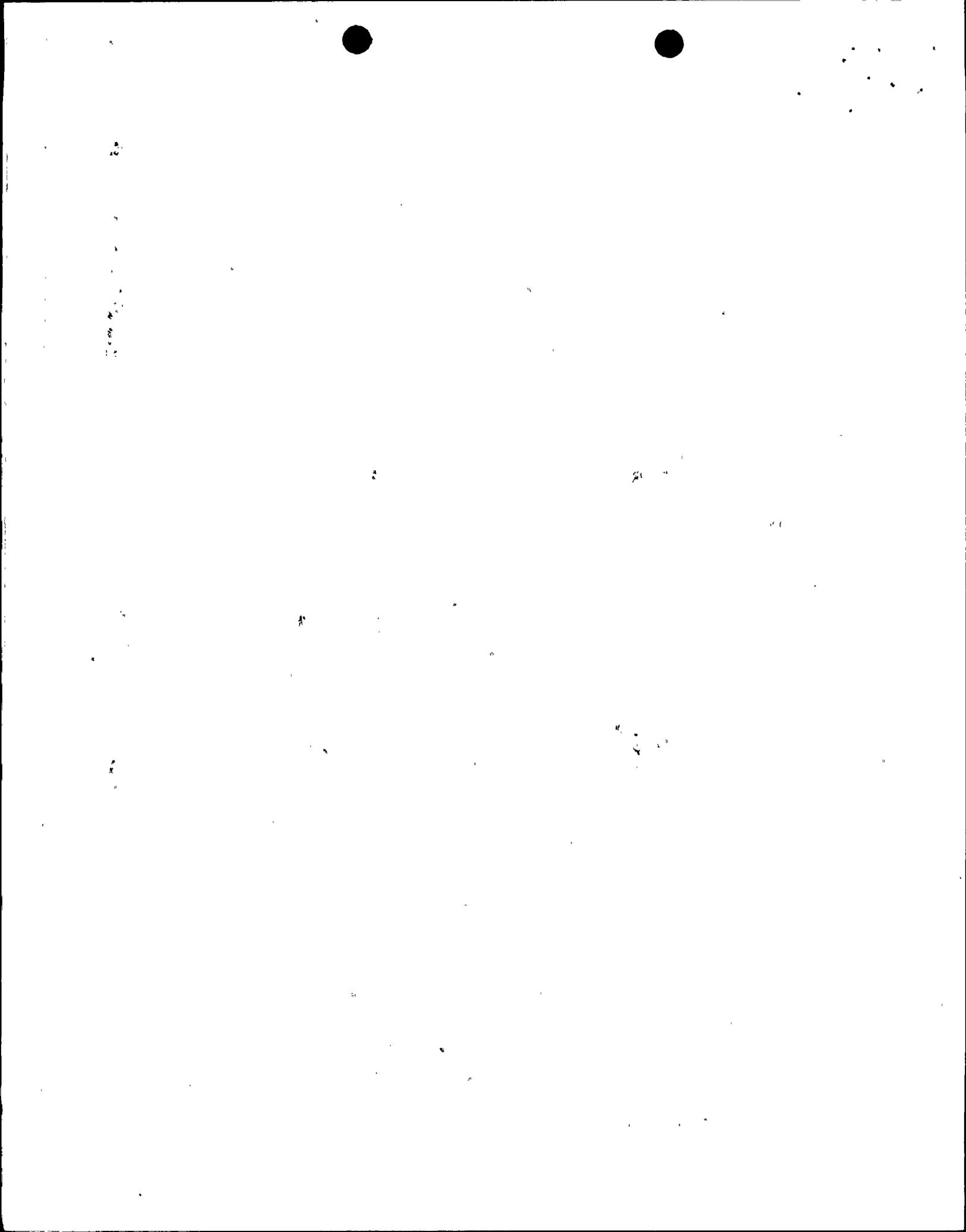
- a. The AZIMUTHAL POWER TILT Allowance used in the Core Protection Calculators (CPCs), and
 - b.1. The limit specified in the CORE OPERATING LIMITS REPORT with COLSS in service, or
 - b.2. $T_q \leq \overset{0.03}{\cancel{0.10}}$ with COLSS out of service.

APPLICABILITY: MODE 1 above 20% of RATED THERMAL POWER*.

ACTION:

- a. With the measured AZIMUTHAL POWER TILT determined to exceed the AZIMUTHAL POWER TILT Allowance used in the CPCs, within 2 hours either correct the power tilt or adjust the AZIMUTHAL POWER TILT Allowance used in the CPCs to greater than or equal to the measured value.
- b. With the measured AZIMUTHAL POWER TILT determined to exceed the limit specified in the CORE OPERATING LIMITS REPORT with COLSS in service or $\overset{0.03}{\cancel{0.10}}$ with COLSS out of service:
 - 1. Due to misalignment of either a part-length or full-length CEA, within 30 minutes verify that the Core Operating Limit Supervisory System (COLSS) (when COLSS is being used to monitor the core power distribution per Specifications 4.2.1 and 4.2.4) is detecting the CEA misalignment.
 - 2. Verify that the AZIMUTHAL POWER TILT is within its limit within 2 hours after exceeding the limit or reduce THERMAL POWER to less than 50% of RATED THERMAL POWER within the next 2 hours and verify that the Variable Overpower Trip Setpoint has been reduced as appropriate within the next 4 hours.
 - 3. Identify and correct the cause of the out of limit condition prior to increasing THERMAL POWER; subsequent POWER OPERATION above 50% of RATED THERMAL POWER may proceed provided that the AZIMUTHAL POWER TILT is verified within its limit at least once per hour for 12 hours or until verified acceptable at 95% or greater RATED THERMAL POWER.

