

May 4, 2007

TSTF-07-17
PROJ0753U. S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555-0001

SUBJECT: TSTF-487, Revision 1, "Relocate DNB Parameters to the COLR"

Dear Sir or Madam:

Enclosed for NRC review is Revision 1 of TSTF-487, "Relocate DNB Parameters to the COLR."

Revision 1 addresses an NRC proposed change discussed in the March 15, 2007 Notice for Comment for TSTF-487. In lieu of the commitment suggested in our letter dated April 10, 2007 responding to the Notice for Comment (Letter Number TSTF-07-16), TSTF-487, Revision 1, proposes to modify Technical Specification 5.6.3.c to contain the analysis limitation requested by the NRC staff.

Any NRC review fees associated with the review of TSTF-487, Revision 1, should continue be billed to the Pressurized Water Reactors Owners Group.

The TSTF requests that the Traveler be made available under the Consolidated Line Item Improvement Process.

Should you have any questions, please do not hesitate to contact us.



Bert Yates (PWROG/W)



John Messina (BWROG)



Dana Millar (PWROG/CE)



Reene' Gambrell (PWROG/B&W)

Enclosure

cc: Tim Kobetz, Technical Specifications Branch, NRC
Ross Telson, Technical Specifications Branch, NRC
Matthew Hamm, Technical Specifications Branch, NRC

Technical Specification Task Force Improved Standard Technical Specifications Change Traveler

Relocate DNB Parameters to the COLR

NUREGs Affected: 1430 1431 1432 1433 1434

Classification: 1) Technical Change

Recommended for CLIP?: Yes

Correction or Improvement: Improvement

NRC Fee Status: Not Exempt

Benefit: Avoids Future Amendments

Industry Contact: Dana Millar, (601) 368-5445, DMILLAR@entergy.com

1.0 Description

Specification 3.4.1, "RCS Pressure, Temperature, and Flow [DNB] Limits," places limits on departure from nucleate boiling (DNB) related parameters to ensure that these parameters will not be less conservative than were assumed in the analyses and thereby provide assurance that the minimum departure from nucleate boiling ratio (DNBR) will meet the required criteria for each of the transients analyzed. Generic Letter 88-16, "Removal of Cycle-Specific Parameter Limits from Technical Specifications," issued October 3, 1988, encouraged licensees to propose changes to their Technical Specifications to relocate cycle-specific parameter limits from the Technical Specifications to the Core Operating Limits Report (COLR) provided that the NRC has approved the methodology used to calculate the cycle-specific limits.

The majority of cycle-specific limits have been moved from the Improved Standard Technical Specifications to the COLR. However, the limits in Specification 3.4.1, e.g., pressurizer pressure, RCS cold leg temperature, and RCS total flow rate, have not been relocated even though these values may change on a cycle to cycle basis. The proposed change relocates these parameters to the Core Operating Limits Report.

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2.0 Proposed Change

LCO 3.4.1, "RCS Pressure, Temperature, and Flow [Departure from Nuclear Boiling (DNB)] Limits," is revised to remove the specific limits specified in the LCO and to state that the limits are specified in the COLR.

The Surveillance Requirements are revised to remove the specific limits and to state that the limits are specified in the COLR.

The LCO Bases are revised to describe that the limits are specified in the COLR. An editorial change is made to SR 3.4.1.4. This SR already references a limit in the COLR. The wording of the SR is revised to be consistent with similar SRs in the ISTS.

Specification 5.6.3, "Core Operating Limits Report (COLR)," paragraph c, is modified to clarify that the COLR limits must be determined assuming that the plant is capable of operating at the Rated Thermal Power specified in Section 1.1, "Definitions."

Plants adopting the Traveler must modify the list of NRC approved methodologies in Specification 5.6.3 to include the NRC-approved methodologies used to calculate the cycle-specific limits on pressurizer pressure, RCS cold leg temperature, and RCS total flow rate.

