



**Consumers  
Power**

**POWERING  
MICHIGAN'S PROGRESS**

Palisades Nuclear Plant: 27780 Blue Star Memorial Highway, Covert, MI 49043

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Plant Safety and Licensing Director

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Nuclear Regulatory Commission  
Document Control Desk  
Washington, DC 20555

DOCKET 50-255 - LICENSE DPR-20 - PALISADES PLANT - TECHNICAL SPECIFICATIONS  
CHANGE REQUEST - PRIMARY COOLANT SYSTEM PRESSURE-TEMPERATURE LIMITS.

A request for a change to the Palisades Technical Specifications (TS) is enclosed. This Technical Specification change request (TSCR) addresses three related items:

- 1) It proposes revised Primary Coolant System (PCS) Pressure-Temperature (P-T) limits, PORV setting limits, and Primary Coolant Pump starting limits to accommodate reactor vessel fluence for an additional four effective full power years (up to  $2.192 \times 10^{19}$  nvt). The existing P-T limit curves are calculated for a fluence of  $1.8 \times 10^{19}$  nvt, which could be reached as early as March 1, 1995.
- 2) It proposes requiring the High Pressure Safety Injection (HPSI) pumps to be "rendered incapable of injection into the PCS" when the PCS is below 300°F, rather than the existing requirement to render both HPSI pumps "inoperable" when the PCS is below 260°F. This change supports the assumption in the P-T limit analyses that HPSI injection would not occur below 300°F.
- 3) It proposes a more restrictive limit on pressurizer heatup rate to achieve consistency between design assumptions and TS limits. The limit in the existing TS is less restrictive than used in design calculations. Neither the design heatup rate nor the TS heatup rate limit is achievable with installed equipment.

The attached change request provides a description and discussion of the proposed changes. The following attachments have been included:

- 1) Proposed TS pages.
- 2) Existing TS pages, marked to show the changes.
- 3) Engineering Analysis EA-A-PAL-92095-01, Rev 0; "Pressure Temperature Curves and LTOP Limit Curve for Maximum Reactor Vessel Fluence of  $2.192 \times 10^{19}$  Neutron/cm<sup>2</sup>"

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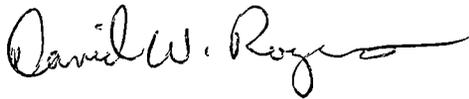
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The existing PCS P-T limits were calculated for a reactor vessel wall fluence of  $1.8 \times 10^{19}$  nvt. That fluence may be reached as soon as March 1, 1995. It is requested, therefore, that the TS Amendment be approved by January 3, 1995 with 60 days after approval for full implementation, to allow for the necessary training and procedure revision.

This Technical Specification change request contains two pages (i and 4-6) which contain changes proposed in our Instrumentation and Control Technical Specification change request. That change request is currently in the final stages of the NRC review and approval process.

Summary of Commitments:

This letter completes a commitment made in our August 26, 1992 letter entitled "HEATUP AND COOLDOWN PRESSURE/TEMPERATURE LIMITS - TECHNICAL SPECIFICATIONS" to submit a request to change these limits.



David W. Rogers  
Director, Plant Safety & Licensing

CC Administrator, Region III, USNRC  
Resident Inspector, Palisades

Attachments

CONSUMERS POWER COMPANY  
Docket 50-255  
Request for Change to the Technical Specifications  
License DPR-20

It is requested that the Technical Specifications (TS) contained in the Facility Operating License DPR-20, Docket 50-255, issued to Consumers Power Company on February 21, 1991, for the Palisades Plant be changed as described below:

I. Discussion of Proposed Changes

This Technical Specification change request addresses two separate, but related, issues; revised Primary Coolant System (PCS) P-T limits which accommodate additional accumulated reactor vessel fluence and revised High Pressure Safety Injection (HPSI) pump limits for shutdown operation to support assumptions of the analyses for the revised P-T curves.

A. Revised PCS P-T Limits:

Three specifications are affected by the proposed P-T limits: Specification 3.1.1h, Primary Coolant Pump (PCP) starting limits; 3.1.2, PCS P-T and Heatup-Cooldown limits; and 3.1.8, Low Temperature Overpressure Protection.

