Consumers Energy

A CMS Energy Company

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

Tel: 616 764 2276
Fax: 616 764 3265

Nathan L. Haskell
Director, Licensing and
Performance Assessment

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U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555-0001

DOCKET 50-255 - LICENSE DPR-20 - PALISADES PLANT
RESPONSE TO REVIEWER QUESTION AND REVISED PAGES FOR TECHNICAL SPECIFICATION CHANGE REQUEST REGARDING ALLOWABLE OUTAGE TIME FOR SAFETY INJECTION TANKS AND LOW PRESSURE SAFETY INJECTION (TAC NOs. MA9932, MA9933)

On June 27, 2000, Consumers Energy Company submitted a request to extend allowable outage times for Safety Injection Tanks (SIT-TAC NO. 9932) and Low Pressure Safety Injection (LPSI-TAC NO. 9933). In response to an NRC Staff review question concerning the use of the term "negligible" in some portions of the request covering LPSI, and its referenced report, Palisades offers the following clarification:

The Combustion Engineering Owners Group (CEOG) "Joint Applications Report for Low Pressure Safety Injection System Allowed Outage Time (AOT) Extension" (CE NPSD-995, May 1995), Tables 6.3.2-1, 6.3.2-2 and 6.3.2-3 results for Palisades have changed based on the revised probabilistic safety analysis (PSA) model (PSAR1) versus the Individual Plant Evaluation (IPE) models used in the study. The results using PSAR1 are:

Table 6.3.2-2:	Increase in Core Damage Frequency (CDF), per yr	3.20E-7
	Single AOT Risk (Proposed full AOT)	6.14E-9
	Yearly AOT Risk (for Mean Duration), per yr	1.23E-8

These results can be substituted for the "negligible" results (from the IPE), as shown in the CEOG report referenced.

For the PSAR1 analysis, the following inputs remained the same: LPSI System Success Criteria; Proposed AOT, days; Downtime Frequency , events/year/train (for both corrective and preventive maintenance); Mean Duration, hours/event (for both corrective and preventive maintenance); Proposed Downtime, hours/year/train (for both Tables 6.3.2-2 and 6.3.2-3). The Current AOT, days, was changed from 1 to 3 due to implementation of the Improved Technical Specifications.

A001

In addition, Staff provided suggestions on wording from their review of the Improved Technical Specification (ITS) Bases pages that were submitted with the above change requests (TAC NOs. MA9932, MA9933). We have determined the suggestions are valid, and propose to revise the Bases accordingly. Attachment 1 provides replacement Technical Specification Bases pages. Attachment 2 provides replacement Mark-up Technical Specification Bases pages. Please substitute these pages for the same pages in the original submittal as you complete your review.

SUMMARY OF COMMITMENTS

This letter contains no new commitments and 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

Attachments

CONSUMERS ENERGY COMPANY

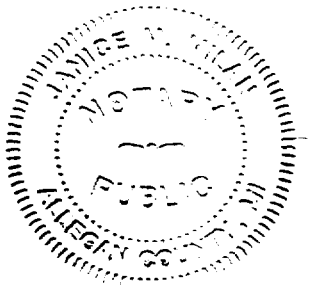
To the best of my knowledge, the content of this letter, which provides clarification of information previously submitted in a request to change the Palisades Improved Technical Specifications regarding Safety Injection Tank and Low Pressure Safety Injection Allowed Outage Times, is truthful and complete.

By Nathan L. Haskell
Nathan L. Haskell
Director, Licensing and Performance Assessment

Sworn and subscribed to before me this 18th day of August 2000.

Janice M. Milan

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



ATTACHMENT 1

CONSUMERS ENERGY COMPANY
PALISADES PLANT
DOCKET 50-255

(TAC NOs. MA9932, MA9933)

REVISED TECHNICAL SPECIFICATION BASES
PAGES B3.5.1-6 AND B3.5.2-6

3 Pages

BASES

APPLICABILITY (continued)

In MODES 3, 4, 5, and 6, the SIT motor operated isolation valves may be closed to isolate the SITs from the PCS. This allows PCS cooldown and depressurization without discharging the SITs into the PCS or requiring depressurization of the SITs.

