UNITED STATES
NUCLEAR REGULATORY COMMISSION
OFFICE OF NUCLEAR REACTOR REGULATION
WASHINGTON, D.C. 20555-0001

January 31, 1996

NRC GENERIC LETTER 96-03: RELOCATION OF THE PRESSURE TEMPERATURE LIMIT CURVES AND LOW TEMPERATURE OVERPRESSURE PROTECTION SYSTEM LIMITS

Addressees

All holders of operating licenses or construction permits for nuclear power reactors.

Purpose

The U.S. Nuclear Regulatory Commission (NRC) is issuing this generic letter to advise licensees that they may request a license amendment to relocate the pressure temperature (P/T) limit curves from their plant technical specifications (TS) to a pressure temperature limits report (PTLR) or a similar document. The low temperature overpressure protection (LTOP) system limits may also be relocated to the same document at the discretion of the licensee.

Description of Circumstances

During the development of the improved standard technical specifications (STS), a change was proposed to relocate the P/T curves and LTOP setpoint curves and values currently contained in the TS to a licensee-controlled document. As one of the improvements to the STS, the NRC staff agreed with the industry that the curves and setpoints may be relocated outside the TS to a licensee-controlled document so that the licensee could maintain these limits efficiently and at a lower cost, provided that the parameters for constructing the curves and setpoints are derived using a methodology approved by the NRC.

Discussion

Technical specifications include limiting conditions for operation (LCOs) that establish P/T and LTOP system limits for the reactor coolant system. The limits are defined by figures and values that provide an acceptable range of operating temperatures and pressures for heatup, cooldown, low temperature overpressure, criticality, and inservice leak and hydrostatic testing conditions. These parameters are generally valid for a specified number of effective full-power years or for a specified fluence period (the period for which the curves are calculated to be applicable).

License amendments are generally required at the end of the effective period for P/T limit curves or when surveillance specimens are withdrawn and tested. Also, each time the P/T curves are revised, the LTOP system must be

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reevaluated to ensure that its functional requirements can still be met. Processing amendment requests for changes to TS that are developed using an accepted methodology places an unnecessary burden on licensee and NRC resources. An alternative approach for controlling these limits was proposed during the development of the improved STS. This approach, like the one used for the core operating limits, would relocate the P/T curves and LTOP setpoint curves or values to a PTLR or a similar document and would reference that document in the affected LCOs and bases.

The methodology used to determine the P/T and LTOP system limit parameters must comply with the specific requirements of Appendices G and H to Part 50 of Title 10 of the Code of Federal Regulations (10 CFR), be documented in an NRC-approved topical report or in a plant-specific submittal, and be incorporated by reference into the TS. Subsequent changes in the methodology must be approved by a license amendment; 10 CFR 50.59 does not apply.

Requested Information

Licensees and applicants who choose to adopt this line item improvement are encouraged to propose changes that are consistent with the attached guidance. However, licensees may propose changes, with justification, that differ from this guidance. The guidance requires that the licensee be able to reference a methodology for developing the curves and setpoints that has been approved by the NRC, develop a PTLR or a similar document that contains the figures, values, parameters, and any explanations derived from the methodology, and make appropriate changes to the applicable sections of the TS. The NRC project manager for the facility will review the amendment requests that conform to the guidance in this generic letter and will coordinate the appropriate staff review of the methodology proposed for calculating the P/T limit curves and LTOP system limits. Amendment requests that do not conform to the guidance in this generic letter will require additional review time.

Required Response

Licensees and applicants who choose to adopt this line item improvement are asked to submit the requested information described above to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, D.C. 20555-0001.

Backfit Discussion

Any action by licensees to propose changes to TS in accordance with the guidance in this generic letter is voluntary and, therefore, is not a backfit under 10 CFR 50.109. The staff, therefore, did not perform a backfit analysis.

Federal Register Notification

The staff published a notice of opportunity for public comment in the Federal Register (60 FR 28805) on June 2, 1995.

Paperwork Reduction Act Statement

The voluntary information collections contained in this request are covered by the Office of Management and Budget clearance number 3150-0011, which expires on July 31, 1997. The public reporting burden for this collection of information is estimated to average 40 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the Information and Records Management Branch (T-6 F33), U.S. Nuclear Regulatory Commission, Washington, D.C. 20555-0001, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202 (3150-0011), Office of Management and Budget, Washington, D.C. 20503.

The following information, although not requested under the provisions of 10 CFR 50.54(f), would help the NRC to evaluate licensee cost to propose TS changes in accordance with this generic letter:

1. licensee staff time and costs to prepare the requested reports and documentation and

2. an estimate of the long-term costs or savings accruing from the response to this generic letter.

If you have any questions about this matter, please contact the technical contact listed below or the appropriate Office of Nuclear Reactor Regulation (NRR) project manager.

