Consumers Energy

A CMS Energy Company

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Nathan L. Haskell
Director, Licensing and
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January 26, 2001

U S Nuclear Regulatory Commission
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DOCKET 50-255 - LICENSE DPR-20 - PALISADES PLANT
TECHNICAL SPECIFICATION CHANGE REQUEST - ULTIMATE HEAT SINK TEMPERATURE LIMIT

This letter proposes Technical Specifications changes in the maximum allowable Ultimate Heat Sink (Lake Michigan) water temperature for plant operation.

Consumers Energy requests the amendment be approved on or before June 1, 2001 to avoid unnecessary operational restriction if the summer of 2001 is unusually warm, and requests 60 days after approval for implementation.

A copy of this letter has been sent to the appropriate official of the State of Michigan.

SUMMARY OF COMMITMENTS

This letter establishes no new commitments and makes no revisions to existing commitments.

Nathan L. Haskell
Director, Licensing and Performance Assessment

CC: Administrator, Region III, USNRC
Project Manager, NRR, USNRC
NRC Resident Inspector - Palisades
Lou Brandon, Michigan Department of Environmental Quality

Enclosure

A001

CONSUMERS ENERGY COMPANY

TECHNICAL SPECIFICATION CHANGE REQUEST
ULTIMATE HEAT SINK TEMPERATURE LIMIT

To the best of my knowledge, the content of this Technical Specifications change request, which revises the Palisades Technical Specifications to reflect changes to the Ultimate Heat Sink water temperature surveillance requirement is truthful and complete.

Nathan L. Haskell
Director, Licensing and Performance Assessment

Sworn and subscribed to before me this 26th day of January 2001

Janice M. Milan, Notary Public
Allegan County, Michigan
(Acting in Van Buren County, Michigan)
My commission expires September 6, 2003

ENCLOSURE 1

CONSUMERS ENERGY COMPANY
PALISADES PLANT
DOCKET 50-255

TECHNICAL SPECIFICATION CHANGE REQUEST
ULTIMATE HEAT SINK TEMPERATURE LIMIT

12 Pages

CONSUMERS ENERGY COMPANY
Docket 50-255
License DPR-20

Request for Change to the Technical Specifications
ULTIMATE HEAT SINK TEMPERATURE LIMIT

It is requested that the Technical Specifications 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.

The following attachments have been included with this change request :

1. The proposed Technical Specification and Bases pages; changes are indicated by a vertical line in the margin.

2. The existing Technical Specifications and Bases pages marked to show the proposed change. Deleted text is shown as strike-out; added text is shown circled, with a shaded background.

I. Changes Proposed

The UHS water temperature limit specified in SR 3.7.9.2 is increased from 81.5°F to 85°F. As explained below, the revised temperature limit reflects the assumptions used in the Safety Analyses.

Conforming changes have been made to the Technical Specifications Bases.

II. Discussion and Safety Analysis - UHS Water Temperature Limit Increase

This change proposes increasing the UHS water temperature limit in SR 3.7.9.2 from 81.5°F to 85°F. The corresponding Basis section on pages B 3.7.9-2 and 3 is also changed.

Lake Michigan is the Ultimate Heat Sink for the Palisades plant. During plant operation, the main condenser is cooled by a cooling tower system; however, all safety related cooling is provided, during both operation and shutdown conditions, by the Service Water System (SWS) and the Component Cooling Water (CCW) system. The SWS takes suction from Lake Michigan and circulates it through various heat exchangers to cool the containment building, safety related equipment, and, during plant shutdown, the primary coolant from the reactor via the CCW and Shut Down Cooling heat exchangers. The CCW is cooled by SWS.

Prior to implementation of Improved Technical Specifications (ITS) at Palisades, the Technical Specifications did not contain a temperature limit for the UHS. When the ITS conversion request was submitted, in January 1998, the service water temperature limit in use at the plant was 81.5°F. At that time efforts were under way to assure that SWS flow balancing, equipment ratings, and the safety analyses would all support safe plant operation at 85°F. Several SWS tests and analyses, which were performed between April and June of 1994, included evaluation of all of the piping and equipment to the 85°F

limit. Additional later reviews have verified the acceptability of operating at the 85°F UHS water temperature.

The current FSAR Chapter 9.1.2 states that 85°F is the safety limit supported by the accident analysis. That FSAR change (Rev 20 to Rev 21) was incorporated in 1998. It was made following the FSAR verification project associated with the October 1996 10CFR50.54(f) letter on "Adequacy and Availability of Design Bases Information".

