CONSUMERS POWER COMPANY
Docket 50-255
Request for Change to the Technical Specifications
License DPR-20

For the reasons hereinafter set forth, 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 bar marks in the margins indicate changes made to our January 29, 1993 letter which was the basis for Amendment 156.

I. Change

It is proposed that Table 3.23-2, Radial Peaking Factor Limits, be changed to add limits for those new fuel bundles to be installed during the 1993 refueling outage, and to delete reference to fuel bundles which are not to be used during fuel Cycle 11. The column with 208 fuel rods representing the "I" fuel assemblies has been removed from the table. The peaking factor limits have been identified for the "L" fuel assemblies and have been added to the table. In addition, Table 3.23-1 has been revised to remove the unnecessary reference to the number of fuel rods in an assembly, and the bases for several Specifications (2.1, 2.3, 3.1, 3.12, and 3.23.2) have been updated to reflect the revision of analytical reports for Cycle 11.

II. Discussion

The increased radial peaking factor limits for Cycle 11 will accommodate a low radial leakage reload pattern. The low leakage pattern is intended to reduce the neutron fluence on critical reactor pressure vessel welds.

The proposed change to Technical Specification Table 3.23-2 provides Assembly Radial Peaking Factor and Total Radial Peaking Factor limits for Cycle 11 (Reload 0 fuel assemblies). The results of each Standard Review Plan (SRP) Chapter 15 event have been dispositioned, accounting for the proposed peaking factors for Reload 0 and for the third core reload with high thermal performance (HTP) spacer fuel. The results of this dispositioning are presented in Attachment 3, EMF-92-178, Revision 1 which has been revised to account for the core reconfiguration in removing the "I" fuel assemblies and adding the "L" fuel assemblies. The minimum DNBR (MDNBR) and maximum linear heat rate (LHR) were calculated for those anticipated operational occurrences (AOOs) and postulated accidents that were determined to need reanalysis. Since the highest powered assemblies are centrally located, where the core will be composed solely of HTP spacer fuel, the previously considered 2% mixed core MDNBR penalty is no longer necessary as it had been for the previous two cycles. The effect of the Cycle 11 configuration on fuel failures and radiological consequences from postulated accidents was also assessed.

The SRP Chapter 15 AOO events which are not bounded by previous analyses are:

15.1.3 Increase in steam flow
15.3.1 Loss of forced reactor coolant flow
15.4.2 Uncontrolled control bank withdrawal at power
15.4.3 Dropped control rod
15.4.3 Dropped control bank
15.6.1 Inadvertent opening of pressure relief valve.

In general, MDNBR decreased and peak LHR increased for AOO events. The specified acceptable fuel design limits (SAFDLs) for AOOs are that: (1) the fuel shall not experience centerline melt, i.e., LHR to be less than 21 kW/ft, and (2) the DNBR shall have a minimum allowable limit such that there is a 95% probability with a 95% confidence interval that DNB has not occurred, i.e., DNBR to be greater than the ANFP correlation limit of 1.154. Although the calculated MDNBR decreased and peak LHR increased, the SAFDLs are not exceeded for any of the AOO events. The limiting AOO for DNB margin is the loss of forced reactor coolant flow event (SRP 15.3.1), which results in a calculated MDNBR of 1.235.

The SRP Chapter 15 postulated accidents which are not bounded by previous analyses are:

15.3.3 Reactor coolant pump rotor seizure
15.4.3 Single rod withdrawal
15.7.4 Fuel handling accident
15.7.5 Spent fuel cask drop accident.

MDNBR decreases and peak LHR increases for both the reactor coolant pump rotor seizure and single rod withdrawal events. The calculated MDNBR is 1.192 and the calculated LHR is 15.98 kW/ft for the reactor coolant pump seizure event. That for the single rod withdrawal event is 1.181 and 18.49 kW/ft, respectively. The MDNBR and peak LHR for both events meet the SAFDLs for AOOs and are therefore within acceptance criteria for a postulated accident.

The radiological consequences of a fuel handling accident and a spent fuel cask drop accident were analyzed (EA-A-NL-91-169-01 and EA-A-NL-91-169-02) to consider the effects of increased fuel burnup in recent fuel cycles and increased radial peaking in Cycle 11. The results of the fuel handling accident analysis predict a maximum thyroid dose of 41.2 rem and whole body dose of 0.1 rem. The results of the spent fuel cask drop accident analyses predict a maximum offsite thyroid dose of 38.3 rem and a whole body dose of 0.2 rem. These offsite doses are less than those predicted by the previous analysis of record due to the use of dose conversion factors from ICRP 30, which are consistent with the latest revision to 10 CFR 20. The effect of the ICRP 30 dose conversion factors more than offsets the small effect of increased fuel burnup and increased radial peaking. Therefore, the radiological consequences of fuel handling and cask drop accidents are well within the specified acceptance criteria.