Dennis M. Crutchfield

Dennis M. Crutchfield, Director
Division of Reactor Program Management
Office of Nuclear Reactor Regulation

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Attachments:
1. Guidance for a Proposed License Amendment to Relocate the Pressure Temperature Limit Curves and Low Temperature Overpressure Protection System Limits
2. Model Safety Evaluation
3. Model Technical Specifications:
   a. Definitions
   b. Pressure Temperature Limits
   c. Low Temperature Overpressure Protection System
   d. Administrative Controls
4. List of Recently Issued Generic Letters

Attachments filed in Jacket

GUIDANCE FOR A PROPOSED LICENSE AMENDMENT TO RELOCATE THE PRESSURE TEMPERATURE LIMIT CURVES AND LOW TEMPERATURE OVERPRESSURE PROTECTION SYSTEM LIMITS

INTRODUCTION

This attachment to the generic letter contains guidance for preparing a license amendment request to modify the technical specifications (TS) to relocate the pressure temperature (P/T) limit curves and low temperature overpressure protection (LTOP) system limits currently contained in the plant TS to a pressure temperature limits report (PTLR) or a similar document. This alternative was based on a change included in the improved standard technical specifications (STS) to remove the P/T limit curves and LTOP system limits from the TS and relocate them to a PTLR or a similar document to reduce the number of amendment requests associated with changes to these curves and limits. Since an amendment request must be submitted whenever a change is made to the TS, the relocation of the P/T curves and LTOP system limits will result in a resource savings for the licensees and the NRC by eliminating unnecessary license amendment requests for changes to the P/T limit curves and LTOP system limits in TS. To relocate the P/T curves and LTOP system limits from the TS, the licensee must be able to reference a methodology approved by the NRC for deriving the parameters used for constructing the curves and setpoints, develop a PTLR or a similar document, and make appropriate changes to the applicable sections of the TS.

In evaluating the relocation, the NRC staff concluded that, while it is essential to safety to operate the plant within the bounds of P/T limits and to satisfy the regulations that ensure the integrity of the reactor coolant pressure boundary (RCPB), the periodic adjustment of those limits to account for time-dependent parametric changes could be calculated in accordance with a methodology approved by the NRC. Criterion 2 of both 10 CFR Part 50, which was published in the Federal Register (58 FR 39132) on July 22, 1993, and 10 CFR 50.36(c)(2)(ii)(B), which was published in the Federal Register (60 FR 36953) on July 19, 1995, require that the TS include operating restrictions (P/T limits) needed to preclude unanalyzed accidents and transients. However, once the methodology is approved, the licensee may modify the figures, values, and parameters without the need for a license amendment and without affecting nuclear safety, provided that these changes are determined using the approved methodology and are consistent with all applicable limits of the plant design assumptions as stated in the final safety analysis report (FSAR). Additionally, the licensee must submit to the NRC a formal PTLR or a similar document containing the figures, values, and parameters derived from the application of the methodology approved by the NRC. This reporting requirement augments a reporting requirement that is already in effect. Section III of Appendix H to 10 CFR Part 50 currently requires a summary technical report of data relating to capsule withdrawal and specimen test results. Application of these results will also be included in the PTLR. This report will allow the NRC staff to continue monitoring the

status of the structural integrity of the reactor vessel even through prior NRC approval of the changes to these limits would not be required if the limits do not involve an unreviewed safety question.

A provision was also added to the "Administrative Controls" section of the TS indicating that the figures, values, and parameters for inclusion in the PTLR will be verified after each reactor vessel fluence period or when surveillance specimens are withdrawn and tested and the PTLR submitted to the NRC. Hence, the staff can confirm proper application of the methodology approved by the NRC. Further, the PTLR will be referenced in the TS so that the same degree of control on plant operation will be maintained. As a result, this alternative provides the same assurance of compliance with design specifications as before, yet removes the unnecessary burden on both plant and NRC staff of processing amendment requests.

DISCUSSION

Technical specifications include limiting conditions for operation (LCOs) that establish P/T limits for the reactor coolant system (RCS). This system is designed to withstand the effects of cyclic loads resulting from system temperature and pressure changes. These cyclic loads are introduced by normal load transients, reactor trips, startup and shutdown operations, and hydrostatic and leak rate tests. During startup and shutdown, the rates of temperature and pressure changes are limited so that the maximum specified heatup and cooldown rates are consistent with the design assumptions and satisfy operating limits that provide a wide margin of safety to brittle failure of the reactor vessel. The P/T limits are periodically modified as the reactor vessel material toughness decreases as a result of material embrittlement caused by neutron irradiation. The periodic modifications are necessary when the applicable effective full-power years (EFPYs) or fluence period for the P/T limits contained in the TS are about to expire or when the reactor vessel material surveillance data indicate an increase in the nil-ductility transition reference temperature (RT_{NDT}).

As required by Appendix G to 10 CFR Part 50, operating P/T limits are calculated and adhered to by plant operations personnel to ensure that fracture toughness requirements for the RCPB are maintained. Further, in accordance with Appendix H to 10 CFR Part 50, specimens of reactor vessel material are installed near the inside reactor vessel wall and are withdrawn on a schedule to provide data on the effects of radiation fluence and the thermal environment on the vessel material. These data are used to adjust the P/T limits, as necessary, to compensate for the shift in material transition temperature as indicated by tests on the withdrawn specimens. The withdrawal and analysis of the specimens, and resulting revision of the P/T limit curves, make up the requirements necessary to compensate for the shift in material transition temperature. This ensures that the reactor vessel is operated at high enough temperatures to preclude brittle fracture of the vessel material.

