Consumers Power Company

General Offices: 212 West Michigan Avenue, Jackson, Michigan 49201 • Area Code 517 788-0550

February 4, 1975

Division of Reactor Licensing
US Nuclear Regulatory Commission
Washington, DC 20555

Re: Docket 50-255
License DPR-20
Palisades Plant

Gentlemen: Att: Mr. R. A. Purple

Your letter of January 15, 1975 states that as reactor pressure is now limited to 1800 psi because of steam generator tube degradation, it is uncertain that a power increase is a viable proposal at this time. The letter notes the statement in the proposed Technical Specifications associated with the requested power increase that "Operation with a nominal operating pressure of less than 1900 psia ... shall not exceed steady state core power levels of 2200 MWt." You requested that our application for a power increase either be amended to include a proposal which would permit increasing the operating pressure as may be required for the requested higher power level or otherwise modify operating perimeters to be consistent with current limitations. In addition, you suggested as an alternative that Consumers Power Company may desire to amend our application to delete the power increase request. A response to your letter was requested by February 4, 1975.

It is important to note that the reason for operating the Palisades Plant below 1900 psia primary coolant system pressure is due to limitations associated with fuel densification while utilizing unpressurized fuel in the Palisades reactor. The plant was originally operated at 2100 psia and on December 18, 1972 Consumers Power Company proposed a change to the Technical Specifications to reduce the operating pressure to 1800 psia. The primary purpose of this change was to forestall the time until first predicted clad collapse. The proposed change involved altering the minimum full pressure trip setting for the thermal margin/low-pressure trip. It was analyzed based on the control rod withdrawal restrictions that were proposed at that time to be included in Figure 2-4 of the Technical Specifications. The analysis also assumed that the power level would not exceed 2200 MW_t for the period of time that significant amounts of unpressurized fuel were loaded in the core. These actions were taken to minimize the effects of the postulated fuel densification mechanism described in the AEC report entitled "Technical Report on Densification of Light Water Reactor Fuels," November 14, 1972. It was considered a temporary measure that would remain in effect until the unpressurized fuel was replaced by prepressurized fuel.

Our January 22, 1974 transmittal letter for Amendment 28 (which constitutes the request for increase and authorized core power level as well as the application for a full-term operating license) recognized the existing limitations with respect to fuel densification. It stated, "...information on fuel densification is not included because potential fuel design changes are being evaluated which, if implemented, would significantly change any presently submitted fuel densification analysis. The Technical Report on Densification of Light Water Reactor Fuels recognized the possibilities, stating 'These experiences suggest and the staff review confirms, that fuel densification is one of that class of engineering problems that can be accommodated by appropriate operating limits in the near-term and for which there is good expectation that reasonable design changes can eliminate the problem in the long-term'."

We presently have established a firm fuel design for the next two reactor reloads. We are confident that this reload design will ultimately enable the operating pressure to be increased to 2250 and the authorized power level to be increased to 2638 MW_t. Unfortunately, at this time we have not yet been able to analyze this fuel fully in accordance with the fuel densification criteria contained in the final acceptance criteria because of the near term deadlines and calculational requirements established by the NRC. We are attempting to schedule such an analysis at the present time.

On August 20, 1974 we first proposed that the 1800 psia operating pressure restrictions associated with fuel densification be incorporated in the steam generator operating limitations in the Technical Specifications. This was proposed because the plant was then restricted to the reduced operating pressure as long as a significant amount of the unpressurized fuel remained in the reactor, and therefore the plugging criteria developed and implemented by Consumers Power Company prior to the August 20, 1974 proposed change considered primarily operation at 1800 psia. Since that time, discussions with the regulatory staff have led us to conclude that the plugging criteria would be primarily determined by the LOCA conditions in the future. The stresses on a steam generator tube wall during a LOCA are not strongly dependent on either reactor power level or primary coolant system pressure. As you are aware, we are currently working to develop new detailed plugging criteria based on the LOCA considerations discussed with the regulatory staff in meetings on January 21 and January 29, 1975. We believe that these criteria will be independent of primary pressure and that the higher pressures required to obtain the requested increase in authorized power level will be achievable.

Accordingly, we have concluded that existing plant conditions, following loading of significant amounts of prepressurized fuel, will allow achievement of the requested increase in authorized core power level. We do recognize that the application for a full-term operating license including a proposed increase in core authorized power level

(Amendment 28) does require further amendment due to the events that have transpired since submittal. These events include the Final Acceptance Criteria, the finalizing of new fuel designs and changes in the steam generator tube plugging criteria. We are most eager to work with the regulatory staff to establish a schedule for such amendments.

Yours very truly,

Ralph B. Sewell
Nuclear Licensing Administrator

RBS/mel

CC: JGKeppler, USNRC