*See Special Test Exception 3.10.2.
PALO VERDE - UNIT 1



POWER DISTRIBUTION LIMITSBASES3/4.2.2 PLANAR RADIAL PEAKING FACTORS

Limiting the values of the PLANAR RADIAL PEAKING FACTORS (F_{xy}^c) used in the COLSS and CPCs to values equal to or greater than the measured PLANAR RADIAL PEAKING FACTORS (F_{xy}^m) provides assurance that the limits calculated by COLSS and the CPCs remain valid. Data from the incore detectors are used for determining the measured PLANAR RADIAL PEAKING FACTORS. A minimum core power at 20% of RATED THERMAL POWER is assumed in determining the PLANAR RADIAL PEAKING FACTORS. The 20% RATED THERMAL POWER threshold is due to the neutron flux detector system being inaccurate below 20% core power. Core noise level at low power is too large to obtain usable detector readings. The periodic surveillance requirements for determining the measured PLANAR RADIAL PEAKING FACTORS provides assurance that the PLANAR RADIAL PEAKING FACTORS used in COLSS and the CPCs remain valid throughout the fuel cycle. Determining the measured PLANAR RADIAL PEAKING FACTORS after each fuel loading prior to exceeding 70% of RATED THERMAL POWER provides additional assurance that the core was properly loaded.

3/4.2.3 AZIMUTHAL POWER TILT - T_q

0.03 The limitations on the AZIMUTHAL POWER TILT are provided to ensure that design safety margins are maintained. An AZIMUTHAL POWER TILT greater than the limit specified in the CORE OPERATING LIMITS REPORT with COLSS in service or 0.10 with COLSS out of service is not expected and if it should occur, operation is restricted to only those conditions required to identify the cause of the tilt. The tilt is normally calculated by COLSS. A minimum core power of 20% of RATED THERMAL POWER is assumed by the CPCs in its input to COLSS for calculation of AZIMUTHAL POWER TILT. The 20% RATED THERMAL POWER threshold is due to the neutron flux detector system being inaccurate below 20% core power. Core noise level at low power is too large to obtain usable detector readings. The surveillance requirements specified when COLSS is out of service provide an acceptable means of detecting the presence of a steady-state tilt. It is necessary to explicitly account for power asymmetries because the radial peaking factors used in the core power distribution calculations are based on an untilted power distribution.

The AZIMUTHAL POWER TILT is equal to $(P_{\text{tilt}}/P_{\text{untilt}})-1.0$ where:

AZIMUTHAL POWER TILT is measured by assuming that the ratio of the power at any core location in the presence of a tilt to the untilted power at the location is of the form:

$$P_{\text{tilt}}/P_{\text{untilt}} = 1 + T_q g \cos(\theta - \theta_0)$$

where:

T_q is the peak fractional tilt amplitude at the core periphery

g is the radial normalizing factor

θ is the azimuthal core location

θ_0 is the azimuthal core location of maximum tilt



POWER DISTRIBUTION LIMITS3/4.2.3 AZIMUTHAL POWER TILT - T_q LIMITING CONDITION FOR OPERATION

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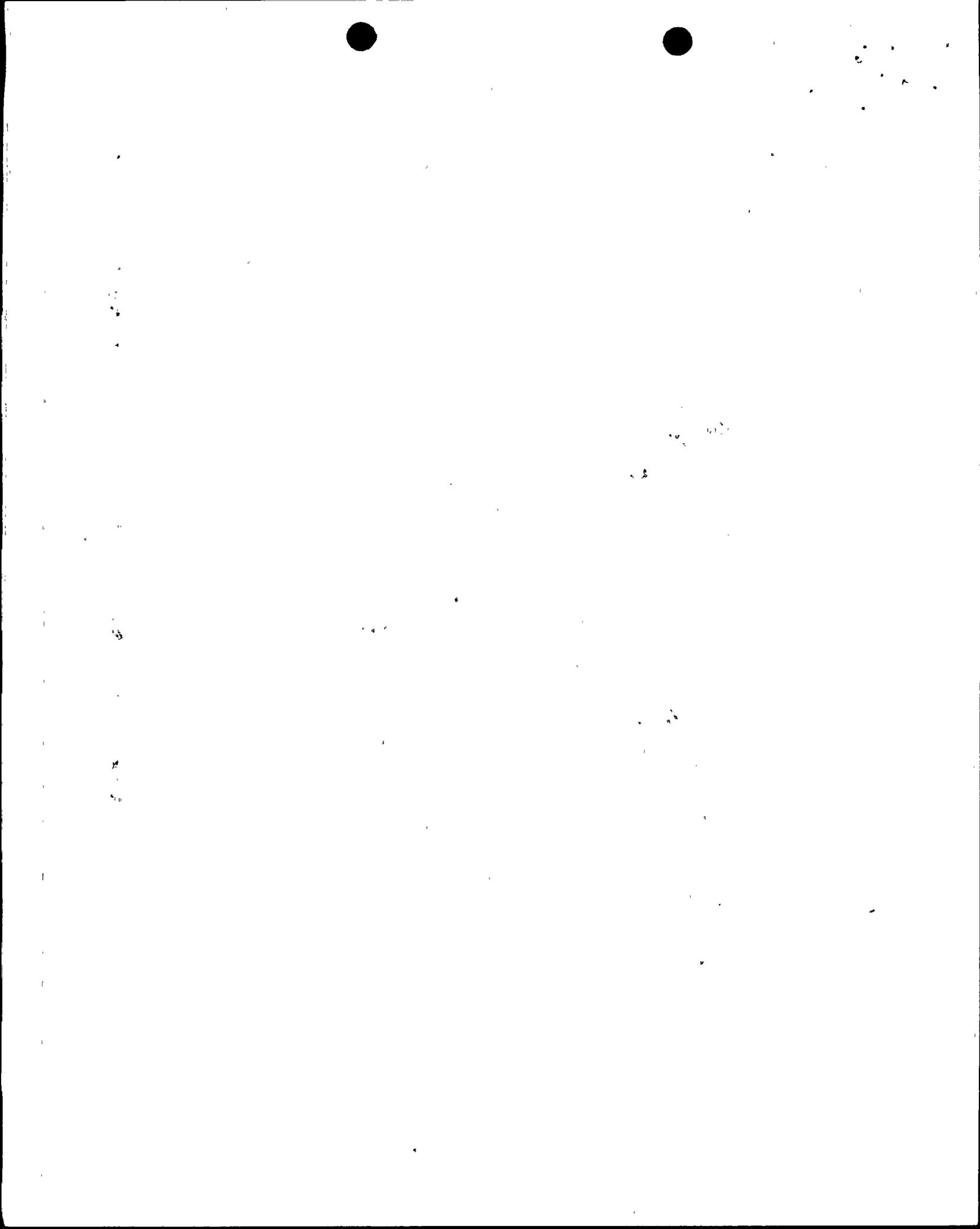
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 - b.2. $T_q \leq \overset{0.03}{\cancel{0.10}}$ with COLSS out of service.

APPLICABILITY: MODE 1 above 20% of RATED THERMAL POWER*.

ACTION:

- a. With the measured AZIMUTHAL POWER TILT determined to exceed the AZIMUTHAL POWER TILT Allowance used in the CPCs within 2 hours^{per} either correct the power tilt or adjust the AZIMUTHAL POWER TILT Allowance used in the CPCs to greater than or equal to the measured value.
- b. With the measured AZIMUTHAL POWER TILT determined to exceed the limit specified in the CORE OPERATING LIMITS REPORT with COLSS in service or $\overset{0.03}{\cancel{0.10}}$ with COLSS out of service:
 - 1. Due to misalignment of either a part-length or full-length CEA, within 30 minutes verify that the Core Operating Limit Supervisory System (COLSS) (when COLSS is being used to monitor the core power distribution per Specifications 4.2.1 and 4.2.4) is detecting the CEA misalignment.
 - 2. Verify that the AZIMUTHAL POWER TILT is within its limit within 2 hours after exceeding the limit or reduce THERMAL POWER to less than 50% of RATED THERMAL POWER within the next 2 hours and verify that the Variable Overpower Trip Setpoint has been reduced as appropriate within the next 4 hours.
 - 3. Identify and correct the cause of the out of limit condition prior to increasing THERMAL POWER; subsequent POWER OPERATION above 50% of RATED THERMAL POWER may proceed provided that the AZIMUTHAL POWER TILT is verified within its limit at least once per hour for 12 hours or until verified acceptable at 95% or greater RATED THERMAL POWER.

*See Special Test Exception 3.10.2.



POWER DISTRIBUTION LIMITS

BASES

3/4.2.2 PLANAR RADIAL PEAKING FACTORS

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The AZIMUTHAL POWER TILT is equal to $(P_{\text{tilt}}/P_{\text{untilt}})-1.0$ where:

AZIMUTHAL POWER TILT is measured by assuming that the ratio of the power at any core location in the presence of a tilt to the untilted power at the location is of the form:

$$P_{\text{tilt}}/P_{\text{untilt}} = 1 + T_q g \cos(\theta - \theta_0)$$

where:

T_q is the peak fractional tilt amplitude at the core periphery

g is the radial normalizing factor

θ is the azimuthal core location

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FOR INFORMATION ONLY

POWER DISTRIBUTION LIMITS

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