The LTOP system controls RCS pressure at low operating temperatures so that the integrity of the RCPB is not compromised by violating the P/T limits of Appendix G to 10 CFR Part 50. The LTOP system provides overpressure protection by limiting coolant input capability and having adequate pressure relief capacity. Each time the P/T limit curves are revised, the LTOP system must be reevaluated to ensure that its functional requirements can still be met. LTOP system limits may be relocated to the PTLR or retained in the TS. The LTOP system for pressure relief typically consists of two power-operated relief valves (PORVs), two residual heat removal (RHR) suction relief valves, or a combination of both. Some plants have only one PORV. The LTOP system limits consist of PORV and RHR relief valve setpoints. The RHR suction relief valves do not have variable pressure lift setpoints as the PORVs do and, therefore, are still addressed in the TS. As designed for the LTOP system, each PORV is signaled to open if the RCS pressure approaches a limit determined by the LTOP system actuation logic. This logic monitors both RCS temperature and RCS pressure to determine when a condition not acceptable in the PTLR is approached. The PORV setpoints may be included in the PTLR and should be updated when the revised P/T limits conflict with the LTOP system limits. LTOP requirements do not apply to boiling water reactors.

REQUIREMENTS FOR RELOCATING THE CURVES AND SETPOINTS

Relocation of the curves and setpoints to a licensee-controlled document requires three separate licensee actions. The licensee must (1) have a methodology approved by the NRC to reference in its TS; (2) develop a report such as a PTLR or a similar document to contain the figures, values, parameters, and any explanation necessary; and (3) modify the applicable sections of the TS accordingly.

- Methodology and PTLR

The first two of the three requirements for relocating the P/T curves and LTOP system limits are an NRC-approved methodology and the associated reporting requirements in the PTLR. The methodology will consist of only those methods used for calculation, not the calculations themselves. The PTLR will consist of the explanations, figures, values, and parameters derived from the calculations. Since the PTLR will be provided to the NRC upon issuance after each fluence period or EFPYs and after approval of the methodology, a PTLR should be provided when the methodology is submitted so that questions regarding the content and format of the PTLR can be addressed prior to its formal completion.

The following table shows the relationship between the provisions, if applicable, specified in the STS for the approved methodology and the requirements to be included in the methodology and the PTLR. The provisions for the methodology are those shown in the "Administrative Controls" section of the STS.

REQUIREMENTS FOR METHODOLOGY AND PTLR

PROVISIONS FOR METHODOLOGY FROM ADMINISTRATIVE CONTROLS SECTION IN STS	MINIMUM REQUIREMENTS TO BE INCLUDED IN METHODOLOGY	MINIMUM REQUIREMENTS TO BE INCLUDED IN PTLR
1. The methodology shall describe how the neutron fluence is calculated (reference new regulatory guide when it is issued).	Describe transport calculation methods including computer codes and formulas used to calculate neutron fluence. Provide references.	Provide the values of neutron fluences that are used in the adjusted reference temperature (ART) calculation.
2. The Reactor Vessel Material Surveillance Program shall comply with Appendix H to 10 CFR Part 50. The reactor vessel material irradiation surveillance specimen removal schedule shall be provided, along with how the specimen examinations shall be used to update the PTLR curves.	Briefly describe the surveillance program. Licensee transmittal letter should identify by title and number report containing the Reactor Vessel Surveillance Program and surveillance capsule reports. Topical/generic report contains placeholder only. Reference Appendix H to 10 CFR Part 50.	Provide the surveillance capsule withdrawal schedule, or reference by title and number the documents in which the schedule is located. Reference the surveillance capsule reports by title and number if ARTs are calculated using surveillance data.
3. Low temperature overpressure protection (LTOP) system limits developed using NRC-approved methodologies may be included in the PTLR.	Describe how the LTOP system limits are calculated applying system/thermal hydraulics and fracture mechanics. Reference SRP Section 5.2.2; ASME Code Case N-514; ASME Code, Appendix G, Section XI as applied in accordance with 10 CFR 50.55.	Provide setpoint curves or setpoint values.
4. The adjusted reference temperature (ART) for each reactor beltline material shall be calculated, accounting for irradiation embrittlement, in accordance with Regulatory Guide 1.99, Revision 2.	Describe the method for calculating the ART using Regulatory Guide 1.99, Revision 2.	Identify both the limiting ART values and limiting materials at the 1/4t and 3/4t locations (t = vessel beltline thickness). PWRs - identify RT_{PTS} value in accordance with 10 CFR 50.61.

