

CONSUMERS POWER COMPANY
Docket 50-155
Request for Change to the Technical Specifications
License DPR-6

For the reasons hereinafter set forth, it is requested that the Technical Specifications contained in the Facility Operating License DPR-6, Docket 50-155, issued to Consumers Power Company on May 1, 1964, for the Big Rock Point Plant be changed as described in Section I below:

I. Changes

A. Section 5.2.1(b) - Table 1

1. Change the last two column headings on Table 1 of Section 5.2.1(b) to read:

	Reload
"Reload	G3/G4/H1/
<u>GIU</u>	<u>H2/H3/H4"</u>

2. Add new column heading six (with data under new column heading) to Table 1 of Section 5.2.1(b):

"Reload
<u>II</u>
1.61
-
392,900
322,100
Table 2
Figure 2
20
240
46
1,335
6 x 10 ⁶ "

B. Section 5.2.1(b) - Table 2

1. Change the 5th, 6th, 7th, 8th (of 9) column headings on Table 2 of Section 5.2.1(b) to read respectively:

	Reload		Reload	Reload
"Reload	G3/G4		Reload	Reload
<u>GIU</u>	<u>H1</u>		<u>H2</u>	<u>H3/H4"</u>

8510010329 850924
PDR ADDCK 05000155
P PDR

TSOB0885-0258-NL04

2. Add new column heading ten (with data under new column heading) to Table 2 of Section 5.2.1(b):

"Reload
11

6.92

7.28

-

7.65

-

-

7.95

-

-

7.89

-

-

8.00

-

-

7.89

-

-

7.76

-

-

7.19

-

-

6.97

-

-

6.81

-

-

6.73

-

-

-

-

-"

II. Discussion

The above proposed Technical Specification changes are requested to implement reactor operating limits for Reload 11 fuel. These reactor operating limits for Reload 11 are based on the Loss of Coolant Accident (LOCA) Analysis required by 10 CFR 50.46. The Maximum Average Planar Linear Heat Generation Rate (MAPLHGR) limits for Reload 11 are based on the LOCA Analysis submitted by Consumers Power Company letter dated March 7, 1979 (Exxon Nuclear Company (ENC) Report XN-NF-78-53). The

MAPLHGR limits were derived in a manner identical to that described in ENC Report XN-NF-79-21, Revision 1, "Big Rock Point LOCA Analysis using the Exxon Nuclear Company WREM NJP-BWR ECCS Evaluation Model - MAPLHGR Analysis" which was submitted by Consumers Power Company letter dated February 25, 1980. On the basis of these two submittals the NRC staff previously issued Amendment No 44 to the Big Rock Point Operating License which revised MAPLHGR limits for all G3/G4 fuel supplied by ENC to that point in time. By letter dated December 15, 1981, Consumers Power Company requested a change to the Big Rock Point Technical Specifications regarding Exxon Reload H2 fuel MAPLHGR limits. On the basis of this submittal (December 15, 1981) the NRC staff issued Amendment No 53 to the Big Rock Point Operating License which revised MAPLHGR limits for Exxon Reload H2. In a similar manner, on the basis of a letter dated April 20, 1983 submitted to the NRC staff requesting an Exxon Reload H3 fuel MAPLHGR limits Technical Specifications updating, the NRC staff issued Amendment No 59. Finally, Amendment 61 was issued for Exxon reload H4 fuel MAPLHGR limits based on a letter submitted by Consumers Power Company dated September 7, 1983 to update the Technical Specifications.

Reload 11 is identical to the previous G3/G4 reloads in all respects, except as described below.

1. In Reload 11, the fuel has a smaller pellet-to-clad gap than previous fuels.
2. In Reload 11, the fuel has a higher helium prepressurization than previous fuels.

The changes in fuel design have been made to provide an improved heat transfer medium in the fuel rod, which results in lower stored energy which accounts for the higher MAPLHGRs (1-6%). At higher burnups (27 GWD/STM), the higher prepressurization of the 11 fuel design results in the tendency for rods to balloon and rupture which in turn, dictates lower allowed MAPLHGRs.