ACTIONS

A.1

If the boron concentration of one SIT is not within limits, it must be returned to within the limits within 72 hours. In this condition, the ability to maintain subcriticality or minimum boron precipitation time may be reduced, but the reduced concentration effects on core subcriticality during reflood are minor. Boiling of the ECCS water in the core during reflood concentrates the boron in the saturated liquid that remains in the core. In addition, the volume of the SIT is still available for injection.

Since the boron requirements are based on the average boron concentration of the total volume of three SITs, the consequences are less severe than they would be if an SIT were not available for injection.

Thus, 72 hours is allowed to return the boron concentration to within limits.

The combination of redundant level and pressure instrumentation for any single SIT provides sufficient information so that it is not worthwhile to always attempt to correct drift associated with one instrument, with the resulting radiation exposures during entry into containment, as there is sufficient time to repair one in the event that a second one became inoperable. Because these instruments do not initiate a safety action, it is reasonable to extend the allowable outage time for them. While technically inoperable, the SIT will be available to fulfill its safety function during this time, and, thus, this Completion Time results in a negligible increase in risk.

B.1

If one SIT is inoperable, for reasons other than boron concentration or the inability to verify level or pressure, the SIT must be returned to OPERABLE status within 24 hours. In this Condition, the required contents of three SITs cannot be assumed to reach the core during a LOCA as is assumed in the safety analysis.

CE-NPSD-994 (Ref. 3) provides a series of deterministic and probabilistic findings that support the 24 hour Completion Time as having negligible impact on risk as compared to shorter periods for restoring the SIT to OPERABLE status.

BASES

APPLICABILITY

In MODES 1 and 2, and in MODE 3 with PCS temperature ≥ 325°F, the ECCS OPERABILITY requirements for the limiting Design Basis Accident (DBA) large break LOCA are based on full power operation. Although reduced power would not require the same level of performance, the accident analysis does not provide for reduced cooling requirements in the lower MODES. The HPSI pump performance is based on the small break LOCA, which establishes the pump performance curve and has less dependence on power. The requirements of MODE 2 and MODE 3 with PCS temperature ≥ 325°F, are bounded by the MODE 1 analysis.

The ECCS functional requirements of MODE 3, with PCS temperature < 325°F, and MODE 4 are described in LCO 3.5.3, "ECCS - Shutdown."

In MODES 5 and 6, plant conditions are such that the probability of an event requiring ECCS injection is extremely low. Core cooling requirements in MODE 5 are addressed by LCO 3.4.7, "PCS Loops - MODE 5, Loops Filled," and LCO 3.4.8, "PCS Loops - MODE 5, Loops Not Filled." MODE 6 core cooling requirements are addressed by LCO 3.9.4, "Shutdown Cooling (SDC) and Coolant Circulation - High Water Level," and LCO 3.9.5, "Shutdown Cooling (SDC) and Coolant Circulation - Low Water Level."

ACTIONS

A.1

With one LPSI subsystem inoperable, action must be taken to restore OPERABLE status within 7 days. In this condition, the remaining OPERABLE ECCS train is adequate to perform the heat removal function. However, the overall reliability is reduced because a single failure to the remaining LPSI subsystem could result in loss of ECCS function. The 7 day Completion Time is reasonable to perform maintenance on the inoperable LPSI subsystem. The 7 day Completion Time is based on the findings of the deterministic and probabilistic analysis in Reference 5. Reference 5 concluded that extending the Completion Time to 7 days for an inoperable LPSI subsystem provides plant operational flexibility while simultaneously reducing overall plant risk. This is because the risks incurred by having the LPSI subsystem unavailable for a longer time at power will be substantially offset by the benefits associated with avoiding unnecessary plant transitions and by reducing risk during plant shutdown operations.