3.0 Background

In Generic Letter 88-16, the NRC staff concluded that it is essential to safety that the plant is operated within the bounds of cycle specific parameter limits and that a requirement to maintain the plant within the appropriate bounds must be retained in the TS. However, the specific values of these limits may be modified by licensees, without affecting nuclear safety, provided that these changes are determined using an NRC-approved methodology and consistent with all applicable limits of the plant safety analysis that are addressed in the Final Safety Analysis Report (FSAR).

On October 12, 1990, the NRC issued Amendment 148 for Millstone Nuclear Power Station Unit 2. This amendment relocated many cycle-specific values to the COLR in accordance with Generic Letter 88-16, including the values for cold leg temperature, pressurizer pressure, reactor coolant flow rate, and AXIAL SHAPE INDEX specified in Specification 3.2.6, "DNB Margin." The value for AXIAL SHAPE INDEX is already moved to the COLR in the ISTS. However, the other values continue to be located in Specification 3.4.1.

On August 2, 2004, the NRC issued Amendment 217 for Palisades (Reference 3). The Palisades Technical Specifications are in ITS format. The amendment approved the relocation of the Specification 3.4.1 parameters to the COLR.

This Traveler modifies Specification 3.4.1 to move these cycle-specific values to the COLR, consistent with Generic Letter 88-16, the Millstone Unit 2 amendment, and the Palisades amendment.

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4.0 Technical Analysis

The current method of controlling the DNB related parameters to assure conformance to 10 CFR 50.36 is to specify the specific values determined to be within specified acceptance criteria (usually the limits of the safety analyses) using an approved calculation methodology. The alternative contained in Generic Letter 88-16 controls the values of cycle-specific parameters and assures conformance to 10 CFR 50.36, which calls for specifying the lowest functional performance levels acceptable for continued operation, by specifying the calculation methodology and acceptance criteria. This permits operation at any specific value determined by the licensee, using the specified methodology, to be within the acceptance criteria. The COLR will document the specific values of parameter limits resulting from licensee's calculations including any mid-cycle revisions to such parameter values.

Because plant operation continues to be limited in accordance with the values of the cycle-specific parameter limits that are established using NRC approved methodologies, this change is considered administrative in nature and there is no effect on plant safety as a consequence of this change. This position is consistent with the Safety Evaluation of Millstone Unit 2 Amendment 148 and Palisades Amendment 217.

The change to Specification 5.6.3, "Core Operating Limits Report (COLR)," paragraph c, to clarify that the COLR limits are determined assuming that the plant is capable of operating at the Rated Thermal Power is included to address an NRC concern that a plant could administratively limit the plant to a lower operating power and recalculate the COLR limits based on that lower power. Such an action would not be consistent with 10 CFR 50.46. Therefore, the statement that the COLR limits must be based on the assumption that the plant is capable of operating at Rated Thermal Power is added to 5.6.3.c to ensure that the requirements are not inadvertently misapplied by licensees.

04-May-07

5.0 Regulatory Analysis

5.1 No Significant Hazards Consideration

The TSTF has evaluated whether or not a significant hazards consideration is involved with the proposed generic change by focusing on the three standards set forth in 10 CFR 50.92, "Issuance of amendment," as discussed below:

1. Does the proposed change involve a significant increase in the probability or consequences of an accident previously evaluated?

Response: No.

The proposed change relocates the cycle-specific values for departure from nucleate boiling (DNB) parameters pressurizer pressure, reactor coolant system (RCS) cold leg temperature, and RCS flow rate from the Technical Specifications to the Core Operating Limits Report (COLR). The cycle-specific values must be calculated using the NRC approved methodologies listed in Specification 5.6.3. Because the DNB parameter limits are determined using the NRC methodologies, DNB will continue to be within the limit assumed in the accident analysis. As a result, neither the probability or the consequences of any accident previously evaluated will be affected.

Therefore, the proposed change does not involve a significant increase in the probability or consequences of an accident previously evaluated.

