Consumers Power
POWERING MICHIGAN'S PROGRESS
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Nuclear Regulatory Commission
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DOCKET 50-255 - LICENSE DPR-20 - PALISADES PLANT -
COMPLIANCE WITH PRESSURIZED THERMAL SHOCK REGULATION 10CFR50.61 AND REGULATORY GUIDE 1.99 REVISION 2 (TAC NO. 59970)

Consumers Power Company (CPC) submittal on April 3, 1989 provided a revised report on reactor vessel fluence for Cycles 1 - 8. Attached is the vessel fluence reduction report describing the effect of incorporating low-leakage fuel management for the Cycle 9 core loading pattern. In this proposed Cycle 9 design, 16 thrice-burned fuel assemblies with zircaloy-clad hafnium absorber rods will be used at the selected core peripheral locations to protect the vessel axial welds from neutron fast flux E>1.0 MeV. Remaining core peripheral locations will be loaded with twice-burned fuel assemblies. All once-burned and fresh fuel assemblies will be inside the core away from the peripheral locations.

This report reflects results based upon the development of in-house methodology utilizing the DOT 4.3 discrete ordinates transport code and Reactor Engineering Analyses performed during the period of 1987-1990. It concludes that the PTS screening criteria will be exceeded at the axial welds in September, 2001, as opposed to the previously reported exceed date of March, 2002. The difference reflects an improvement in vessel flux reduction in Cycle 9 relative to Cycle 8 and slightly higher vessel flux levels calculated by the refined in-house transport methodology relative to the Westinghouse methodology previously utilized. Thus, the previously

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derived conclusion that the flux reductions achieved in the Cycle 8 and 9 core loading patterns are, by themselves, insufficient to allow plant operation to the current expected end of life in 2011 remains valid. Further measures, eg, greater flux reduction, Regulatory Guide 1.154 analysis, vessel shielding etc, are necessary to allow plant operation to the nominal end of plant life and beyond.

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