5. The limiting ART shall be incorporated into the calculation of the pressure and temperature limit curves in accordance with NUREG-0800, SRP Section 5.3.2, Pressure-Temperature Limits.	Describe the application of fracture mechanics in constructing P/T curves based on ASME Code, Appendix G, Section XI, and SRP Section 5.3.2.	Provide the P/T curves for heatup, cooldown, criticality, and hydrostatic and leak tests.
6. The minimum temperature requirements of Appendix G to 10 CFR Part 50 shall be incorporated into the pressure and temperature limit curves.	Describe how the minimum temperature requirements in Appendix G to 10 CFR Part 50 are applied to P/T curves.	Identify minimum temperatures on the P/T curves such as minimum boltup temperature and hydrotest temperature.
7. Licensees who have removed two or more capsules should compare for each surveillance material the measured increase in reference temperature (RT_{NDT}) to the predicted increase in RT_{NDT}; where the predicted increase in RT_{NDT} is based on the mean shift in RT_{NDT} plus the two standard deviation value ($2\sigma_\Delta$) specified in Regulatory Guide 1.99, Revision 2. If the measured value exceeds the predicted value (increase in RT_{NDT} + $2\sigma_\Delta$), the licensee should provide a supplement to the PTLR to demonstrate how the results affect the approved methodology.	Describe how the data from multiple surveillance capsules are used in the ART calculation. Describe procedure if measured value exceeds predicted value. <u>WHEN OTHER PLANT DATA ARE USED</u> 1. Identify the source(s) of data when other plant data are used. 2.a Identify by title and number the safety evaluation report that approved the use of data for the plant. Justify applicability. OR 2.b Compare licensee data with other plant data for both the radiation environments (e.g., neutron spectrum, irradiation temperature) and the surveillance test results.	Provide supplemental data and calculations of the chemistry factor in the PTLR if the surveillance data are used in the ART calculation. Evaluate the surveillance data to determine if they meet the credibility criteria in Regulatory Guide 1.99, Revision 2. Provide the results.

- Technical Specifications

The following changes must be made to the plant TS to complete the three requirements for relocating the curves and setpoints to an alternative document.

Three separate actions are necessary to modify the plant TS: (1) "Definitions" - the addition of the definition of a named formal report (PTLR or a similar document) that would contain the explanations, figures, values, and parameters derived in accordance with an NRC-approved methodology and consistent with all of the design assumptions and stress limits for cyclic operation; (2) LCOs - the addition of references to the PTLR noting that the P/T limits shall be maintained within the limits specified in the PTLR; and (3) "Administrative Controls" - the addition of a reporting requirement to submit the PTLR to the NRC, when it is issued, for each reactor vessel fluence period.

1. Definitions

Section 1.0, "Definitions," should contain the following language:

PRESSURE TEMPERATURE LIMITS REPORT (PTLR)

The PTLR is the unit-specific document that provides the reactor vessel P/T limits and setpoints, including heatup and cooldown rates, for the current reactor vessel fluence period. These P/T limits shall be determined for each fluence period or effective full-power years (EFPYs) in accordance with Specification 5.X.X.X. Plant operation within these operating limits is addressed in LCO 3.X.X, "RCS Pressure and Temperature (P/T) Limits," and LCO 3.X.X, "Low Temperature Overpressure Protection (LTOP) System."

2. Limiting Conditions for Operation (LCOs) and Bases

LCO 3.X.X, "RCS Pressure and Temperature (P/T) Limits," and LCO 3.X.X, "Low Temperature Overpressure Protection (LTOP) System," must reference the PTLR as the document where the limits and curves can be found as demonstrated in the attached model TS. The bases for these LCOs should be modified accordingly.

3. Administrative Controls

Section 5.X, "Administrative Controls," Subsection 5.X.X, "Reporting Requirements," must contain the following information:

Section 5.X.X.X Reactor Coolant System (RCS) PRESSURE AND TEMPERATURE LIMITS REPORT (PTLR)

a. RCS pressure and temperature limits for heatup, cooldown, LTOP, 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 document(s): [Identify the NRC staff approval document(s) by date.]

c. The PTLR shall be provided to the NRC upon issuance for each reactor vessel fluence period or EFPYs and for any revision or supplement thereto.

MODEL SAFETY EVALUATION (SE)

Underscored blank spaces are to be completed on the basis of the applicable facility information. The information in brackets should be used, as applicable, on a plant-specific basis.

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION RELATED TO AMENDMENT NO.____ TO FACILITY OPERATING LICENSE NFP-___
[UTILITY NAME]
[PLANT NAME], [UNIT____]
DOCKET NO. 50-____

1.0 INTRODUCTION

By letter dated_____, 19__, [utility name] (the licensee) proposed changes to the technical specifications (TS) for [plant name]. The requested changes are the relocation of the pressure temperature (P/T) limit curves and low temperature overpressure protection (LTOP) system limits to the [named plant-specific report] and the referencing of that report in the affected limiting conditions for operation and bases. The proposed changes also include the addition of the [named plant-specific report] to the definitions section of the TS and the addition of a new section to the reporting requirements in the administrative controls section of the TS delineating the necessary reports. Guidance on the proposed changes was developed by the Nuclear Regulatory Commission (NRC) on the basis of a proposal by the owners groups during the development of the improved standard technical specifications (STS). This guidance was provided to all power reactor licensees and applicants by Generic Letter YY-XX, dated _____, 19__.

