

ENCLOSURE

REVISED JUSTIFICATION AND TECHNICAL SPECIFICATION PAGES

SEQUOYAH NUCLEAR PLANT UNITS 1 AND 2

DOCKET NOS. 50-327 AND 50-328

(TVA-SQN-TS-89-36)

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PDR APPROV 05000327  
PDC

## POWER DISTRIBUTION LIMITS

### ACTION: (Continued)

2. Reduce THERMAL POWER to less than 50% of RATED THERMAL POWER within 2 hours and reduce the Power Range Neutron Flux-High Trip Setpoints to less than or equal to 55% of RATED THERMAL POWER 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 QUADRANT POWER TILT RATIO is verified within its limit at least once per hour for 12 hours or until verified at 95% or greater RATED THERMAL POWER.

f. d. The provisions of Specification 3.0.4 are not applicable.

### SURVEILLANCE REQUIREMENTS

4.2.4.1 The QUADRANT POWER TILT RATIO shall be determined to be within the limit above 50% of RATED THERMAL POWER by:

- a. Calculating the ratio at least once per 7 days when the alarm is OPERABLE.
- b. Calculating the ratio at least once per 12 hours during steady state operation when the alarm is inoperable.

4.2.4.2 The QUADRANT POWER TILT RATIO shall be determined to be within the limit when above 75 percent of RATED THERMAL POWER with one Power Range Channel inoperable by using the movable incore detectors to confirm that the normalized symmetric power distribution, obtained from the 4 pairs of symmetric thimble locations, is consistent with the indicated QUADRANT POWER TILT RATIO at least once per 12 hours. *OR FROM PERFORMANCE OF A FULL CORE MAP,*

d. WITH THE INDICATED QUADRANT POWER TILT RATIO NOT CONFIRMED AS REQUIRED BY SURVEILLANCE REQUIREMENT 4.2.4.2, REDUCE THERMAL POWER TO LESS THAN 75 PERCENT OF RATED THERMAL POWER WITHIN 6 HOURS.

e. WITH THE QUADRANT POWER TILT RATIO NOT MONITORED AS REQUIRED BY SURVEILLANCE REQUIREMENT 4.2.4.1, REDUCE THERMAL POWER TO LESS THAN 50 PERCENT OF RATED THERMAL POWER WITHIN 6 HOURS.

TABLE 3.3-1 (Continued)

TABLE NOTATION

- \* With the reactor trip system breakers in the closed position and the control rod drive system capable of rod withdrawal, and fuel in the reactor vessel.
- \*\* The channel(s) associated with the protective functions derived from the out of service Reactor Coolant Loop shall be placed in the tripped condition.
- # The provisions of Specification 3.0.4 are not applicable.
- ## High voltage to detector may be de-energized above the P-6 (Block of Source Range Reactor Trip) setpoint.

ACTION STATEMENTS

ACTION 1 - With the number of channels OPERABLE one less than required by the Minimum Channels OPERABLE requirement, restore the inoperable channel to OPERABLE status within 48 hours or be in HOT STANDBY within the next 6 hours and/or open the reactor trip breakers.

ACTION 2 - With the number of OPERABLE channels one less than the Total Number of Channels, STARTUP and POWER OPERATION may proceed provided the following conditions are satisfied:

- a. The inoperable channel is placed in the tripped condition within 6 hours.
- b. The Minimum Channels OPERABLE requirement is met; however, one additional channel may be bypassed for up to 4 hours for surveillance testing per Specification 4.3.1.1.1.

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- c. ~~Either, THERMAL POWER is restricted to less than or equal to 75% of RATED THERMAL and the Power Range, Neutron Flux high trip reduced to less than or equal to 65% of RATED THERMAL POWER within 4 hours, or, The QUADRANT POWER TILT RATIO is monitored at least once per 12 hours in accordance with technical specification 3.2.4.~~
- d. ~~The QUADRANT POWER TILT RATIO, as indicated by the remaining three detectors is verified consistent with the normalized symmetric power distribution obtained by using the movable incore detectors in the four pairs of symmetric thimble locations at least once per 12 hours when THERMAL POWER is greater than 75% of RATED THERMAL POWER.~~



## POWER DISTRIBUTION LIMITS

### ACTION: (Continued)

2. Reduce THERMAL POWER to less than 50% of RATED THERMAL POWER within 2 hours and reduce the Power Range Neutron Flux-High Trip Setpoints to less than or equal to 55% of RATED THERMAL POWER 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 QUADRANT POWER TILT RATIO is verified within its limit at least once per hour for 12 hours or until verified at 95% or greater RATED THERMAL POWER.