ATTACHMENT 2

CONSUMERS ENERGY COMPANY
PALISADES PLANT
DOCKET 50-255

(TAC NOs. MA9932, MA9933)

REVISED MARK-UP PAGES
B3.5.1-7 AND B3.5.2-7

3 Pages

BASES

If one SIT is inoperable, for reasons other than boron concentration or the inability to verify level or pressure, the SIT must be returned to OPERABLE status within 24 hours. In this Condition, the required contents of three SITs cannot be assumed to reach the core during a LOCA as is assumed in the safety analysis.

CE-NPSD-994 (Ref. 3) provides a series of deterministic and probabilistic findings that support the 24 hour Completion Time as having negligible impact on risk as compared to shorter periods for restoring the SIT to OPERABLE status.

ACTIONS (continued)

C.1

If the SIT cannot be restored to OPERABLE status within the associated Completion Time, the plant must be brought to a MODE in which the LCO does not apply. To achieve this status, the plant must be brought to at least MODE 3 within 6 hours. The allowed Completion Time is reasonable, based on operating experience, to reach the required plant conditions from full power condition in an orderly manner and without challenging plant systems.

D.1

If more than one SIT is inoperable, the plant is in a condition outside the accident analyses. Therefore, LCO 3.0.3 must be entered immediately.

SURVEILLANCE REQUIREMENTS

SR 3.5.1.1

Verification every 12 hours that each SIT isolation valve is fully open, as indicated in the control room, ensures that SITs are available for injection and ensures timely discovery if a valve should be partially closed. If an isolation valve is not fully open, the rate of injection to the PCS would be reduced. Although a motor operated valve should not change position with power removed, a closed valve could result in not meeting accident analysis assumptions. A 12 hour Frequency is considered reasonable in view of other administrative controls that ensure the unlikelihood of a mispositioned isolation valve.

SR 3.5.1.2 and SR 3.5.1.3

SIT borated water volume and nitrogen cover pressure should be verified to be within specified limits every 12 hours in order to ensure adequate injection during a LOCA. Due to the static design of the SITs,

BASES

~~each PCS loop. In each case, an OPERABLE flow path must include an OPERABLE pump and an OPERABLE loop injection valve.~~

~~The LCO requires the OPERABILITY of two independent subsystems. Due to the redundancy of trains and the diversity of subsystems, the inoperability of one component in a train does not necessarily render the ECCS incapable of performing its function. Neither does the inoperability of two different components, each in a different train, necessarily result in a loss of function for the ECCS. The intent of this Condition is to maintain a combination of OPERABLE equipment such that 100% of the ECCS flow assumed to be delivered by a single OPERABLE train remains available. This allows increased flexibility in plant operations when components in opposite trains are inoperable.~~

~~An event accompanied by a loss of offsite power and the failure of an emergency DG can disable one ECCS train until power is restored. A reliability analysis (Ref. 4) has shown that the impact with one full ECCS train inoperable is sufficiently small to justify continued operation for 72 hours.~~

~~Reference 4 describes situations in which one component, such as the shutdown cooling flow control valve, CV-3006, can disable both ECCS trains. With one or more components inoperable, such that 100% of the required ECCS flow (that assumed in the safety analyses) is not available, the facility is in a condition outside the accident analyses. Therefore, LCO 3.0.3 must be immediately entered.~~

With one LPSI subsystem inoperable, action must be taken to restore OPERABLE status within 7 days. In this condition, the remaining OPERABLE ECCS train is adequate to perform the heat removal function. However, the overall reliability is reduced because a single failure to the remaining LPSI subsystem could result in loss of ECCS function. The 7 day Completion Time is reasonable to perform maintenance on the inoperable LPSI subsystem. The 7 day Completion Time is based on the findings of the deterministic and probabilistic analysis in Reference 5. Reference 5 concluded that extending the Completion Time to 7 days for an inoperable LPSI subsystem provides plant operational flexibility while simultaneously reducing overall plant risk. This is because the risks incurred by having the LPSI subsystem unavailable for a longer time at power will be substantially offset by the benefits associated with avoiding unnecessary plant transitions and by reducing risk during plant shutdown operations.

B.1

With one or more ECCS trains inoperable for reasons other than Condition A, but at least 100% of the required ECCS flow available, the