2.0 BACKGROUND

Section 182a of the Atomic Energy Act (the Act) requires applicants for nuclear power plant operating licenses to include TS as part of the license. The Commission's regulatory requirements related to the content of TS are set forth in 10 CFR 50.36. That regulation requires that the TS include items in five specific categories: (1) safety limits, limiting safety system settings and limiting control settings; (2) limiting conditions for operation; (3) surveillance requirements; (4) design features; and (5) administrative controls, and states also that the Commission may include such additional TS as it finds to be appropriate. However, the regulation does not specify the particular requirements to be included in a plant's TS.

The Commission has provided guidance for the contents of TS in its "Final Policy Statement on Technical Specifications Improvements for Nuclear Power Reactors" (Final Policy Statement), 58 FR 39132 (July 22, 1993), in which the Commission indicated that compliance with the Final Policy Statement satisfies Section 182a of the Act. In particular, the Commission indicated that certain

items could be relocated from the TS to licensee-controlled documents, consistent with the standard enunciated in Portland General Electric Co. (Trojan Nuclear Plant), ASLAB-531, 9 NRC 263, 273 (1979). In that case, the Atomic Safety and Licensing Appeal Board indicated that "technical specifications are to be reserved for those matters as to which the imposition of rigid conditions or limitations upon reactor operation is deemed necessary to obviate the possibility of an abnormal situation or event giving rise to an immediate threat to the public health and safety."

Consistent with this approach, the Final Policy Statement identified four criteria to be used in determining whether a particular matter is required to be included in the TS, as follows: (1) installed instrumentation that is used to detect, and indicate in the control room, a significant abnormal degradation of the reactor coolant pressure boundary; (2) a process variable, design feature, or operating restriction that is an initial condition of a design basis accident or transient analysis that either assumes the failure of or presents a challenge to the integrity of a fission product barrier; (3) a structure, system, or component that is part of the primary success path and which functions or actuates to mitigate a design basis accident or transient that either assumes the failure of or presents a challenge to the integrity of a fission product barrier; (4) a structure, system, or component which operating experience or probabilistic safety assessment has shown to be significant to public health and safety.[1] As a result, existing TS requirements which fall within or satisfy any of the criteria in the Final Policy Statement must be retained in the TS, while those TS requirements which do not fall within or satisfy these criteria may be relocated to other licensee-controlled documents.

3.0 EVALUATION

All components of the reactor coolant system (RCS) are designed to withstand the effects of cyclic loads resulting from system pressure and temperature changes. These loads are introduced by heatup and cooldown operations, power transients, and reactor trips. In accordance with Appendix G to 10 CFR Part 50, TS limit the pressure and temperature changes during RCS heatup and cooldown within the design assumptions and the stress limits for cyclic operation. These limits are defined by P/T limit curves for heatup, cooldown, LTOP, and inservice leak and hydrostatic testing. Each curve defines an acceptable region for normal operation. The curves are used for operational guidance during heatup and cooldown maneuvering, when pressure and temperature indications are monitored and compared to the applicable curve to determine that operation is within the allowable region.

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[1] The Commission promulgated a change to 10 CFR 50.36, which amends the rule to codify and incorporate these criteria. See Final Rule, "Technical Specifications," 60 FR 36953 (July 19, 1995).

[**Reviewer Note**: While the NRC is completing the rulemaking process for revisions to 10 CFR 50.55a and 10 CFR Part 50, Appendix G, licensees using the American Society of Mechanical Engineers Boiler and Pressure Vessel Code Case N-514 must request an exemption from Appendix G. The following or similar language should be included in the SE:

The licensee used the American Society of Mechanical Engineers Boiler and Pressure Vessel Code Case N-514 and requested an exemption from Appendix G by justifying why Appendix G cannot be met and demonstrating that a specific exemption was warranted under 10 CFR 50.12.]

The LTOP system controls RCS pressure at low temperatures so that the integrity of the reactor coolant pressure boundary is not compromised by violating 10 CFR Part 50, Appendix G. [**Reviewer Note**: The following sentences should be modified to identify the specific LTOP system being referred to in the SE: The LTOP system for pressure relief, for most plants, consists of power-operated relief valves (PORVs), residual heat removal suction relief valves, or a combination of both. Some plants have one PORV. The LTOP system limits consist of PORV and RHR setpoints. The RHR suction relief valves do not have variable pressure and temperature lift setpoints like the PORVs and, therefore, are still addressed in the TS.] The LTOP system is reevaluated each time the P/T limit curves are revised to ensure that it meets its intended function.

The licensee-proposed changes to the TS are in accordance with the guidance in Generic Letter YY-XX, as follows:

(1) The definitions section of the TS was modified to include a definition of the [named report] to which the figures, values, and parameters for P/T and LTOP system limits will be relocated on a unit-specific basis in accordance with a methodology approved by the NRC that maintains the acceptance limits and the limits of the safety analysis. As noted in the definition, plant operation within these limits is addressed by individual specifications.

