Industry/TSTF Standard Technical Specification Change Traveler

Clarify the QPTR surveillances

Priority/Classification 2) Consistency/Standardization

NUREGs Affected: ☐ 1430 ☑ 1431 ☐ 1432 ☐ 1433 ☐ 1434

Description:

The surveillances of LCO 3.2.4, "QPTR" are clarified.

Justification:

Required Action A.2 is intended to result in a periodic re-check and re-adjustment of thermal power based on existing QPTR. However, Required Action A.2 specifically requires performance of SR 3.2.4.1 which may not be viable if Power Range Neutron Flux channel(s) are inoperable. In this event, SR 3.2.4.2 should be performed using the incore detectors. To more correctly specify the intended Required Action, A.2 is revised to simply require "Determine QPTR" rather than specifying an SR to perform.

Note 2 to SR 3.2.4.1 (QPTR by calculation) allows performance of SR 3.2.4.2 (QPTR using incores) "if adequate Power Range Neutron Flux channel inputs are not OPERABLE." Besides posing some ambiguity as to what "adequate...inputs" are, it is overly restrictive. QPTR determination using incore detectors can adequately verify the requirements for QPTR to be <= 1.0 in all cases; not just when flux channels are inoperable.

SR 3.2.4.2 presentation of the frequency for verifying QPTR using incore detectors is revised to be consistent with typical presentation formats that provide for a period of time after establishing conditions. This consistency should help avoid misinterpretations.

Revision History

OG Revision 0 Revision Status: Active Next Action:

Revision Proposed by:

Revision Description:
Original Issue

Owners Group Review Information

Date Originated by OG: 18-Jan-96

Owners Group Comments
(No Comments)

Owners Group Resolution: Approved Date: 18-Jan-96

TSTF Review Information

TSTF Received Date: 20-Feb-96 Date Distributed for Review 12-Apr-96

OG Review Completed: ☑ BWOG ☑ WOG ☑ CEOG ☑ BWROG

TSTF Comments:
NA CEOG, BWOG, BWROG

TSTF Resolution: Approved Date: 28-May-96

NRC Review Information

NRC Received Date: 17-Jul-96 NRC Reviewer: R. Tjader

NRC Comments:

9/18/96 - NRC would like to arrange a technical discussion on this change.
9/18/96 - TSTF to arrange meeting or conference call.
10/28/96 - NRC approves.

Final Resolution: NRC Approves Final Resolution Date: 28-Oct-96

Incorporation Into the NUREGs

File to BBS/LAN Date: TSTF Informed Date: TSTF Approved Date:

NUREG Rev Incorporated:

Affected Technical Specifications

Action 3.2.4.A	Quadrant Power Tilt Ratio (QPTR)
SR 3.2.4.1	Quadrant Power Tilt Ratio (QPTR)
SR 3.2.4.1 Bases	Quadrant Power Tilt Ratio (QPTR)
SR 3.2.4.2	Quadrant Power Tilt Ratio (QPTR)
SR 3.2.4.2 Bases	Quadrant Power Tilt Ratio (QPTR)

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3.2 POWER DISTRIBUTION LIMITS

3.2.4 QUADRANT POWER TILT RATIO (QPTR)

LCO 3.2.4 The QPTR shall be ≤ 1.02.

APPLICABILITY: MODE 1 with THERMAL POWER > 50% RTP.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. QPTR not within limit.	A.1 Reduce THERMAL POWER ≥ 3% from RTP for each 1% of QPTR > 1.00.	2 hours
	AND	
	A.2 Determine QPTR ~~Perform SR 3.2.4.1~~ and reduce THERMAL POWER ≥ 3% from RTP for each 1% of QPTR > 1.00.	Once per 12 hours
	AND	
	A.3 Perform SR 3.2.1.1 and SR 3.2.2.1.	24 hours AND Once per 7 days thereafter
	AND	
	A.4 Reevaluate safety analyses and confirm results remain valid for duration of operation under this condition.	Prior to increasing THERMAL POWER above the limit of Required Action A.1
	AND	