III. Analysis of No Significant Hazards Consideration

Consumers Power Company finds the activities associated with this proposed Technical Specifications change involve no significant hazards and accordingly, a no significant hazards determination per 10 CFR 50.92(c) is justified. The following evaluation supports the finding that operation of the facility in accordance with the proposed change would not:

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

   The proposed change to the Technical Specifications increases the radial peaking factor limits for Cycle 11 (Reload O fuel assemblies). The radial peaking factor limits for 208 fuel rod assemblies is being removed and the limits for Reload L fuel assemblies are being reinserted. Sixteen (16) Reload L assemblies that have been reconstituted with fourteen stainless steel pins in corner positions are being used in the Cycle 11 core design. The reload L assemblies are replacing reload I hafnium assemblies that were part of the original Cycle 11 core design. This change is in core neutronics parameters due to changes in the fuel design and fuel management scheme. No changes to plant hardware (other than the new fuel and reconstituted Reload L fuel assemblies) are involved. There are no associated changes in plant systems operating procedures or in instrument trip settings. Operation of the facility in accordance with the proposed Technical Specifications would, therefore have no effect on the way the plant systems are operated, or the way these systems would respond to postulated events. Therefore operation of the facility in accordance with the proposed Technical Specifications would not result in a significant increase in the probability of an accident previously evaluated.

   The proposed change to the Technical Specifications increases the radial peaking factor limits for Cycle 11 (Reload O fuel assemblies). The increased radial peaking limits for Cycle 11 caused the predicted minimum DNBR to decrease and peak linear heat rate to increase for several anticipated operational occurrences. The MDNBR is predicted to remain above the ANFP correlation limit and the peak LHR is predicted to remain below the fuel centerline melt criteria for all AOO events. Therefore, the consequences of all AOO events are within the specified acceptable fuel design limits.

   Several postulated accidents were not bounded by the previous analyses. The effect of increased radial peaking limits on MDNBR and peak LHR was assessed for the reactor coolant pump rotor seizure and single rod withdrawal events. The MDNBR for the reactor coolant pump rotor seizure and single rod withdrawal events is predicted to remain above the ANFP correlation limit and the peak LHR is predicted to remain below the fuel centerline melt criteria.

   The effect of increased radial peaking limits on radiological consequences was assessed for the fuel handling and spent fuel cask drop accidents. The predicted radiological consequences for the fuel handling and spent fuel cask drop accidents are less than those predicted by the previous analyses of record. Though higher peaking factors are allowed, the use of dose conversion factors from ICRP 30, which are consistent with the latest revision to 10 CFR 20, results in lower predicted consequences.

Therefore the consequences of all events remain less than the acceptance criteria and operation of the facility in accordance with the proposed Technical Specifications would not result in a significant increase in the consequences of an accident previously evaluated.

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

The proposed change to Technical Specification Table 3.23-2 increases the assembly and total radial peaking factor limits for Cycle 11 (Reload O fuel assemblies). The radial peaking factor limits for 208 fuel rod assemblies is being removed and the limits for Reload L fuel assemblies are being reinserted. Sixteen (16) Reload L assemblies that have been reconstituted with fourteen stainless steel pins in corner positions are being used in the Cycle 11 core design. This change is in core neutronics parameters due to changes in the fuel design and fuel management scheme. No changes to plant hardware (other than the new fuel and reconstituted Reload L assemblies) are involved. There are no associated changes in plant systems operating procedures or in instrument alarm or trip settings. Therefore operation of the facility in accordance with the proposed Technical Specifications would not create the possibility of a new or different kind of accident from any previously evaluated.

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

The proposed change to the Technical Specifications increases the radial peaking factor limits for Cycle 11 (Reload O fuel assemblies). The radial peaking factor limits for 208 fuel rod assemblies is being removed and the limits for Reload L fuel assemblies are being reinserted. Sixteen (16) Reload L assemblies that have been reconstituted with fourteen stainless steel pins in corner positions are being used in the Cycle 11 core design. The increased radial peaking limits for Cycle 11 caused the predicted minimum DNBR to decrease and peak linear heat rate to increase for several anticipated operational occurrences. The MDNBR is predicted to remain above the ANFP correlation limit and the peak LHR is predicted to remain below the fuel centerline melt criteria for all AOO events. Therefore, the consequences of all AOO events are within the specified acceptable fuel design limits.

Several postulated accidents were not bounded by the previous analyses. The effect of increased radial peaking limits on MDNBR and peak LHR was assessed for the reactor coolant pump rotor seizure and single rod withdrawal events. The MDNBR for the reactor coolant pump rotor seizure and single rod withdrawal events is predicted to remain above the ANFP correlation limit and the peak LHR is predicted to remain below the fuel centerline melt criteria.

The effect of increased radial peaking limits on radiological consequences was assessed for the fuel handling and spent fuel cask drop accidents. The predicted radiological consequences for the fuel handling and spent fuel cask drop accidents are less than those

predicted by the previous analyses of record. Though higher peaking factors are allowed, the use of dose conversion factors from ICRP 30, which are consistent with the latest revision to 10 CFR 20, results in lower predicted consequences.

Therefore, operation of the facility in accordance with 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. This change has been reviewed by the Nuclear Performance Assessment Department. A copy of this Technical Specifications Change Request has been sent to the State of Michigan official designated to receive such Amendments to the Operating License.

CONSUMERS POWER COMPANY

To the best of my knowledge, information and belief, the contents of this Technical Specifications Change Request are truthful and complete.

By _____
David P Hoffman, Vice President
Nuclear Operations

Sworn and subscribed to before me this 3rd day of September 1993.

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LeAnn Morse, Notary Public
Berrien County, Michigan
Acting in Van Buren County, Michigan
My commission expires February 4, 1997