PCP Starting Limits, 3.1.1h:

PCP starting limits were revised to provide more generalized starting conditions for the first pump. These limits are intended to assure protection of both the PCS and the shutdown cooling system from an excessive pressure increase due to PCP starting. When the PCS temperature is above 430°F, the PCS is protected by the primary safety relief valves on the pressurizer. When the secondary side is hotter than the primary system and the shutdown cooling system is isolated from the PCS, the first PCP can be started if the PCS temperature is controlled and near steady state conditions or if there is a normal bubble in the pressurizer. The revised PCP start criteria are based on analyses referenced in the current technical specifications.

A new limit on operating PCPs P-50A and P-50B together has been added to provide additional acceptable area below the Pressure Temperature limit curves. The limitation on operating P-50A and P-50B together with  $T_c$  below 300°F and pressurizer level above 57% allows the Pressure Temperature limits to be 19 psi higher than they would be without this limit. The 57% pressurizer level is not an analytical result, but simply a decision point between having and not having a bubble. It was chosen to agree with the maximum programmed level during power operation.

PCP P-T Limits, 3.1.2, 3.1.3:

The P-T limits were developed using the same general analytical methods used to develop the current limit curves. To make the transition from forced cooling to natural circulation cooling with the shutdown system in operation, the maximum allowed cooldown rate for PCS temperature less than 170°F was increased from 20°F/Hour to

40°F/Hour. The existing operating window was maintained by making minor changes in the analysis methodology and by using the ASME code case N-514, Low Temperature Overpressure Protection, to develop the LTOP setpoint curve. The analysis also assumes that a spurious start of the HPSI pumps is prevented for PCS temperatures below 300°F. Proposed Specification 3.3.5, which replaces existing Specification 3.3.2.g(1), requires that both HPSI pumps be rendered incapable of injection into the PCS when below 300°F. That proposed change is discussed in section B, below. Revised Figures 3-1 and 3-2 are provided. Since plant operating procedures only use the limits given in Figures 3-1 and 3-2 for heatup and cooldown operations, Figure 3-3, P-T Limits for Hydro, has been deleted.

The revised P-T calculations also necessitated a change in the minimum temperature for criticality during physics testing, in Specification 3.1.3, from 371°F to 385°F.

In addition to replacing the figures which provide the P-T limits, a more restrictive heatup rate limit is proposed for the pressurizer. Both the initial issue Palisades Technical Specification 3.1.2e and existing Technical Specification 3.1.2c limit the pressurizer heatup and cooldown rates to 200°F/hour. It has come to our attention that the 200°F/hour heatup rate limit is less conservative than the design calculations for the pressurizer which assume a maximum rate of 100°F/hour. It has been determined that no physical capability exists for heating the pressurizer at a rate even as high as 100°F/hour. The reduced limit is proposed simply to better align the Technical Specifications with the design calculations.

Specification 3.1.2 has been rewritten to provide an Applicability statement and Actions to be taken if the specification is not met. The existing specification has neither. The proposed Applicability and Actions are taken from LCO 3.4.3 of NUREG 1432, Standard Technical Specifications, Combustion Engineering Plants.

PORV Setting Limit, Figure 3-4:

The new limit curve for the Power Operated Relief Valves was determined using the proposed PCS P-T limit curves and the ASME code case N-514. The analysis accounts for PORV stroke time, mass additions and pressure changes due to temperature increases in the PCS and the pressurizer for an inadvertent SIS. Analyses for other LTOP events were reviewed to ensure that the new limits did not invalidate their conclusions.

B. Revised HPSI Pump restrictions, 3.3.2.g, 4.1.5:

Two changes are proposed for the HPSI pump requirements of existing Specification 3.3.2.g(1). In addition these HPSI pump requirements have been renumbered so that they are no longer a sub-paragraph of Action statement 3.3.2 and reworded for clarity.

#### Proposed Specification 3.3.4:

Former specifications 3.3.2.g(2) and (3) have been rewritten as proposed specification 3.3.4. The applicability has been revised from ">300°F" to ">325°F." This change in applicability is necessary to allow time during a heatup or cooldown to transition between the requirement to have HPSI pumps operable and the requirement to render HPSI pumps incapable of injection into the PCS. The applicability for the requirement to have two HPSI pumps operable was changed, by Amendment 161, from 325°F to 300°F simply to align all applicability for equipment which is required with the plant hot, but not with the plant cold, with the upper temperature limit of the Shutdown Cooling System (equivalent to changing between Modes 3 and 4 in Standard Technical Specifications). There is no analytical basis for either 300°F or 325°F with respect to HPSI pump operability.

