Industry/TSTF Standard Technical Specification Change Traveler

Addition of Linear Heat Rate to Safety Limits Section

Priority/Classification 1) Correct Specifications

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

Description:

This change adds a limit on Linear Heat Rate to the Analog Reactor Core Safety Limits.

Justification:

10 CFR 50.36,(c)(1) defines Safety Limits as, "Safety limits for nuclear reactors are limits upon important process variables that are found to be necessary to reasonably protect the integrity of certain of the physical barriers that guard against the uncontrolled release of radioactivity." This is supported by the Bases for the analog Safety Limits, which states, "The restrictions of this SL prevent overheating of the fuel and cladding and possible cladding perforation that would result in the release of fission products to the reactor coolant. Overheating of the fuel is prevented by maintaining the steady state peak linear heat rate (LHR) below the level at which fuel centerline melting occurs." Later, it states, "The SL represents a design requirement for establishing the RPS trip setpoints identified previously. LCO 3.2.1, 'Linear Heat Rate (LHR),' and LCO 3.2.5, 'AXIAL SHAPE INDEX (ASI),' or the assumed initial conditions of the safety analyses (as indicated in the FSAR, Ref. 2) provide more restrictive limits to ensure that the SLs are not exceeded."

However, the analog Safety Limits section, unlike the digital section or NUREG-1430, does not place a restriction on Linear Heat Rate. Because fuel centerline melting is limited by LHR, and in order for the Safety Limits to match the requirements of 10 CFR 50.36, a LHR limit should be given in the Safety Limits.

Therefore, this change adds a Linear Heat Rate Safety Limit to the analog CE ITS.

Revision History

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

Revision Proposed by: Calvert Cliffs

Revision Description:
Original Issue

Owners Group Review Information

Date Originated by OG: 21-Aug-96

Owners Group Comments
(No Comments)

Owners Group Resolution: Approved Date: 21-Aug-96

TSTF Review Information

TSTF Received Date: 27-Sep-96 Date Distributed for Review 27-Sep-96

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

TSTF Comments:

BWOG - Not applicable, accepts
BWROG - Not applicable, accepts
WOG - Not applicable, accepts

TSTF Resolution: Approved Date: 21-Oct-96

NRC Review Information

NRC Received Date: 23-Jan-97 NRC Reviewer: Tjader, R.

NRC Comments:

3/13/97 - NRC approves.

Final Resolution: NRC Approves Final Resolution Date: 13-Mar-97

Incorporation Into the NUREGs

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

NUREG Rev Incorporated:

Affected Technical Specifications

SL 2.1.1	SLs (Analog)	
	Change Description:	2.1.1 requirement moved to 2.1.1.1
SL 2.1.1 Bases	SLs (Analog)	
SL 2.1.1.2	SLs (Analog)	
	Change Description:	New requirement

TSTF-144

2.0 SAFETY LIMITS (SLs) (Analog)

2.1 SLs

2.1.1.2 In MODES 1 and 2, the peak linear heat rate (LHR) shall be ≤ [21.0] KW/ft.

2.1.1 Reactor Core SLs

2.1.1.1 In MODES 1 and 2, the combination of THERMAL POWER, pressurizer pressure, and the highest operating loop cold leg coolant temperature shall not exceed the limits shown in Figure 2.1.1-1.

2.1.2 Reactor Coolant System (RCS) Pressure SL

In MODES 1, 2, 3, 4, and 5, the RCS pressure shall be maintained ≤ [2750] psia.

2.2 SL Violations

2.2.1 If SL 2.1.1 is violated, restore compliance and be in MODE 3 within 1 hour.

2.2.2 If SL 2.1.2 is violated:

2.2.2.1 In MODE 1 or 2, restore compliance and be in MODE 3 within 1 hour.

2.2.2.2 In MODE 3, 4, or 5, restore compliance within 5 minutes.

2.2.3 Within 1 hour, notify the NRC Operations Center, in accordance with 10 CFR 50.72.

2.2.4 Within 24 hours, notify the [Plant Superintendent and Vice President—Nuclear Operations].

2.2.5 Within 30 days, a Licensee Event Report (LER) shall be prepared pursuant to 10 CFR 50.73. The LER shall be submitted to the NRC and the [Plant Superintendent and Vice President—Nuclear Operations].

2.2.6 Operation of the unit shall not be resumed until authorized by the NRC.

TSTF-144

BASES

APPLICABLE SAFETY ANALYSES (continued)

h. Thermal Margin/Low Pressure trip;

i. Steam Generator Pressure Difference trip; and

j. Steam Generator Safety Valves.

The SL represents a design requirement for establishing the RPS trip setpoints identified previously. LCO 3.2.1, "Linear Heat Rate (LHR)," and LCO 3.2.5, "AXIAL SHAPE INDEX (ASI)," or the assumed initial conditions of the safety analyses (as indicated in the FSAR, Ref. 2) provide more restrictive limits to ensure that the SLs are not exceeded.

SAFETY LIMITS

The curves provided in Figure B 2.1.1-1 show the loci of points of THERMAL POWER, pressurizer pressure, and highest operating loop cold leg temperature, for which the minimum DNBR is not less than the safety analysis limit, and that fuel centerline temperature remains below melting.

(SL 2.1.1.2 ensures)

APPLICABILITY

SL 2.1.1 only applies in MODES 1 and 2 because these are the only MODES in which the reactor is critical. Automatic protection functions are required to be OPERABLE during MODES 1 and 2 to ensure operation within the reactor core SLs. The steam generator safety valves or automatic protection actions serve to prevent RCS heatup to the reactor core SL conditions or to initiate a reactor trip function, which forces the unit into MODE 3. Setpoints for the reactor trip functions are specified in LCO 3.3.1.

In MODES 3, 4, 5, and 6, Applicability is not required, since the reactor is not generating significant THERMAL POWER.

SAFETY LIMIT VIOLATIONS

The following SL violation responses are applicable to the reactor core SLs.

(continued)