(2) The following specifications were revised to replace the P/T and LTOP system limits with a reference to the [named report] that provides these limits:

[Provide list of specifications by number and title.]

(3) Specification [number], "[title]," was added to the reporting requirements of the administrative controls section of the TS. This specification requires that the [named report] be submitted, upon issuance, to the NRC Document Control Desk with copies to the regional administrator and resident inspector. The report provides the explanations, figures, values, and parameters of the P/T and LTOP system limits for the applicable effective period. Furthermore, this specification requires that the figures, values, and parameters be

established using the methodology approved by the NRC for this purpose in [topical report or NRC letter approving a plant-specific methodology] and be consistent with all the applicable acceptance limits and the limits of the safety analysis.

Finally, the specification requires that all changes in values of these limits be documented in the [named report] each effective period and submitted upon issuance to the NRC.

Relocation of the P/T curves and LTOP setpoints does not eliminate the requirement to operate in accordance with the limits specified in Appendix G to 10 CFR Part 50. The requirement to operate within the limits in the named report or pressure temperature limits report (PTLR) is specified in and controlled by the TS. Only the figures, values, and parameters associated with the P/T limits and LTOP setpoints are to be relocated to the PTLR. In order for the curves and setpoints to be relocated to a PTLR, a methodology for their development must be reviewed and approved in advance by the NRC. The methodology to be approved by the NRC is to be developed in accordance with GL 96-03. This generic letter delineates the requirements for both the methodology and the PTLR including, but not limited to, the requirements of Appendix G to 10 CFR Part 50. The PTLR review process requires that changes to the methodology be approved by the NRC. Further, when changes are made to the figures, values, and parameters contained in the PTLR, the PTLR is to be updated and submitted to the NRC upon issuance.

On this basis, the NRC staff concludes that the licensee provided an acceptable means of establishing and maintaining the detailed values of the P/T limit curves and LTOP system limits. Further, because plant operation continues to be limited in accordance with the requirements of Appendix G to 10 CFR Part 50 and the P/T and LTOP system limits in the TS will be established using a methodology approved by the NRC, these changes will not impact plant safety.

The staff also concludes that the relocated requirements discussed above relating to the P/T limits and LTOP system limits are not required to be in the TS under 10 CFR 50.36 or Section 182a of the Atomic Energy Act, and are not required to obviate the possibility of an abnormal situation or event giving rise to an immediate threat to the public health and safety. Additionally, they do not fall within any of the four criteria set forth in the Commission's Final Policy Statement, discussed above. Accordingly, the staff concludes that the proposed changes are acceptable and that these requirements may be relocated from the TS to the PTLR.

4.0 STATE CONSULTATION

The Commission consulted with the State of [__]. No public comments were received, and the State of [___] did not have any comments.

5.0 ENVIRONMENTAL CONSIDERATION

The amendment involves changes to requirements with respect to use of facility components located within the restricted area, as defined in 10 CFR Part 20, changes with respect to surveillance requirements, and changes in administrative procedures or requirements. The NRC staff determined that the amendment involves no significant increase in the amounts and no significant change in the types of any effluents that may be released off site and that there is no significant increase in individual or cumulative occupational exposure. The Commission made a determination that the amendment involves no significant hazards consideration, which was published in the Federal Register (53 FR___) on ___ __, 19__, and there has been no public comment regarding such a finding. Accordingly, the amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9) and (c)(10). Pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendment.

6.0 CONCLUSION

On the basis of the considerations discussed above, the NRC staff concludes that (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 issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributor: Maggalean W. Weston, TSB

Dated:____ __, 19__

1.0 USE AND APPLICATION

1.1 Definitions

----------NOTE----------
The defined terms of this section appear in capitalized type and are applicable throughout these Technical Specifications and Bases.

Term	Definition
PRESSURE AND TEMPERATURE LIMITS REPORT (PTLR)	**The PTLR is the unit specific document that provides the reactor vessel pressure and temperature limits, including heatup and cooldown rates, for the current reactor vessel fluence period. These pressure and temperature limits shall be determined for each fluence period in accordance with Specification 5.6.6. Plant operation within these operating limits is addressed in LCO 3.4.3, "RCS Pressure and Temperature (P/T) Limits," and LCO 3.4.12, "Low Temperature Overpressure Protection (LTOP) System."**
QUADRANT POWER TILT RATIO (QPTR)	QPTR shall be the ratio of the maximum upper excore detector calibrated output to the average of the upper excore detector calibrated outputs, or the ratio of the maximum lower excore detector calibrated output to the average of the lower excore detector calibrated outputs, whichever is greater.
RATED THERMAL POWER (RTP)	RTP shall be a total reactor core heat transfer rate to the reactor coolant of [2893] MWt.
REACTOR TRIP SYSTEM (RTS) RESPONSE TIME	The RTS RESPONSE TIME shall be that time interval from when the monitored parameter exceeds its RTS trip setpoint at the channel sensor until loss of stationary gripper coil voltage. The response time may be measured by means of any series of sequential, overlapping, or total steps so that the entire response time is measured.
SHUTDOWN MARGIN (SDM)	SDM shall be the instantaneous amount of reactivity by which the reactor is subcritical or would be subcritical from its present condition assuming:

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.X RCS Pressure and Temperature (P/T) Limits

LCO 3.4.X RCS pressure, RCS temperature, and RCS heatup and cooldown rates shall be maintained within the limits specified in the PTLR.

