Industry/TSTF Standard Technical Specification Change Traveler

Split Function 12 in Table 3.3.1-1 into Two Functions

Priority/Classification 1) Correct Specifications

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

Description:

Function 12 in Table 3.3.1-1 (Digital) is the Reactor Coolant Flow - Low RPS Function. This should be split into two functions, Reactor Coolant Flow, Steam Generator #1 and Reactor Coolant Flow - Low, Steam Generator #2.

Justification:

There are two RPS Trips for RC Flow - Low. One for low flow to Steam Generator #1 and one for low flow to Steam Generator #2. Each of the trips consist of four channels configured in a 2 out of 4 logic configuration. Listing the two trips as one function in Table 3.3.1-1 allows a single condition entry for both functions. It should be listed as two functions like the S/G Pressure, S/G High and Low Level functions.

Revision History

OG Revision 0 **Revision Status: Active** **Next Action:**

Revision Proposed by: Palo Verde

Revision Description:
Original Issue

Owners Group Review Information

Date Originated by OG: 14-Mar-96

Owners Group Comments
(No Comments)

Owners Group Resolution: Approved Date: 14-Mar-96

TSTF Review Information

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

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

TSTF Comments:
NA WOG, BWOG, BWRs

TSTF Resolution: Approved Date: 14-May-96

NRC Review Information

NRC Received Date: 17-Jul-96 NRC Reviewer: C. Shulten

NRC Comments:

9/18/96 - Review pending.
10/31/96 - Reviewer recommends approval and forwarded to HICB for concurrence.
3/18/97 - no change in status.

Final Resolution: NRC Approves Final Resolution Date: 01-Oct-97

Incorporation Into the NUREGs

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

NUREG Rev Incorporated:

Affected Technical Specifications

LCO 3.3.1 Bases	RPS Instrumentation - Operating (Digital)
	Change Description: Functions 12 and higher
SR 3.3.1	RPS Instrumentation - Operating (Digital)
	Change Description: Table 3.3.1-1, Functions 12 and higher

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Table 3.3.1-1 (page 2 of 3)
Reactor Protective System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
8. Steam Generator #1 Level – Low	1,2	SR 3.3.1.1 SR 3.3.1.7 SR 3.3.1.10 SR 3.3.1.14	≥ [24.23]%
9. Steam Generator #2 Level – Low	1,2	SR 3.3.1.1 SR 3.3.1.7 SR 3.3.1.10 SR 3.3.1.14	≥ [24.23]%
10. Steam Generator #1 Level – High	1,2	SR 3.3.1.1 SR 3.3.1.7 SR 3.3.1.10 SR 3.3.1.14	≤ [90.74]%
11. Steam Generator #2 Level – High	1,2	SR 3.3.1.1 SR 3.3.1.7 SR 3.3.1.10 SR 3.3.1.14	≤ [90.74]%
Steam Generator #1			
12. Reactor Coolant Flow – Low[d]	1,2	SR 3.3.1.1 SR 3.3.1.7 SR 3.3.1.10 [SR 3.3.1.13] SR 3.3.1.14	Ramp: ≤ [0.231] psid/sec Floor: ≥ [12.1] psid Step: [7.231] psid
14			
13. Loss of Load (turbine stop valve control oil pressure)[e]	1	SR 3.3.1.9 SR 3.3.1.10 [SR 3.3.1.13]	≥ [100] psig

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(d) Trip may be bypassed when THERMAL POWER is < [1E-4]% RTP. Bypass shall be automatically removed when THERMAL POWER is ≥ [1E-4]% RTP. During testing pursuant to LCO 3.4.17, trip may be bypassed below 5% RTP. Bypass shall be automatically removed when THERMAL POWER is > 5% RTP.

(e) Trip may be bypassed when THERMAL POWER is < [55]% RTP. Bypass shall be automatically removed when THERMAL POWER is ≥ [55]% RTP.