*f.* The provisions of Specification 3.0.4 are not applicable.

### SURVEILLANCE REQUIREMENTS

4.2.4.1 The QUADRANT POWER TILT RATIO shall be determined to be within the limit above 50% of RATED THERMAL POWER by:

- a. Calculating the ratio at least once per 7 days when the alarm is OPERABLE.
- b. Calculating the ratio at least once per 12 hours during steady state operation when the alarm is inoperable.

4.2.4.2 The QUADRANT POWER TILT RATIO shall be determined to be within the limit when above 75 percent of RATED THERMAL POWER with one Power Range channel inoperable by using the movable incore detectors to confirm that the normalized symmetric power distribution, obtained from 4 pairs of symmetric thimble locations, is consistent with the indicated QUADRANT POWER TILT RATIO at least once per 12 hours. OR FROM PERFORMANCE OF A FULL CORE MAP,

d. WITH THE INDICATED QUADRANT POWER TILT RATIO NOT CONFIRMED AS REQUIRED BY SURVEILLANCE REQUIREMENT 4.2.4.2, REDUCE THERMAL POWER TO LESS THAN 75 PERCENT OF RATED THERMAL POWER WITHIN 6 HOURS.

e. WITH THE QUADRANT POWER TILT RATIO NOT MONITORED AS REQUIRED BY SURVEILLANCE REQUIREMENT 4.2.4.1, REDUCE THERMAL POWER TO LESS THAN 50 PERCENT OF RATED THERMAL POWER WITHIN 6 HOURS.

TABLE 3.3-1 (Continued)

TABLE NOTATION

- \* With the reactor trip system breakers in the closed position, the control rod drive system capable of rod withdrawal, and fuel in the reactor vessel.
- \*\* The channel(s) associated with the protective functions derived from the out of service Reactor Coolant Loop shall be placed in the tripped condition.
- # The provisions of Specification 3.0.4 are not applicable.
- ## High voltage to detector may be de-energized above the P-6 (Block of Source Range Reactor Trip) setpoint.

ACTION STATEMENTS

ACTION 1 - With the number of OPERABLE channels one less than required by the Minimum Channels OPERABLE requirement, restore the inoperable channel to OPERABLE status within 48 hours or be in HOT STANDBY within the next 6 hours and/or open the reactor trip breakers.

ACTION 2 - With the number of OPERABLE channels one less than the Total Number of Channels, STARTUP and/or POWER OPERATION may proceed provided the following conditions are satisfied:

- a. The inoperable channel is placed in the tripped condition within 6 hours.
- b. The Minimum Channels OPERABLE requirement is met; however, one additional channel may be bypassed for up to 4 hours for surveillance testing per Specification 4.3.1.1.1.

c. ~~Either, THERMAL POWER is restricted to less than or equal to 75% of RATED THERMAL POWER and the Power Range, Neutron Flux trip setpoint is reduced to less than or equal to 95% of RATED THERMAL POWER within 4 hours; or, The QUADRANT POWER TILT RATIO is monitored at least once per 12 hours, in accordance with technical specification 3.2.4.~~

d. ~~The QUADRANT POWER TILT RATIO, as indicated by the remaining three detectors, is verified consistent with the normalized symmetric power distribution obtained by using the movable incore detectors in the four pairs of symmetric thimble locations at least once per 12 hours when THERMAL POWER is greater than 75% of RATED THERMAL POWER.~~



### Justification for Change

New action statements are proposed for TS 3.2.4 to specifically address the situations when SRs 4.2.4.1 and 4.2.4.2 cannot be performed in the timeframe specified. The action statements apply any time the SRs cannot be performed, regardless of the cause. The new action statements have specific timeframes for power reduction consistent with TS 3.0.3. The new action statements have specific power levels consistent with the power levels specified in the applicability section of TS 3.2.4, SR 4.2.4.2, and Action 2.c of Table 3.3-1.