#### Proposed Specification 3.3.5:

Former specification 3.3.2.g(1) has been rewritten as proposed specification 3.3.5. The applicability has been changed from "<260°F" to "<300°F" in accordance with the assumptions of the analysis for the revised P-T limits. A note is proposed to assure that this specification does not cause hesitation in the use of a HPSI pump for PCS makeup if it is needed due to a loss of shutdown cooling or a loss of PCS inventory. The associated surveillance requirement, 4.1.5, has been revised, changing "260°F" to "300°F", accordingly.

## II. Analysis of No Significant Hazards Consideration

Consumers Power Company finds the activities associated with this proposed Technical Specifications change involve no significant hazards and accordingly, a no significant hazards determination per 10CFR50.92(c) is justified.

The following evaluation supports the finding that operation of the facility in accordance with the proposed Technical Specifications would not:

### 1. Involve a significant increase in the probability or consequences of an accident previously evaluated.

The revision of the Primary Coolant Pump starting limits, PCS P-T curves, and PORV setting limits would not cause any changes to the capability or operation of plant systems that would affect the probability of occurrence or consequences of an accident. These revisions simply update the existing requirements to account for additional reactor vessel fluence.

The reduction of the allowable pressurizer heatup rate would have no effect on operation of the plant. The current limit is physically unobtainable with installed equipment. The proposed change better aligns the Technical Specification limits with the design analysis. The change in the pressurizer heatup rate limit will not increase the probability or consequences of an accident.

Requiring the HPSI pumps to be operable when above 325°F, rather than when above 300°F does not affect the probability or consequences of any accident

previously evaluated. Neither the existing 300°F requirement nor the proposed 325°F requirement has an analytical base. This requirement was recently changed from 325°F to 300°F simply for uniformity. With the revised P-T limit analysis requirement to assure that inadvertent HPSI injection will not occur below 300°F, it is necessary to revert to the former limit of 325°F to provide time to transition between these two contrasting HPSI pump requirements.

2. Create the possibility of a new or different kind of accident from any previously evaluated.

The revised specifications, PCP starting limits, PCS P-T limits, pressurizer heatup rate, PORV setting limits, and HPSI pump restrictions, all are directly related to, and intended to prevent, a previously analyzed event, failure of the Reactor Coolant Pressure Boundary. Revision of these limits would not create the possibility of a new or different kind of accident.

3. Involve a significant reduction in a margin of safety.

The revised PCP starting limits, PCS P-T limits, and PORV setting limits are calculated using a similar methodology as the limits which they replace. Therefore they provide the same margin of safety.

The revised pressurizer heatup rate reduces the currently allowable limit which is in the direction of increased margin of safety. Since there is no equipment installed which would cause either the existing or the proposed limit to be reached, there will be no change on the operation of the plant equipment. Therefore reducing the limit on the pressurizer heatup rate will not involve a significant reduction in the margin of safety.

Requiring the HPSI pumps to be operable when above 325°F, rather than when above 300°F does not involve a significant reduction in any margin of safety. Neither the existing 300°F requirement nor the proposed 325°F requirement has an analytical base. This requirement was recently changed from 325°F to 300°F simply for uniformity. With the revised P-T limit analysis requirement to assure that inadvertent HPSI injection will not occur below 300°F, it is necessary to revert to the former limit of 325°F to provide time to transition between these two contrasting HPSI pump requirements.

### III. Conclusion

The Palisades Plant Review Committee has reviewed this Technical Specifications Change Request, entitled "Primary Coolant System Pressure-Temperature Limits", and has determined that proposing this change does not involve an unreviewed safety question. Further, the change involves no significant hazards consideration. This change has been reviewed by the Nuclear Performance Assessment Department. A copy of this Technical Specifications Change Request has been sent to the State of Michigan official designated to receive such Amendments to the Operating License.

## CONSUMERS POWER COMPANY

To the best of my knowledge, the contents of this Technical Specifications change request describing proposed changes to the Primary Coolant System Pressure-Temperature Limits are truthful and complete.

By Robert A. Fenech  
Robert A. Fenech,  
Vice President Nuclear Operations

Sworn and subscribed to before me this 10 day of October 1994.

LeAnn Morse  
Notary Public  
Berrien County Michigan  
My commission expires 2/4/97  
Acting in Van Buren County