13. Reactor Coolant Flow, Steam Generator #2 – Low[d]	1, 2	SR 3.3.1.1 SR 3.3.1.7 SR 3.3.1.10 [SR 3.3.1.13] SR 3.3.1.14	Ramp: ≤ [0.231] psid/sec. Floor: ≥ [12.1] psid Step: [7.231] psid

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Table 3.3.1-1 (page 3 of 3)
Reactor Protective System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
15. Local Power Density – High[(d)]	1,2	SR 3.3.1.1 SR 3.3.1.2 SR 3.3.1.3 SR 3.3.1.4 SR 3.3.1.5 SR 3.3.1.6 SR 3.3.1.7 SR 3.3.1.10 SR 3.3.1.11 SR 3.3.1.12 SR 3.3.1.13 SR 3.3.1.14	≤ [21.0] kW/ft
16. Departure From Nucleate Boiling Ratio (DNBR) – Low[(d)]	1,2	SR 3.3.1.1 SR 3.3.1.2 SR 3.3.1.3 SR 3.3.1.4 SR 3.3.1.5 SR 3.3.1.6 SR 3.3.1.7 SR 3.3.1.10 SR 3.3.1.11 SR 3.3.1.12 SR 3.3.1.13 SR 3.3.1.14	≥ [1.31]

(d) Trip may be bypassed when THERMAL POWER is < [1E-4]% RTP. Bypass shall be automatically removed when THERMAL POWER is ≥ [1E-4]% RTP. During testing pursuant to LCO 3.4.17, trip may be bypassed below 5% RTP. Bypass shall be automatically removed when THERMAL POWER is > 5% RTP.

LCO (continued)

10, 11. Steam Generator Level—High

This LCO requires four channels of Steam Generator #1 Level—High and Steam Generator #2 Level—High to be OPERABLE in MODES 1 and 2.

The Allowable Value is high enough to allow for normal plant operation and transients without causing a reactor trip. It is set low enough to ensure a reactor trip occurs before the level reaches the steam dryers. Having steam generator water level at the trip value is indicative of the plant not being operated in a controlled manner.

This trip and the Steam Generator Level—Low trip may be manually bypassed simultaneously when cold leg temperature is below the specified limit to allow for CEA withdrawal during testing with the steam generators in wet layup. The bypass is automatically removed when cold leg temperature reaches 200°F. Below 200°F the plant is in shutdown cooling; therefore, the steam generators are not required for heat removal.

12,13

Reactor Coolant Flow—Low

Steam Generator #1 -Low and Reactor Coolant Flow, Steam Generator #2 -Low

This LCO requires four channels of Reactor Coolant Flow—~~Low~~ to be OPERABLE in MODES 1 and 2. The Allowable Value is set low enough to allow for slight variations in reactor coolant flow during normal plant operations while providing the required protection. Tripping the reactor ensures that the resultant power to flow ratio provides adequate core cooling to maintain DNBR under the expected pressure conditions for this event.

The Reactor Coolant Flow—Low trip may be manually bypassed when reactor power is less than 1E-4% RTP. This allows for de-energization of one or more RCPs (e.g., for plant cooldown), while maintaining the ability to keep the shutdown CEA banks withdrawn from the core if desired.

LCO 3.4.5, "RCS Loops—MODE 3," LCO 3.4.6, "RCS Loops—MODE 4," and LCO 3.4.7, "RCS Loops—MODE 5, Loops Filled," ensure adequate RCS flow rate is

(continued)

LCO

Reactor Coolant Flow—Low (continued)

maintained. The bypass is automatically removed when THERMAL POWER increases above 1E-4% RTP, as sensed by the wide range (logarithmic) nuclear instrumentation. When below the power range, the Reactor Coolant Flow—Low is not required for plant protection.

Loss of Load

This LCO requires four channels of Loss of Load trip to be OPERABLE in MODES 1 and 2.