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SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.2.4.1	----------NOTES---------- 1. With input from one Power Range Neutron Flux channel inoperable and THERMAL POWER < 75% RTP, the remaining three power range channels can be used for calculating QPTR. 2. SR 3.2.4.2 may be performed in lieu of this Surveillance if adequate Power Range Neutron Flux channel inputs are not OPERABLE. ---------- Verify QPTR is within limit by calculation.	7 days AND Once within 12 hours and every 12 hours thereafter with the QPTR alarm inoperable
SR 3.2.4.2	Not ----------NOTE---------- Only required to be performed if input from one or more Power Range Neutron Flux channels are inoperable with THERMAL POWER ≥ 75% RTP. ---------- Verify QPTR is within limit using the movable incore detectors.	until 12 hours after Once within 12 hours AND 12 hours thereafter

ACTIONS

A.6 (continued)

core power does not reach RTP within 24 hours, but is increased slowly, then the peaking factor surveillances must be performed within 48 hours of the time when the ascent to power was begun. These Completion Times are intended to allow adequate time to increase THERMAL POWER to above the limit of Required Action A.1, while not permitting the core to remain with unconfirmed power distributions for extended periods of time.

Required Action A.6 is modified by a Note that states that the peaking factor surveillances may only be done after the excore detectors have been calibrated to show zero tilt (i.e., Required Action A.5). The intent of this Note is to have the peaking factor surveillances performed at operating power levels, which can only be accomplished after the excore detectors are calibrated to show zero tilt and the core returned to power.

B.1

If Required Actions A.1 through A.6 are not completed within their associated Completion Times, the unit must be brought to a MODE or condition in which the requirements do not apply. To achieve this status, THERMAL POWER must be reduced to < 50% RTP within 4 hours. The allowed Completion Time of 4 hours is reasonable, based on operating experience regarding the amount of time required to reach the reduced power level without challenging plant systems.

SURVEILLANCE REQUIREMENTS

SR 3.2.4.1

SR 3.2.4.1 is modified by two Notes. Note 1 allows QPTR to be calculated with three power range channels if THERMAL POWER is < 75% RTP and the input from one Power Range Neutron Flux channel is inoperable. Note 2 allows performance of SR 3.2.4.1 if more than one input from Power Range Neutron Flux channels are inoperable.

This Surveillance verifies that the QPTR, as indicated by the Nuclear Instrumentation System (NIS) excore channels, is

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SURVEILLANCE REQUIREMENTS

SR 3.2.4.1 (continued)

within its limits. The Frequency of 7 days when the QPTR alarm is OPERABLE is acceptable because of the low probability that this alarm can remain inoperable without detection.

When the QPTR alarm is inoperable, the Frequency is increased to 12 hours. This Frequency is adequate to detect any relatively slow changes in QPTR, because for those causes of QPT that occur quickly (e.g., a dropped rod), there typically are other indications of abnormality that prompt a verification of core power tilt.

SR 3.2.4.2 until 12 hours after

not This Surveillance is modified by a Note, which states that it is required only when the input from one or more Power Range Neutron Flux channels are inoperable and the THERMAL POWER is ≥ 75% RTP.

With an NIS power range channel inoperable, tilt monitoring for a portion of the reactor core becomes degraded. Large tilts are likely detected with the remaining channels, but the capability for detection of small power tilts in some quadrants is decreased. Performing SR 3.2.4.2 at a Frequency of 12 hours provides an accurate alternative means for ensuring that any tilt remains within its limits.

For purposes of monitoring the QPTR when one power range channel is inoperable, the moveable incore detectors are used to confirm that the normalized symmetric power distribution is consistent with the indicated QPTR and any previous data indicating a tilt. The incore detector monitoring is performed with a full incore flux map or two sets of four thimble locations with quarter core symmetry. The two sets of four symmetric thimbles is a set of eight unique detector locations. These locations are C-8, E-5, E-11, H-3, H-13, L-5, L-11, and N-8 for three and four loop cores.

The symmetric thimble flux map can be used to generate symmetric thimble "tilt." This can be compared to a reference symmetric thimble tilt, from the most recent full

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