2. Does the proposed change create the possibility of a new or different kind of accident from any accident previously evaluated?

Response: No.

No new or different accidents result from utilizing the proposed change. The changes do not involve a physical alteration of the plant (i.e., no new or different type of equipment will be installed) or a change in the methods governing normal plant operation. In addition, the changes do not impose any new or different requirements or eliminate any existing requirements. The changes do not alter assumptions made in the safety analysis. The proposed changes are consistent with the safety analysis assumptions and current plant operating practice.

Therefore, the proposed change does not create the possibility of a new or different kind of accident from any accident previously evaluated.

3. Does the proposed change involve a significant reduction in a margin of safety?

Response: No.

This change will have no effect on the margin of safety. The moved DNB cycle-specific parameters will continue to be calculated using NRC approved methodologies and will provide the same margin of safety as the values currently located in the Technical Specifications.

Therefore, the proposed change does not involve a significant reduction in a margin of safety.

Based on the above, the TSTF concludes that the proposed change presents no significant hazards consideration under the standards set forth in 10 CFR 50.92(c), and, accordingly, a finding of "no significant hazards consideration" is justified.

04-May-07

5.2 Applicable Regulatory Requirements/Criteria

This change is considered administrative as the operating limits for the plant do not change. Therefore, this Traveler does not affect any regulatory requirements or criteria. In conclusion, based on the considerations discussed above, (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the approval of the proposed change will not be inimical to the common defense and security or to the health and safety of the public.

6.0 Environmental Consideration

A review has determined that the proposed change would change a requirement with respect to installation or use of a facility component located within the restricted area, as defined in 10 CFR 20, or would change an inspection or surveillance requirement. However, the proposed change does not involve (i) a significant hazards consideration, (ii) a significant change in the types or significant increase in the amounts of any effluents that may be released offsite, or (iii) a significant increase in individual or cumulative occupational radiation exposure. Accordingly, the proposed change meets the eligibility criterion for categorical exclusion set forth in 10 CFR 51.22(c)(9). Therefore, pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the proposed change.

7.0 References

1. Generic Letter 88-16, "Removal of Cycle-Specific Parameter Limits from Technical Specifications," October 4, 1988.
2. Letter from Guy S. Vissing (NRC) to Edward J. Mrocza (Northeast Nuclear Energy Company), dated October 12, 1990, "Issuance of Amendment (Tac No. 77063)."
3. Letter from John F. Stang (NRC) to Daniel J. Malone (Nuclear Management Company), dated August 2, 2004, "Palisades Plant - Issuance of Amendment re: Relocating the Primary Coolant System Pressure, Cold-Leg Temperature, and Flow Departure From Nucleate Boiling Limits to the Core Operating Limits Report (TAC No. MC0804)."

Revision History

OG Revision 0

Revision Status: Closed

Revision Proposed by: Millstone

Revision Description:

Original Issue

04-May-07

OG Revision 0**Revision Status: Closed**

Owners Group Review Information

Date Originated by OG: 22-Jun-04

Owners Group Comments

Attach the Palisades SE and reference the Palisades approval in the Traveler.

Owners Group Resolution: Approved Date: 04-Dec-05

TSTF Review Information

TSTF Received Date: 02-Mar-05 Date Distributed for Review 02-Mar-05

OG Review Completed: BWOG WOG CEOG BWROG

TSTF Comments:

(No Comments)

TSTF Resolution: Approved

Date: 23-May-05

NRC Review Information

NRC Received Date: 20-Jun-05

NRC Comments:

RAI response transmitted on 10/27/06.

Notice for comment issued on 3/15/07.

Final Resolution: FRN for Comment Issued

TSTF Revision 1**Revision Status: Active**

Revision Proposed by: NRC

Revision Description:

In response to the NRC's proposed changes to TSTF-487, Revision 0, described in the draft Safety Evaluation in the March 15, 2007 Notice for Comment, Revision 1 revises Specification 5.6.3, "Core Operating Limits Report (COLR)," paragraph c, from "The core operating limits shall be determined such that all applicable limits (...) of the safety analysis are met," to "The core operating limits shall be determined assuming operation at RATED THERMAL POWER such that all applicable limits (...) of the safety analysis are met." The "Proposed Change" and "Technical Analysis" sections of the Traveler are revised to discuss the change.