Consumers Power Company letter dated August 9, 1983 provided RETRAN Sensitivity Analyses for variations in several parameters including the gap conductivity. The following reiterates the material submitted to demonstrate the sensitivity of MCPR to the fuel heat transfer model.

Fuel Heat Transfer Model - The gap conductivity was varied to show sensitivity of MCPR to changes in the heat transfer parameters for the fuel. In the RETRAN model (RETRAN-01 version as approved by NRC Safety Evaluation dated May 18, 1984), the base case gap conductivities are listed in Table I ("Gap Conductivities"). These conductivities were selected so the fuel temperatures and stored energies at different power levels matched those calculated in XN-76-21, "Design Report for Big Rock Point Reactor Reload G-3 Fuel, Addendum 4", August 1976. The fuel temperature in XN-76-21 was calculated by the GAPEX computer code. The results of the sensitivity runs are shown below. As can be seen, for even large changes in gap conductivity, MCPR changes very little.

Table I - Gap Conductivities

	<u>Base Case</u>	<u>+25%</u>	<u>+300%</u>
Initial CPR	1.591	1.591	1.591
MCPR	1.320	1.308	1.298
MCPR change from base case	N/A	-0.012	-0.022
$\frac{\text{MCPR} - \text{MCPR}_{(\text{Base})}}{\text{MCPR}_{(\text{Base})}} \times 100\%$	N/A	-0.9%	-1.7%

A review has also been made of the gap conductance calculated by the Exxon GAPEX model for I1 fuel relative to the G3 through H4 fuel. This review indicates an approximate 30% gap conductance increase at beginning of life and 50% increase at end of life. The above sensitivity study would indicate a change in MCPR of -.02 would conservatively account for the increased gap conductance in the I1 fuel. Based on this, the technical specification is modified to show a MCPR limit for I1 fuel under steady state conditions of 1.61. This steady state value of 1.61 will assure the MCPR of 1.32 will be preserved during the limiting transient which is a turbine trip without bypass.

The changes to Table 1 and Table 2 column headings are editorial to allow space for the additional column for reload I1 fuel.

III. Analysis of No Significant Hazards Consideration

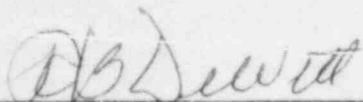
This proposed Technical Specification Change Request reflects changes resulting from reactor core reloading. The reload does not contain any fuel assemblies significantly different from those previously found acceptable by the NRC. The change does not involve a significant increase in the probability or consequences of an accident previously evaluated because the limits are derived in a manner identical to that described in Exxon Nuclear Corporation (ENC) report XN-NF-79-21, revision 1, Big Rock Point LOCA Analysis using the ENC WREM NJP-BWR ECCS Evaluation Model - MAPLHGR Analysis. This report has previously been reviewed and accepted by the NRC and has been used as a basis for issuing previous reload amendments. The change does not create the possibility of a new or different kind of accident from any previously evaluated because the XN-NF-79-21 report covers the required spectrum of break locations, sizes and configurations for the Big Rock Point Plant. The change does not involve a significant reduction in the margin of safety because, as stated in the XN-NF-79-21 report, reactor operation within the proposed limits assures conformance with 10CFR50.46 criteria for maximum cladding temperature, metal-water reaction and hydrogen release. Consequently, this proposed change does not involve a significant hazards consideration.

IV. Conclusion

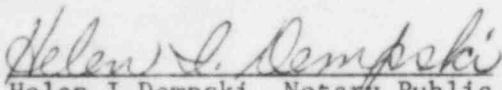
The Big Rock Point Plant Review Committee has reviewed this Technical Specification Change Request and has determined that this change does not involve an unreviewed safety question and therefore involves no significant hazards consideration. This change has also been reviewed under the cognizance of the Nuclear Safety Board. A copy of this Technical Specification Change Request has been sent to the State of Michigan official designated to receive such Amendments to the Operating License.

CONSUMERS POWER COMPANY

By


R B DeWitt, Vice President
Nuclear Operations

Sworn and subscribed to before me this 24th day of September 1985.



Helen I Dempski, Notary Public

Jackson County, Michigan

My commission expires October 12, 1987.