The new action statements have repair times specified that are longer than the other action statements in TS 3.2.4. This difference is appropriate because the other action statements in TS 3.2.4 apply for the cases where the quadrant power tilt ratio is out of limits, a situation that needs a quick remedy. The proposed action statements for TS 3.2.4 apply for the cases where only monitoring capability is affected. TVA believes that it is prudent to provide sufficient repair time for a loss of monitoring capability to provide a reasonable opportunity to remedy the situation before requiring that a plant transient be introduced. In the absence of any immediate safety issue (e.g., out-of-limit conditions), repairs should be considered before initiating any plant transient that could evolve into a more severe condition if problems occur.

The proposed action statements provide clear guidance to the operator that is consistent with present requirements but in a more user-friendly format. It eliminates the need to apply TS 4.0.3 when SRs 4.2.4.1 or 4.2.4.2 cannot be performed as required. It eliminates the need to recognize that none of the current actions in TS 3.2.4 apply, and consequently the requirements of TS 3.0.3 must be followed. It eliminates the need to recognize that the requirements of TS 3.0.3 are satisfied when power is reduced such that SR 4.2.4.2 no longer applies.

A revision to Action 2 of Table 3.3-1 is proposed to eliminate requirements that are redundant to SRs 4.2.4.1 and 4.2.4.2 and the new proposed action statements described above. Action 2.d is deleted because it is redundant to SR 4.2.4.2. Action 2.c is revised to delete information that either more appropriately belongs in TS 3.2.4 since it contains remedial actions for quadrant power tilt ratio requirements or cannot be followed (e.g., recalibration with a channel in trip status). In particular, the actions to recalibrate the power range neutron flux high trip setpoint to 85 percent power after a power reduction to 75 percent power cannot be accomplished with a failed channel in the tripped condition, as required by Action 2.a. Verification of the reduced setpoint cannot be accomplished without completing the reactor trip logic and causing a reactor trip. Action 2.c will now simply direct the operator to TS 3.2.4 for quadrant power tilt ratio monitoring. TS 3.2.4, as modified, contains all SRs and remedial actions related to quadrant power tilt ratio monitoring.

Addition of the option of using a full core map to verify normalized power distribution meets the intent of the original SR 4.2.4.2. A full core map using the incore movable detectors will provide information pertaining to quadrant power tilt ratio that is equivalent to that obtained using the four pairs of symmetric thimbles.

## Significant Hazards Evaluation

TVA has evaluated the proposed TS change and has determined that it does not represent a significant hazards consideration based on criteria established in 10 CFR 50.92(c). Operation of SQN in accordance with the proposed amendment will not:

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

The proposed revisions to the action statements for TS 3.2.4, "Quadrant Power Tilt Ratio," and Action 2 of Table 3.3-1 for the reactor trip system power range channels are administrative in nature and include a reformatting of existing requirements in a user-friendly format to eliminate the potential for misinterpretation and the deletion of a requirement that cannot be implemented. Use of a full core map to confirm normalized power distribution provides information pertaining to quadrant power tilt ratio that is equivalent to that obtained using the four pairs of symmetric thimbles. These changes have no impact on the probability or consequences of an accident previously evaluated.

2. Create the possibility of a new or different kind of accident from any previously analyzed.

The proposed revisions to the action statements for TS 3.2.4, "Quadrant Power Tilt Ratio," and Action 2 of Table 3.3-1 for the reactor trip system power range channels are administrative in nature and include a reformatting of existing requirements in a user-friendly format to eliminate the potential for misinterpretation and the deletion of a requirement that cannot be implemented. Use of a full core map to confirm normalized power distribution provides information pertaining to quadrant power tilt ratio that is equivalent to that obtained using the four pairs of symmetric thimbles. These changes do not create the possibility of a new or different kind of accident from any previously analyzed.

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

The proposed revisions to the action statements for TS 3.2.4, "Quadrant Power Tilt Ratio," and Action 2 of Table 3.3-1 for the reactor trip system power range channels are administrative in nature and include a reformatting of existing requirements in a user-friendly format to eliminate the potential for misinterpretation and the deletion of a requirement that cannot be implemented. Use of a full core map to confirm normalized power distribution provides information pertaining to quadrant power tilt ratio that is equivalent to that obtained using the four pairs of symmetric thimbles. These changes do not involve a reduction in any margin of safety.