The Steam Bypass Control System is capable of passing 45% of the full power main steam flow (45% RTP bypass capability) directly to the condenser without causing the MSSVs to lift. The Nuclear Steam Supply System is capable of absorbing a 10% step change in power when a primary to secondary system energy mismatch occurs, without causing the pressurizer safety valves to lift. This means that the plant can sustain a turbine trip without causing the pressurizer safety valves or the MSSV to lift, provided power is $\leq$ 55% RTP. Therefore, the Loss of Load trip may be bypassed when reactor power is $\leq$ 55% RTP, as sensed by the power range nuclear instrumentation. Both the bypass and bypass removal, when above 55% power, are automatically performed.

Loss of Load trip is equipment protective and not credited in the accident analysis. As such, the 55% bypass power permissive is a nominal value and does not include any instrument uncertainties.

Local Power Density—High

This LCO requires four channels of LPD—High to be OPERABLE.

The LCO on the CPCs ensures that the SLs are maintained during all AOOs and the consequences of accidents are acceptable.

A CPC is not considered inoperable if CEAC inputs to the CPC are inoperable. The Required Actions required

(continued)

LCO

15 ~~14~~. Local Power Density—High (continued)

in the event of CEAC channel failures ensure the CPCs are capable of performing their safety Function.

The CPC channels may be manually bypassed below 1E-4% RTP, as sensed by the logarithmic nuclear instrumentation. This bypass is enabled manually in all four CPC channels when plant conditions do not warrant the trip protection. The bypass effectively removes the DNBR—Low and LPD—High trips from the RPS Logic circuitry. The operating bypass is automatically removed when enabling bypass conditions are no longer satisfied.

This operating bypass is required to perform a plant startup, since both CPC generated trips will be in effect whenever shutdown CEAs are inserted. It also allows system tests at low power with Pressurizer Pressure—Low or RCPs off.

During special testing pursuant to LCO 3.4.17, the CPC channels may be manually bypassed when THERMAL POWER is below 5% RTP to allow special testing without generating a reactor trip. The Linear Power Level—High trip setpoint is reduced, so as to provide protection during testing.

16 ~~15~~. Departure from Nucleate Boiling Ratio (DNBR)—Low

This LCO requires four channels of DNBR—Low to be OPERABLE.

The LCO on the CPCs ensures that the SLs are maintained during all AOOs and the consequences of accidents are acceptable.

A CPC is not considered inoperable if CEAC inputs to the CPC are inoperable. The Required Actions required in the event of CEAC channel failures ensure the CPCs are capable of performing their safety Function.

The CPC channels may be manually bypassed below 1E-4% RTP, as sensed by the logarithmic nuclear instrumentation. This bypass is enabled manually in all four CPC channels when plant conditions do not

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BASES

LCO

(16) (15). Departure from Nucleate Boiling Ratio (DNBR)—Low (continued)

warrant the trip protection. The bypass effectively removes the DNBR—Low and LPD—High trips from the RPS logic circuitry. The operating bypass is automatically removed when enabling bypass conditions are no longer satisfied.

This operating bypass is required to perform a plant startup, since both CPC generated trips will be in effect whenever shutdown CEAs are inserted. It also allows system tests at low power with Pressurizer Pressure—Low or RCPs off.

During special testing pursuant to LCO 3.4.17, the CPC channels may be manually bypassed when THERMAL POWER is below 5% RTP to allow special testing without generating a reactor trip. The Linear Power Level—High trip setpoint is reduced, so as to provide protection during testing.

Interlocks/Bypasses

The LCO on bypass permissive removal channels requires that the automatic bypass removal feature of all four operating bypass channels be OPERABLE for each RPS Function with an operating bypass in the MODES addressed in the specific LCO for each Function. All four bypass removal channels must be OPERABLE to ensure that none of the four RPS channels are inadvertently bypassed.

This LCO applies to the bypass removal feature only. If the bypass enable Function is failed so as to prevent entering a bypass condition, operation may continue. In the case of the Logarithmic Power Level—High trip (Function 2), the absence of a bypass will limit maximum power to below the trip setpoint.

The interlock function Allowable Values are based upon analysis of functional requirements for the bypassed Functions. These are discussed above as part of the LCO discussion for the affected Functions.

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