

POWERING MICHIGAN'S PROGRESS

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

March 19, 1997

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

Consumers

### DOCKET <u>50-255</u> - LICENSE <u>DPR-20</u> - PALISADES PLANT REPLY TO NOTICE OF VIOLATION 96017 - FAILURE TO MAINTAIN PRIMARY COOLANT TEMPERATURE ABOVE 525°F WHILE REACTOR CRITICAL



NRC Inspection Report No. 50-255/96017 contains a Notice of Violation which concerns a failure to comply with Technical Specifications 3.1.3.a which states, "Except during low-power physics test, the reactor shall not be made critical if the primary coolant temperature is below 525°F." The inspection report states that, "Contrary to the above, on January 6, 1997, at 2:11 pm, the primary coolant system temperature decreased below 525°F for approximately one minute with the reactor critical."

Consumers Power Company agrees with this violation. The attachment to this letter provides the reply to this violation. This event was previously reported on Licensee Event Report 97-001 dated February 5, 1997.

#### SUMMARY OF COMMITMENTS

This letter contains no new commitments and no revisions to existing commitments.

-E011,

Thomas J. Palmisano Site Vice President



Attachment 271 9703270178 970319 PDR ADDCK 05000255 G PDR

A CMS ENERGY COMPANY

## ATTACHMENT

# CONSUMERS POWER COMPANY PALISADES PLANT DOCKET 50-255

REPLY TO NOTICE OF VIOLATION 96017 FAILURE TO MAINTAIN PRIMARY COOLANT TEMPERATURE ABOVE 525°F WHILE REACTOR CRITICAL

3 Pages

# REPLY TO NOTICE OF VIOLATION 96017 FAILURE TO MAINTAIN PRIMARY COOLANT TEMPERATURE ABOVE 525°F WHILE REACTOR CRITICAL

#### NRC VIOLATION

During an NRC inspection conducted on November 24, 1996 through January 10, 1997, a violation of NRC requirements was identified. In accordance with the "General Statement of Policy and Procedure for NRC Enforcement Actions," NUREG-1600, the violation is listed below:

Technical Specification 3.1.3 a) states: "Except during low-power physics test, the reactor shall not be made critical if the primary coolant temperature is below 525° F."

Contrary to the above, on January 6, 1997, at 2:11 pm, the primary coolant system temperature decreased below 525°F for approximately one minute with the reactor critical.

#### CONSUMERS POWER COMPANY RESPONSE

#### Background

On January 6, 1997, operators practiced synchronizing the Main Generator to the grid using the simulator. A reactor power increase of 2-3% was assumed to account for the additional steam flow with the turbine on line and the Turbine Bypass Valve fully closed. A reactivity change using control rods was estimated using the Technical Data book. It was determined that rod withdrawal of 3-4 inches should balance the increased steam flow. This assumption was validated when the task was successfully performed on the simulator.

The same operators proceeded with the Main Generator synchronization. They expected to only have to withdraw rods ~4 inches or at most 8 inches to stabilize  $T_{AVE}$ . When  $T_{AVE}$  did not stabilize above 525°F, significant additional control rod withdrawal (a total of 18 inches) was required that had not been anticipated by the operators. Therefore, the careful and deliberate manner that the operators took in withdrawing the control rods on this occasion failed to increase reactor power sufficiently to prevent  $T_{AVE}$  decreasing below 525°F. The 18 inches of withdrawal is consistent with what was seen during the startups on December 27, 1996, and on January 14, 1997.

Differences between the expected plant response and the actual plant response contributed to this event. The Turbine Bypass Valve was discovered to have an

unattached packing follower on the valve actuator. Therefore, the actual operating characteristics of the Turbine Bypass Valve during this evolution are unknown. Additionally, feedwater oscillations occurring at the time may have aggravated the plant cooldown. Both conditions, therefore, probably caused an actual plant response of greater magnitude than the operators were led to anticipate.

Based on interviews and discussions with the operators involved, there were no knowledge deficiencies or inadequate skills that contributed to this event. In addition, there is no safety significance to a  $T_{AVE}$  of 524°F for less than one minute with the reactor critical. The current Technical Specifications (TS) allow one hour to rectify the situation prior to initiating a plant shutdown per TS 3.0.3.

#### **Reason for Violation**

Task planning was not comprehensive enough to prepare the operators to recognize and implement the necessary contingency and compensatory actions required for the plant and equipment responses that were actually experienced.

Additionally, Turbine Bypass Valve CV-0511 may have contributed to the severity of the primary system cooldown. An unattached packing follower on the valve actuator may have resulted in erratic valve movement during its operation that would not have been readily noticed by the operators.

The lessons learned from this event included:

The over-reliance placed on the simulator and the Technical Data book to exactly model actual plant response led to a task plan that was not sufficiently comprehensive to prevent the event. Operators did not fully anticipate the differences between the expected plant response and actual plant responses to develop the necessary contingencies and compensatory actions that would have prepared the operators to handle any departure from what was practiced.

Equipment and system conditions and performance should be investigated and factored into task plans. In this event, a feedwater regulation system oscillation should have been evaluated for its effect on temperature control. The feedwater regulation system oscillation had a larger effect on primary coolant system temperature due to beginning of core life conditions. The beginning of core life conditions included a low amount of reactor decay heat and a slightly negative Moderator Temperature Coefficient.

Task preparation and planning should consider previous operating experience. Placing the generator on line on December 27, 1996, required a control rod withdrawal of similar magnitude as that which was ultimately needed on January 6, 1997.

## **Corrective Action Taken and Results Achieved**

The following corrective actions were taken:

- 1. Senior Operations Management has reviewed these events with all crews to emphasize and discuss the lessons learned stated above. These discussions took place with all crews prior to plant startup.
- 2. The Turbine Bypass Valve Actuator was repaired.
- 3. Feedwater controls were tuned to minimize the feedwater flow oscillations.

# **Corrective Actions Remaining to Avoid Future Violations**

No additional corrective actions are planned.

# **Date Full Compliance Will Be Achieved**

Consumers Power Company is now in full compliance.