



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D. C. 20555

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION  
SUPPORTING AMENDMENT NO. 59 TO FACILITY OPERATING LICENSE NO. DPR-6

CONSUMERS POWER COMPANY

BIG ROCK POINT PLANT

DOCKET NO. 50-155

1.0 INTRODUCTION

By letter dated April 20, 1983, as revised by letter dated April 22, 1983, Consumers Power Company requested a change to the Big Rock Point Technical Specifications. The change would incorporate Maximum Average Planar Linear Heat Generation Rate (MAPLHGR) limits for Reload H-3 fuel supplied by Exxon Nuclear Company (ENC)(Exxon).

2.0 BACKGROUND AND EVALUATION

Previous safety evaluations described a reduction in the MAPLHGR limits for General Electric Fuel for burnups beyond 30,000 MWd/t to account for the effects of enhanced fission gas release. This limitation was imposed as part of the staff's approval of License Amendment No. 44 dated June 9, 1981, for General Electric Type F and Modified Type F fuel. Since none of the GE fuel will reside in the core (i.e., the core now contains only ENC fuel which is covered by ENC analyses), this reduction in the MAPLHGR limits is no longer applicable.

The proposed Technical Specification change is based on the loss-of-coolant accident (LOCA) analysis required by 10 CFR 50.46. In support of this change, the licensee referenced two Exxon reports XN-NF-78-53 and XN-NF-79-21, Revision 1, which describe the LOCA analysis methods presently used for Exxon fuel reloads at Big Rock Point. On the basis of these two reports, the staff previously issued License Amendment No. 53 dated April 8, 1982 to the Big Rock Point operating license. That amendment approved revisions to the MAPLHGR limits for all fuel supplied by Exxon, including the Exxon Reload H-2 fuel.

The present Reload H-3 fuel is identical to the earlier Reload H-2 fuel in all respects, except as described below:

1. In Reload H-3 fuel, the gadolinia rods are moved closer to the periphery of the fuel bundles, and
2. The gadolinia content of the gadolinia bearing fuel rods is higher (2.0 w/o Gd<sub>2</sub>O<sub>3</sub>) for H-3 as compared to H-2 (1.5 w/o Gd<sub>2</sub>O<sub>3</sub>).

The staff regards these changes as relatively minor. These two minor differences cause a slight increase in local peaking factors, which result in higher peak cladding temperatures (PCT) for the H-3 reload in comparison to the H-2 reload at low burnups. The H-3 MAPLHGRs are, therefore, reduced at lower exposures to assure PCTs less than 2200°F. At medium and high burnups, the MAPLHGR values for Reload H-3 fuel are identical to those for the Reload H-2 fuel. Since the methods used by the licensee to analyze the behavior of the core remain valid for the Reload H-3 fuel and since PCTs remain below 2200°F, the staff concludes that the MAPLHGR limits for Reload H-3 fuel are acceptable.

Based on its review of the licensee's proposed Technical Specification change for Reload H-3 fuel, the staff concludes that the proposed MAPLHGR limits for reload H-3 fuel acceptable.

### 3.0 ENVIRONMENTAL CONSIDERATION

The staff has determined that the amendment does not authorize a change in effluent types or total amounts nor an increase in power level and will not result in any significant environmental impact. Having made this determination, the staff has further concluded that the amendment involves an action which is insignificant from the standpoint of environmental impact and pursuant to 10 CFR §51.5(d)(4) that an environmental impact statement or negative declaration and environmental impact appraisal need not be prepared in connection with the issuance of this amendment.

### 4.0 CONCLUSION

The staff has concluded, based on the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, and (2) such activities will be conducted in compliance with the Commission's regulations and the issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public.

### 5.0 ACKNOWLEDGEMENT

This Safety Evaluation was prepared by S. L. Wu.

Dated: August 11, 1983

## REFERENCES

1. XN-NF-78-53, "Big Rock Point LOCA Analysis Using the ENC NJP-BWR ECCS Evaluation Model," Exxon Nuclear Company Report dated December 1978.
2. XN-NF-79-21, Revision 1, "Big Rock Point LOCA Analysis Using the ENC WREM NJP-BWR ECCS Evaluation Model - MAPLHGR Analysis," Exxon Nuclear Company Report dated April 1979.
3. D. M. Crutchfield (NRC) letter to D. P. Hoffman (Consumers Power) with Amendment No. 44 to Facility Operating License No. DPR-6, Big Rock Point Plant, Docket No. 50-155, dated June 9, 1981.
4. D. M. Crutchfield (NRC) letter to D. P. Hoffman (Consumers Power) with Amendment No. 53 to Facility Operating License No. DPR-6, Big Rock Point Plant, Docket No. 50-155, dated April 8, 1982.
5. T. C. Bordine (Consumers Power) letter to D. M. Crutchfield (NRC) dated April 20, 1983.
6. T. C. Bordine (Consumers Power) letter to D. M. Crutchfield (NRC) dated April 22, 1983.