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Power

**POWERING
MICHIGAN'S PROGRESS**

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

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General Manager

February 4, 1994

Nuclear Regulatory Commission
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DOCKET 50-255 - LICENSE DPR-20 - PALISADES PLANT - REPLY TO NOTICE OF VIOLATION; NRC INSPECTION REPORT No. 93030

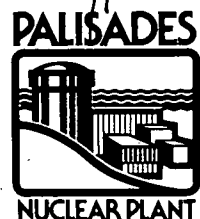
NRC Inspection Report No. 93030, dated December 23, 1993 transmitted three apparent violations relating to the excessive cooldown rate event of September 17, 1993. The apparent violations concerned: (1) cooldown rate exceeded, (2) procedures not implemented as required and (3) procedures not appropriate to circumstances.

CPCo agrees with the violations as stated. The events leading to the violations, the root causes, and the corrective actions addressing the violations were summarized at the December 3, 1993 Enforcement Conference, and the excessive cooldown rate event was also the subject of Licensee Event Report (LER) 93010, dated October 18, 1993. Our enclosed reply to the Notice of Violation is to a large extent a compilation of previously communicated information.

Gerald B Slade
General Manager

CC Administrator, Region III, USNRC
NRC Resident Inspector - Palisades

Attachment



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ATTACHMENT

Consumers Power Company
Palisades Plant
Docket 50-255

REPLY TO NOTICE OF VIOLATION

NRC INSPECTION REPORT No. 93030

February 4, 1994

REPLY TO NOTICE OF VIOLATION

Violation A

Technical Specification 3.1.2.a requires, in part, that the average heatup or cooldown rate limit in any one hour time period shall not exceed 40 degrees fahrenheit per hour when Primary Coolant System (PCS) temperature is greater than 170 degrees fahrenheit and less than or equal to 250 degrees fahrenheit, and the average heatup or cooldown rate limit shall not exceed 20 degrees fahrenheit per hour when PCS temperature is less than or equal to 170 degrees fahrenheit.

- 1. Contrary to the above, on September 17, 1993, from 1:16 p.m. to 2:16 p.m., with the primary coolant system temperature between 170 degrees fahrenheit and 250 degrees fahrenheit, the average cooldown rate was approximately 48 degrees fahrenheit per hour.*
- 2. Also contrary to the above, on September 17, 1993, from 1:51 p.m. to 2:51 p.m. with the shutdown cooling temperature less than 170 degrees fahrenheit, the average cooldown rate was approximately 49 degrees fahrenheit per hour.*

Reason for the Violation

The cause of the violation was a combination of personnel error and inadequate procedural guidance.

The licensed control operators directly responsible for controlling and monitoring Primary Coolant System (PCS) cooldown rate were aware of the limits for cooldown rate and recorded times and temperatures which should have alerted them to the excessive cooldown rate. However, the operators failed to recognize and act on the information.

The procedural guidance was inadequate in several important respects. The procedure provided only general guidance as to the frequency of recording PCS cooldown information and to which instruments to utilize under varying circumstances during the cooldown. The procedure also failed to provide appropriate guidance for calculating the cooldown rate over the transition period from forced flow with Primary Coolant Pumps (PCPs) in service to PCPs removed from service with only the Shutdown Cooling System (SDC) in service.

Corrective Actions and Results Achieved

A bounding engineering analysis was performed to evaluate the effects of the excessive PCS cooldown rate events of September 17, 1993, with respect to 10CFR50, Appendix G, pressure and temperature limits. The analysis concluded that while the allowed cooldown rates of 40°F per hour ($250^{\circ}\text{F} \geq \text{PCS} > 170^{\circ}\text{F}$) and 20°F per hour ($170^{\circ}\text{F} \geq \text{PCS}$) respectively, were exceeded during the September 17, 1993 cooldown of the PCS, the 10CFR50, Appendix G, limits

pertaining to reactor vessel protection from brittle fracture were not violated.

Corrective Action to Avoid Future Non-Compliance

An engineering analysis was also performed to evaluate the proper PCS temperature indicators to consider, relevant to calculating an appropriate cooldown rate over the transition period from forced flow with PCPs in service to only the SDC system in service. The analysis determined that T_{cold} , at the time the PCPs were removed from service, should be used as the reference point and should be compared with the SDC system return temperature subsequent to termination of PCP flow.

Based upon this information, the PCS cooldown which occurred on June 8, 1993 at the commencement of the refueling outage was reviewed as an example of a typical cooldown to ascertain the generic impact upon Appendix G limits. It was concluded that Appendix G limits were not violated on the June 8, 1993 cooldown, even though the Technical Specifications cooldown rate limit of 20°F per hour was exceeded using this methodology. Plant cooldowns, since the incorporation of the 20°F per hour limit with Amendment 131 to the Technical Specifications in 1990, are being evaluated, using the methodology described above, to determine if the 20°F per hour limit had been exceeded on previous cooldown events.

An evaluation of the existing Technical Specifications requirements for PCS heatup and cooldown rates will be performed to determine if the limits are overly restrictive. Appropriate actions to revise overly restrictive limits will be taken if warranted.

Classroom and simulator training of operators has been provided on the procedure changes and the methodology corresponding to appropriate implementation of the Technical Specifications requirements regarding PCS cooldown.

Date of Full Compliance

Full compliance has been achieved.