TSTF Review Information

TSTF Received Date: 30-Apr-07 Date Distributed for Review 30-Apr-07

OG Review Completed: BWOG WOG CEOG BWROG

TSTF Comments:

(No Comments)

TSTF Resolution: Approved

Date: 04-May-07

NRC Review Information

04-May-07

TSTF Revision 1**Revision Status: Active**

NRC Received Date: 04-May-07

Affected Technical Specifications

LCO 3.4.1	RCS Pressure, Temperature, and Flow [DNB] Limits
LCO 3.4.1 Bases	RCS Pressure, Temperature, and Flow [DNB] Limits
SR 3.4.1.1	RCS Pressure, Temperature, and Flow [DNB] Limits
SR 3.4.1.2	RCS Pressure, Temperature, and Flow [DNB] Limits
SR 3.4.1.3	RCS Pressure, Temperature, and Flow [DNB] Limits
SR 3.4.1.4	RCS Pressure, Temperature, and Flow [DNB] Limits
5.6.3	Core Operating Limits Report (COLR)

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3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.1 RCS Pressure, Temperature, and Flow [Departure from Nucleate Boiling (DNB)] Limits

LCO 3.4.1 RCS DNB parameters for pressurizer pressure, cold leg temperature, and RCS total flow rate shall be within the limits specified in the COLR. below:

- ~~a. Pressurizer pressure \geq [2025] psia and \leq [2275] psia,~~
- ~~b. RCS cold leg temperature (T_c) \geq [535] $^{\circ}$ F and \leq [558] $^{\circ}$ F for $<$ [70]% RTP or \geq [544] $^{\circ}$ F and \leq [588] $^{\circ}$ F for \geq [70]% RTP, and~~
- ~~c. RCS total flow rate \geq [148 E6] lb/hour.~~

APPLICABILITY: MODE 1.

-----NOTE-----
Pressurizer pressure limit does not apply during:

- a. THERMAL POWER ramp $>$ 5% RTP per minute or
 - b. THERMAL POWER step $>$ 10% RTP.
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ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Pressurizer pressure or RCS flow rate not within limits.	A.1 Restore parameter(s) to within limit.	2 hours
B. Required Action and associated Completion Time of Condition A not met.	B.1 Be in MODE 2.	6 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. RCS cold leg temperature not within limits.	C.1 Restore cold leg temperature to within limits.	2 hours
D. Required Action and associated Completion Time of Condition C not met.	D.1 Reduce THERMAL POWER to \leq [30]% RTP.	6 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.4.1.1 Verify pressurizer pressure <u>is within the limits specified in the COLR.</u> \geq [2025] psia and \leq [2275] psia.	12 hours
SR 3.4.1.2 Verify RCS cold leg temperature <u>is within the limits specified in the COLR.</u> \geq [535]$^{\circ}$F and \leq [558]$^{\circ}$F for $<$ [70]% RTP or \geq [544]$^{\circ}$F and \leq [558]$^{\circ}$F for \geq [70]% RTP.	12 hours
SR 3.4.1.3 -----NOTE----- Only required to be met in MODE 1. ----- Verify RCS total flow rate <u>is greater than or equal to the limits specified in the COLR.</u> \geq [148 E6] lb/hour.	12 hours
SR 3.4.1.4 -----NOTE----- Not required to be performed until [24] hours after \geq [90]% RTP. ----- Verify by precision heat balance that RCS total flow rate <u>is within the</u> limits specified in the COLR.	[18] months

5.6 Reporting Requirements

5.6.3 CORE OPERATING LIMITS REPORT (COLR)

- a. Core operating limits shall be established prior to each reload cycle, or prior to any remaining portion of a reload cycle, and shall be documented in the COLR for the following:

[The individual specifications that address core operating limits must be referenced here.]