APPLICABILITY: At all times.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. ---------NOTE--------- Required Action A.2 shall be completed whenever this Condition is entered. ---------- Requirements of LCO not met in MODE 1, 2, 3, or 4.	A.1	Restore parameter(s) to within limits.	30 minutes
	AND		
	A.2	Determine RCS is acceptable for continued operation.	72 hours
B. Required Action and associated Completion Time of Condition A not met.	B.1	Be in MODE 3.	6 hours
	AND		
	B.2	Be in MODE 5 with RCS pressure < [500] psig.	36 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. ---------NOTE--------- Required Action C.2 shall be completed whenever this Condition is entered. ---------- Requirements of LCO not met any time in other than MODE 1, 2, 3, or 4.	C.1 Initiate action to restore parameter(s) to within limits.	Immediately
	AND	
	C.2 Determine RCS is acceptable for continued operation.	Prior to entering MODE 4

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.X.X	----------NOTE---------- Only required to be performed during RCS heatup and cooldown operations and RCS inservice leak and hydrostatic testing. ---------- Verify RCS pressure, RCS temperature, and RCS heatup and cooldown rates are within the limits specified in the PTLR.	30 minutes

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.X Low Temperature Overpressure Protection (LTOP) System

LCO 3.4.X An LTOP System shall be OPERABLE with a maximum of [one] [high pressure injection (HPI)] pump [and one charging pump] capable of injecting into the RCS and the accumulators isolated and either a or b below.

a. Two RCS relief valves, as follows:

1. Two power operated relief valves (PORVs) with lift settings within the limits specified in the PTLR, or

[2. Two residual heat removal (RHR) suction relief valves with setpoints ≥ [436.5] psig and ≤ [463.5] psig, or]

[3. One PORV with a lift setting within the limits specified in the PTLR and one RHR suction relief valve with a setpoint ≥ [436.5] psig and ≤ [463.5] psig].

b. The RCS depressurized and an RCS vent of ≥ [2.07] square inches.

APPLICABILITY: MODE 4 when all RCS cold leg temperature is ≤ [275]°F,
MODE 5,
MODE 6 when the reactor vessel head is on.

----------NOTE----------
Accumulator isolation is only required when accumulator pressure is greater than or equal to the maximum RCS pressure for the existing RCS cold leg temperature allowed by the P/T limit curves provided in the PTLR.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. Two or more [HPI] pumps capable of injecting into the RCS.	A.1	Initiate action to verify a maximum of [one] [HPI] pump is capable of injecting into the RCS.	Immediately
[B. Two or more charging pumps capable of injecting into the RCS.	B.1	--------NOTE--------- Two charging pumps may be capable of injecting into the RCS during pump swap operation for ≤ 15 minutes. ---------- Initiate action to verify a maximum of [one] charging pump is capable of injecting into the RCS.	Immediately]
C. An accumulator not isolated when the accumulator pressure is greater than or equal to the maximum RCS pressure for existing cold leg temperature allowed in the PTLR.	C.1	Isolate affected accumulator.	1 hour

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
D. Required Action and associated Completion Time of Condition [C] not met.	D.1	Increase RCS cold leg temperature to > [275]°F.	12 hours
	OR		
	D.2	Depressurize affected accumulator to less than the maximum RCS pressure for existing cold leg temperature allowed in the PTLR.	12 hours
E. One required RCS relief valve inoperable in MODE 4.	E.1	Restore required RCS relief valve to OPERABLE status.	7 days
F. One required RCS relief valve inoperable in MODE 5 or 6.	F.1	Restore required RCS relief valve to OPERABLE status.	24 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
G. Two required RCS relief valves inoperable. OR Required Action and associated Completion Time of Condition A, [B,] D, E, or F not met. OR LTOP System inoperable for any reason other than Condition A, [B,] C, D, E, or F.	G.1 Depressurize RCS and establish RCS vent of ≥ [2.07] square inches.	8 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.X.X	Verify a maximum of [one] [HPI] pump is capable of injecting into the RCS.	12 hours
[SR 3.4.X.X	Verify a maximum of one charging pump is capable of injecting into the RCS.]	12 hours
SR 3.4.X.X	Verify each accumulator is isolated.	12 hours

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
[SR 3.4.X.X	Verify RHR suction valve is open for each required RHR suction relief valve.	12 hours]
SR 3.4.X.X	----------NOTE---------- Only required to be performed when complying with LCO 3.4.12.b. ---------- Verify RCS vent ≥ [2.07] square inches open.	12 hours for unlocked open vent valve(s) AND 31 days for locked open vent valve(s)
SR 3.4.X.X	Verify PORV block valve is open for each required PORV.	72 hours
[SR 3.4.X.X	Verify associated RHR suction isolation valve is locked open with operator power removed for each required RHR suction relief valve.	31 days]
SR 3.4.X.X	----------NOTE---------- Not required to be met until 12 hours after decreasing RCS cold leg temperature to ≤ [275]°F. ---------- Perform a COT on each required PORV, excluding actuation.	31 days