Violation B

Technical Specification 6.8.1.a requires, in part, that written procedures be established, implemented, and maintained covering the applicable procedures recommended in Appendix A of Regulatory Guide 1.33, Revision 2 (February 1978), Quality Assurance Program Requirements, as endorsed by CPC-2A, Quality Program Description.

1. *Administrative Procedure 4.00, "Operation Organization, Responsibilities, and Conduct," Revision 11, established to implement the procedure listed in Regulatory Guide 1.33, Appendix A, Section I.b,*

requires, in Step 4.8.1.i, that the control operator remain alert and knowledgeable of all plant operations in progress that involve the functioning of equipment controlled from the main control room, and anticipate potential problem areas.

Contrary to the above, on September 17, 1993, the control operators failed to remain cognizant of the cooldown rate, which resulted in exceeding the associated Technical Specification limits.

2. Administrative Procedure 4.00, "Operation Organization, Responsibilities, and Conduct," Revision 11, requires, in Step 4.4.1.n, that the shift supervisor shall review shift reports, shift logs, completed checklists, and other data compiled by the shift operating crew to detect abnormal trends, assess potential operating problems, and confirm accuracy of the information.

Contrary to the above, on September 17, 1993, the shift supervisor failed to review the PCS Cooldown Data log, which resulted in the shift supervisor failing to remain cognizant of the cooldown rate of the primary coolant system.

Reason for the Violation

The cause of the violation was the failure of the control operators to assume specific ownership for controlling and monitoring the PCS cooldown. The control operators recognized their collective responsibility but failed to appropriately coordinate the activity among themselves. Therefore, some of the specific duties associated with the cooldown were not performed by either operator.

Additionally, the shift supervisor failed to adequately prioritize available oversight resources, which resulted in all of the shift supervision being involved in other activities. Consequently, none of the supervisory personnel remained sufficiently cognizant of the cooldown rate of the primary coolant system which was in progress.

Corrective Actions and Results Achieved

The shift supervisor and involved control operators were removed from licensed operator duties. During this time, the crew was retrained in the specific tasks associated with proper control and monitoring of a PCS cooldown and with generic tasks involving job planning, teamwork and communication skills. The crew was then evaluated on the control room simulator. Results of the evaluation indicated sufficient competency to resume licensed operator duties.

Corrective Action to Avoid Future Non-Compliance

The importance of data gathering has been stressed to all operations personnel with emphasis placed both upon obtaining thorough and accurate readings, and with the evaluation of the readings obtained.

Management has discussed the implications of this event and similar past events involving personnel error with each operating crew, stressing attention to detail, use of the principles of self-checking, and the use of pre-job briefs to clearly identify individual roles when multiple individuals are involved in a task.

The oversight responsibilities of the Shift Engineer (combined Shift Technical Advisor (STA) or second SRO) will be re-evaluated for the purpose of clarifying and prioritizing the oversight duties of this position.

Field monitoring by management of activities in the plant and at the simulator are being conducted to ensure management expectations are being met.

Date of Full Compliance

Full compliance has been achieved.

Violation C

10 CFR 50, Appendix B, Criterion V, requires, in part, that activities affecting quality shall be prescribed by procedures appropriate to the circumstances and shall be accomplished in accordance with these procedures.

- 1. Contrary to the above, System Operating Procedure (SOP)-1, "Primary Coolant System," Revision 25, was inappropriate to the circumstances in that it did not require control operators to log shutdown cooling return temperature when the shutdown cooling system was in operation and all primary coolant pumps were secured.*
- 2. Also contrary to the above, SOP-1, "Primary Coolant System," Revision 25, was inappropriate to the circumstances in that it did not consider the transition of temperature monitoring from cold leg temperature to shutdown cooling return temperature, thus reflecting the temperature changes on the reactor vessel beltline.*

Reason for the Violation

The cause of the violation was an incomplete understanding of the Technical Specifications requirements regarding cooldown of the PCS with the PCPs secured. While the applicable procedure specified that SDC return temperature was to be utilized when all the PCPs were secured with the SDC system in operation, the procedure failed to extend this requirement to the attachment provided for logging PCS temperature. Additionally, the transition of temperature monitoring from PCS T_{cold} to SDC return temperature and its resultant reflection of the actual temperature change at the reactor vessel beltline was not previously understood. Consequently, the procedure lacked specific detail in this area, resulting in the practice of re-initializing the data using only SDC return temperature at the point of transition from PCS T_{cold} temperature to SDC return temperature.

An underlying root cause for this violation is the inadequate implementation of Technical Specifications Amendment 131. An evaluation of the technical specifications change process has been initiated.

Corrective Actions and Results Achieved

The applicable procedure, SOP-1, "Primary Coolant System," has been revised to provide specific guidance on controlling PCS cooldown rate throughout the transition period corresponding to the securing of all PCPs. Included with this revision was an improved data table for logging important parameters associated with the cooldown.

Corrective Action to Avoid Future Non-Compliance

An evaluation of the existing Technical Specifications requirements for PCS heatup and cooldown rates will be performed to determine if the limits are overly restrictive. Appropriate actions to revise overly restrictive limits will be taken if warranted.

Classroom and simulator training of operators has been provided on the procedure changes and the methodology corresponding to appropriate implementation of the Technical Specifications requirements regarding PCS cooldown.

As discussed in the Reason for the Violation, an evaluation of the technical specifications change process has been initiated.

Date of Full Compliance

Full compliance has been achieved.