The higher UHS water temperature limit reduces the probability that the UHS water temperature will exceed the analyzed limit. If the UHS temperature exceeds its limit, the Technical Specifications Actions require a plant shutdown within 6 hours, and a cooldown within 36 hours. When the plant is shutdown, in general, the reliance on the UHS increases as decay heat loads are added to equipment cooling loads. The consequences of a LOCA at that point are, however, greatly reduced as decay heat load decreases with time. Use of the steam generators as a heat sink during cooldown allows the 36 hour limit to reach cold shutdown to be met.

III. Analysis of No Significant Hazards Consideration

Consumers Energy finds the activities associated with this proposed Technical Specifications change involve no significant hazards and accordingly, a no significant hazards determination in accordance with 10 CFR 50.92(c) is justified. The proposed change would increase the limit on the UHS temperature, as required by SR 3.7.9.2, from 81.5°F to 85°F.

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

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

The UHS is Lake Michigan which is completely passive and is not an accident initiator in any accident previously evaluated. Therefore, this change does not involve an increase in the probability of an accident previously evaluated.

The UHS, by design, mitigates the consequences of accidents by supplying a repository for the decay heat and other excess energy removed in the process of cooling the plant equipment. The safety analysis has been revised to use a maximum UHS water temperature of 85°F. The results of these revised analyses still meet all of the required acceptance criteria. Therefore, the proposed changes do not affect any of the results of the FSAR Chapter 14 accident analyses. Hence the consequences of accidents previously evaluated do not change.

III. Analysis of No Significant Hazards Consideration - (continued)

Therefore, operation of the facility in accordance with the proposed changes to the Technical Specifications would not involve a significant increase in the probability or consequences of an accident previously evaluated.

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

The proposed change would not alter the design, configuration, or method of operation of the plant. The proposed temperature limit has been verified to be acceptable for UHS operability determinations by its documented use in plant equipment design considerations, and in the FSAR Chapter 14 accident analyses. Therefore, operation of the facility in accordance with the proposed change to the Technical Specifications would not create the possibility of a new or different kind of accident from any previously evaluated.

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

The proposed change to the Technical Specifications would impose temperature limits already in use in equipment designs and as an initial assumption of the plant accident analyses. The proposed SR limit has been utilized in the accident analyses since 1994. The results of these accident analyses meet all of the required acceptance criteria when using the 85°F UHS water temperature limit. Therefore, the proposed change to the Technical Specifications would not involve a significant reduction in a margin of safety.

IV. Conclusion

The Palisades Plant Review Committee has reviewed this Technical Specifications change request and has determined that the change involves no significant hazards consideration. The Plant Review Committee has determined that a request for an amendment to the Technical Specifications does not constitute an unreviewed safety question.

ENCLOSURE
ATTACHMENT 1

CONSUMERS ENERGY COMPANY
PALISADES PLANT
DOCKET 50-255

TECHNICAL SPECIFICATION CHANGE REQUEST
ULTIMATE HEAT SINK REQUIRED ACTION AND TEMPERATURE LIMIT

TECHNICAL SPECIFICATIONS and BASES
PROPOSED PAGES

4 Pages

3.7 PLANT SYSTEMS

3.7.9 Ultimate Heat Sink (UHS)

LCO 3.7.9 The UHS shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. UHS inoperable.	A.1	Be in MODE 3.	6 hours
	AND		
	A.2	Be in MODE 5.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.9.1	Verify water level of UHS is ≥ 568.25 ft above mean sea level.	24 hours
SR 3.7.9.2	Verify water temperature of UHS is ≤ 85°F.	24 hours

BASES

APPLICABLE SAFETY ANALYSES (continued)

The minimum water level of the UHS is based on the NPSH requirements for the SWS pumps. The NPSH calculation assumes a minimum water level of 4 feet above the bottom of the pump suction bell which corresponds to an elevation of 557.25 ft. Violation of the SWS pump submergence requirement should never become a factor unless the Lake Michigan water level falls below the top of the sluice gate opening which is at elevation 568.25 ft. Early warning of a falling intake water level is provided by the intake structure level alarm. The nominal lake level is approximately 580 ft mean sea level. The minimum water temperature of the UHS is based on conservative heat transfer analyses for the worst case LOCA. FSAR, Section 14.18 (Ref. 2) and Design Basis Document (DBD) 1.02 (Ref. 3) provide the details of the analysis which forms the basis for these operating limits. The assumptions include: worst expected meteorological conditions, conservative uncertainties when calculating decay heat, and the worst case single active failure.