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.4.X.X	Perform CHANNEL CALIBRATION for each required PORV actuation channel.	[18] months

5.0 ADMINISTRATIVE CONTROLS

5.6 Reporting Requirements

5.6.X <u>Reactor Coolant System (RCS) PRESSURE AND TEMPERATURE LIMITS REPORT (PTLR)</u>

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 NRC staff approval document by date.]

c. The PTLR shall be provided to the NRC upon issuance for each reactor vessel fluence period and for any revision or supplement thereto.

Reviewers' Notes: The methodology for the calculation of the P-T limits for NRC approval should include the following provisions:

1. The methodology shall describe how the neutron fluence is calculated (reference new Regulatory Guide when issued).

2. The Reactor Vessel Material Surveillance Program shall comply with Appendix H to 10 CFR Part 50. The reactor vessel material irradiation surveillance specimen removal schedule shall be provided, along with how the specimen examinations shall be used to update the PTLR curves.

3. Low Temperature Overpressure Protection (LTOP) System lift setting limits for the Power Operated Relief Valves (PORVs), developed using NRC-approved methodologies may be included in the PTLR.

4. The adjusted reference temperature (ART) for each reactor beltline material shall be calculated, accounting for radiation embrittlement, in accordance with Regulatory Guide 1.99, Revision 2.

5. The limiting ART shall be incorporated into the calculation of the pressure and temperature limit curves in accordance with NUREG-0800 Standard Review Plan 5.3.2, Pressure-Temperature Limits.

5.6.X Reactor Coolant System (RCS) PRESSURE AND TEMPERATURE LIMITS REPORT (PTLR) (continued)

6. The minimum temperature requirements of Appendix G to 10 CFR Part 50 shall be incorporated into the pressure and temperature limit curves.

7. Licensees who have removed two or more capsules should compare for each surveillance material the measured increase in reference temperature (RT_{NDT}) to the predicted increase in RT_{NDT}; where the predicted increase in RT_{NDT} is based on the mean shift in RT_{NDT} plus the two standard deviation value ($2\sigma_{\Delta}$) specified in Regulatory Guide 1.99, Revision 2. If the measured value exceeds the predicted value (increase RT_{NDT} + $2\sigma_{\Delta}$), the licensee should provide a supplement to the PTLR to demonstrate how the results affect the approved methodology.

LIST OF RECENTLY ISSUED GENERIC LETTERS

Generic Letter	Subject	Date of Issuance	Issued To
89-10, Supp. 7	CONSIDERATION OF VALVE MISPOSITIONING IN PRESSURIZED-WATER REACTORS	01/24/96	ALL HOLDERS OF OLs (EXCEPT THOSE LICENSES THAT HAVE BEEN AMENDED TO A POSSESSION ONLY STATUS) OR CPs FOR NPRs
96-01	TESTING OF SAFETY-RELATED LOGIC CIRCUITS	01/10/96	ALL HOLDERS OF OLs OR CPs FOR NPRs
95-10	RELOCATION OF SELECTED TECHNICAL SPECIFICATIONS REQUIREMENTS RELATED TO INSTRUMENTATION	12/15/95	ALL HOLDERS OF OLs OR CPs FOR NPRs
95-09	MONITORING AND TRAINING OF SHIPPERS AND CARRIERS OF RADIOACTIVE MATERIALS	11/03/95	ALL U.S. NRC LICENSEES
95-08	10 CFR 50.54(p) PROCESS FOR CHANGES TO SECURITY PLANS WITHOUT PRIOR NRC APPROVAL	10/31/95	ALL HOLDERS OF OLs & CPs FOR NPRs

OL = OPERATING LICENSE
CP = CONSTRUCTION PERMIT
NPR = NUCLEAR POWER REACTORS

If you have any questions about this matter, please contact the technical contact listed below or the appropriate Office of Nuclear Reactor Regulation (NRR) project manager.

original signed by

Dennis M. Crutchfield, Director
Division of Reactor Program Management
Office of Nuclear Reactor Regulation

Technical contact: Maggalean W. Weston, NRR
(301) 415-3151
Internet:mww@nrc.gov

Attachments:
1. Guidance for a Proposed License Amendment to Relocate the Pressure Temperature Limit Curves and Low Temperature Overpressure Protection System Limits
2. Model Safety Evaluation
3. Model Technical Specifications:
   a. Definitions
   b. Pressure Temperature Limits
   c. Low Temperature Overpressure Protection System
   d. Administrative Controls
4. List of Recently Issued Generic Letters

Tech Editor reviewed and concurred on 11/16/95 *SEE PREVIOUS CONCURRENCES
DOCUMENT NAME: 96-03.GL

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