- b. The analytical methods used to determine the core operating limits shall be those previously reviewed and approved by the NRC, specifically those described in the following documents:

[Identify the Topical Report(s) by number and title or identify the staff Safety Evaluation Report for a plant specific methodology by NRC letter and date. The COLR will contain the complete identification for each of the TS referenced topical reports used to prepare the COLR (i.e., report number, title, revision, date, and any supplements).]

- c. The core operating limits shall be determined assuming operation at RATED THERMAL POWER such that all applicable limits (e.g., fuel thermal mechanical limits, core thermal hydraulic limits, Emergency Core Cooling System (ECCS) limits, nuclear limits such as SDM, transient analysis limits, and accident analysis limits) of the safety analysis are met.
- d. The COLR, including any midcycle revisions or supplements, shall be provided upon issuance for each reload cycle to the NRC.

5.6.4 Reactor Coolant System (RCS) PRESSURE AND TEMPERATURE LIMITS REPORT (PTLR)

- a. RCS pressure and temperature limits for heat up, cooldown, low temperature operation, criticality, and hydrostatic testing as well as heatup and cooldown rates shall be established and documented in the PTLR for the following:

[The individual specifications that address RCS pressure and temperature limits must be referenced here.]

- b. The analytical methods used to determine the RCS pressure and temperature limits shall be those previously reviewed and approved by the NRC, specifically those described in the following documents:

[Identify the Topical Report(s) by number and title or identify the NRC Safety Evaluation for a plant specific methodology by NRC letter and date. The PTLR will contain the complete identification for each of the TS referenced Topical Reports used to prepare the PTLR (i.e., report number, title, revision, date, and any supplements).]

BASES

LCO This LCO specifies limits on the monitored process variables - RCS pressurizer pressure, RCS cold leg temperature, and RCS total flow rate - to ensure that the core operates within the limits assumed for the plant safety analyses. These variables are contained in the COLR to provide operating and analysis flexibility from cycle to cycle. Operating within these limits will result in meeting the DNBR criterion in the event of a DNB limited transient.

The LCO numerical values for pressure, temperature, and flow rate specified in the COLR are given for the measurement location but have not been adjusted for instrument error. Plant specific limits of instrument error are established by the plant staff to meet the operational requirements of this LCO.

APPLICABILITY In MODE 1, the limits on RCS pressurizer pressure, RCS cold leg temperature, and RCS flow rate must be maintained during steady state operation in order to ensure that DNBR criteria will be met in the event of an unplanned loss of forced coolant flow or other DNB limited transient. In all other MODES, the power level is low enough so that DNBR is not a concern.

A Note has been added to indicate the limit on pressurizer pressure may be exceeded during short term operational transients such as a THERMAL POWER ramp increase of > 5% RTP per minute or a THERMAL POWER step increase of > 10% RTP. These conditions represent short term perturbations where actions to control pressure variations might be counterproductive. Also, since they represent transients initiated from power levels < 100% RTP, an increased DNBR margin exists to offset the temporary pressure variations.

Another set of limits on DNB related parameters is provided in Safety Limit (SL) 2.1.1, "Reactor Core Safety Limits." Those limits are less restrictive than the limits of this LCO, but violation of SLs merits a stricter, more severe Required Action. Should a violation of this LCO occur, the operator should check whether or not an SL may have been exceeded.

ACTIONS A.1

Pressurizer pressure is a controllable and measurable parameter. RCS flow rate is not a controllable parameter and is not expected to vary during steady state operation. With either parameter not within the LCO limits, action must be taken to restore the out of limit parameter.

The 2 hour Completion Time for restoration of the parameters provides sufficient time to adjust plant parameters, to determine the cause of the off normal condition, and to restore the readings within limits. The Completion Time is based on plant operating experience that shows the parameter can be restored in this time period.