The UHS satisfies Criterion 3 of 10 CFR 50.36(c)(2).

LCO

The UHS is required to be OPERABLE. The UHS is considered OPERABLE if it contains a sufficient volume of water at or below the maximum temperature that would allow the SWS to operate without the loss of NPSH, and without exceeding the maximum design temperature of the equipment served by the SWS. To meet this condition, the UHS temperature shall not exceed 85°F and the level shall not fall below 568.25 ft above mean sea level during normal plant operation.

APPLICABILITY

In MODES 1, 2, 3, and 4, the UHS is a normally operating system that is required to support the OPERABILITY of the equipment serviced by the UHS and required to be OPERABLE in these MODES.

In MODES 5 and 6, the OPERABILITY requirements of the UHS are determined by the systems it supports.

BASES

ACTIONS

A.1 and A.2

If the UHS is inoperable, the plant must be placed in a MODE in which the LCO does not apply. To achieve this status, the plant must be placed in at least MODE 3 within 6 hours and in MODE 5 within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required plant conditions from full power conditions in an orderly manner and without challenging plant systems.

SURVEILLANCE REQUIREMENTS

SR 3.7.9.1

This SR verifies adequate cooling can be maintained. The level specified also ensures sufficient NPSH is available for operating the SWS pumps. The 24 hour Frequency is based on operating experience related to the trending of the parameter variations during the applicable MODES. This SR verifies that the UHS water level is $\geq$ 568.25 ft above mean sea level as measured within the boundaries of the intake structure.

SR 3.7.9.2

This SR verifies that the SWS is available to provide adequate cooling for the maximum accident or normal design heat loads following a DBA. The 24 hour Frequency is based on operating experience related to the trending of the parameter variations during the applicable MODES. This SR verifies that the water temperature from the UHS is $\leq$ 85°F. |

REFERENCES

1. FSAR, Section 9.1
2. FSAR, Section 14.18
3. Design Basis Document (DBD) 1.02, "Service Water System"

ENCLOSURE
ATTACHMENT 2

CONSUMERS ENERGY COMPANY
PALISADES PLANT
DOCKET 50-255

TECHNICAL SPECIFICATION CHANGE REQUEST
ULTIMATE HEAT SINK REQUIRED ACTION AND TEMPERATURE LIMIT

TECHNICAL SPECIFICATIONS and BASES
EXISTING PAGES MARKED TO SHOW PROPOSED CHANGES

4 Pages

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SR 3.7.9.1	Verify water level of UHS is ≥ 568.25 ft above mean sea level.	24 hours
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BASES

APPLICABLE SAFETY ANALYSES (continued)

The minimum water level of the UHS is based on the NPSH requirements for the SWS pumps. The NPSH calculation assumes a minimum water level of 4 feet above the bottom of the pump suction bell which corresponds to an elevation of 557.25 ft. Violation of the SWS pump submergence requirement should never become a factor unless the Lake Michigan water level falls below the top of the sluice gate opening which is at elevation 568.25 ft. Early warning of a falling intake water level is provided by the intake structure level alarm. The nominal lake level is approximately 580 ft mean sea level. The minimum water temperature of the UHS is based on conservative heat transfer analyses for the worst case LOCA. FSAR, Section 14.18 (Ref. 2) and Design Basis Document (DBD) 1.02 (Ref. 3) provide the details of the analysis which forms the basis for these operating limits. The assumptions include: worst expected meteorological conditions, conservative uncertainties when calculating decay heat, and the worst case single active failure.

The UHS satisfies Criterion 3 of 10 CFR 50.36(c)(2).

LCO

The UHS is required to be OPERABLE. The UHS is considered OPERABLE if it contains a sufficient volume of water at or below the maximum temperature that would allow the SWS to operate without the loss of NPSH, and without exceeding the maximum design temperature of the equipment served by the SWS. To meet this condition, the UHS temperature shall ~~should~~ not exceed ~~81.5~~85°F and the level shall ~~should~~ not fall below 568.25 ft above mean sea level during normal plant operation.

APPLICABILITY

In MODES 1, 2, 3, and 4, the UHS is a normally operating system that is required to support the OPERABILITY of the equipment serviced by the UHS and required to be OPERABLE in these MODES.

In MODES 5 and 6, the OPERABILITY requirements of the UHS are determined by the systems it supports.

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2. FSAR, Section 14.18
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